Caught between theft and rapidly rising prices: Smallholder vanilla farmers transitioning into contract farming schemes of certified exporters in Northeastern Madagascar during the vanilla market boom of 2016-2018

Ph.D. Dissertation

Submitted by Lloyd Johannes Blum
Graduate School of Forest and Agricultural Sciences
Georg-August-University
Göttingen

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I dedicate this book to my father, who has always taken a keen interest in sustainable food production but who never knew whether related concepts would actually work out for smallholder farmers.

"The best teachers are those who show you where to look but don't tell you what to see."
Alexandra Trenfor

"Train Ph.D. students to be thinkers, not just specialists."
Gundula Bosch

"Mampiasa Coco"
Our Malagasy Field Assistants
Abstract
This Ph.D. Dissertation explores smallholder preferences for contract farming options in the trade of vanilla from Madagascar. It seeks to identify possibilities to increase the mutual benefit of contract farming for both smallholders and buyers of vanilla in the context of the remarkable price volatility that characterizes the vanilla market.

The SAVA Region in Northeastern Madagascar is the most important origin of vanilla globally. It is inhabited by an estimated 80,000 vanilla farmers who produce roughly 10,000 tons of unprocessed (green) vanilla each year. Ignoring fluctuations in supply, this production results in around 2,000 tons of annual exports of processed (black) vanilla. The SAVA Region thus contributes at least 40% of annual global vanilla production, next to supplying the world with the most popular of all vanilla varieties known as "Bourbon Vanilla" (V. planifolia). Vanilla production in the SAVA Region is achieved almost exclusively through family farming. Smallholders typically cultivate areas of less than one hectare per household. Plantation production of vanilla is rather uncommon, by contrast. Contract farming (CF) of vanilla, however, has gained traction among international traders since the mid-1990s when the vanilla market was liberalized; CF has picked up over the last 15 years in particular. Contractual buyers are mostly export companies or professional vanilla processors (so-called "preparators" of vanilla) who transform fresh (green) vanilla into dried (black) vanilla before trading it on the international market. This piece of research found that today, nearly 20% of smallholder households produce vanilla under contract in the SAVA Region. Quantitative studies which explore the perceived costs and benefits of CF from the smallholder perspective are still lacking for the vanilla business, however. The knowledge gap is to be closed by this book.

Vanilla is subject to remarkable price volatility. Price fluctuations result from the interplay of global demand and supply. Supply shortages in crucial producer countries, natural disasters, and speculative trade all influence fluctuations in the price of vanilla. Speculative trade is a phenomenon that characterizes spot market transactions in Madagascar whenever vanilla prices are on the rise. Increasing prices tend to result in an influx of informal traders in Northeastern Madagascar as well as in a concurrent uptick in the incidents of vanilla theft. As a result of vanilla theft, smallholders, in turn, harvest their crops prematurely, causing problems of declining vanilla quality whenever prices boom. In this context of market boom, it proves difficult for international buyers to access good quality (ripe) vanilla from Madagascar. Traders extend CF offers to vanilla farmers to incentivize quality production. Besides product quality considerations, vanilla exporters and preparators also pursue certified CF schemes to implement
private voluntary sustainability standards (such as Organic, Fair Trade, and/or Rainforest Alliance) that are in high demand by international clients. Respecting such process standards allows exporters and preparators to differentiate into higher-value niche markets. However, the extent to which smallholders benefit from certified CF is a topic of intense debate. The production of quality (ripe) crops and the transition toward more sustainable processes of production (i.e., pesticide- and contaminant-free, child-labor-free, and rainforest-conserving, etc.) not only brings benefits but can also imply major economic costs to smallholders. The production of mature vanilla, for example, is not self-evident against the backdrop of intensifying vanilla theft and associated violence, as these phenomena pose risks in terms of harvest failure and personal safety. Likewise, production restrictions associated with certified crops can be perceived as limiting the entrepreneurial freedom of farmers.

Exploring smallholder preferences for CF is regarded as highly relevant since research on the topic can potentially improve the design of CF offers and resolve smallholder acceptance issues. Economic experiments provide a means to quantify the perceived costs and benefits of CF from the smallholder perspective. This study is based on a Choice Experiment (CE) that was embedded in a mixed methods approach. The mixed methods that were deployed included exploratory participatory research, a representative cross-sectional survey characterizing vanilla farming households and their marketing strategies at the level of the SAVA Region (comprising N=1,291 HHs from 60 villages). It also included the CE which captured smallholder preferences for CF options (comprising N=604 HHs from 14 villages), as well as pre- and post-experimental qualitative interviews with contract farmers, vanilla traders, and development workers to validate the findings elicited by the CE. The two quantitative household surveys (i.e., the baseline study with N=1,291 randomly selected HHs, and the CE with N=604 randomly selected stratified HHs) allowed us to validate stated preferences for CF options (i.e., the stated preferences elicited by smallholders during the choice experiment) with reported marketing behaviors of the farmers (i.e., revealed preferences reported from market interactions in the real world), thereby reducing the possibility of hypothetical bias of presented results. Reported marketing behaviors underlined the logic of action of smallholder vanilla farmers in their day-to-day realities. The smallholder logic expressed by the CE results was remarkably consistent with behavioral choices that farmers reported based on their real-life market actions. Moreover, the inclusion of qualitative interviews as part of the mixed methods research approach enables us to understand the quantitative data in light of typical challenges faced by farmers and buyers who implement CF schemes.
The academic literature on CF highlights a high degree of context specificity regarding smallholder preferences for CF options (i.e., for different CF models, for certified vs. non-certified contracts, for specific sustainability standards pursued by the buyers, etc.). Contractual preference patterns also tend to vary between different groups of farmers (e.g., between male vs. female farmers, young vs. old farmers, etc.). What is more, preference heterogeneity may also exist within specific groups of farmers, too (e.g., among male or female farmers, etc.). In this book, we highlight smallholder preferences for certified CF options and specifically differentiate between Organic vs. Fair Trade vs. Organic & Fair Trade vs. Rainforest Alliance certified contracts vs. simple market specification contracts. The study also focuses on the heterogeneous preference patterns exhibited by contracted vs. non-contracted and by male vs. female farmers. Studying preference heterogeneity enables us to identify the groups of farmers who represent the biggest obstacles to a successful implementation of each type of studied contract as well as to understand related smallholder acceptance issues.

At the time of our research (2016-2018), CF of vanilla in Northeastern Madagascar was largely characterized by loose, non-written, and unstable contractual arrangements between vanilla buyers and their signatory farmers. The price boom had evoked opportunistic and speculative side-selling behavior among vanilla farmers and among (informal) traders. Moreover, there was the incapacity of many farmers to supply acceptable vanilla qualities to their contractual buyers. Both circumstances typically led to the rapid termination of contractual relationships. (Market specification contracts lasted on average for 2.18 years only). Stated economic preferences, however, suggested that most vanilla farmers perceived CF offers in a positive light. Prices paid for unprocessed (green) vanilla through CF schemes were significantly better (on average 27% higher) than prices paid on local spot markets. Nonetheless, considerable preference heterogeneity existed between different groups of farmers regarding their willingness to pay for offered CF benefits. Male vanilla farmers, for example, showed almost twice the willingness to pay (WTP male = 13,000 MGA per kg of green vanilla sold) than female farmers (WTP female = 7,000 MGA per kg of green vanilla sold) for meeting the requirements of a Rainforest Alliance certified contract. Rainforest Alliance certification affected approximately 37% (n=44/119) of all contracted vanilla farming HHs (n=119/604) in our sample (N=604) in 2018.

Next, we also found that contracted farmers possessed, on average, significantly more productive resources than non-contracted farmers. In terms of preference heterogeneity, contracted vanilla farmers showed more than ten times the willingness to pay (WTP contracted = 34,000 MGA per kg of green vanilla sold) for the Rainforest Alliance CF option than the resource-poorer non-contracted farmers (WTP non-contracted = 3,000 MGA per kg green
vanilla sold). Cross-checking for reported marketing behaviors of the latter two groups indicated that the production of quality vanilla was not equally feasible for these two groups of farmers. The resource-poorer (*non-contracted*) farmers generally sold lower quantities of vanilla and also reported more considerable challenges in producing vanilla of acceptable quality. Yet, the resource-poorer (*non-contracted*) farmers typically pursued both the sale of unprocessed (green) and processed (black) vanilla for a substantial proportion of their total harvest during the price boom. Most CF schemes, however, limited signatory farmers to selling unprocessed (green) vanilla during the price boom in the SAVA Region. Indeed, less than 1% of *contracted* farmers (n=1/119) were able to sell processed (black) vanilla to their contractual buyers in 2018. Consequently, defaulting on contractual supply commitments was frequently observed among the resource-poorer (*non-contracted*) farmers who newly entered into CF schemes, according to our data. This finding was qualitatively validated by the observations of interviewed exporters.

Moreover, a high contractual default was observed during the studied price boom years of 2016-2018. Contractual default causes large fluctuations of farmers in contracted producer groups. Organizational costs associated with re-mobilizing and re-training new signatory farmers to meet contractual and certified production requirements were considered very high by interviewed vanilla traders. Thus, many traders hesitated to invest in CF to formalize their commitments toward smallholder vanilla farmers in the years of booming prices. The intermediary model of CF (in which buyer-assembled producer groups are serviced by collectors who maintain buyer-to-farmer relations) was the most common form of vertical coordination (representing n = 6/9 CF schemes) captured by our CE among the (n=119) *contracted* vanilla farmers.

Improving CF arrangements to include more benefits for farmers can theoretically increase the acceptance of CF in the eyes of signatory smallholders. Likewise, improving the contractual design can theoretically give traders a competitive advantage by (a) attracting more suppliers or (b) incentivizing more exclusive supply commitments. This study demonstrates that both *multiple certifications* and the use of *strategic corporate social responsibility* (strategic CSR) are two options available to vanilla buyers to increase the perceived benefits of CF offers in the perception of smallholder producers. Our results suggest that buyers can avoid paying higher vanilla prices by pursuing either of these two contractual innovations. Moreover, *public-private partnerships* between international development organizations and private vanilla companies
can help contractual vanilla buyers to manage some of the logistical challenges and costs involved in implementing CF offers.

In conclusion, this book suggests that improving contractual design is valid as a concept and advisable in practice. Yet, contractual design alone constitutes just one of several important success factors that need to be considered for a successful implementation of CF. Moreover, preference heterogeneity among smallholder farmers for CF options makes targeting committed households difficult for contractual buyers. In practice, an *ex-ante* screening of smallholder households for specific socio-economic characteristics is costly and challenging for any agribusiness trader before setting up a CF scheme. Thus, the deliberate targeting of smallholders with group-specific CF offers – which, in theory, could facilitate farmer self-selection and reduce the need for costly production controls – is rarely practiced by contractual buyers. Instead, standardized (one-size-fits-all-type) CF offers are typically made by contractual vanilla buyers in their day-to-day operations. Smallholder selection and retention thus happen by following a reactive, performance-based identification process that establishes whether the contracted farmers deliver upon agreed product qualities in adequate quantities year by year. This selection process implies the need for regular production controls and requires buyers to tolerate many dropouts among the signatory farmers. Traders typically require several years to identify smallholders who reliably supply vanilla under contract. The adaptive management protocol that traders practice to select and retain *contracted* farmers is, however, also suited to improve contractual design. An essential recommendation of this study thus suggests that the systematic testing of our data-driven preference patterns revealed for existing CF options in the SAVA Region could be worthwhile in the attempt to raise CF popularity and smallholder supply commitments. Improvements in smallholder acceptance levels would need to be monitored and evaluated by following an adaptive management logic. Due to significant preference heterogeneities for CF features, which exist between as well as among the analyzed groups of smallholders, it is to be expected that contractual buyers would need several attempts (i.e., several years), sufficient financial resources, and patience to improve their CF offers. As the price boom context in Madagascar is typically characterized by intense buyer competition and high contractual default rates, this study advises smaller traders (e.g., exporters and preparators trading less than 50 tons of cured vanilla per year - who typically lack the financial resources to make risky investments) to wait until the vanilla price boom ends before venturing into CF.
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## Glossary

### Abbreviations

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<tr>
<td>CE</td>
<td>choice experiment</td>
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<td>CF / CFA</td>
<td>contract farming / contract farming arrangement</td>
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<td>CROF</td>
<td>Comité Régional d’Observation de Floraison (government body setting dates for the official vanilla market)</td>
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<td>CSR</td>
<td>corporate social responsibility</td>
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<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<td>FDI</td>
<td>foreign direct investment</td>
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<td>GEVM</td>
<td>Groupe des Exportateurs de Vanille de Madagascar (political lobby of major vanilla exporters in Madagascar)</td>
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<td>ILO</td>
<td>International Labor Organization</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<tr>
<td>MSD</td>
<td>multi stakeholder dialogue (industry specific roundtable)</td>
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<td>MSP</td>
<td>multi stakeholder partnership (development partnership)</td>
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<td>NGO</td>
<td>non-governmental organization</td>
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<td>PO</td>
<td>producer organization</td>
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<tr>
<td>PRCP</td>
<td>Plateforme Régionale de Concertation et de Pilotage de la filière Vanille (inter-agency vanilla platform in Madagascar)</td>
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<tr>
<td>PVS / PVSS</td>
<td>private voluntary (sustainability) standard</td>
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<td>SSA</td>
<td>Sub-Saharan Africa</td>
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<td>SVI</td>
<td>Sustainable Vanilla Initiative (global roundtable for vanilla)</td>
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<td>WP</td>
<td>work package of Diversity Turn in Land Use Science project</td>
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### Technical terms

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<th>Term</th>
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<tr>
<td>Fusarium</td>
<td>a fungus disease that affects vanilla and reduces crop yield</td>
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<tr>
<td>Monopsony</td>
<td>a market situation in which there is only one buyer</td>
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<tr>
<td>Official Market</td>
<td>a date set by the government after which vanilla is allowed to be sold and before which the harvest and sale of vanilla is illegal</td>
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<tr>
<td>Over Pollination</td>
<td>the practice of pollinating too many flowers per liana resulting in shorter vanilla beans and lower vanillin content per bean</td>
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<tr>
<td>Vertical Integration</td>
<td>a deliberate shortening of the supply and value chain shifting the ownership of commodity trading and / or processing</td>
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Acknowledgments

I want to thank Prof. Dr. Jan Barkmann at the University of Applied Sciences in Darmstadt, Prof. Dr. Rainer Marggraf at University of Göttingen, Prof. Dr. Eva Meemken at Copenhagen University, Prof. Dr. Jutta Roosen at Technical University of Munich as well as Prof. Dr. Kenneth Train at Berkley University who gave me invaluable support regarding the choice experiment, steering my attention towards relevant improvements in design and evaluation. Prof. Dr. Achim Spiller at University of Göttingen and Prof. Dr. Theo Rauch at the Centre for Development Studies at Freie Universität Berlin shall be thanked for their valuable advice and feedback as co-supervisors in this Ph.D. journey.

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in Ambohimanarina, Antalaha) for explaining to us some of the effects of vertically integrated vanilla trade and sustainability certifications on intermediary traders and smallholder farmers.

In terms of industry representation, I would like to utter my special gratitude to Jan Gilhuis (idh) and Mahafahatra Vonintsoa (idh) of the "Sustainable Vanilla Initiative" for their support in making expert interviews with certified transnational vanilla traders possible. Here, I need to thank Romain Albert (Director of PromaBio, Antalaha), Mathieu Lougarre (Director of AgriResources, Antalaha), Eric Sinikely (Director of Exotique, Sambava), Georges Randriamiharisoa (Director of Soarary, Antalaha), Tombo Tam Hun Man (Director of Société Vanamad, Andapa), Fiaferana Hary Mamy Razakarivony (Director of Ramanandraibe Exportation, Antalaha) and Hobisoa Raharimboahangy (Symrise) for sharing their valuable time and openly sharing their experiences about their own contract farming schemes in the SAVA Region.

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Finally, I also want to thank the co-authors of four publication projects which are included as results-based chapters in this Dissertation. These authors are mentioned with their respective contributions in credit author statements attached to the chapters. I also want to thank Volkswagen Foundation for their generous financial support. Without them, this piece of research would not have been realized.
Thesis Committee

Prof. Dr. Jan Barkmann (Risk and Sustainability Research)
(1) Department of Social Sciences, University of Applied Sciences Darmstadt, Germany;
(2) Department of Agricultural Economics and Rural Development, Faculty of Agricultural Sciences, Georg-August-University Göttingen, Germany

Prof. Dr. Achim Spiller (Marketing of Food and Agricultural Products)
Department of Agricultural Economics and Rural Development, Georg-August-University Göttingen, Germany

Prof. Dr. Theo Rauch (Economic and Social Geography)
Centre for Developing Countries Research, Institute of Geography, FU Berlin, Germany

Field Assistants from the SAVA Region in Madagascar

Eric Clarin Valvin - Logistical Field Coordinator
Hery Rasabotsy - Artist for Design of Choice Cards
Elvire Randriamihanta - Transcriber of Audio Interviews
Adele Raharinjarasoa - Enumerator
Leslie Evann Poty - Enumerator
Wille Marielle - Enumerator
Sindric Bemily - Enumerator
Herisoa Soahita - Enumerator
Turbiro Damalahy - Enumerator
Christian Angelo Fenotombo - Enumerator
Gregoire Angelot Razafindrakoto - Enumerator
Gatien Rasolofonirina - Programmer
Research Project "Diversity Turn in Land Use Science"

This Ph.D. Dissertation was carried out as part of a larger research project called "Diversity Turn in Land Use Science: The importance of social diversity for sustainable land use innovations using the example of vanilla farming in Madagascar" which was based at the University of Göttingen in Germany. Funded by Volkswagen Foundation, the project ran from mid-2016 to the end of 2020 (DTLUS 2020a). It involved nine work packages (WPs) from five different departments (DTLUS 2020b):

1. Department of Sociology
2. Department of Agricultural Economics and Rural Development
3. Department of Forestry Sciences / Centre of Biodiversity
4. Department of Educational Sciences
5. Department of Animal Husbandry and Livestock Sciences

Diversity Turn in Land Use Sciences involved national academic research partnerships with the University of Kassel / Witzenhausen and University of Applied Sciences Darmstadt as well as international research collaborations with Lancaster University in England and Indiana University in the USA. Moreover, there were strategic partnerships with the University of Antananarivo and with the Centre Universitaire Régional de la SAVA (CURSA) in Madagascar (DTLUS 2020c).

In the broadest sense, the research project studied the effects of the recent vanilla price boom on both smallholder producers and the natural environment. The project originated against the backdrop that Madagascar represents the most important origin of vanilla worldwide (GIZ 2014). Madagascar also makes up one of 36 global "Biodiversity Hotspots" (Hrdina and Romportl 2017), which are terrestrial areas of international importance for nature conservation that harbor high levels of species richness and endemcity and which have already lost more than 70% of their original forest cover (Myers et al., 2000). Vanilla is Madagascar's most important crop in terms of agricultural export earnings (ITC 2019). The industry has recently seen structural changes driven by the urge of international agribusiness companies to vertically integrate their global supply chains (Barkmann et al., 2015; Bührmann and Marggraf 2016; Food Ingredients 2016). As Madagascar remains one of the poorest countries in the world, it has been dependent on foreign aid for many decades (Waebet al., 2016). The circumstance legitimized development partnerships (Aidforum 2017), in this case, between international development cooperation and international agribusiness companies to lift smallholders out of poverty (USAID 2020; BMZ 2020). Among other, the recent changes to the vanilla supply
chain from Madagascar also involved a public-private partnership between bilateral development assistance (GIZ 2014) and a major transnational aroma and flavor house (Symrise 2016) from Germany. Alongside other international companies, they initiate contract farming (CF) schemes whose popularity among smallholders are in the focus of this study.

*Diversity Turn in Land Use Science* was designed as a "trans-disciplinary" research project with a "transformative" agenda (Barkmann *et al.*, 2015). Trans-disciplinary research explicitly avoids disciplinary boundaries. It has the ambition to enrich researcher perspectives by fostering inter-disciplinary collaborations. It also seeks to acknowledge and integrate non-academic expert opinions instead of exclusively relying on academic discourse (Lang *et al.*, 2012). By allowing the researcher to convey the experiential knowledge of non-academic experts – in our case, to cite reports of smallholder vanilla farmers, development practitioners, and international business representatives – it manifests its applied character. Trans-disciplinary research with a transformative agenda aims at studying real-world problems to propose recommendations that could lead to transformative solutions (Schneidewind 2016).

For the purpose of deriving research questions of local relevance, many trans-disciplinary projects involve an initial explorative research phase, which allows researchers to capture issues and dilemmas of local stakeholders. Only after the initial "scoping" stage are research questions formulated. As such, trans-disciplinary researchers derive their research questions from problems uttered by local stakeholders rather than relying exclusively on the discourse of academic experts who are often siloed by specific disciplinary boundaries and the latest scientific trends (Pearce and Stauffacher 2020).

**Research Objectives of WP4**

This Ph.D. Dissertation was part of WP4 at the Department of Agricultural Economics and Rural Development (DARE) at the University of Göttingen.

WP4 had two main objectives:
1. to explore sustainable rural livelihoods of smallholder vanilla producers (WP4-SL)
2. to explore smallholder preferences for vanilla contract farming options (WP4-CE)

More precisely, this study concerns WP4-CE.

Nearly every WP in the research project decided to fund a Malagasy Ph.D. student with whom research collaborations took place. WP4 decided to delegate WP4-LS - a Longitudinal Study on Household Microeconomics of vanilla farmers - to Fanilo Andrianisaina at "Ecole
Supérieure des Sciences de l'Agriculture" (ESSA) of the University of Antananarivo, Madagascar (see DTLUS 2020d). WP4-CE remained at University of Göttingen and was conducted by the author under the supervision of Prof. Dr. Jan Barkmann. Both, Prof. Dr. Jan Barkmann and Lloyd Blum also worked as employed researchers at the University of Applied Sciences in Darmstadt, supporting the Department of Social Sciences, Risk & Sustainability Research with analysis, networking and presentations related to vanilla from Madagascar.

Aims of WP4-CE

The aims of the subproject of WP4-CE can be summarized as follows:
1. to understand the marketing channels of vanilla used by smallholder farmers
2. to understand the extent of CF involving smallholders in the study region
3. to understand CF from a smallholder perspective

The third point can be further specified. WP4-CE intends:
- to identify smallholder preferences for typical CF options offered by vanilla exporters
- to engage in a cost-benefit analysis of specific CF features from a smallholder perspective
- to identify whether CF preferences of smallholders differ between socio-economic groups
- to identify issues of tensions in the CF relationship between smallholders and buyers
- to propose recommendations on how contractual design could be improved to achieve mutual benefit for smallholders and buyers

Why the smallholder perspective?

CF schemes are driven by investments of agribusiness traders who wish to source commodities with more reliability. Traders focus on agricultural products and specific qualities that are in high demand in (international) markets. At the same time, traders have to manage procurement challenges on domestic markets when sourcing commodities, such as vanilla. CF offers commodity traders (importers, exporters, and processors) the possibility to build up a reliable access channel to commodities of interest by striking exclusive supply agreements with smallholder producers. Such CF offers link smallholders to (international) markets, where they can potentially benefit from higher prices. This offers economic attraction potential to commercialize their agriculture. Higher prices and higher quality requirements demanded by international markets thus offer upgrading possibilities to smallholder agriculture. Ideally, private investments will be lodged in productivity and quality-enhancing agricultural innovations. This can have positive regional development effects in developing countries like Madagascar whose rural economies remain largely agricultural and commodity-based.
The commercialization of agriculture also motivates international development assistance to support the mechanism of CF. Smallholders stand to benefit from a range of advantages, such as extension and support services offered by international traders, which are otherwise largely inaccessible to them. However, whether smallholders really benefit from CF schemes, depends much on the conditions of contractual agreements. The demand-driven nature of CF as well as the unequal bargaining power of international buyers and poverty-stricken farmers, implies that smallholders are typically side-lined in the planning and design processes of CF schemes, including sector-specific sustainability initiatives. Key objectives, such as which crops to produce and which product and process qualities to achieve, are pre-defined by the demand on the market and the intentions of traders. The quantitative assessment of smallholder preferences for CF options is just beginning to bud, and the evidence base is slim. We wish to contribute to this knowledge gap and also see an opportunity to give smallholder vanilla farmers in Madagascar a voice through our research. Smallholder interests – their difficulties in benefiting from liberalized commodity markets and renewed global investments into commodities - can otherwise be easily overlooked in market-driven development projects.

**Motivation**

Conceived as transformative research, this study seeks to provide transparency on contract farming benefits that are truly appreciated by farmers. It focuses on existing sustainability challenges in the vanilla business and also seeks to identify perceived costs that arise for smallholders from the implementation of contract farming schemes and associated sustainability standards. Once we understand the perceived benefits as well as costs of contractual production, it should be possible to make recommendations to vanilla buyers as to how contractual relationships between vanilla farmers and exporters could be improved to result in greater mutual benefit. Ideally, this piece of research can find a mix of currently offered contractual benefits that will encourage farmers to implement required contract farming requirements, including some of those currently perceived as costly and/or unattractive. Proposed solutions - such as clever combinations of CF features and relational-organizational considerations - need to bring real value to smallholder households without costing too much to the buyer to stand a chance of being accepted. A side-effect of this research could well be that we provide new buyers wishing to enter the vanilla market with the best possible information to increase their willingness to invest in sourcing directly from the smallholder. Because more sustainability-conscious buyers also mean more competition for sustainably produced vanilla, appropriate incentives for farmers to implement related production requirements are to be identified to benefit both the farmers and the buyers.
References for Research Project


https://www.uni-goettingen.de/en/project/531390.html

https://www.uni-goettingen.de/en/workpackages/531393.html

https://www.uni-goettingen.de/en/project+partners/531896.html

https://www.uni-goettingen.de/en/team/548435.html


How this Ph.D. Dissertation is organized

This book is structured in three parts (see Table 1 below).
The first part introduces the concept of CF, its opportunities, and challenges for buyers and smallholders. This is followed by an introduction to the global supply chain of vanilla and a background on recent trends shaping the vanilla business in Northeastern Madagascar. The overall introduction closes with the research questions that will be addressed and with an overview of the research methods deployed in the empirical chapters.
The second part presents the empirical results. It consists of five chapters.
The first chapter deals with an ethnography of vanilla farmers and the phenomenon of vanilla theft and mob justice observed in the study region (Chapter 1). The second chapter addresses the question of who participates in CF schemes in Madagascar's vanilla business and who tends to be excluded from participation. It clusters smallholders into resource-rich vs. resource-poor households (Chapter 2). The next two chapters are devoted to smallholder preferences for CF options and specific CF features (Chapters 3 and 4). Chapters 3-4 present the choice experimental results. Whereas the third chapter highlights preference heterogeneities between the sexes regarding specific CF features (Chapter 3), the fourth chapter identifies preference heterogeneity by the average vanilla farmers in the study region for different social and ecological process standards (Chapter 4). A fifth chapter bridges the empirical results to an overall conclusion. It can be understood as a synthesis of the preceding chapters and addresses the overarching research question, namely, whether the design of CF offers could be improved to materialize mutual benefit for smallholders and buyers and whether such improvements could be expected to result in longer-lasting supply commitments. Chapter 5 presents a quantitative overview of all choice experimental results and cross-checks these stated preferences against revealed marketing behaviors of smallholder vanilla farmers which were measured both quantitatively and qualitatively. The inclusion of qualitative data allows us to understand contextual circumstances as well as smallholder narratives underlying the choice experimental results. Chapter 5 discusses smallholder preferences for CF options in the context of widespread vanilla theft due to rapidly rising prices between 2016-2018. Chapter 5 leads to policy recommendations that summarize our main findings for contractual buyers (exporters and preparators of vanilla) and for development actors partnering with buyers in CF schemes.
The third part summarizes salient findings in a General Discussion and a General Conclusion. The reader is thus able to capture the most important points of this study by reading the General Introduction, Chapter 5, and then the General Discussion and General Conclusion.
Table 1 - Structure of this book

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General Introduction

One of the more remarkable and interesting developments in recent decades has been the rapid transformation of agricultural markets in developing countries (Reardon et al., 2009; Barret et al., 2011; Rauch 2014). Driven by the liberalization of agricultural trade policies in the 1990s, as well as by urbanization and income growth in emerging economies (Otsuka and Ali 2020), agricultural production in many developing countries has undergone a transformation from the production of simple staple crops towards a greater share of high-value products destined for international export or emerging supermarkets (Reardon et al., 2009; Barret et al., 2011). More recently, investments into agricultural commercialization have also been channeled to rural Africa (Rauch et al., 2016; Barret et al., 2017). High-value agricultural commodities - such as fruits, vegetables, spices, or livestock - traded to international markets have to comply with strict hygiene, quality, and process standards, however (Giovannucci and Ponte 2005; Swinnen 2007). Contract Farming (CF) is increasingly being chosen as a form of vertical coordination by international investors who seek to achieve these standards under the inclusion of smallholder farmers in global supply and value chains (Ostuka and Ali 2020). Given the economic development potential of CF for the rural population vis-à-vis traditional estate production (Rauch 2006), CF has been actively promoted by international development cooperation, too (Eaton and Shepherd 2001; Seville, Buxton and Vorley 2011; Prowse 2012; Kaplan, Brüntrup-Seidemann, and Noltze 2016; BMZ 2020a). In fact, bilateral aid agencies and NGOs frequently partner with international agribusiness companies in an effort to link smallholders to international markets (Will 2013; Kaplan, Herford, and Brüntrup-Seidemann 2018; BMZ 2020b). In the following, I will present a conceptual framework of CF to highlight its rationale, its opportunities as well as its typical challenges for smallholder farmers and buyers. Criticisms of CF will the presented that raise the question of smallholder preferences. For, without addressing smallholder preferences, CF is bound to be of limited value to those who implement it and thus likely to fail.
1. Conceptual Framework of Contract Farming

1.1 What is Contract Farming?

CF is an international trend in agribusiness with increasing prevalence in developing countries (Meemken and Bellemare 2020). It represents a supply chain coordination mechanism that allows agribusiness companies to gain some control over their sourcing of agricultural commodities without the need to lodge long-term investments into estate production (Eaton and Shepherd 2001). Contractual buyers typically engage smallholders in an effort to access stable quantities of agricultural commodities in pre-defined qualities (Will and Rockenbauch 2012).

The Food and Agriculture Organization (FAO) officially defines CF as "agricultural production carried out according to an agreement between a buyer and farmers, which establishes the conditions for the production and marketing of a farm product … Typically, the farmer agrees to provide specified quantities … which should meet the quality standards of the purchaser and be supplied at the time determined by the purchaser. In turn, the buyer commits to purchase the product and, in some cases, to support production through, for example, the supply of farm inputs, land preparation, and the provision of technical advice." (FAO 2017, p.1)

CF describes a forward sales agreement between commodity buyers (typically traders or processors) and smallholder farmers as suppliers of agricultural commodities (Will and Rockenbauch 2012). Both parties agree in advance on the terms and conditions of producing and marketing specific farm products. Contracts typically specify quantities, quality characteristics, prices, and delivery dates of products to be traded (Will 2013). Contracts may also specify the process of production, whereby the buyer and the farmer mutually agree on specific agricultural practices or technologies to be employed (FAO 2016).

CF is a form of vertical integration in agricultural supply chains (Slangen, Loucks and Slangen 2008). Agricultural commodity traders, particularly those who seek large quantities, have an interest in gaining increased control over their sourcing practices (Prowse 2012). Stable access to commodities is of paramount interest to them in order to secure and grow their operations (Rasolofoson-Rajaonah and David 2014). Some traders also have an interest in gaining more control over the production process itself in order to influence quality characteristics or to ensure a reliable timing of delivery (Prowse 2012). From the perspective of the investing buyer,
the key objective of a contract is to establish an exclusive supply channel for traded commodities. The contract is to incentivize farmers to agree to an exclusive supply commitment. Exclusive supply channels help the buyer to establish reliable access to stable quantities and required qualities of commodities that need to be sourced at an acceptable price (Eaton and Shepherd 2001).

Vertical integration is defined as "the process in which either an input source or an output buyer of the firm is moved inside the firm. It may involve forward integration, for example when an oil company starts to run its own filling stations; or backward integration, for example, when a fish processing firm starts to run its own fishing boats." (Slangen, Loucks and Slangen 2008, p.415). In other words: Vertical integration is the process of deliberately shortening the supply chain. This is done to eliminate intermediary middlemen in order to cut costs and capture more profits when sourcing commodities (Slangen, Loucks, and Slangen 2008). Typically, it is companies that dominate (concentrate) demand in global supply chains which initiate vertical coordination (Lee, Gereffi, and Beauvais 2012).

Historically, the conventional approach to vertical integration resulted in the plantation economy. Here, agricultural commodity traders invested in land and processing equipment when agricultural products, such as bananas, tea, or sugarcane, needed to be sourced from the tropics (Prowse 2012). The plantation economy represents a complete form of vertical integration in that all production, processing, and packaging activities are centrally performed by a single entity. Plantations, however, can be conflictual where land is highly politicized and they require the investor to engage directly in the production process, thus assuming all production-related costs (e.g., for labor and equipment) and risks (e.g., crop failures) (Prowse 2012).

Nowadays, it is increasingly common for international buyers pursuing backward vertical integration to do so via CF arrangements. One of the main reasons for CF is the growing importance of corporate social responsibility (CSR) programs that are used for reputational branding purposes to impact consumers in higher-income countries (Henson and Jaffee 2004; Swinnen 2007). Contracts are also the vehicle of choice to administer private voluntary sustainability standards, which verify to the consumer that the process of production has respected social and/or ecological minimum requirements (e.g., Fair Trade, Organic, Rainforest Alliance, etc.)
Contracting can be a means to reduce rural poverty as it allows smallholders to remain actively involved in the rural economy. Contracts also allow smallholders to commercialize their agricultural production by linking the farmers to possibly lucrative international markets (Barrett et al., 2012).

Contracting can still establish some degree of control for the buyer over the production process, which is important in order to meet stringent qualities requirements demanded by international markets (Giovannucci and Ponte 2005).

1.2 Different Types of Contracts
Substance, form, and processes to conclude a contract are variable. Contracts can be established in written or oral form. They may be struck with individual farmers or with producer groups. Contracts can be fixed for multiple years or based on renewable seasonal negotiations. The description of obligations may remain vague or be reasonably specific. Thus, the concrete relationships between buyers and farmers vary from case to case. (Will and Rockenbauch 2012)

However, two types of contracts are commonly offered to smallholders by contractual buyers: market specification contracts and production management contracts. The latter may include a lot of resource provisioning by the buyer. These types of contracts differ as to how decision-making powers and risks are partitioned between the buyer and the farmers (Bijman 2008).

Market specification contracts leave all decisions about production and post-harvest handling to the producer – that is, which seed varieties to use, how to achieve the desired product quality, how to meet quantities, and respect the timing of delivery. In this case, however, the farmer also bears all risks associated with production. Yet, he/she is in complete control of decisions about farming practices to be carried out and investments to be made. Marketing risks, on the other hand, are borne by the buyer, who guarantees the farmer to buy a certain share of his/her production at the end of the season.

In production management contracts, by contrast, decisions about production, harvest, and/or post-harvest handling are influenced by the buyer. The company specifies the desired process of production, not just the required product attributes. This means that the company must also inspect the production process next to assessing final product qualities. Here, the buyer gains more control over the production process but also assumes more of the production-related costs. Many buyers running production management contracts are willing to supply inputs and tools, for example, or to offer financial credit and technical extension to signatory farmers in order to
be able to meet specified product and process qualities (Swinnen 2007). Where resources are provided by the buyer, production management contracts are also called resource-providing contracts.

Which of these two basic types of contract is offered to farmers depends on the degree of control that the buyer seeks to establish over the production process. Where an exclusive supply channel and product quality attainment are sufficient goals, a market specification contract may be offered. Where specific process qualities are to be met, buyers need to assume some control over the production process. Frequently, production management contracts are associated with the implementation of private voluntary standards.

1.3 Different Models of Contract Farming Pursued by Buyers

Next to the contract itself, also the vertical coordination mechanism of CF can differ. Vertical coordination describes the way the relationships (interactions) between signatory farmers and contractual buyers are organized. (Schlecht and Spiller 2012). A typology of five recognized CF models has been described by Eaton and Shepherd (2001). Since then, this typology of CF models has been sharpened by IFAD (2011), Prowse (2012), Will (2013), and Mugwagwa, Bijman and Trienekens (2020), among others. Each of the presented CF models (see Figure 1) has its respective strengths and weaknesses. Which model is chosen depends on the type of crop to be produced, the market setting, and the strategic choices of the buyer. Buyers typically seek to find a balance between the need to establish an exclusive supply channel, the need to produce quality and control the production process, and opportunities to avoid sunken costs or potential reputational risks by refraining from investments into land for estate production (Eaton and Shepherd 2001; Minot and Ronchi 2014; Vicol 2017).
Figure 1 - Typology of contract farming: different models practiced by the buyers

<table>
<thead>
<tr>
<th>Duration &gt;1year</th>
<th>Duration &gt;1year</th>
<th>Duration &gt;1year</th>
<th>Duration &gt;1year</th>
<th>Duration &gt;1year</th>
</tr>
</thead>
<tbody>
<tr>
<td>never</td>
<td>sometimes</td>
<td>sometimes</td>
<td>often</td>
<td>often</td>
</tr>
<tr>
<td>Written contract</td>
<td>Written contract</td>
<td>Written contract</td>
<td>Written contract</td>
<td>Written contract</td>
</tr>
<tr>
<td>never</td>
<td>sometimes</td>
<td>always</td>
<td>always</td>
<td>sometimes</td>
</tr>
<tr>
<td>Extension</td>
<td>Extension</td>
<td>Extension</td>
<td>Extension</td>
<td>Extension</td>
</tr>
<tr>
<td>never</td>
<td>sometimes</td>
<td>always</td>
<td>sometimes</td>
<td>sometimes</td>
</tr>
<tr>
<td>Inputs or credit</td>
<td>Inputs or credit</td>
<td>Inputs or credit</td>
<td>Inputs or credit</td>
<td>Inputs or credit</td>
</tr>
<tr>
<td>rarely</td>
<td>sometimes</td>
<td>sometimes</td>
<td>often</td>
<td>often</td>
</tr>
<tr>
<td>Buyer processes</td>
<td>Buyer processes</td>
<td>Buyer processes</td>
<td>Buyer processes</td>
<td>Buyer processes</td>
</tr>
<tr>
<td>sometimes</td>
<td>sometimes</td>
<td>sometimes</td>
<td>often</td>
<td>always</td>
</tr>
<tr>
<td>Farmer groups</td>
<td>Farmer groups</td>
<td>Farmer groups</td>
<td>Farmer groups</td>
<td>Farmer groups</td>
</tr>
<tr>
<td>never</td>
<td>sometimes</td>
<td>sometimes</td>
<td>sometimes</td>
<td>sometimes</td>
</tr>
<tr>
<td>Grower managed</td>
<td>Grower managed</td>
<td>Grower managed</td>
<td>Grower managed</td>
<td>Grower managed</td>
</tr>
<tr>
<td>never</td>
<td>rarely</td>
<td>always</td>
<td>sometimes</td>
<td>often</td>
</tr>
</tbody>
</table>

(Figure synthesized from Will, 2013; Mugwagwa et al., 2020; Liverpool-Tasie et al., 2020)
The informal model is practiced by traders who accept a high degree of buyer competition and source most of their raw materials on local spot markets. Contractual agreements are made to secure intended quantities and typically involve individual farmers. Informal contracts are typically short-term (one season) and do remain oral. This model allows the buyer a high degree of flexibility but little to no control over product quality. Product quality fluctuates with spot market supply. Services offered to farmers are typically very limited. In most cases, there is little to no investment by buyers in terms of inputs or credit provision. Advice, if given at all, may be limited to quality grading and control by farmers. The risk of supply rupture is high, particularly in the face of strong buyer competition. However, the operational costs to buyers are low (Will 2013).

The intermediary model is characterized by buyers (e.g., exporters) who subcontract to an intermediary (e.g., either a farmer group, a cooperative, or collectors). The intermediary aggregates farmers and may provide services to them with financial and technical assistance from the buyer. Limited direct buyer-to-farmer interaction is designed into this model of contract farming, however. The buyer risks losing control over the regularity of supply, quality assurance and/or production processes where intermediaries do not manage to incentivize the sustained interest of signatory farmers. Without control mechanisms and adequate incentives in place, this model entails challenges in vertical coordination (Will 2013).

The multi-stakeholder model involves partner organizations next to the buyer who contracts farmers. Starting points for such a collaboration are often a centralized or nucleus-estate model of CF (e.g., following the privatization of parastatal producer organizations). The private company (usually a vertically-integrated importer or exporter) partners with development organizations, such as public extension providers, bilateral aid agencies, NGOs, or local microfinance institutions. These partners deliver training, inputs, credit opportunities, and marketing or processing advice to smallholders. The multi-stakeholder model of CF is sometimes found to be fairer for producers as it includes one or multiple mediators (e.g., an NGO) to help communicate the interests of farmers as well as buyers. Lead companies in global supply chains like to highlight the existence of such development partnerships in their CSR brochures. The multi-stakeholder model of contract farming can become politicized, however, where government agencies are involved or where conflict between development partners arises. These CF schemes may be intermediated through farmer groups. Where process standards are involved, close monitoring and controls of production are required (Will 2013).
The centralized model involves a buyer who intends to control most of the production process (including steps such as land preparation, pollination, weeding, and/or harvesting). Globally, this is the most common form of CF. The relationship between buyers and farmers is strictly vertically organized. The relationship with farmers is direct in the sense that signatory farmers provide their land and labor, whereas the technical staff of the buyer provides extension advice and services to farmers. Signatory farmers are typically aggregated into producer associations to facilitate the management, control, and collection of production. This model is generally found where homogeneous qualities need to be achieved to facilitate processing. Quantities to be sourced tend to be high. Quantities, qualities, delivery conditions, and production management criteria are determined at the beginning of each season. Contracts may be struck for multiple years. Specific production processes (e.g., the preparation of compost, the application of pesticides, or the timing of harvest) are controlled (supervised) and, in some cases, even implemented by the technical staff of the buyer rather than left to signatory farmers. Frequent interaction with farmers is to inhibit side-selling. The centralized model of CF is common in a range of crops, including sugar cane, tobacco, tea, coffee, cotton, vegetable, milk, and poultry production (Will 2013).

The nucleus-estate model is synonymous with plantation production to which additional CF schemes are attached, like satellites, as so-called “outgrower schemes”. Agribusiness companies pursuing this model typically process and/or package respective commodities themselves. The agribusiness company primarily sources from its plantations to meet sales obligations. During spikes of demand, supply can be raised opportunistically beyond the plantation capacity by contracting out to smallholders. Ancillary CF schemes can also be run to meet the specific needs of clients, for instance, to cater to socially or environmentally certified products. The nucleus-estate model has the advantage that it offers the buyer the highest level of control over the production process and the lowest risk of supply rupture. Moreover, it reduces the need for buyers to offer extension services to a large number of farmers. However, disadvantages comprise the need to lodge initial investments into land and infrastructure as well as to hire, train, motivate, and screen plantation wage laborers to prevent shirking. The investor assumes higher risks related to production than with the other CF models. The nucleus-estate model is typically found for perennial tree crops of homogenous quality and limited production effort. Labor-intensive products which require a lot of care - such as vegetables – are rather produced through centralized contract farming to increase farmer motivation and cut supervision costs. Where easily perishable products, such as fresh fruits and
vegetables, are to be produced, the nucleus-estate model is sometimes favored for reasons of control over the timing of delivery. Global markets for fresh produce require exporters to meet stringent phytosanitary standards. Moreover, fresh produce is expected to arrive on global supermarket shelves within 48 hours from the country of origin (Humphrey 2002). Thus a high degree of coordination and reliability in supply is required that necessitates complete vertical integration of production, processing, and packaging. (Humphrey 2002; Will 2013). Where land is highly politicized (Prowse 2007) and where land titles are insecure (Cotula and Leonard 2010), however, international investors may shy away from estate production today. They may be accused of “land grabbing” which can damage their corporate identity (Vicol 2017), where customary land users need to be driven off their land to establish the plantation.

1.4 Opportunities of Contract Farming: Linking Smallholders to Markets

Linking smallholders to the market is an overarching goal of international and national development policies. It is recognized that persisting problem of rural poverty and food insecurity cannot be solved without enabling smallholders to increase their productivity and cash incomes (BMZ 2011, 2019a,b; Kaplan, Brüntrup-Seidemann, and Noltze 2016; Liverpool-Tasie et al., 2020). Smallholders, those 2.5 to 3 billion family farmers whose livelihoods depend at least in part on agriculture (Rauch 2006; 2014), represent the majority of the poor and hungry in the Global South (Rauch and Brüntrup 2020). As farming remains the pre-dominant rural livelihood for most of these households (BMZ 2011; 2013a; 2017a,b; 2019a,b; 2020a,c; Rauch and Brüntrup 2020), rural development strategies followed by German Development Cooperation, for example, link broader development goals - such as poverty reduction - with food security and agricultural commercialization (BMZ 2011,2013a; Kaplan, Brüntrup-Seidemann, and Noltze 2016). Financial and technical support for the latter comprises the actual stages of production as well as pre-and post-harvest operations (BMZ 2013a, 2017b). Another question that arises in this context concerns the diffusion of agricultural innovations (BMZ 2017a,2019a). Innovations are new ideas, techniques, or technologies of production that promise to elevate smallholder productivity (Rogers 1995). Connecting smallholders to markets is deemed important to achieve food security (Conway 1997), to promote commercial agriculture (Seville, Buxton, and Vorley 2011; AGRA 2019) but also to spread productivity-enhancing techniques to the rural poor (Brüntrup and Peltzer 2006; Kaplan, Brüntrup-Seidemann and Noltze 2016). In terms of commercializing the agricultural production of smallholders, the development of agricultural supply and value chains through CF is the underlying mechanism that is mostly discussed (BMZ 2011,2013a,b,2017a,b,2019b, 2020a,b,c;
Barrett 2012; Bellemare 2015, 2018; Ton et al., 2018; Meemken and Bellemare 2020; Ncube 2020). International Development Cooperation talks of “inclusive business models” in this context (Figure 2 below). Inclusive business seeks to include poorer sections of the rural population in commercial farming activities (FAO 2015) and, where necessary, promote commercial farming through public-private-partnerships between international development organizations and private agribusiness companies (BMZ 2020 a,b,c).

**Figure 2 - Inclusive business in agriculture aims to link smallholders to markets**

![Diagram of Inclusive Business in Agriculture](image)

(Figure adapted from Ferris and Seville, 2010 in Seville, Buxton and Vorley, 2011)

A growing body of empirical evidence indicates that CF can be a “win-win” for both buyers and smallholders under the right circumstances (Ton et al., 2018).

To begin with, CF is a form of vertical integration that does not rely on foreign agribusiness investors claiming large stretches of land for estate production, thereby driving smallholders off their ancestral lands (BMZ 2012). CF is therefore viewed as less conflictual and more politically acceptable (Eaton and Shepherd 2001) as a pathway to modernize agricultural production in developing countries since it supports existing rural livelihoods instead of destroying rural jobs (Rauch 2006). That is why CF is actively promoted by international development assistance (Prowse 2012; Cramb et al., 2015; Vicol 2017; BMZ 2019b, 2020a,b,c).

For international agribusiness traders, CF offers several advantages in light of the alternative options to obtain raw materials, namely through spot market transactions or plantation establishment. Besides the advantage of overcoming their land constraints, buyers can bind the
farmers as raw material suppliers exclusively to them whilst offloading much of the production risk onto the shoulders of signatory farmers. Unlike in the case of establishing an own plantation, CF also allows the buyer to pull out quickly should market circumstances change and become unfavorable.

Likewise, the advantages for smallholders are numerous. First, CF is regarded as providing an economic attraction potential for smallholders to aggregate their agricultural production and engage in common business activities (Prowse 2007; Shepherd 2018). Aggregation and collective action increase the bargaining power of farmers, meaning they can access market outlets offering more attractive prices (Shepherd 2018; Meemken and Bellemare 2020). Pre-agreed terms and prices (or pricing schemes) fixed as part of a contract offer the farmers also some planning security (Eaton and Shepherd 2001; Prowse 2007; Bijman 2008). More importantly, unlike in the case of plantation production, where farmers may only be engaged as seasonal wage laborers (Nuhn 2006), CF allows smallholders to keep producing crops on their own land (Vicol 2017), thus not threatening to make smallholders redundant as a rural commercial workforce (Rauch 2006; Vicol 2017). Moreover, contracts provide signatory farmers with opportunities to access extension services otherwise unobtainable to most of the rural poor in developing countries (Eaton and Shepherd 2001; Brüntrup and Peltzer 2006). Through these extension offers, new technical and managerial skills can be acquired, which promise to increase agricultural productivity (BMZ 2019a). Extension offers typically include technical and financial management training and may be combined with credit access opportunities and the provision of inputs or novel technologies (BMZ 2017a). In some successful cases of CF, newly acquired skills by smallholders have been transferred to other crops - unrelated to the CF scheme - thus creating productivity and income-enhancing spillover effects (Minten, Randrianarison, and Swinnen 2007). From the perspective of international development cooperation, the provision of industry-financed extension is advantageous over public extension. For, it means that smallholders are guided in their efforts to commercialize their agricultural production by the very actors who should know best about the latest product and production requirements that apply in international trade (Kaplan, Herforth, and Brüntrup-Seidemann 2018). In some cases, where CF works out to generate long-term supply commitments, long-term extension to smallholders can help smallholders to sustainably improve their incomes by gaining a reliable and lucrative market outlet (Minten, Randrianarison, and Swinnen 2007, 2009; Reardon et al., 2009; Ton et al., 2018; Meemken and Bellemare 2020). Table 2 (below) summarizes the major opportunities of CF.
Table 2 - CF opportunities for smallholders and buyers

<table>
<thead>
<tr>
<th>Opportunities for smallholders</th>
<th>Opportunities for buyers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusion into the global market no displacement of smallholder workforce as in the case of investments into plantations</td>
<td>Political acceptability no need for long-term investments into land under insecure property rights</td>
</tr>
<tr>
<td>Income predictable access to a market outlet</td>
<td>Exclusive supply channel predictable access to raw materials</td>
</tr>
<tr>
<td>Extension often the only feasible way for smallholders to access credit, appropriate technologies, and managerial skills through trainings</td>
<td>Control over production process possibility to influence the production process by setting production requirements as contractual conditions</td>
</tr>
<tr>
<td>Risk reduction reduction of price risks</td>
<td>Risk reduction reduction of production risks</td>
</tr>
</tbody>
</table>

(Table synthesized from Eaton and Shepherd, 2001; Bijman, 2008)

Successful cases of CF manage to establish mutual benefit for both contractual parties (Will and Rockenbauch 2012) and to reduce the price risks for smallholder farmers (Bijman 2008).

Expected benefits of CF from the perspective of smallholder farmers typically include:

- A predictable source of income (reduced marketing/price risk)
- Attractive conditions of production (support services)
- Transfer of knowledge and technologies to other cultures (possible spillover effects (Rasolofoson-Rajaonah and David 2014)

Expected benefits of CF from the perspective of the buyer typically include:

- Economic profitability (no need to purchase land, cheap access to labor)
- Controlled procurement (reliable access to resources)
- Higher political acceptance than estate production (lower risk of conflict) (Rasolofoson-Rajaonah and David 2014)
1.5 Challenges of Contract Farming

CF is beset with a number of challenges, too. Possible pitfalls concern the non-materialization of mutual benefit (Will and Rockenbauch 2012; Bellemare 2018) as well as conflicts arising out of a lack of mutual trust between buyers and signatory farmers (Minot and Ronchi 2014). Where benefits appear to be unfairly distributed to one party, it is difficult to maintain a contractual relationship over the long term (Kaplan, Herforth, and Brüntrup-Seidemann 2018). The same is true where mutual agreements are being broken (Kirsten and Sartorius 2002; Kunte, Wollni, and Keser 2017). Uneven negotiation power between the parties is typically present from the very beginning (Little and Watts 1994), but conflicts over it may only surface at a later stage (Minot and Ronchi 2014). Non-inclusion of farmer interests can remain hidden due to insufficient communication (FAO 2015) or missing conflict arbitration mechanisms (Minot and Ronchi 2014).

From the perspective of the buyer, the aggregation of signatory smallholders into producer groups can help reduce transaction costs by removing the problem of small quantities and the costs of “the last mile” that makes sourcing raw materials so costly from local spot markets (Shepherd 2018). Yet, the implementation of a CF scheme also comes with logistical challenges and organizational costs (Rasolofoson-Rajaonah and David 2014). Where development partners, such as NGOs, bilateral donors, or external service providers are involved, the need for coordination can quickly overtax the buyer whose core interest lies in doing business (Kaplan, Herforth, and Brüntrup-Seidemann 2018) but not in resolving wicked livelihood problems of poor farmers (Seville, Buxton and Vorley 2011). Even without a development partnership, contractual buyers are typically challenged with mobilizing farmers into producer groups (Prowse 2007, Shepherd 2018), next to controlling smallholder production (Wiese and Toporowski 2013) and offering extension services (Bellemare 2010) to achieve required product and process qualities (Minten, Randrianarison, and Swinnen 2009). A well-known challenge is the diversion of inputs (Bijman 2008) or the misuse of credits granted to signatory smallholders (Will 2013). Another challenge is smallholder disrespect of specific production requirements stipulated in the contract (Eaton and Shepherd 2001), particularly so where production management needs to be respected (Glasbergen 2018). It is not uncommon that smallholder farmers fail to adhere to social or ecological production restrictions which may be introduced by a trader to attain the desired process standards (Glasbergen 2018; Neimark 2019a). The most serious risk to contractual buyers, however, is the outright disrespect of the entire agreement by signatory smallholders. Across commodities, the CF literature abounds
with reports of contractual default where smallholders fail to deliver on agreed quantities or qualities of production (Eaton and Shepherd 2001; Kirsten and Sartorius 2002; Bijman 2008; Oya 2012; Bellemare 2015, 2018). The reasons for it can be multi-faceted, but poorer households are typically disproportionately affected as they often face complex problems (Seville, Buxton, and Vorley 2011; Hansen and Trifkovic 2014; Kaplan, Brüntrup-Seidemann, and Noltze 2016).

From the perspective of smallholders, uneven negotiation power vis-à-vis the buyer can result in smallholders agreeing to obligations of a contract that are difficult for them to implement in reality. For example, smallholders may accept unsuitable production practices or new technologies, which increase the risk of indebtedness (Little and Watts 1994; Eaton and Shepherd 2001) or increase their costs of production (Glasbergen 2018).

Next, smallholders may also encounter challenges of asymmetric information where buyers intentionally avoid transparency about price determination mechanisms, further weakening the farmers' bargaining position (Grosh 1994; Kirsten and Sartorius 2002; Bijman 2008; Slangen, Loucks, and Slangen 2008).

Last but not least, when market circumstances change and become unfavorable for the buyer, contractual agreements can be terminated without further notice, causing hold-up problems for signatory smallholders who invested their time and labor to benefit from a promised marked outlet (Bijman 2008; Otsuka, Nakano, and Takahashi 2016). Table 3 (below) summarizes the typical challenges of CF.
Table 3 - CF challenges for smallholders and buyers

<table>
<thead>
<tr>
<th>Challenges for smallholders</th>
<th>Challenges for buyers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uneven power b/w buyer and farmers</td>
<td>Logistical complexity and costs</td>
</tr>
<tr>
<td>Smallholders may accept unsuitable technology, increased production risk</td>
<td>Dealing with a large number of poor and (possibly) unreliable smallholder farmers</td>
</tr>
<tr>
<td>(including excessive dependence on advances and indebtedness) to access benefits.</td>
<td>may lead to high (sunken) costs for mobilization, training, collection of product,</td>
</tr>
<tr>
<td></td>
<td>and communication vis-à-vis farmers.</td>
</tr>
<tr>
<td>Buyer may intentionally avoid transparency in price determination</td>
<td>Misuse of inputs by farmers</td>
</tr>
<tr>
<td>Smallholders may face manipulation of prices related to quality, quota or production</td>
<td>Farmers may divert inputs or credit for use in other crops or productive activities.</td>
</tr>
<tr>
<td>requirements.</td>
<td></td>
</tr>
<tr>
<td>Buyer may renege on contractual terms if market circumstances change</td>
<td>Contractual breach by farmers</td>
</tr>
<tr>
<td>Smallholders may be opportunistically dropped by the buyer in a volatile market</td>
<td>Farmers who are discontent with contractual conditions or with communication efforts</td>
</tr>
<tr>
<td></td>
<td>by the buyer may sell their produce outside the contract; others may be unable to</td>
</tr>
<tr>
<td></td>
<td>deliver.</td>
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</table>

(Table synthesized from Eaton and Shepherd, 2001; Bijman, 2008)

The complexity and the challenges of CF typically increase where producer groups and where ecological and/or social process standards are involved (Figure 3 below)

Producer organizations (POs) entail the necessity of signatory farmers to agree on a decision-making committee that coordinates the overall production of the group (Shepherd 2018). The administration of collective funds can pose challenges to producer groups (Prowse 2007). It typically entails the need for buyers to deliver business training which includes aspects of financial management (IFC 2019). Identifying respected and trusted leaders in the community is typically a challenge of aggregation, too (Prowse 2007). Abuses of power and elite capture within POs are common (Rauch 2006; Prowse 2007).

The implementation of process standards is challenging, too. Typically, it requires buyers to set up a service support system to provide resources, such as credit access opportunities or health protection offers, and/or to monitor mandatory gender- and/or environment-related production restrictions (IFC 2019). Pieces of training on specific topics are required, next to monitoring the effects of all these interventions (IFC 2019). Implementation of process standards thus requires a high degree of logistical coordination beyond core business operations.

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Figure 3 - Logistical complexity of contract farming increases with smallholder aggregation and support services

(Figure taken from Shepherd, 2018)

Another challenge to CF is volatile commodity prices. Tropical agricultural export crops as diverse as coffee (Lukanima and Swaray 2014), cocoa (GIZ 2018), palm oil (Sim et al., 2015; Voituriez 2001), rubber (Ramli 2019), pepper (Sabu et al., 2020) or vanilla (Neimark et al., 2019) face cyclical fluctuations of market prices. Price volatility can be defined as “the variability of commodity prices around the trend, while wide price movements over a short period of time typify the term high volatility” (Kuruvila et al., 2012 in Sabu et al., 2020, p.166)

Price volatility is a major issue for participants in agricultural supply chains. Smallholders face numerous challenges as a result of it. High price fluctuations lead to high price risk, which can directly impact smallholder welfare and behavior. First, when prices for locally produced cash crops sharply drop, farmers may find themselves incapable of purchasing supplementary food or satisfying other essential needs (Bellemare, Barret, and Just 2013). Lower expectations of future income cause poor producers to alter their allocative behavior away from risky activities (Dehn et al., 2005). This can have consequences such as raising the incident of rural poverty through reduced employment opportunities for family members and rural agricultural wage laborers (Sabu et al., 2020). What is more, when commodity prices drop, hedging against consumption shortfall presents difficulties to most smallholders. The rural poor tend to have little collateral. Their financial liquidity is low. Thus smallholders typically face difficulties in
accessing financial or insurance markets. When calamity strikes, distress sales of crops and other assets can be observed. Established patterns of such distress sales tend to be more pronounced in volatile markets (Neimark et al., 2019a). As a consequence, contractual buyers operating in volatile commodity markets sometimes provide credit opportunities to signatory farmers (Will 2013). Others offer to pay fixed prices for contractual crops as partial insurance (Bellemare, Lee, and Novak 2021).

Conversely, rapidly rising prices can also lead to problematic behaviors. An increase in opportunistic behaviors, including crime and crop-related theft (Neimark et al., 2019a), as well as an increased tendency of smallholders to side-sell the contracted crop have been observed across multiple commodities (Barrett et al., 2012; Cramb et al., 2015; Huh et al., 2012; Granja and Wollni 2019; Neimark et al., 2019b). Authors from rural sociology and agricultural economics have addressed the issue, and both remarked on the sudden shift in bargaining power that occurs between farmers (as suppliers) and buyers (as contractors) in these situations (Salas 2009; Swinnen 2020). The bargaining power of farmers increases vis-à-vis the buyers (Neimark et al., 2019b). As the outside options (alternative buyers) of farmers increase under scenarios of rising demand and rising prices, the farmer’s share of the total profit in crop-related transactions increases (Swinnen and Vandeplas 2007).

From the perspective of the buyer, price volatility essentially means that the sourcing of commodities becomes more difficult to plan ahead and execute (GIZ 2018). Companies are bound by competitive pressures. Their core business interest is to make a profit (Porter 2008). Typically, agribusiness traders are only willing to commit investments into smallholder suppliers if a stable supply commitment can be expected from such an effort. The competitive situation in the market influences this expectation (Rasolofoson-Rajaonah and David 2014). Phases of rapidly rising commodity prices are typically driven by short supply or increased demand (Brown, Crawford, and Gibson 2008; Tadesse et al., 2014). Competition among buyers tends to increase in such a situation. The risk that farmers are offered better conditions for the commodity by alternative buyers increases. As a result, the risk of smallholders to side-sell contracted crops increases, and contractual buyers become more prudent to invest. (cf. Section 2.9 to understand further effects of price volatility in the context of CF in Madagascar).
1.6 Criticisms of Contract Farming

Despite a growing body of empirical studies that document possibilities to link smallholders to international markets via CF schemes, there remains a lot of criticism.

“Critics of contract farming tend to emphasize the inequality of the relationship and the stronger position of sponsors with respect to that of growers. Contract farming is viewed as essentially benefiting sponsors by enabling them to obtain cheap labor and to transfer [crop-related] risks to growers.” (Little and Watts 1994 in Eaton and Shepherd 2001, p.10)

Academics and critical civil society organizations have also questioned whether CF successfully manages

1. to increase smallholder welfare and food security
2. to include resource-poor and more vulnerable segments of the rural population
3. to cover the costs of social and/or ecological process standards which are introduced
4. to establish an exclusive supply channel for the investing agribusiness company

Recent reviews (meta-analyses) of empirical case studies from around the world shed some light on the above points. They summarize the current state of knowledge with regard to these criticisms.

First, regarding the question of whether CF can increase smallholder welfare, a majority of studies identifies positive effects (Meemken and Bellemare 2020). The bulk of evidence suggests that smallholders who participate in CF schemes receive significantly better prices than non-participants (Bellemare 2015; Ton et al., 2018; Bellemare and Bloem 2018). Income (Ton et al., 2018; Bellemare and Bloem 2018) and food security (Bellemare and Bloem 2018) indicators tend to be positively correlated with CF participation, too. It remains inconclusive, however, whether the income and food security effects can be attributed to CF alone. Bellemare and Bloem (2018) highlight that most quantitative studies suffer from methodological weaknesses which do not allow to attribute identified welfare effects to better prices or increased productivity, which is typically associated with CF participation. Valid experiments are missing (Bellemare and Bloem 2018). What is more, several reviews have noted that the existing CF literature is troubled by publication bias (Otsuka, Nakano, and Takahashi 2016; Ton et al., 2018; Meemken and Bellemare 2020; Ncube 2020) as well as by survivor bias (Ton et al., 2018; Meemken and Bellemare 2020). This means that significant results and successful
CF cases are more frequently reported than failing cases. Both sources of bias are believed to lead to an overestimation of the welfare effects associated with CF (Ton et al., 2018).

Second, regarding the question of whether CF is able to link resource-poor smallholders to international markets, there is consensus across multiple reviews that, in the majority of cases, it cannot (Seville, Buxton, and Vorley 2011; Kaplan, Brüntrup-Seidemann and Noltze 2016; Ton et al., 2018; Kaplan, Herforth and Brüntrup-Seidemann 2018; Meemken and Bellemare 2020; Taisie-Liverpool et al., 2020). CF tends to exclude chronically poor and vulnerable groups of smallholders - including women and single-headed HH – due to their reduced supply elasticities (Prof. Theo Rauch, personal communication 09/10/2020). Smallholders who participate in CF schemes tend to have significantly larger landholdings and more assets (Ton et al., 2018), higher productivity, and better education (Seville, Buxton, and Vorley 2011) than the average farmer. As participation necessitates sufficient production, knowledge, and organizational capacity (Kaplan, Brüntrup-Seidemann, and Noltze 2016), CF tends to offer increased income opportunities mainly for the better-off segments of the rural population. This circumstance raises concerns that CF may contribute to increased rural inequalities as it further marginalizes the most vulnerable rural households (Meemken and Bellemare 2020). Resource-poor farmers occasionally benefit from CF indirectly, however, by finding additional opportunities for wage labor, by benefitting from collective investments into local infrastructure, or through technological spillover effects (Meemken and Bellemare 2020). Just a small share of smallholder farmers sell their products via CF schemes to date (Liverpool-Taisie et al., 2020). The large majority of smallholders in developing countries are still reliant on selling via informal spot markets. Typically, a series of intermediary traders links these producers to the international market when they sell export commodities. Researchers increasingly realize the benefits of these informal market links in the trade of export commodities for the majority of non-contracted smallholders (Liverpool-Taisie et al., 2020).

Third, regarding the skepticism of the benefits of introduced private voluntary sustainability standards, the extant CF literature unanimously stresses that both the social benefits (Oya, Schaefer, and Skalidou 2018; Schleifer and Sun 2020; Meemken 2020) as well as intended environmental impacts (DeFries et al., 2017; Garrett et al., 2021) are highly context-dependent. Positive livelihood outcomes tend to be more common than environmental additionality (Garrett et al., 2021). Yet, even the results of social benefits are mixed. While the review of Meemken (2020) - covering nearly 100 empirical studies - highlights that certified farmers
receive on average 20-30% higher prices and 16-22% higher incomes than non-certified farmers, Oya, Schaefer, and Skalidou (2018) - who review another 40 quantitative case studies – find better prices but no conclusive evidence that total household income improves with certification. Both studies stress the high degree to which context matters in the causal links that lead studies to claim livelihood benefits or losses to smallholder producers from respective sustainability standards. Production costs vary enormously between chosen standards; yield effects vary, too (Meemken 2020). Moreover, studies sometimes mention that the price premium which farmers receive is too small to recover the costs of obtaining certification (Oya, Schaefer, and Skalidou 2018). The latter pertains particularly to cases where smallholders self-market their crops through cooperatives (Beuchelt and Zeller 2011; Ibanez and Blackman 2016; Dietz et al., 2020). For example, Beuchelt and Zeller (2011) find that Nicaraguan organic and organic-fairtrade coffee farmers have become poorer relative to conventional coffee farmers over a ten-year period due to the inability to recover certification costs. Similarly, Dietz et al., (2020) note that a majority of cooperative farmers in Colombia have not been able to break even, irrespective of which of the four certification schemes they opted for. However, not all farmers are contracted through independently operating cooperatives. In other cases, it is the contractual buyer (exporter or processor) who takes on the certification costs. He then acts as an intermediary service provider for an international client who commands certified products and wishes to vertically integrate the supply chain via a CF scheme. Thus, Meemken (2020) stresses that the organization of the supply chain, for example, the contract farming model chosen, can play a more decisive role as to whether certification benefits the smallholder than the type of standard chosen itself.

Nevertheless, it is important to realize that the objectives and problem definitions of private voluntary standards are not necessarily aligned with the needs, interests, and preferences of smallholders in developing countries (Glasbergen 2018). The fact that smallholders often decide to actively quit CF schemes by side-selling contracted products appears to be related to their perception that CF not only entails benefits but also implies costs (Bellemare 2018). Schleifer and Sun (2020), who reviewed the effects of sustainability standards on food security, find that although there is a weak positive relationship between certification, the income of farmers, and food security, certifications also come with costs and unintended consequences such as depressed yields. Possible causal mechanisms that link certification and food security - namely price premia, land use changes and yield effects, land rights, and empowerment of women – play out differently depending on contextual factors, such as cultural norms. While labor rights and environmental protection measures are the explicit focus of sustainability
standards, human rights, like food security, are not explicitly included as a goal (Oosterveer et al., 2014). Of all the causal mechanisms, gender equality measures are the most directly attributable to positive food security outcomes, provided these measures succeed in increasing female income levels within signatory households (Schleifer and Sun 2020). The overall criticism is that private sustainability standards not only come with benefits but can also impose substantial (unintended) costs on smallholders. Finally, there is also skepticism as to whether CF achieves to fulfill the core interests of both signatory parties, that is, to establish an exclusive supply channel for the agribusiness investor and a stable link to a profitable market with a host of otherwise inaccessible extension support services to smallholder farmers. Several CF reviews (Grosh 1994; Bijman 2008; Eaton and Shepherd 2001; Prowse 2012; Minot and Ronchi 2014; Otsuka, Nakano, and Takhashi 2016; Liverpool-Tasie et al., 2020) mention that food markets are highly competitive and profit margins squeezed throughout the value chain (FAO 2016). Moreover, the CF relationship between farmers and buyers only survives over the long run, where mutual benefit and mutual trust can be established (Will 2013), the latter of which is frequently absent from the very start (Liverpool-Tasie et al., 2020). Buyers fear non-compliance with contractual terms and contractual breaches by the farmers in the form of side-selling, and farmers fear hold-ups in the form of product rejection or renegotiation of prices in the event of being unable to deliver intended qualities (Otsuka, Nakano, and Takhashi 2016; Liverpool-Tasie et al., 2020). Unstable commodity markets (Liverpool-Tasie et al., 2020) and the absence of reliably functioning legal institutions in many developing countries (Fafchamps and Minten 2001) further increase the risks of opportunistic contractual breakup by either of the two parties. Poultron (2004), for example, argues that side-selling – as an opportunistic behavior on the part of smallholders - increases when competition among buyers expands. This typically happens when volatile commodity markets experience a price boom (Cramb et al., 2015). Hold-up as an opportunistic behavior on the part of the buyer, by contrast, occurs when the specific products sourced through the CF scheme cannot be sold anymore at reasonable prices. The contracting buyer (processor or exporter) may then reduce his/her capital investments into the CF scheme (Otsuka, Nakano, and Takhashi 2016). The buyer can use information asymmetries in terms of market information and the weak institutional arrangement of CF to his advantage to change contractual terms for his/her benefit (Liverpool-Tasie et al., 2020). Lowering price offers for given qualities or stopping the CF scheme altogether (Eaton and Shepherd 2001), for instance, are commonly observed. The absence of conflict resolution mechanisms with a neutral third-
party mediator is a common issue in many CF schemes as well, contributing to sub-optimal outputs and transient CF relationships (Minot and Ronchi 2014).

Wrapping up the criticisms of CF, it is worth noting that an estimated 400 million smallholders are globally involved in the production of high-value agricultural commodities, such as vanilla, coffee, tea, cocoa, palm oil, cotton, and various fruits destined for international export (BMZ 2019b). Critics stress that actions need to be taken to address the low-income base of smallholder producers (Vicol 2017; Neimark et al., 2019b) and hired laborers (Meemken and Bellemare 2020) who are directly and indirectly touched by CF schemes. Other critics question whether private voluntary standards deliver tangible solutions rather than introducing further problems to smallholders (Beuchelt and Zeller 2011; Van Rijsbergen et al., 2016; Glasbergen 2018; Meemken et al., 2019). At the upstream end of the supply chain, smallholders typically judge from a perspective of poverty (Neimark et al., 2019b). They have limited capacities to adapt their production practices to private regulations, including social or ecological production restrictions (Glasbergen 2018). Many of these rural households cannot escape a situation of poverty, outdated farming practices, or food insecurity. Problems with child labor and environmental degradation are known to persist in many global supply chains (BMZ 2019b). Production restrictions, which are introduced - such as the avoidance of child labor, or environmental protection measures, the introduction of new crops, or stringent quality standards to be met at export, are consumer-driven but may also have substantial costs to smallholders (Glasbergen 2018).

It is important to understand that market-driven solutions are demand-driven in nature. This means that consumers in the Global North decide by the purchasing power of their dollars what is to be produced and how (BMZ 2020c). Thus, it remains questionable to what degree the preferences, capacities, and needs of smallholders actually correspond to the social consensus of Northern consumers that is communicated up the supply chain.
1.7 What is known about Smallholder Preferences for Contract Farming?

Smallholder preferences for CF can be investigated via general attitudes and motivations of farmers towards CF as well as via perceived costs and benefits with specific CF features (Schlecht and Spiller 2012). A third option is to provide evidence of real-world marketing behaviors that farmers have displayed in the past (Ladjili et al., 1997). Regardless of which of these approaches is chosen or combined, studying farmer preferences is considered crucial as it provides traders, development agencies, and policy makers with insights into how to improve the design of CF offers to achieve higher acceptance among farmers (Fischer and Wollni 2018; Schlecht and Spiller 2012). Higher contractual acceptance among farmers is linked to expectations of long-term supply commitment which is an important aspect for processors to achieve planning security (Schlecht and Spiller 2012).

In terms of farmer attitudes and motivations for CF, several authors stress the importance of some degree of entrepreneurial freedom to be kept by farmers despite signing a contract (Key 2005; Key and MacDonald 2006; Schlecht and Spiller 2012). Key (2005) suggests that farmers have a strong preference for autonomy. The fear of losing independent marketing options blocks many from taking up CF. In this context, the need to aggregate into producer groups or to join a cooperative can be another typical bottleneck in terms of smallholder willingness to sign CF offers (Shepherd 2018). Positive attitudes and motivations toward signing a contract, by contrast, are typically associated with better prices offered by CF schemes and with notions of gaining access to a predictable market outlet (Schlecht and Spiller 2012).

In terms of smallholder preferences for specific CF features, Abebe et al., (2013) note that these affect the motivation of smallholders to participate in CF schemes. Theoretically, CF features have received some attention in the academic literature due to their importance for contractual design. Abebe et al., (2013), however, note that only a few experimental studies exist which prove smallholder preferences for CF features with quantitative (statistical) evidence. Early choice experiments on the topic focused on agricultural markets in the Global North (e.g., Ladjili et al., 1997; Key 2005; Schlecht and Spiller 2012, etc.). The transferability of these results to developing countries was questioned because of the consequences of poverty on economic decision-making (Adamkovic and Martoncik 2017) and because of the dominance of subsistence-oriented farming in the Global South (Meemken and Bellemare 2020). Thus, the need to meet specific quality and sanitary standards to satisfy export regulations for farmers in developing countries is often perceived as much more rigid than what these farmers are used to when producing for local spot markets or for their own consumption (Bellemare 2015). Among the first authors conducting choice experiments about smallholder preferences for CF features

One strand of this experimental literature stresses the institutional economic perspective, which suggests that “the main motivation of smallholders to enter into CF is the resolution of market failures” (Abebe et al., 2013, p.15). One question in this regard concerns the need for services to be provided to farmers allowing them to meet international standards and commercialize their agricultural production. Abebe et al., (2013), for example, asked what Ethiopian smallholders valued more in their respective decisions to join a CF scheme: secure access to input markets or secure access to output markets? These authors found that in the case of Ethiopian potato farmers, secure access to inputs was valued more important than resolving uncertainties in selling their crops. The finding explained the tolerance of these farmers to accept small price differentials between CF schemes and spot market conditions. It also highlighted possibilities for contractual buyers to improve the design of their CF schemes by offering smallholders more elaborate extension support services. The study of Abebe et al., (2013), with its institutional economic focus, relates directly to the agenda of international development organizations which seek to achieve smallholder integration into global markets for agricultural modernization and poverty reduction goals (Kaplan, Brüntrup-Seidemann, and Noltze 2016). Delivering sustainable extension support services is typically part of the reason why international development organizations engage in public-private partnerships with major commodity buyers (BMZ 2019b, 2020b).

Another strand of the experimental literature on smallholder preferences for CF refers to issues of trust, perceptions of risk, and time preferences (Fischer and Wollni 2018, Mishra et al., 2018). For, it is known that the personal relationship between smallholders and contractual buyers tends to play an important role in the marketing choices of farmers (Shipmann and Qaim 2011). Earlier literature on relationship management suggested that the time horizon that business partners have in mind at the time of concluding the contract - particularly the intention to enter into a long-term business relationship (Morgan and Hunt 1994) - can be a necessary precondition for successful cooperation between farmers and buyers to materialize (Ganesan 1994). Both mutual benefit and mutual trust between buyers and signatory smallholders need
to be achieved for long-term contractual relationships to materialize (Will and Rockenbauch 2012; Minot and Ronchi 2014). Mutual trust typically takes some time to build, however. In this context, Fischer and Wollni (2018), as well as Anh and Boekelmann (2019), proved experimentally that the timing of payment is an important consideration among smallholders when weighing up whether to remain in a CF scheme or not. By disentangling trust from time preferences, Fischer and Wollni (2018) were able to show that time preferences of smallholders result from impatience and strategic concerns over liquidity constraints, which lead them to demand immediate payments.

In terms of the marketing risk of crop rejection, Fischer and Wollni (2018) identified significant preference heterogeneity: The more risk-averse the pineapple farmers in Ghana, the more importance they attached to being able to sell a lower-quality grade product.

Preference heterogeneity for contractual terms is a further topic identified by many of the above-mentioned studies (Masakure and Henson 2005; Blandon et al., 2009; Schlecht and Spiller 2012; Ochieng et al., 2017; Arouna et al., 2017; Meemken et al., 2017; Fischer and Wollni 2018; Anh et al., 2019). To name just a few reasons, preferences heterogeneity can result from psychographic differences in farmers’ personalities (Schlecht and Spiller 2012), from intra-HH bargaining between the genders (Meemken et al., 2017), or from previous experiences made with CF whose welfare effects are known to be highly heterogeneous and context-specific (Bellemare and Bloem 2018).

Anh et al., (2019), for example, who studied smallholder preferences for different CF models, show that smallholders with different socio-economic characteristics show different preference patterns for tested CF models, namely the informal, the intermediary, and the nucleus estate model. Farm size, as well as gender, were significant socio-economic characteristics for choices of the preferred CF model among coffee farming HH in Vietnam Anh et al., (2019). Significant factors which entered into the decision-making process of smallholders to choose a specific CF model were also whether inputs, technical assistance, attractive prices, and agreements on delivery schedules were provided and how rigid a monitoring effort was pursued by contractual buyers Anh et al., (2019). The authors concluded that those CF schemes were more likely to fail, which made farmers increasingly dependent on a single buyer Anh et al., (2019), reiterating the point about the importance of allowing farmers some entrepreneurial freedom. In the institutional economic literature, this has been associated with the monopsonistic power of major buyers. In the case of coffee farming in Vietnam, this was found to be a problem, especially with the nucleus estate model. Likewise, farmers also opted out of CF schemes as a
result of information asymmetries that were exploited by buyers in the informal model of contractual coffee farming in Vietnam Anh et al., (2019). The authors thus suggested that the development of farmer cooperatives - a specific type of the intermediary model of CF - should offer the biggest potential to create win-win outcomes for smallholder farmers and contractual buyers alike (Anh et al., 2019). Cooperatives allow farmers to seek their own buyers and reduce information asymmetries among members. However, earlier studies from the Global North (e.g., Schlecht and Spiller 2012) caution that even cooperative models of contracting face internal disagreements about price-setting mechanisms that can lead to different attitudes among farmers toward this form of contracting. Acknowledging preference heterogeneity for CF features, Meemken et al., (2017) re-emphasized the need to gather more experimental evidence on sex-based differences regarding CF preferences. While a large body of literature exists on gender in agriculture, which has been built up since the 1980s (Rauch 2009), gendered choice experiments exploring smallholder preferences for CF features are still rare. Meemken et al., (2017) presented the very first such choice experiment employing a purposively gendered research design for CF features. Building on earlier studies (e.g., Terstappen, Hanson, and McLaughlin 2013; Chiputwa and Qaim 2016) highlighting that gender equality policies exist for a number of private voluntary sustainability standards which are implemented through CF schemes (Meemken and Qaim 2018), the choice experimental study of Meemken et al., (2017) contributed that some production restrictions stemming from certified CF need not necessarily be associated with perceived costs, depending on the sex of the farmer. For example, contractual conditions related to the reduction of health hazards, those related to quality improvements and post-harvest handling, and others related to book keeping and better farm management were all associated with positive preferences by coffee farmers in Uganda. Male farmers, in particular, saw these conditions as “a welcome nudge” (Meemken et al., 2017, p.296) to make investments that can pay off in the long run without the need for exporters to incentivize these contractual requirements with an additional output premium. At the same time, the study also found that female farmers were largely excluded as signatories of CF schemes (Meemken et al., 2017), reconfirming a well-known pattern from many countries where cash-cropping is a male-dominated activity (Carr 2008; Maertens and Swinnen 2012; Loconto 2015) Preference heterogeneity among smallholder farmers for contractual terms is a topic of current academic interest. It underlines that the popularity of CF can be highly context and user-group specific.
1.8 What is done by Industry and Development Cooperation to improve Acceptance?

In response to outlined criticisms of CF, commodity-specific sustainability initiatives - so-called *multi-stakeholder dialogues* (or: industry roundtables) – have been organized by international development organizations. Multi-stakeholder dialogues cover almost all high-value agricultural commodities that are exported from the tropics and assemble transnational agribusiness traders, who demand most of the annual production in the respective commodities. In these roundtables, commodity buyers negotiate pre-competitive codes of conduct on a voluntary basis in order to address existing supply chain challenges. These private sector sustainability initiatives are to ensure a minimum amount of coordination among buyers and to resolve common problems of economic organization in international supply chains.

Public interest in the current state of CF and possibilities to improve it – such as to become more inclusive of the interests of smallholders - has pushed multinational companies to consider public-private partnerships. These are partnerships with development organizations that are to provide extension services in support of farmer self-organization. Some of these partnerships also push for *living income prices* (and *living wages*), which would cover the basic needs of suppliers in order to lift them out of poverty. The discussion of living wages arose as smallholders often remain stuck in poverty despite supplying high-value export crops to international markets via global supply chains (BMZ 2020c). *Living income prices* would adequately compensate signatory smallholders for their efforts to comply with novel production restrictions, such as ecological and/or social process standards that are required by international buyers, while ensuring that suppliers manage to exit national poverty lines.

In recent years, discussions in several destination countries of tropical agricultural commodities arose, for example, in the USA and various European countries (e.g., Norway, Denmark, France, The Netherlands, Germany, etc.), to initiate supply chain laws (BMZ 2021). These laws would hold transnational commodity traders accountable by their respective national laws in their home countries if cases of labor exploitation and/or environmental degradation could be proven (Federal Government of Germany 2021). The first supply chain law in Europe to come into force was agreed on by Germany in February 2021. It will take effect from the 1st of January 2023, targeting all German companies with more than 3000 staff who source products and raw materials from developing countries, allowing NGOs and other public entities to sue large companies on behalf of farmers (or factory workers) should it be possible to prove supply chain problems which do not comply with international legal frameworks (BMZ 2021). International buyers would risk paying high fines (in the German initiative: up to 2% of revenue) if proven to breach corporate codes of conduct (Hansen 2021).
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2. Background to Vanilla Supply Chain from Madagascar

2.1 Global vanilla production and the role of Madagascar

Vanilla is planted in a number of countries around the equator. Originating in Mexico, the crop has been mainly traded from the Indian Ocean for the past 200 years (Goergen 2017). Madagascar represents the single most important global origin (Sisifa et al., 2017). It is closely followed by Indonesia in terms of annual production today (Figure 4).

Figure 4 - Global origins of vanilla

Vanilla is planted in several tropical countries today

Madagascar is the biggest exporter

(Figure taken from Sisifa et al., 2017)

The orchid producing the vanilla crop was first brought out of Mexico by Spanish missionaries and traders in the 16th century. Attempts to cultivate the crop in Europe failed, however. Production outside of Mexico took off after 1819 when the Dutch brought it to Indonesia (Goergen 2017). The French had an island with the right climate, too, and brought vanilla to La Réunion in 1822. But vanilla production was hampered in both locations as the natural pollinators from Mexico were missing. When Edmond Albius - a slave of the French held on La Réunion - discovered a method of hand pollinating vanilla, it opened up possibilities to transfer the crop to Madagascar where more land was available to the French and the climate was suitable, too (Goergen 2017). Vanilla requires a humid tropical climate. Its production zones overlap with that of coffee and cloves in Madagascar (Havkin-Frenkel and Belanger 2011). These export crops are produced along the eastern coast, where an almost 2000 km long mountain chain holds off oceanic winds and produces abundant orographic rainfall (Figure 5).
Figure 5 - Agricultural commodities exported from Madagascar

(Figure taken from Elyse Maurer, 2015)
Vanilla is an important source of revenue for smallholder farmers in Eastern Madagascar. With an average GDP per capita of just above US$ 400 (WFP 2021), Madagascar ranks among the poorest countries in the world. Vanilla is an extremely labor-intensive crop, requiring 8-10 months of intensive care (Havkin-Frenkel and Belanger 2011). Both factors combined mean that Madagascar has had a competitive advantage to become the world’s major producer of vanilla (Melo, Olarreaga, and Takacs 2000). When other countries, such as Indonesia, China, or Mexico, pull out of production in response to falling prices, Malagasy farmers continue to cultivate the crop as production appears still attractive to them (Cadot et al., 2006).

Depending on a given year and the overall market situation, Madagascar contributes between 40% to 80% of worldwide vanilla production (Blarel and Dolinski 1995; Cadot et al., 2006). Most of the vanilla supply chain is located in Northeastern Madagascar in the so-called SAVA Region (named after its regional cities of Sambava, Andapa, Vohemar, and Antalaha) in Northeastern Madagascar (Figure 6). Here about 85-90% of Malagasy vanilla is produced (World Bank 2019). The vanilla supply chain employs an estimated 80,000 smallholder family farmers, 6000 collectors, and 33 major vanilla exporters (Fair Food International 2014). Vanilla is Madagascar’s single most important export crop (ITC Trade Map 2019). It is of strategic importance to the country as a foreign exchange earner (Maret 2007). In 2017 vanilla exports accounted for approximately 26% of export earnings and 6.8% of national GDP (World Bank 2019).
Figure 6 - The SAVA Region in Northeastern Madagascar

(Figure taken from Schreurs and Rakotoarisoa, 2011)
2.2 Price volatility of vanilla

Prices for vanilla traded on the global market fluctuate enormously, both at the export-import level (Figure 7) and in Madagascar among producers and middlemen traders (Figure 8).

**Figure 7 - Volatile global import prices for vanilla**

(Figure taken from Sisifa et al., 2017)

**Figure 8 - Volatile vanilla prices in Madagascar since 1993**

(Figure taken from Ministère de l’Agriculture et Elevage 2017 in Hänke et al., 2018)
2.3 Origins of price volatility

Multiple factors influence the volatility of vanilla prices. On the supply side, reasons include production shortfalls due to crop diseases, drought, and cyclones (Brown 2009). On the demand side, changing acquisition patterns of industrial vanilla buyers are implicated, too (Sisifa et al., 2017). If a commodity can be defined as “a more or less standardized (homogeneous) product, which can be readily interchanged in international trade” (Spiller et al., 2021, p. 6), then natural vanilla does not really qualify for this term. Much of the volatility in the natural vanilla market, in fact, results from the inelastic demand for “Bourbon Vanilla” (V. planifolia), a specific type of vanilla for which Madagascar is the world’s biggest supplier and the global price setter (Blarel and Dolinsky 1995). Distinct differences exist between the flavor profiles of natural vanilla from different global origins. This makes the substitution of natural vanilla beans from different origins difficult (Blarel and Dolinsky 1995). V. planifolia from Madagascar has a different flavor profile than V. tahitensis produced in Tahiti or V. pompona produced in Mexico. It is also distinguishable in taste from “Bourbon-like” vanilla (V. planifolia) produced in Indonesia since a great deal of the aroma depends on the specific preparation procedure (Blarel and Dolinsky 1995; Nestle 2021). Major international buyers prefer V. planifolia from Madagascar for its lower price point yet intense and harmonic flavor profile (Nestle 2021).

In the past, big price drops had occurred for Bourbon Vanilla when qualities in Madagascar turned out to be exceptionally poor (Sisifa et al., 2017). The demand dropped as major buyers then substituted the acquisition of natural vanilla with synthetically derived vanillin flavor (Brown 2009), which still dominates the food and beverage market (Lalani 2017) as it is extremely cheap to produce (Goergen 2017).

A remarkable magnification of price volatility for natural vanilla set in after the Malagasy vanilla market was liberalized in 1993 (Figure 8 above). Liberalization was pushed for by the International Monetary Fund and implemented under the pressures of the World Bank in an attempt to reduce rent-seeking by state officials involved in the vanilla trade (Blarel and Dolinski 1995). Liberalization meant that an existing cartel in the Indian Ocean - made up of Madagascar, La Réunion, and Mauritius - fell apart that had regulated international prices for Bourbon Vanilla ever since the 1970s (Cadot et al., 2006). The marketing board had been accused of strategically withholding vanilla stocks in an attempt to drive international prices up (Blarel and Dolinski 1995; USAID 1999; Cadot et al., 2006) during the 1980s and early 1990s (Figure 8). The vanilla marketing board was deconstructed in 1995, at which point it still
maintained a crippling export tax of 82% for vanilla exporters (Blarel and Dolinski 1995). Vanilla exporters compensated for their losses by having paid low producer prices (Blarel and Dolinski 1995; Cadot et al., 2006). It was hoped that liberalization would benefit both international traders as well as smallholders, with better prices (Blarel and Dolinski 1995). On top of that, international donors argued that liberalization would offer opportunities to increase foreign direct investments into the Malagasy vanilla business in order to improve vanilla qualities (USAID 1999). In the aftermath of liberalization the Malagasy Government had deregulated its institutional framework governing domestic trade. By 1997 it had dropped its annual export quotas and quality-dependent ratios which exporters had to respect in international trade (personal communication with vanilla exporter and former president of the PRCP, Antalaha 18/12/2018). Quality controls at customs were dropped next to the need for traders to formally register as participants in the domestic market. Thus rapid institutional deconstruction opened opportunities for trader entry (personal communication with vanilla exporter and former president of the PRCP, Antalaha 18/12/2018). The liquidation of remaining vanilla stocks in the late 1990s caused vanilla prices to plummet (Cadot et al., 2006). A series of devastating cyclones at the turn of the century, however, tightened supply and caused prices to rise again (Cadot et al., 2006; Brown 2009). In this situation, it became apparent that the deregulated market had engendered a situation of informal trader entry who engaged in speculative trade activities (Maret 2007). Speculative local trade resulted in the first price boom, which occurred between 2001-2004 (Figure 8 above).

2.4 The mechanics of boom and bust in the Malagasy vanilla market

The effect of a local price boom is the observed influx of new vanilla farmers. Enticed by better prices, new farmers enter the market. Prices keep rising over the initial years of the boom phase as international buyers are willing to pay higher prices in order to satisfy continued demand. The influx of additional informal middlemen pushes prices up as more traders compete for the crop. Some of these informal middlemen – frequently commission agents or collectors supplying processors and exporters - engage in speculative trade. They transform vanilla into a semi-prepared form called “vrac” (after 1.5 months of transformation) as this allows them to stock the crop to speculate on higher prices (personal communication with vanilla exporter and former president of the PRCP, Antalaha 18/12/2018). The price boom eventually comes to an end, however, when the entry of too many new farmers floods the market with vanilla that is of poor quality (due to premature harvest) and which is traded at speculative (exceptionally high) prices by local middlemen. At one point, major international buyers refuse to buy exceptionally
poor qualities that trade at unacceptably high prices. (personal communication with former Director of vanilla “Stabilization Fund” from 1968-1994, 12/12/2016). The bust of vanilla prices is inextricably linked to the phenomena of new farmer entry, speculative trade by informal local middlemen, increasing incidents of vanilla theft, and deteriorating qualities. In 2003-2004 (Figure 7 above), import prices of fully transformed vanilla of good quality were as high as US$ 400-500 per kg, yet these descended to levels as low as US$ 20 per kg in 2007-2012 (Danwatch 2017). Producer prices dropped sharply in that period (Figure 8 above), too, increasing the incidence of poverty as observed by widespread hunger and distress sales by farmers during the lean seasons of 2005-2012 (Fair Food International 2014; Iwundu 2014).

2.5 Recent price boom for vanilla due to growing global demand for natural flavors

Following 2012, the vanilla business of Madagascar experienced a second price boom which started to bust by 2018 (Figure 8 above). This latest price boom was unleashed by a trend of globally-growing demand for natural ingredients in the food and beverage industry (Sisifa et al., 2017). Several multinational food and beverage companies from North America and Europe started to pledge by 2015 to source more natural vanilla in the future (Figure 9 below).

Figure 9 - Growing global demand for natural vanilla flavors

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Imports (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USA</td>
<td>1,609</td>
</tr>
<tr>
<td>2</td>
<td>France</td>
<td>891</td>
</tr>
<tr>
<td>3</td>
<td>Philippines</td>
<td>710</td>
</tr>
<tr>
<td>4</td>
<td>Germany</td>
<td>605</td>
</tr>
<tr>
<td>5</td>
<td>Belgium</td>
<td>263</td>
</tr>
<tr>
<td>6</td>
<td>Mauritius</td>
<td>258</td>
</tr>
<tr>
<td>7</td>
<td>Canada</td>
<td>252</td>
</tr>
<tr>
<td>8</td>
<td>India</td>
<td>242</td>
</tr>
<tr>
<td>9</td>
<td>United Kingdom</td>
<td>241</td>
</tr>
<tr>
<td>10</td>
<td>Saudi Arabia</td>
<td>196</td>
</tr>
</tbody>
</table>

Pledges made by the food and beverage industry related to natural vanilla flavors after 2015

(Figure taken from Sisifa et al., 2017)
The reasons for the sudden price spike following 2012 comprised multiple events. Globally growing demand for natural flavors was important (Lalani 2017). In addition, there was also a shock to the supply side, which occurred in 2017 as a result of Cyclone “Enawo” (Goergen 2017). Moreover, reports abounded of money laundering from illicit activities in Madagascar, for example, international rosewood trafficking (Zhu 2018; Ong and Carver 2019; Transparency International 2021). Yet, speculative stockpiling and trade by informal traders in the SAVA Region (Lepidi 2017) was believed to be the main factor behind flamboyant vanilla prices in Madagascar leading up to 2017-2018 (World Bank 2017). Between 2013 and 2017, prices for imported vanilla experienced a 14-fold increase (Neimark 2019a). By 2017, imported vanilla of premium quality sold at over US$600 per kg for good qualities from Madagascar (Diagram D).

In sum, renewed interest in natural vanilla resulted in a price boom with very similar effects on local traders as in 2001-2004, including speculative trade by informal middlemen, increased theft, and decreasing vanilla qualities (Figure 10 below).

**Figure 10 - Renewed price boom sparking speculative trade and crop theft in Madagascar**

<table>
<thead>
<tr>
<th>How can we mitigate the extreme boom and bust?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems: quality, theft, violence, supply insecurity (but high price to farmers)</td>
</tr>
<tr>
<td>Problems: producer poverty, food insecurity, lack of investment in vanilla (but quality and supply good)</td>
</tr>
<tr>
<td>All make worse by lack of control and short term speculation by non vanilla actors</td>
</tr>
</tbody>
</table>

Madagascar cured vanilla price, indexed to 1998 = 100.

(Figure taken from SVI, 2018)
2.6 Effects of price boom: vanilla theft and deteriorating qualities
Price booms for vanilla in Madagascar represent exceptional income-earning possibilities for farmers and traders but have also translated into widespread vanilla theft in the past (Neimark et al., 2019a; cf. Figure 10 above). Rising incidents of crop theft cause farmers to harvest their vanilla prematurely (unripe) which results in poor vanilla qualities (Neimark et al., 2019a). If harvested unripe, vanilla gives off a foul smell during the process of transforming it into the final product (black vanilla), thus lowering its value in the eyes of international vanilla buyers. When a price boom escalates, buyers eventually push for lower prices on the grounds of deteriorating vanilla qualities (Danwatch 2017). This vicious cycle of rapidly rising prices, widespread crop theft, early harvest, and deteriorating qualities is also related to the weak legal institutions in Madagascar as exemplified by a rent-seeking State Executive (reports abound of police and local courts) who colludes in organized vanilla crimes (Neimark et al., 2019a).

2.7 Origin of contractual distribution channel in the vanilla supply chain of Madagascar
The liberalization of agricultural markets in Madagascar did not attract any substantial number of international investors in the 1990s (Barret 1997). In the case of vanilla, only a handful of transnational aroma and perfume houses had invested in Madagascar until the turn of the new millennium (personal communication with former president of the PRCP, Antalaha 18/12/2018). The supply chain was still dominated by Malagasy vanilla exporters (Figure 11 below). Although the first international vanilla buyer had started to vertically integrate as early as 1995 to reliably source good quality vanilla (Barel and Dolinski 1995), it was only after the first price boom of 2002-2004, with the experience of supply shortage and deteriorating vanilla qualities that an increasing number of international flavor houses decided to vertically integrate their vanilla supply chains from Madagascar (personal communication with vanilla exporters and vice president of the PRCP, Andapa 26/11/2018). The goal was to shorten the upstream acquisition channels in order to cut down on costs for unnecessary middlemen (Rodelle 2018), including brokers at import, processors, and informal middlemen in Madagascar (Figure 12 below)
Figure 11 - Global supply chain of vanilla from Madagascar before 2005

(Figure adapted from Fair Food International, 2014)

Figure 12 - Backward vertical integration in the global supply chain of vanilla from Madagascar

(Figure adapted from Fair Food International, 2014)
International flavor houses have struck strategic partnerships with Malagasy exporters to avoid intermediary middlemen at the import level (Figure 12, right-hand side).

Some flavor houses have gone one step further and now collaborate with Malagasy exporters to offer contract farming (CF) arrangements to smallholder vanilla farmers (Figure 12, left-hand side, supply channel for green and cured vanilla, top half). CF, as a form of vertical integration, avoids the bulk of informal local middlemen, such as local touts in villages, or commission agents, who operate from the cities on their individual accounts. CF of vanilla relies on collectors, whom exporters and processors of vanilla employ to interact with farmers.

A third group of international flavor houses decided to go even one more step in their desire for vertical integration. They have established their own processing and transformation units in the SAVA Region to be able to source unprocessed (green) vanilla (Figure 12, left-hand side, supply channel for green vanilla, see: the bottom half of diagram). In pursuing a form of full backward vertical integration, these flavor houses on the importing side maintain their own processing and trading units in Madagascar today. These are typically companies trading bigger volumes of vanilla (those trading more than 50 tons of cured vanilla per year - e.g., Symrise, Givaudan, Firmenich, McCormick, Virginia Dare, etc.). Very few of the big multinational traders pursue estate production with outgrower schemes, however. Full backward vertical integration not only cuts out the informal middlemen between smallholders and the vanilla processing (preparation = curing) units. It also makes it redundant to partner with exporters or importers, at least for part of their annual vanilla purchases. (Figure 12, supply channel for green vanilla, see: the bottom half of diagram)
2.8 Contract Farming Models Practiced by Contractual Buyers in Northeastern Madagascar

Each of the five CF models presented in the conceptual framework exists in operation among different international vanilla buyers in the SAVA Region.

Informal model of vanilla CF in the SAVA Region

In Northeastern Madagascar, vanilla collectors and smaller preparators operate the informal model. Some preparators subcontract collectors to buy vanilla from the farmers and prepare it up to “vrac” stage. Exporters finish the preparation process, condition, and package the vanilla before exporting. Preparators and collectors source their vanilla from many HHs of farmers in different villages. Collectors may collaborate with commission agents to help them source sufficient vanilla (Figure 13). Examples include: Mme Nathalie Tabavy, Monsieur Velo Alexis, Monsieur Chen Wen Bin, Mme Zaza, and smaller preparators in many towns.

Figure 13 - Informal model of CF

(Figure taken from Will, 2013)
Intermediary model of vanilla CF in the SAVA Region

The intermediary model is by far the most common form of vanilla contract farming in the SAVA Region. It is practiced by a number of Malagasy preparators and exporters who may have a changing international client base from one season to the next. Signatory farmers are typically aggregated into producer groups. Contracts are agreed with these producer organizations on an annual basis. Market-adjusted pricing is offered to signatory farmers. Market specification contracts intended to source ripe vanilla are pre-financed by partnering importers. Certification audits to verify process qualities are typically pre-financed by the implementing preparator or exporter (Figure 14). Examples include smaller exporters and preparators (selling up to 50 tons of black vanilla per year), such as Société Vanamad, Tsarakalitao, Exotique, Promabio, etc.

Figure 14 - Intermediary model of CF

(Figure taken from Will, 2013)
Multi-stakeholder model of vanilla CF in the SAVA Region

The multi-stakeholder model of CF is practiced by a number of lead companies who have pursued full backward vertical integration in their sourcing of vanilla from Northeastern Madagascar since 2005. These companies seek strategic partnerships with development organizations to promote specific livelihood targets that they advertise via their respective CSR agendas. The code of conduct of the “Sustainable Vanilla Initiative” (SVI) suggests a framework for desirable business and livelihood outcomes that may be tackled with development partners. Development partners support agricultural extension services, including training and socio-mobilization of signatory farmers (Figure 15). Examples of Public-Private Partnerships include: Unilever and Symrise with GIZ and Save The Children, Archer Daniel Midland with Sahanala, Virginia Dare with Soarary and CARE, McCormick with Ramanandraibe and USAID, Biovanilla with GIZ, etc.

Figure 15 - Multi-stakeholder model of CF

(Figure taken from Will, 2013)
Centralized model of vanilla CF in the SAVA Region

This model of CF is practiced only by a very few lead companies who have vertically integrated the transformation of vanilla using their own proprietary curing and extraction procedures in Northeastern Madagascar. They operate with local exporters who cure and package vanilla, from beginning to end (green vanilla to fully cured at export or even to liquid extract at export). A handful of international buyers - all of whom collaborate with large exporters trading > 50 tons per year - lodge large and longer-term investments into farmers in their attempts to establish supply channels that secure quality vanilla. Without relying on development partners, they may offer elaborate support and agricultural extension services to vanilla farmers in order to implement social and/or ecological process standards for their clients. They also implement CSR commitments for their international clients. Pre-financing agreements typically exist with partnering importers. (Figure 16). Examples include: Authentic Products-Firmenich-Nestlé, Henri Fraise-Givaudan-Nestlé (see: Nestlé 2015; Nestlé 2018), etc.

**Figure 16 - Centralized model of CF**

(Figure taken from Will, 2013)
Nucleus-estate model of vanilla CF in the SAVA Region

The nucleus-estate model of CF remains the exception in the vanilla business of Northeastern Madagascar to date. Vanilla is a labor-intensive crop, requiring multiple steps of production - land preparation, replacement of damaged lianas, pollination, pruning of tutors, turning of lianas, securing vanilla fields against thieves, harvesting - which take eight to ten months of intensive care. Following that, four months of post-harvest transformation (curing) is required. To incentivize and control all of this labor is costly. Wage laborers, who have no physical ownership over the crop, are hard to motivate. On top of that, land titles are insecure in Madagascar. There are competing land titling practices: traditional versus legal. Thus, only a very few importers who have vertically integrated pursue the establishment of their own plantations (Figure 17). Nevertheless, examples do exist: Floribis-Mane-Nestlé, Agri Resources Madagascar, etc. (Agri Resources 2021; Floribis 2021 for more information).

Figure 17 - Nucleus-estate model of CF

(Figure taken from Will, 2013)
2.9 Rise of private voluntary standards in the vanilla business of Madagascar

Following liberalization and witnessing a trend of increasing foreign direct investments (FDI), the vanilla supply chain from Madagascar was also affected by a growth trend for social and ecological process standards that has continued to this date (Campbell 2018). Several private voluntary standards are present today, the most frequent being different Organic, different Fair Trade as well as the Rainforest Alliance standards. Organic certification entered the Malagasy vanilla business as early as 1998. Fair Trade standards were present by 2003, and Rainforest Alliance entered in 2007 (personal communication with certified exporters in Andapa and Antalaha 16/10/2016 and 18/12/2018). The growth trend of private voluntary sustainability standards (PVS) is driven by the demand of final customers in retail (i.e., by supermarket sales). The food and beverage industry reacts to this demand. Vanilla exporters in Madagascar and vertically integrated aroma and flavor houses after import latch on to this growth trend to capture profits in high-value niche markets. These companies claim transparency about the conditions under which they source their ingredients. Social and ecological sustainability standards allow to trace products and respective process qualities along the supply chain. Indeed, some PVS, such as the Organic standards, are adopted primarily for reasons of product traceability by major lead companies in the vanilla business (cf. Nestle 2015).

2.10 Difference between CF, certified CF, and additional CSR in Malagasy vanilla

Contract farming (CF), the implementation of private voluntary standards via CF (certified CF), and corporate social responsibility (CSR) are distinctly treated in the academic literature. In practice, however, CF offers may incorporate these elements in a package.

In Northeastern Madagascar, CF schemes in the vanilla supply chain are typically organized by vanilla exporters (or vanilla preparators) who receive pre-financing to source quality vanilla for international buyers. Most buyers contract farmers through producer groups (in the intermediary model of CF). Self-organized farmer groups, for example true cooperatives, which strive for direct marketing and for their own certification, are rare to find (Amato 2018).

As a first step of contracting, vanilla farmers are typically requested by the buyer to meet a market specification contract (i.e., to produce quality vanilla). Signatory farmers are required to fulfill three criteria in particular: First, to harvest and sell only ripe vanilla to assure product quality for the buyer. Second, to deliver specified quantities of quality vanilla. Third, to respect the agreed date of delivery. When the date of sale arrives, the vanilla of all producers in the producer group is pooled to be collected by collectors working for the contractual buyer.
In a second step of contracting, contractual buyers may decide to increase the contracted quantities. The second step only materializes when contracted producer groups succeed in delivering quality vanilla over successive years.

The third step of contracting then includes production management provisions. Such contracts contain terms and references that derive from Private Voluntary Standards (PVS) - i.e., certified contracts which demand the farmers to respect process requirements - including Rainforest Alliance, Organic and / or Fair Trade catalogs.

PVS are standards, which are used by private companies on a voluntary basis. PVS stipulate social and / or ecological process qualities. That means they define the conditions under which a product is being produced. Traders who use PVS typically aim to prove that their raw materials are responsibly sourced - i.e. that they meet internationally accepted labor protection and/or environmental norms.

Certification is the process of verifying that respective norms were respected during the production process. The most credible forms of certification involve third party auditing and accreditation, performed by certification bodies that operate independently from either contractual party (e.g., Rainforest Alliance, Ecocert, Flocert, etc.)

Using PVS allows traders (processors, exporters, importing aroma houses, food and beverage manufacturers, and retailers) to differentiate their product portfolios for customers who demand responsibly-sourced products. The transition from a market specification contract (uncertified CF) to a production management contract (certified CF) adds a number of production restrictions from the perspective of the smallholder farmer. The need to avoid deforestation (Rainforest Alliance), the need to avoid inorganic inputs – whether from pesticides or fertilizers - or post-harvest contaminants (Organic and Rainforest Alliance), as well as the need to abstain from exploitative labor relations (Fair Trade) are just to name a few of these restrictions. In order to incentivize the implementation of these restrictions, production management contracts (certified CF) typically entail a provision of agricultural extension services, price premia and socio-organizational support by the buyer.

Interviewed vanilla exporters in Northeastern Madagascar reported to chose carefully among producer groups when embarking to transition to a certified CF scheme. Certification involves a number of costs (e.g., annual membership fees, payments for external audits as well as internal controls to pursue corrective measures). These costs are typically borne by the vanilla
preparator or exporter in Northeastern Madagascar, who manages the CF scheme for the international client. Further costs that arise to exporters comprise the support services to smallholders to meet the pre-conditions with producer groups to pass the certification audits [e.g., trainings provided to Organic farmers on possible methods to avoid pesticide contamination of vanilla], awareness raising sessions (e.g., on the importance of gender equality and child labor abstention in Fair Trade and Rainforest Alliance contracts), the provision of specific inputs (e.g., seeds related to reforestation activities as part of targeting Fair Trade and Rainforest Alliance contracts) etc. When a targeted producer group finally passes the external audit, the producer group becomes certified, and the exporter is allowed to claim the respective process standard for vanilla exported from this group. Traceability is the next challenge that buyers need to give proof of. Price premia paid for certified vanilla on the international market may or may not be handed down to the producer group in full sum. All depends on the exporter and on the PVS in question (For more detail, refer to Chapter 4).

Apart from PVS, some CF schemes are also influenced by buyer-initiated community development programs. These community development programs originate from corporate social responsibility (CSR) visions that lead companies in global supply- and value chains may pursue. Multinational companies frequently perceive a need to shed transparency on their “responsible sourcing” practices for image branding and marketing purposes. For many of these companies are listed on the stock exchange. Even if not, the modern consumer increasingly makes his/her purchasing decisions based on claims of process qualities (e.g., absence of labor exploitation or environmental degradation) rather than only on the grounds of considering product quality and price. Lead companies in the vanilla business include multinational food and beverage holdings - such as Nestlé, Mars, Danone, etc. - as well as a number of international aroma and flavor houses - such as McCormick, Symrise, Givaudan, Firmenich, etc. Supply chain scandals can damage their brand names and directly impact their profits. Thus, lead companies typically place great effort in addressing company-specific sustainability issues and documenting their progress in tackling them. Thus, CSR is implemented in company-specific ways.
CSR can either be implemented philanthropically or strategically.

*Philanthropic CSR* typically constitutes one-off events that serve for public relations campaigns and image branding purposes (Rangan, Chase, and Karim 2015). These may entail community development initiatives such as the opening of schools for the children of smallholders, the construction of health facilities, and similar interventions which tackle local sustainability challenges.

*Strategic CSR* is integrated into core business considerations – meaning it focuses on “meeting the bottom line” and increasing profits for the enterprise. The concept of “creating shared value” lies at the core of strategic CSR (Porter and Kramer 2006). According to Porter and Kramer (2006), a responsible business is “a business which benefits society”, for example, by creating decently paid jobs or conserving the environment instead of just creating shareholder value by maximizing its profits. Buyers carefully design strategic CSR in order to benefit from competitive advantages in the long run. In the context of sourcing raw materials, it can be beneficial for a buyer to offer perks and benefits to smallholder farmers. If these perks are truly appreciated, they can motivate the farmers to respect supply commitments, including product qualities. Strategic CSR is focused and coordinated in that it integrates the need to maximize business returns whilst creating shared value for the suppliers; the essential idea is to elevate the buyer's popularity in the eyes of core business partners.

Some examples of strategic CSR concretely practiced by certified vanilla exporters in Northeastern Madagascar include:

1. Support for contract farmers (certified or not) to secure their vanilla fields against vanilla theft. On the one hand, this serves the interest of the farmers. On the other hand, it increases the popularity of the buyer and also reduces the potential losses of vanilla to the buyer.
2. Providing a health insurance (or a living income price) is another example of *strategic CSR*. While both perks are listed as voluntary and recommended benefits in the *Rainforest Alliance* and *Fair Trade* certification catalogues, pursuing any of these two options equally pave the way for certification of a buyer. It goes without saying that both options increase the buyer’s popularity and tend to garner increased supply commitments by smallholders.
To sum up, both the use of PVS and of CSR is pursued by buyers to prove “responsible sourcing” to their customer (Latapi Agudelo, Jóhannsdóttir, and Davídsdóttir 2019). CSR can be more liberally defined by the buyer and often goes beyond immediate requirements of PVS. Both mechanisms do rest on voluntary engagements.

Continuing PVS and CSR commitments is not self-evident for buyers in the face of market boom and bust cycles, however. Contractual buyers do act prudently in volatile markets. A recent survey among contractual buyers from Madagascar, including vanilla traders from the SAVA Region (Rasolofoson-Rajaonah and David 2014), revealed that the willingness of buyers to formalize their contracts from oral to written and from market specification to production management contracts typically decreases in the face of rising levels of competition (i.e. during market boom phases, see Figure 18 below)

**Figure 18 - Rising buyer competition reduces investments into CF in Madagascar**

(Figure adapted from Rasolofoson-Rajaonah and David, 2014)
2.11 Sustainable Vanilla Initiative

For responsible sourcing to go to scale, the largest buyers of each industry need to agree on common principles when sourcing raw materials. The negotiation of voluntary principles before competition is achieved through multi-stakeholder dialogues. The industry roundtable of the vanilla industry is called the “Sustainable Vanilla Initiative” (SVI). At the time of writing, it comprises 28 of the biggest buyers of vanilla, sourcing more than 70% of annual global vanilla production (SVI 2020). The pre-competitive code of conduct to which members of the SVI have agreed includes the following objectives:

1. to expand the supply of traceable and sustainably produced vanilla
2. to improve the incomes and livelihoods of vanilla farmers
3. to improve vanilla qualities
4. to avoid child labor in vanilla production

(SVI 2020)

The traceability agenda means that participating lead companies have agreed to add monitoring and evaluation exercises to their CF schemes and - where possible - have their processes of production externally verified. This is where the increasing adoption of PVS comes into play.

Improving the incomes and livelihoods of vanilla farmers revolves around paying better prices through CF schemes, offering additional CSR, and/or guaranteeing minimum prices to allow for a living income, particularly when prices for vanilla are back in low price modus (Fair Trade 2019). Framing the objectives openly in a code of conduct allows international companies to adopt their own strategies. Several companies in the SVI have chosen to adopt their own measures of CSR to meet the agreed goals (see: Nestle 2015; IDH 2016; Sahanala 2018; Livelihoods Fund 2019; Symrise 2019, Authentic Products and Mane 2021)

Improving vanilla qualities incorporates a suite of targeted interventions, too. Here, the SVI collaborates, among others, with the Government of Madagascar and the SAVA Region to reintroduce a registration of intermediary middlemen (MID 2018). This is to reduce the speculative character of the informal trade (SVI 2018). The SVI also pushes Regional Government Authorities in the SAVA Region to scientifically determine the official harvest date (IDH 2019). Everything failing, member companies of the SVI already threatened to shift future investments to alternative origins of vanilla, for example, to relocate some share of
sourcing to Indonesia or Uganda (SVI 2018) in a quest to source (quality) vanilla (at acceptable prices). To what extent that would be possible remains to be seen, given that vanilla from Madagascar has a very sought-after flavor profile.

In order to reduce the scale of child labor involved in the production of vanilla, the SVI has partnered with the International Labor Organization (ILO), which conducted an initial study on the problem (SVI/ILO/USDOL 2019). The partnership with ILO runs interventions to sensitize lead companies and farmer groups about international labor norms, next to training officials at the Regional Government to engage in sporadic controls at the premises of exporters and preparators (SVI/ILO/USDOL 2019).
References for Background to Vanilla Supply Chain from Madagascar

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3. Research Questions and Mixed Methods Approach

3.1 Research Questions
Following an explorative research phase in 2016, we were able to identify three global to local trends which complicate the situation of vanilla CF in Northeastern Madagascar:

1. A globally growing trend for natural flavors in the food and beverage space has led to increased demand for natural vanilla and a respective local price boom in Northeastern Madagascar (2012-2018).
2. Weak rule of law combined with rapidly rising prices for vanilla have translated into widespread vanilla theft affecting smallholder farmers at their fields and homesteads.
3. Vanilla theft from the fields of smallholders results in premature harvesting behavior, deteriorating vanilla qualities.

The local price boom implies challenges for international buyers to source required qualities at acceptable prices. For smallholders, the situation is a double-edged sword, which the title of this study tries to capture. It offers new marketing opportunities but also challenges contractual relationships. Accordingly, we derived the following research questions:

**Chapter 1:**
What reaction does vanilla theft evoke among major stakeholders in the vanilla business of Madagascar?

**Chapter 2:**
How can we characterize vanilla farming households who benefit from CF offers? Do farm and household characteristics predict participation in CF schemes? Which households of smallholders tend to be excluded from vanilla CF schemes?

**Chapter 3:**
Do smallholders have particular preferences for specific CF features that are on offer by exporters? Which of these CF features do vanilla farmers perceive as the most valuable benefits, and which others as the most important economic costs? Are there differences between male vs. female farmers in this regard? Are female farmers included or excluded from current CF schemes?

**Chapter 4:**
How do smallholders judge CF offers which require them to implement typical sustainability standards that apply to the vanilla trade from Madagascar? Which private voluntary standard is the most vs. least attractive in economic terms?
The overarching research interest of this book addresses the wish to understand CF offers for smallholders in context. Through the chapter-based research questions outlined above, I hope:

1. to shed light on actions that vanilla farmers, major international vanilla buyers, and the Malagasy Government undertake to mitigate vanilla-related crimes and crop theft, which had been identified as prime concerns by vanilla farmers during our explorative research phase in 2016
2. to gain an understanding of how inclusive current CF schemes in the vanilla business really are.
3. to understand whether smallholders have particular preferences when signing up for (i.e., self-selecting into) CF schemes.
4. to acknowledge the economic benefits but also costs that smallholders perceive when required to implement social and/or ecological sustainability standards for international buyers

**Overarching Research Question**

The overarching research question of this study asks how CF offers could be improved to render them economically more attractive to vanilla farmers. CF faces several challenges in the context of rapidly rising prices. Crop theft and deteriorating vanilla qualities have already been mentioned. Another challenge is the lack of fidelity to respect contractual commitments by the contractual parties. The overarching research question thus also demands a reflection of whether, and if so, how the CF relationship between contractual buyers and signatory vanilla farmers could be reinforced to survive the effects of volatile prices. In order to respond to this broader question, we make use of a mixed-methods approach that integrates an economic choice experiment with qualitative research about contractual challenges experienced by smallholders as well as buyers. It is important to include the challenges faced by both contractual parties, smallholders as well as buyers, in order to recommend contractual improvements that are not based solely on the partial perspective of the farmers. Please refer to Figure 19 and Figure 20 (below) to gain an overview of the research process and research methods employed.
Figure 19 - Overview of research process

- **2016**: Explorative Phase (3 months)
- **2017**: Second Field Phase (6 months)
- **2018**: Third Field Phase (6 months)
- **2019**: Data Analysis + Drafting Papers
- **2020**: Ph.D. Dissertation and Publications
### Figure 20 - Overview of research methods

<table>
<thead>
<tr>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chapter 5</strong></td>
<td><strong>Chapter 2</strong></td>
<td><strong>Chapter 3-4</strong></td>
</tr>
<tr>
<td><strong>Open interviews</strong> with (N=8) vanilla experts: exporters, preparers, government, NGO and SVI officials</td>
<td><strong>Quantitative DT Baseline Survey</strong> administered to (N=1800) vanilla farmers of whom (n=1291) were randomly sampled from 60 villages across the SAVA Region</td>
<td><strong>Discrete Choice Experiment and HH Survey</strong> with (N=604) vanilla farmers from 6 villages</td>
</tr>
<tr>
<td><strong>Focus groups</strong> with (N=66) contracted and non-contracted vanilla farmers from 4 villages</td>
<td><strong>First Aim:</strong> to test for the existence of CF and relative popularity of 15 CF features which were to be further short-listed via Likert scales</td>
<td><strong>Aim:</strong> to test whether CE is understood by farmers and whether results can be interpreted</td>
</tr>
<tr>
<td><strong>Likert scales</strong> with (N=36) Rainforest Alliance certified contract farmers from 4 villages on respecting CF features</td>
<td><strong>Second Aim:</strong> to run a bionomial regression to identify HH characteristics of contracted vs. non-contracted vanilla farmers</td>
<td><strong>Aim:</strong> to cross-check ex-ante preferences for CF options of vanilla farmers</td>
</tr>
<tr>
<td><strong>Matrix ranking of CF features</strong> with (N=2) sustainability officers of two Rainforest Alliance certified exporters</td>
<td><strong>Preliminary qualitative study informing CE</strong> with (N=78) vanilla farmers from 8 villages</td>
<td><strong>Post experimental interviews</strong> with (N=70) contract farmers from 9 villages</td>
</tr>
<tr>
<td><strong>Aim:</strong> to inform our CE design as well as related info boxes, pictograms, and instructions</td>
<td><strong>Quantitative pilot of original (1st) CE design</strong> with N=122 vanilla farmers from 6 villages</td>
<td><strong>Aim:</strong> to cross-check ex-ante preferences for CF features of vanilla farmers</td>
</tr>
<tr>
<td><strong>Aim:</strong> to validate farmer’s relative level of difficulty to respect Rainforest Alliance requirements</td>
<td><strong>Aim:</strong> to test whether CE is understood by farmers and whether results can be interpreted</td>
<td><strong>Four feedback workshops</strong> with our eight local enumerators who conducted the CE</td>
</tr>
<tr>
<td><strong>Aim:</strong> to scope for real-world, actor-based problems in the vanilla business</td>
<td><strong>Aim:</strong> to short list CF requirements that farmers have difficulties to respect for DT Baseline Survey</td>
<td><strong>Aim:</strong> to cross-check ex-ante preferences for CF features of vanilla farmers</td>
</tr>
<tr>
<td><strong>Aim:</strong> to identify and rank existing CF features and PVS requirements</td>
<td><strong>Aim:</strong> to identify and rank existing CF features and PVS requirements</td>
<td><strong>Semi-structured interviews</strong> with (N=4) certified vanilla exporters</td>
</tr>
<tr>
<td><strong>Aim:</strong> to test whether CE is understood by farmers and whether results can be interpreted</td>
<td><strong>Aim:</strong> to cross-check the accounts of farmers against buyer experience</td>
<td><strong>Aim:</strong> to cross-check the accounts of farmers against buyer experience</td>
</tr>
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</table>
3.2 Choice Experiment embedded in Mixed-Methods Approach

An economic choice experiment (CE), seen as a precise and objective method to capture smallholder preferences for CF options, represents the heart piece of this study. The CE was designed to pursue a participatory research process. CF options offered by exporters were identified from expert interviews with certified exporters and then further explored through focus groups with contract farmers during the explorative research phase in 2016. Moreover, we integrated qualitative pre- and post-studies with smallholder vanilla farmers and certified exporters in 2017 and 2018 in order to be able to cross-check the quantitative choice experimental results for their validity (see Figure 19 above). Through this methodological integration, we achieved a modern mixed-methods approach (Ackimowitz 2018). That is to say: "a type of research in which a researcher or a team of researchers combine elements of qualitative and quantitative research (i.e., the use of qualitative and quantitative viewpoints, data collections, analysis, and inference techniques) for the broad purposes of breadth and depth, of understanding, and corroboration." (Schoonenboom and Johnson 2017, p.108)

Methodological pluralism is generally accepted as the best practice in social science research today (Mayoux 2006). Using complementary methods enables the researcher to verify information that is central to his/her research question. However, few economists make use of the advantages of methodological triangulation (Akimowicz 2018). Reasons for the latter comprise disciplinary shutters toward qualitative research, lack of methodological skills, and/or time constraints. Yet, an overall satisfactory strategy for gaining knowledge is usually based on the integration of qualitative interviews and quantitative data. Qualitative interviews allow the researcher to understand the context and the logic of interviewees (farmers as well as buyers) in making their decisions. Quantitative methods (in our case: the choice experiment, the Likert Scales, and HH survey) are then used to objectively gauge preferences, attitudes, and real-world behavior to separate majority vs. minority perspectives and behaviors. Integrating qualitative and quantitative methods enables the researcher to interpret quantitative results without unnecessary guesswork or over-reliance on academic literature, which may be drawn from completely different contexts.
3.2.1 Choice Experiment

Economic choice experiments (CEs) allow the researcher to study the utility (i.e., satisfaction or happiness) which interviewed respondents derive from products and/or services. To be more precise, a CE decomposes a respective product into constituent features. For, it is believed that people detect and derive utility from specific product features rather than from the product itself. The idea of weighing product attributes to come to a rational (reasoned) choice is captured by Lancaster's consumer theory of goods (1966). Lancaster (1966) builds on earlier thoughts of Thurstone (1928), who proposed that human attitudes could be measured. McFadden (1974) finally provided an econometric foundation of Rational Choice Theory by elaborating on his Random Utility Framework that allows researchers to model expected utilities of products by virtue of their constituent features (Equation 1).

\[ \text{Expected Utility} = U_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots + \varepsilon_i \]

Equation 1 - Random utility framework after McFadden (1974) as a basis of consumer choice

According to McFadden's (1974) Random Utility Framework, an individual derives utility (\(U\)) from (X) attributes of a product \(i\) that is known to the researcher, next to deriving additional utility from other attributes that are unknown (unobservable) by the researcher which are summarized in an error term (\(\varepsilon\)). Attribute-specific coefficients (\(\beta\)) quantify partial utilities contributed by each observable attribute (McFadden 1974). McFadden (1974) used multiple regression (Equation 1 above) to develop his conditional model of utility. In it, he proposed that when choosing between two alternative products, \(i\) and \(j\), individuals sum up respective utility contributions of constituent product attributes and choose the product (\(i\) or \(j\)) which gives them the highest utility. In other words: They choose product \(i\) over product \(j\) under the condition that product \(i\) gives them more satisfaction (Equation 2).

\[ \Pr (i \text{ over } j) = \Pr (U_i \geq U_j) \]

Equation 2 - Condition for choosing product \(i\) over product \(j\)

In a choice experiment, the researcher, therefore, typically presents two alternative products (in our case: two alternative contractual buyer profiles, each of which represents a different CF offer) to the respondent. Based on the constituent product attributes (in our case: specific CF features) shown in each option, the respondent is then asked to make an argued (reasoned) preference choice. Each choice task typically presents a third product alternative to the respondent (a so-called "no option") in which all product attributes shown on the other two
experimental product alternatives are negated to exist. This third option offers the respondent an exit option in case of indecision. Multiple choice tasks make up the experiment (Bateman et al., 2002, p.279). A CE essentially allows the researcher to statistically analyze whether presented product attributes (in our case: CF features) are chosen more often or less often by a sample of respondents than what chance would predict. An error term needs to be accepted by the researcher in his final analysis since there is a possibility that respondents assess presented alternatives against information that is unknown to the researcher (Louviere et al., 2001). Equation 2 (above) can be rewritten to make the probabilistic nature of choices explicit. Equation 3 differentiates between the respective utility contributions of known product attributes (\(V\)) and unknown ones (\(e\)) (Bateman et al., 2002). The error component in the utility function means that predictions cannot be made with absolute certainty.

\[
Pr(i \text{ over } j) = Pr [(VI_i + \epsilon_i) \geq (VJ_i + \epsilon_j)]
\]

Equation 3 - Observable part (V) and unobservable part (\(e\)) of utility that the respondent sees in two alternative products - e.g., in two different CF offers (i) and (j)

Given that McFadden's (1974) Conditional Logit model has several limitations which restrict its practical application (Hensher et al., 2005), we opted for a more recent version of CE, known as the Mixed Logit model (Equation 4).

\[
U_{nit} = \alpha X_{nit} + \beta_n + \epsilon_{nit}
\]

Equation 4 - Mixed Logit model after Train (2009), where: \(n=\)respondent, \(i=\)alternative product, \(t=\)choice situation, \((\alpha)=\)attribute specific choice coefficient, \((\beta)=\)individual-specific choice coefficient

Unlike the Conditional Logit model, the Mixed Logit model neither assumes that all respondents use the same choice strategies (Train 2009) nor that subsequent choices over multiple choice sets are made independently of each other by the same respondent (Train 2009). The Mixed Logit model accommodates the fact that, in reality, tastes can vary between individuals. Accordingly, each partial utility coefficient (\(\beta_n\)) in the Mixed Logit model is individual-specific (Equation 4 above). This is an advantage in terms of realism over the Conditional Logit model, which cannot capture individual-specific preference heterogeneity (Train 2009). The Mixed Logit model only assumes that the tastes of individuals remain stable across multiple-choice tasks in an experiment (Train 2009). The Mixed Logit model also relaxes the assumption that
the choices of respondents need to show independence of irrelevant alternatives in a choice set (the so-called IIA criterion that is criticized in McFadden's original Conditional Logit model; see Bateman et al., 2002, p.281). Free of all these limitations, the Mixed Logit model thus represents the preferred choice experimental method for researchers who require their respondents to perform multiple choice tasks in a row (Train 2009). In our own choice experiment, we asked farmers to complete eight choice tasks (choice sets), each showing three alternative buyer profiles. Instead of a classic "no choice option" in each set, we offered another type of exit option which consisted of a representation of the farmer's current buyer profile with regard to the CF features of interest. Such a "self-explained status quo" was integrated in order to increase the realism of our experiment (Barkmann et al., 2008). For more details on the participatory process of selecting CF features included in our CE and for further details on the econometric modeling techniques used, please consult Chapters 3 and 4.

3.2.2 Necessity to corroborate the Choice Experiment via a Mixed-methods Approach

Just like any method, choice experiments (CEs) have their strengths and limitations. CEs evolved from Conjoint Analysis (Louviere, Hensher, and Swait 2001) and belong to the family of stated preference techniques (Bateman et al., 2002).

In terms of strengths, stated preference techniques, including CEs, allow the researcher to study the preferential choices of respondents for novel products. These products need not (yet) be traded on the market (Bateman et al., 2002). That is why the method is particularly popular in market research. In the past, for instance, large infrastructure projects (e.g., the London Underground) were planned using CEs (Bateman et al., 2002). Other applications include the economic valuation of non-market goods, such as ecosystem services or nature conservation projects (Barkmann et al., 2008; Cerda et al., 2014; TEEB 2021). Further applications involve simulations of demand for novel consumer products, such as food items to be sold in supermarkets (Chintagunta and Nair 2011). But CEs can also be used to economically value novel CF offers.

The decompositional approach focusing on respondent satisfaction with particular product attributes allows the researcher to simulate the economic values of a novel combination of these product attributes, which would constitute a novel product (Train 2009). In this respect, it is noteworthy that CEs enable the researcher to compute willingness to pay (WTP) and willingness to accept (WTA) values as chosen by select respondents in the sample for specific product attributes (in our case: CF features). A WTP/WTA analysis establishes monetary accounting prices for each product attribute. The use of a WTP/WTA analysis allows the researcher to
engage in a microeconomic cost-benefit analysis regarding specific product attributes (CF features). WTP values express the maximum amount of money that respondents (smallholder vanilla farmers) would be willing to pay (per kg of vanilla sold) to access respective product attributes of positive utility (CF benefits). WTA values represent the minimum amount of money that respondents would demand in terms of compensation to respect respective product attributes with negative utility (CF obligations). Choice experimental modeling (simulation) thus arrives at an economic cost-benefit analysis of alternative future product options (in our case: simulation of alternative CF offers). [Please consult Chapters 3-4 for more detail on how WTP/WTA values can be estimated from CE results.]

Vis-à-vis earlier stated preference techniques, CEs are considered more robust in terms of capturing valid results (Bateman et al., 2002). Especially when compared to contingent valuation - a stated preference technique widely used in the past (Bateman et al., 2002) - CEs are less susceptible to strategic responses (Murphy et al., 2005). Contingent valuation - a technique that depends on direct verbal preference elicitation - has been heavily criticized for yielding unrealistic results which can be easily made up by the respondent (Hausman 2012). Due to the experimental format of a CE, by contrast, respondents have a harder time understanding how exactly preferences are established by the analyst (Hanley et al., 2001). Thus, respondents have a harder time tricking the results strategically by cheap talk (Lusk 2003). CEs are thus unlikely to arrive at overly hypothetical preferences in the form of typical "wish lists" for which contingent valuation (Bateman et al., 2002) and also participatory ranking exercises (Kumar 2002) have been criticized.

A further strength of a CE is the simple fact that the technique is quantitative and thus allows the researcher to measure preferences in statistical terms. Unlike in a participatory ranking exercise, each respondent has the same weight of voice. With several hundreds of voices being recorded, the researcher can identify a majority representation with great precision (Mayoux 2006; Schoonenboom and Johnson 2017; Akimowicz et al., 2018). Moreover, the quantitative character means that CEs can be conducted using a representative sampling framework to arrive at an objective result for a well-defined population (Mayoux 2006; Schoonenboom and Johnson 2017; Akimowicz et al., 2018). That is why CE results generate considerable interest among policy makers (Bateman et al., 2002).

In terms of limitations, CEs are not without criticism, however. The main weakness remains the possibility of hypothetical bias (Bateman et al., 2002). Hypothetical bias refers to the phenomenon that what people say they would be willing to do and what they then actually do in reality can be two different things. Although less pronounced in a CE than in other stated
preference techniques, it still applies (Murphy et al., 2005). In particular situations, respondents may not wish to disclose their true intentions to the interviewer but rather respond according to what may be socially expected of them (Willis 2006). Hypothetical bias due to social expectation relates to investigating sensitive topics, for instance, officially forbidden activities. In our case, for example, we asked respondents about CF conditions that tried to place a ban on child labor or to stop slash-and-burn agriculture. Here, the researcher may be perceived as a stranger by the farmer and may not want to disclose the truth for fear of potential consequences (Willis 2006). So the researcher can never completely rule out that respondents make false claims as a result of missing trust or other reservations (Murphy et al., 2005). The researcher can only try to reduce the extent of these tendencies, for example, by defusing explicit references to sensitive topics as part of instructions for the experiment (Lusk 2003; Loomis 2014). The presentation of standardized information boxes and pictogrammatic illustrations - which are elements of any CE - both offer opportunities to tone down social expectations from the side of the researcher. To give an example, next to assuring anonymity to respondents at the outset of the survey, we also put great care into crafting instructional sentences presented in standardized information boxes that enumerators read out to respondents. Some of these sentences were to attenuate the possible social stigma that could have been associated with specific activities which are officially forbidden in Madagascar. When introducing the contractual condition to stop child labor, for instance, one of the instructional phrases read: "In the context of vanilla farmers here in Madagascar, many of whom live in poverty, it is completely understandable that not all families manage to send all their children to school all the time." This was deliberately included to create a sense of understanding and to reduce the sense of illegality (or abnormality) of child labor in the hope that respondents would feel free to open up and truthfully respond to our questions related to the respective CF attribute. Moreover, respondents were told at the very start of the survey, one more time before the CE started and another time in the middle of the CE, that the exercise could only work if they responded truthfully to us. This is another strategy called "cheap talk" (Lusk 2003; Loomis 2014) that may be used by researchers to minimize hypothetical bias.

Apart from hypothetical bias, however, choice experiments can also default due to a number of possible technical pitfalls in implementation. A common problem is attribute non-attendance (Glenk et al., 2015). Attribute non-attendance means that respondents may choose to repeatedly ignore specific product attributes before arriving at a reasoned preference choice. The problem typically occurs when the design of the CE is too complex. Therefore, it is generally not recommended to use more than 6-8 attributes per choice task (Green and Srinivasan 1990). The
inclusion of too many attributes can lead to cognitive overload and confuse respondents (Sawtooth Software 2008). However, the precise number of attributes to be presented per choice task is also a matter of how familiar respondents are with the issues that are discussed in a CE (Barkmann et al., 2008). Attribute non-attendance needs to be tested through a pilot study. A related problem to the visual complexity of CEs is to face possible issues with position effects – also known as ordering effects (Kjaer et al., 2006). Here, respondents may fix their attention on specific CE attributes, which are placed at conspicuous positions in each choice profile. For example, in the process of scanning what is being presented to them, respondents may fix their eyes disproportionately on the first or last attribute presented on a choice alternative, thus distorting statistical results, including estimates for WTP/WTA prices. This problem can be reduced by creating multiple versions of a choice set, each with identical attributes but with a different visual arrangement (Bateman. In our case, for instance, our enumerators implemented the experiment with two versions (Version A and Version B) to reduce the influence of position effects on the statistical analysis and final results.

Our CE design changed remarkably over two consecutive pilot studies. It had to be simplified from initially sixteen to eventually eight attributes per choice alternatives in order to avoid cognitive overload of interviewees. We also went through several iterations of the pictogrammatic illustrations that visualize CF features in any CE. The integration of enumerator feedback was vital in this process. Finally, in mid-2018, we arrived at a CE Design that we were absolutely confident about, both in terms of ease of understanding by the farmers as well as in terms of its standardized administration by our enumerators. Implementing a credible CE requires a lot of time for testing, a lot of work, and a careful design to avoid multiple technical pitfalls.

Other problems are less specific to CEs but apply to quantitative surveys more generally. These concern doubts of replicability (external validity) and possibilities of enumerator bias (internal validity). Concerns over replicability refer to the fact that most CEs are performed as cross-sectional studies. As such, they only capture a snapshot of a particular context at one particular moment in time (for example, the context of vanilla farming in Northeastern Madagascar in 2018). Retests are rarely performed (Liebe et al., 2012; Schafsma et al., 2014; Morkbak and Olsen 2014). Concerns over replicability are also based on the fact that CE results can vary for one and the same data set and study, depending on which underlying probabilistic error distributions the researcher chooses for each attribute (Hensher and Greene 2002). Typically researchers seek out a model that explains most of the variance in the data (Train 2009).
Likewise, CEs can be subject to enumerator bias. Enumerators may fail to present the experiment or to pose survey questions in a standardized (the same) way. Where questions are posed in a suggestive manner, they can influence the responses of interviewees (Simon 2006). Even worse, where an enumerator starts to anticipate the responses of interviewees - due to interviewer fatigue or other circumstances - the entire survey may be at stake of misrepresentation. Situations like those, which jeopardize the internal validity of quantitative surveys, need to be avoided at all costs. Sensitizing enumerators about respective pitfalls is just as important as training them about the method, its rationale, and its specific application. Careful selection of assistants is equally required to obtain enumerators with appropriate skills for the task (Simon 2006). In our case, eight local enumerators with regional knowledge, local language capability, enough formal education to understand the issues and ideas central to our research, and pre-existing experience in data collection were recruited. All of our enumerators had at least a BSc. Degree from a Malagasy University. They were formally trained by us for a total of 6 months over two consecutive field phases (in 2017 and 2018). This period also comprised two pilot studies of the CE (Diagram XY above). Since our CE systematically controlled for gender effects (i.e., sex-based differences in CF preferences between male vs. female farmers), we also recruited a gender-balanced team. For, we were told by our field coordinator (a senior-level Malagasy consultant who had worked for the FAO as well as for the national statistical office, INSTAT) that female farmers would better open up toward female assistants as a result of cultural customs. Interviewer misconduct had to be sanctioned during field tests and respective pilots and was discussed with the entire team to avoid enumerator bias. Above all, however, the importance of motivating enumerators to perform the repetitive task of completing a large quantitative survey with integrity and a sense of duty sticks out. People management skills are crucial to keep the morale of enumerators high. It includes such basic ethical considerations as respecting agreed work and rest schedules, paying a fair remuneration for the hours worked, and giving occasional praise, not only criticism (Magde 1997)

Nonetheless, CEs are widely accepted in quantitative disciplines such as psychology, behavioral, agricultural, and natural resource economics, as well as market research, as a legitimate preference elicitation technique. Researchers in these disciplines flexibly combine rational choice theory with the theory of planned behavior (Ajzen 1985, 1991). The latter aims to link actual human behavior to behavioral intentions. According to Ajzen (1991), behavioral intentions are based on three constructs: personal attitude, subjective norms (group beliefs), and
perceived behavioral control. Ajzen (1985) proposes that behavioral intention is an appropriate predictor of planned behavior, but he also concedes that behavioral intentions can vary between situations (Ajzen 1991). Critics claim that it is difficult to account for all these underlying constructs with a CE alone. CE results conflate the choice preferences of respondents into coefficients (i.e., single numbers) for each specific product attribute. Critics call for more nuance in the interpretation of rational choice data (see Burns and Roszkowska 2016). Following up on the CE with qualitative expert interviews, this nuance can be provided by using a mixed-methods approach (Figure 20 above).

Cross-checking the validity of our results is warranted for yet another reason: Our research project had opted for a sampling strategy that was to be representative of the entire study region (spanning a total of 60 villages). Both the Diversity Turn Baseline Study (conducted in 2017) and the Choice Experiment (2018) were to be linked through multiple random stratified sampling. A landscape-level sampling approach had two advantages in the eyes of the principal investigator. First, it enabled the researchers in the project to link the two data sets if needed (the integration of Chapter 2 into this study is an example). Second, it allowed capturing the whole breadth of CF experiences of smallholders, including positive as well as negative cases. The latter was perceived important as recently published academic reviews in the extant CF literature had raised concerns of possible selection and publication bias over-representing positive examples of CF (see section 1.6 Criticisms of Contract Farming). The sampling approach chosen by us was to avoid such a selection bias.

However, taking a representative sample at the landscape level also meant that our CE results were cut across five different CF models (practiced by eight different vanilla exporters in our sample). Moreover, our data covers two different ethnic groups (the Betsimisaraka along the Littoral vs. the Tsimihety in the Highlands of the SAVA Region, each pursuing distinct farming systems). Our sample also covers distinct socio-economic groups, including resource-rich vs. resource-poor farmers (see Chapter 2) as well as male vs. female farmers (see Chapter 3). To accommodate this breadth of realities, our definition of CF had to be very broad. For the purpose of the CE, we defined CF as *any coordination mechanism that included conditions (benefits and obligations) in addition to spot market conditions offered to interviewed farmers in respective years of vanilla sale*. Or, to put it another way: By lumping different CF models, different certification schemes, and breadth of perceptions of smallholders from different socio-economic backgrounds into a single statistical analysis, means that our choice model represents a rather general and elusive representation of smallholder preferences for CF options. Especially Chapter 4, which models preferences for certified CF options of "the average vanilla
farmer” (in the study region), is affected by this limitation. A representative sample for the study region also meant that only 20% of respondents (n=119/604) were finally identified as being contract farmers. The remaining 80% of respondents (n=485/604) in our sample had no prior experience with CF. Critics would argue that the majority of farmers we interviewed had little clue about CF in reality. These critics could be inclined to refute the validity of our CE on the grounds of possible hypothetical bias. We can relax this argument by highlighting that the CF features tested in the CE were familiar to most farmers, even to those without prior experience in contracting. Issues such as vanilla theft and quality deterioration, child labor, slash-and-burn, or quality-dependent pricing were all known by most respondents from their day-to-day activities as vanilla farmers. While CEs do not require respondents to be familiar with the final product, they do need respondents to be familiar with tested product attributes. The latter was given in our case. One could even argue that a CE is well suited in this context since its purpose is to model ex-ante preferences for a novel (non-existing) product. What is more, the method emulates the process of how vanilla exporters communicate their contractual terms to farmers, namely as a package of benefits and obligations – without disclosing much additional information about international buyers or associated sustainability standards. Given all the doubts outlined above, however, I see a need to cross-check the internal validity of our CE. For this reason, Chapter 5 is added to this study. Chapter 5 bridges to a General Conclusion. It puts the results of Chapters 1-4 in context by drawing on the mixed-methods approach.
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Chapter 1: Mob justice and ‘the civilized commodity’

Authors: Benjamin Neimark, Sarah Osterhoudt, Lloyd Blum, Timothy Healy

ABSTRACT

Our theory of ‘the civilized commodity’ examines ‘mob violence’ affecting high-value commodities, including the vanilla boom of Madagascar. We illustrate producers’ labor under fraught conditions of violence and contradictory claims of ‘street justice.’ Specifically, we ask, what counts as justice and to whom? We highlight broader arguments around ‘moral hyper-proximity’ of producer-consumer relations, and the strategies of state and market actors to circulate ‘civilized’ visions for systemic and future governance over commodity landscapes. State and market calls for ‘law and order,’ however, obscure the structural inequities faced by smallholders in their ‘everyday’ production of commodities under periodic crisis.

Keywords:
Madagascar, commodities, moral economy, state violence, street justice, vanilla
1. Introduction

1.1 Discovery of commodity theft and street justice by the mob

It was July of 2017, and we were packed into a village home located in the heart of Madagascar’s Northeastern ‘vanilla triangle’ trying to get some idea of the effects of the price spike on local vanilla growers.\(^1\) Vanilla bean prices had reached upwards of $600 a kilogram, representing nearly a 16-fold price increase to rural vanilla producers since 2013. As may be expected in such a boom market, the first thing we noticed about the price spike was the new wealth it brought to the area, as everywhere we looked we saw recently purchased consumer goods, including off-mark Chinese motorbikes, flashy neon-colored sofas, tin roofing and solar panels.\(^2\)

However, alongside this newly found wealth came a wave of insecurity and anxiousness, as farmers spoke of sleepless nights in their vanilla fields attempting to ward off thieves who wanted to cash in on the high prices. In fact, security concerns overwhelmed our conversations. The head of one growers’ association, Joseph, stressed, “…that when there’s a lot of money in the area, there is theft”, and when a thief is caught, more times than not, farmers are compelled to “…take matters into their own hands”.\(^3\) When asked why they do not just call the police (gendarmes), another grower, Henri, grumbled: ‘we do not trust the gendarmes…they are the ones who sell guns to the dahalo [local bandits]’. We then asked what they do if they caught a dahalo stealing their vanilla. Joseph replied with a straight but rather deadpan expression, “dead immediately”.

Although Joseph’s statement was particularly blunt, there is no shortage of such stories of ‘extra-judicial’ killings and other acts of violence from smallholders across the SAVA Region of Northeastern Madagascar. Since the price spike began in 2016, there have been reports of increased incidents of vindicte populaire (or fitsaram bahoaka in Malagasy), acts we refer to in this discussion as ‘street’ or ‘mob justice’ to denote the contextual realities of village streets, where violence motivated by vanilla theft is taking place sometimes by individuals, but also in groups. While vigilante justice is not a new phenomenon in rural Madagascar (e.g., Sharp

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\(^1\) The ‘we’ here includes the first and fourth author, only. The Northeastern coastal towns of Sambava, Antalaha, Vohemar and Andapa (SAVA) are center of vanilla-production in Madagascar.

\(^2\) It is the country’s primary export crop with proceeds of up to $800 million. For more on the material effects on local consumption patterns of the vanilla price spike see Zhu 2018.

\(^3\) Anon July 2017.
1990), with the current price spike, these events are now more frequent and violent. In 2017 alone, it was reported that over 100 people, both thieves and farmers, were killed in the vanilla producing region of Andapa, located in the western part of the vanilla triangle. While this uptick in violence is disturbing, it would be simplistic to chalk up such violent responses by smallholders as ‘irrational’ or ‘chaotic’ actions taken by a desperate and precarious peasant class. On the contrary, the almost mundane descriptions of reprisals to vanilla theft, and the lack of response by Malagasy state authorities, signals a desire to seek out alternative forms of justice in the wake of the price spike. In the absence of state and market mechanisms of support, many farmers currently regard ‘taking matters into their own hands’ as the most effective avenue to safeguard their livelihoods. Farmers look towards street justice primarily as a means of protecting their crops, but also as a form of ‘symbolic resistance’ against the gendarmes who smallholders suspect of deputizing thieves to steal from farmers on behalf of state officials. These acts of vigilante justice by smallholders effectively challenge the state’s legitimacy over the use of force (Weber 2013; Mbembé 2003). In such ways, mob violence is situated as a question of agrarian moral economy within which, despite differences in gender, class, and ethnicity, ‘a broader solidarity emerges’ in response to structural injustices imposed by the state and market forces (Neumann 2002, 42; see also Edelman 2005; Wolford 2010). In Madagascar, the moral economic relationships of smallholder vanilla farmers are embedded within the neoliberal market reforms and deregulation of the vanilla market during the mid-1990s (McMichael 2009). While smallholders have been dealing with price variations for nearly twenty-five years, the current price spike has precipitated a crisis for rural communities that has engendered particularly acute levels of violence and mistrust. Thus, smallholders who are facing the loss of their livelihoods recalibrate their moral sensibilities around violence within the context of ‘boom and bust’ dynamics. This recalibration is breaking down certain existing moral economic relationships within communities, including creating heightened suspicions between neighbors, and even between members of the same family. At the same time, the vanilla crisis is also reinforcing other collective relationships, as individual farmers work together to organize patrols and mobilize shared security measures, including mob violence events. The moral economy of rural street justice also influences, and is influenced by, multiple intersecting relationships of power that extend beyond local levels of production, however. For

4 For example, in some areas of Madagascar, there is a tradition of mob violence for certain serious infractions, such as stealing bones from ancestral tombs.
example, acts of mob violence are becoming increasingly visible to those living outside of rural Madagascar, as accounts of ‘vanilla violence’ reach a global audience through high-profile media outlets. These accounts are similar to international news stories that highlight the violence connected with other high-value commodities, such as ‘blood diamonds’ (Le Billon 2000), cacao (Dhariwal 2012), and avocados (Brown 2013). Reading these depictions in the media, downstream market actors, such as multinational companies and commodity suppliers, become anxious that consumers will turn away from products that use ‘blood’ vanilla.

The circulation of these stories illustrate what we call a ‘moral hyper-proximity’ of global commodities – the changing dynamics of producer-consumer relations in an age of high-speed media, where information about commodity production travels faster and in a greater diversity of forms (c.f. Goodman et al., 2017; Anderson 2014; Goodman et al. 2016). Moral hyper-proximity brings ideas of what producers and consumers each believe to be 'fair' dynamics of commodity production and trade relationships into more immediate contact through diverse social media platforms (Besky 2008; Moberg and Lyon 2010; West 2012). For example, many stories on mob violence in the vanilla market emphasize the preference for ‘law and order’ structures to prevail, linking this outcome with best-serving farmers. The international attention surrounding Madagascar’s vanilla industry is forcing the Malagasy government to take action to reclaim authority and moral legitimacy over law enforcement, including through the increased militarization of the spaces of commodity production.

We elaborate on the concepts of moral economy and moral hyper-proximity in the context of street violence of the vanilla boom. We argue that power struggles over defining the just governance of commodity relationships emerge in attempts to delineate how people involved in commodity production and trade ‘should’ behave (Cavanaugh 2018, 405; Goodman et al., 2017). To bridge these diverse concepts, we mobilize Norbert Elias’ (2000; vol. 1; 1969; vol 2 1982) classic work, The Civilizing Process, to illustrate the historical and political conditions through which societies are managed. Elias signals micro-level changes in human behavior alongside periods of economic transformation and specialization in the late 18th Century (Durkheim and Simpson 1964), when labor shifts brought social classes (e.g., the ‘village’ cobbler and the Bourgeois merchant), normally kept apart, in more frequent contact. This new proximity altered how people acted and presumably instilled a ‘civilizing processes’ of learned

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5 This notion of justice commonly aligns with discussions of literature largely based on western traditions of moral individualism (c.f. Rawls, 2005).
behaviors from the courtly social classes ‘downward.’

In his later work, Elias (1982) thought of the civilizing process as essential to building the nation-state, with newly formed governments reinforcing ‘appropriate behaviors’ to bolster state legitimacy, enforce tax collection, and most noteworthy, to maintain a monopoly on violence.

Working from Elias, we explore 'the civilized commodity', or the systemic governance over life under the fraught moral conditions of increasingly violent commodity circulation (Le Billon 2005). Placing the civilized commodity in conversation with street justice, moral economy and moral hyper-proximity highlights connections between liberalized boom/bust markets and the structural political-economic inequities of ‘everyday’ production under periodic crisis. To many, commodity violence and street justice contrasts with the ‘civilized’ versions of how commodity production should look – transparent, controlled by state and market forces, and connected to the delivery of economic and social benefits (West 2012). Thus, farmers in Madagascar taking matters into their own hands becomes for downstream market actors an unseemly and ‘un-civilized’ way to resolve disputes.

Below we first provide a brief overview of moral economic theory within the agrarian studies tradition. We bring this literature into conversation with work on street justice in urban settings and with other forms of commodity violence, and argue for the potential for further work examining the parallels of street violence between rural and urban settings. Drawing mainly from ethnographic work with Malagasy smallholder vanilla farmers, we provide a detailed account of the material relations, historical dynamics, and cultural meaning of vanilla production and trade in the region. We consider the commodity crisis from the smallholders’ perspective in comparison to other market actors, including middlemen collectors and larger exporters. We draw on over 288 socio-economic surveys with both male and female vanilla growers of different levels of income and 40 semi-structured interviews with collectors, exporters, government officials and industry experts.

We discuss the heterogeneity of vanilla growers and their different perspectives of violence, and consider various media accounts describing Madagascar’s vanilla boom and street justice events. We demonstrate that in a

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6 These behaviors included the capacity of foresight, rationalization, self-restraint, and the internalization of negative emotions such as anxiety and disgust. The state reified these behaviors over time through social sanctions and other disciplining tools (Foucault 1998; Weber 1993).

7 Alongside Elias, our use of civilizing here is not meant to be teleological or progression towards a superior model of behavior or values, rather to show a critique to such thinking in a period of sped up and deregulated trade.

8 This work was conducted over the 2016-17 vanilla campaign within the region of SAVA and in the UK and USA. The survey was administered by CURSA, a regional University based in Antalaha, Madagascar.
period of sped up consumer producer relations, the state and market react to peasant violence with ‘civilized’ law and order style responses meant to discipline the behavior of farmers, landscapes, and commodities. Actions, we show, that are meant to demonstrate state legitimacy and to maintain the state monopoly of violence in rural landscapes.

1.2 Connection between vanilla trade and vanilla theft in Madagascar

The current dynamics of Madagascar’s 'street violence' are situated within broader economic, political, and environmental contexts of global commodity production and trade. In particular, we see the crisis tied directly to the deregulation of commodities markets in the 1990s. While mob justice is not necessarily a new form of violence in Madagascar, this deregulation is a key point of departure for us to better understand the connections between the political and moral economy of street justice, global commodity circuits, and the historical roll-back of state power and legitimacy in rural Madagascar.

Vanilla was thought to be introduced to Réunion, Mauritius, and then Madagascar in the early 1800s by the French, who were looking to establish commercial plantations (Havkin-Frenkel et al., 2010). Their initial attempts were stymied, however, due of the lack of a natural pollinator found in vanilla’s native regions of Mexico and wider regions of Central America. This all changed around the 1840s when a viable but labor-intensive method of hand pollination was discovered. With this discovery, the French were essentially able to monopolize vanilla cultivation in Madagascar and the neighboring territories.

After Madagascar gained independence in 1960, the new socialist government instituted regulations on the vanilla trade aimed at stabilizing prices and global supplies. Though providing some security for farmers during the ensuing decades, there also emerged entrenched alliances between political and economic interests, as the vanilla market became marked by corruption and opaque relationships of trade. Then, under pressure from international monetary agencies, Madagascar deregulated the vanilla trade in the 1990s, eventually leading to highly volatile market conditions marked by dramatic booms and prolonged bust periods (Laney and Turner 2015; Cadot et al., 2010). One of these price spikes occurred in the late 1990s and early 2000s, exasperated by a cyclone that destroyed much of Madagascar's vanilla harvest. This boom was followed by a rapid price crash, with prices falling to below $40/kg (see Figure 21 below). While many vanilla farmers elsewhere around the globe abandoned vanilla cultivation during the prolonged bust market, which stretched the decade between 2005 and 2015, many

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9 In Mexico, the plant is pollinated by melipona bees and hummingbirds.
Malagasy farmers continued to cultivate vanilla, dependent on the crop and with few other options (Osterhoudt 2017). The current boom market, with vanilla prices nearing 600/kg (Figure 21), thus arrives after a decade-long period of hardship and struggle for rural households in vanilla-producing regions of Madagascar.\(^\text{10}\)

**Figure 21 - Average export price of processed (black) vanilla between 1971 and 2017**

(Figure taken from Wexler, 2017)

\(^\text{10}\) In addition to market deregulation and cyclone events, vanilla price spikes are also connected with the increase in illegal rosewood trafficking in the region (Zhu 2018).
Today, Madagascar continues to dominate production in the global vanilla market. Its branded variety ‘Bourbon,’ is the industry’s 'gold standard,' recognized for its unique and diverse flavor profile. It is Madagascar’s leading agricultural export, valued at approximately $800 million per year (OEC 2017). Madagascar’s hold over the market is no accident; the region maintains the ideal microclimate for vanilla cultivation, with suitable conditions of moisture and temperature. Yet, its global dominance owes more to the availability of cheap labor essential for commercial production. Vanilla is a labor-intensive crop and its cultivation includes the incredibly arduous tasks of hand pollination, a long growing period, and a four-month process of sun-curing beans. Many Malagasy households depend on vanilla income to meet basic needs, and thus invest the time and labor into cultivation and curing. Peasants’ dependence on the vanilla trade is no secret in the industry, as frequent discussions with exporters highlighted how in times of high or low prices, Malagasy farmers will continue to produce a vanilla harvest. As noted in a recent article in the Financial Times (2018), ‘Not only is its climate perfect, but it is also one of the few places on earth poor enough to make the laborious process of hand pollination worthwhile.’

This farmer dependence on vanilla income is seen in the villages that are the site of our ethnographic research. These rural communities are situated within the main site for vanilla production in Madagascar, known as the ‘vanilla triangle’ of the SAVA district. The region comprises of around 800 villages scattered across over 23 thousand km with two main ethnic groups – the coastal ‘Betsimisaraka’ and the ‘Tsimihety’ who occupy the higher altitudes making up the majority of the estimated 80-100 thousand vanilla farmers in the region. Even though this region remains one of Madagascar's wealthiest, and some farmers seem to be doing well financially under the current boom, the majority of peasant smallholders, who have access to less than 5 ha of land, still remain relatively poor and have few economic choices, with many living off less than $2/day. Households in this area also struggled during the previous decade, with the prolonged bust of the vanilla market – a situation further exasperated by cyclone events (World Bank 2019), political uncertainty and government corruption that also beset the region during these years (Schneider 2018).

11 The French, the Chinese, Indo-Pakistanis and those of varied Arab descent arrived for the vanilla trade starting toward the end of the 19th century. Many Chinese have since intermarried with the Betsimisaraka and Tsimihety and occupy an outsized role in vanilla and other valuable commodities in the region (Zhu 2016).
2. Conceptualization of a Moral Economy

2.1 Moral Economy and the limits of the state

It has been over fifty years since EP Thompson’s adoption of the term ‘moral economy’ in his seminal essay (1971) *The moral economy of the English working crowds in the eighteenth-century*. In the essay, Thompson explores the ‘bread-wage nexus’ and the condition of the ‘rural underclasses’ who rioted against uneven taxation and unfair pricing of grain. These ‘bread riots’ represented for Thompson, ‘direct popular action, disciplined and with clear objectives against market injustices and not thoughtless ‘rebellions of the belly’ caused by angry ‘mobs’. Thomson’s view is that the riots were a function of a moral economy among the peasant classes based on identifiable and agreed upon ‘… social norms and obligations, of the proper economic functions’ which were infringed upon within changing political-economic conditions (1971, 79; see also Wolford and Keene 2015, p.576). For Thompson, there was little doubt that the bread riots had popular support and were legitimized by an overwhelming belief that ‘in times of dearth, the regulation of prices ought to be enforced, and those responsible in doing so must be held accountable’ (Thompson 1971, p. 113).

Thompson’s treatise on moral economy laid the foundation for future scholars concerned with social movements of peasants, particularly in times of dearth and economic change. James Scott, for example, examined how peasants navigated a similar moral terrain of rights and expectations to that of Thompson. Rather than mob justice, Scott’s analysis displayed tensions between landlords and farmers which boiled over due to subtle pressure points, especially the unfair extraction of rent. As a result, peasants engaged in ‘small’ acts of ‘everyday resistance’ – from work slowdowns to petty theft – as a way to express their own brand of ‘economic justice’ (1976, p.3).’ Similarly to Thompson, this peasant response was ‘…not just a problem of calories and income but [a] question of peasant conceptions of social justice, of rights and obligations, of reciprocity’ (Scott, 1976, vii). Scott’s work was instrumental in critical agrarian studies. According to Edelman, one of Scott’s transformative contributions was to bridge critical scholarship focused on states and structure with that of the peasant’s everyday social reproduction and labor allocation (2005, p.334). As Edelman explains:

“Scott maintains that village-level systems of reciprocity produce, over a long historical time, widely held moral expectations. Market forces (sometimes in combination with environmental ones) pose challenges to these expectations and may, when thresholds of what is culturally acceptable are crossed, produce rebellion and collective resistance.”
To varying degrees, each of these contributions described peasant conceptions of local struggles within a changing political economy and how peasant navigate changing ethical and moral issues of reciprocity, values and justice within a shifting ‘subsistence ethic’ (Scott, 1976 see also Chayanov 1966). This subsistence ethic went beyond the quotidian requirements of meeting ‘brute physiological needs’ to also encompass the subjective experiences accumulated in periods of political economic crisis (1976, p.17).

Critical scholars have since applied the concept of moral economy to a variety of geographic spaces and across multiple scales, including landless farmers in Brazil (Wolford 2010), shifting cultivators (Kull 2004) and agropastoralists (Gingembre 2015) in Madagascar, and Fair Trade markets South Africa (McEwan et al. 2017). Many of these scholars diverge in their conceptual usage of moral economy, yet in some way draw attention to what Neumann (2002, p.37) remarks as the shifting ‘…norms, values, and expectations related to the livelihoods of subordinate classes during major economic transformations’ (see also: McCarthy 2002; Moore 1998).

2.2 Moral economy and street violence

Less effective, however, has been the adoption of moral economy to understand its close association with diverse forms of justice, in particular, the less understood concept of ‘street justice’ or vindicte populaire. Our discussion aims to bridge these two bodies of literature, by placing street justice as enacted by smallholders into moral economic framings that foreground the intersections of liberalized markets and state vulnerability. It is within such a context that Malagasy farmers resort to street violence to protect their vanilla resources— an act we understand to be, in part, a particular form of commodity violence. This violence is not random, however, but is situated within broader moral economic relationships between farmers, states, and commodity markets. As violence escalates, certain aspects of these moral economic relationships begin to break-down, as distrust grows between and among farmers, Malagasy state officials, and market actors.

The escalating violence associated with the vanilla boom parallels similar forms of violence associated with high-value commodities, especially within largely deregulated markets. For example, cacao production in Africa has long been associated with violence and the exploitation of children (Financial Times 2018), including a wave of rural violence in Madagascar in 2012 during the global cacao boom when armed thieves stole cacao pods from smallholders (Dhariwal 2012). The diamond trade is notorious for its reliance on "conflict" diamonds obtained through systematic violence and outright conflict and is often cited as an
example of ‘resource wars’ (Le Billon 2004, p.1). The liberalization of access and control to valuable commodities, such as conflict minerals, oil, timber, and commodity crops many times exacerbates historical tensions of uneven development and marginalization, which may also lead to widespread violence, including organized armed conflicts (Watts and Peluso 2001). Other work on ‘neoliberal commodity economies’ points to the structural violence intrinsic to even outwardly non-violent trade relationships, especially for the low-wage, comparatively disenfranchised individuals within international commodity relationships (Nevins and Peluso 2008).

The ‘street justice’ killings of vanilla thieves in Madagascar are another form of commodity violence, which presents both similarities and differences to the above examples. In considering these forms of violence, we adopt the term ‘street justice’ for two main reasons. First, the use of the word ‘street’ helps navigate the naturalizing connotations of ‘mob mentality’ and its suggestion of irrational behaviors. Second, we aim to denote that village streets are subject to social forms of violence similar to that noted within urban contexts, especially in places subjected to periods of austerity and neglect (see Pavoni and Tulumello 2018). For example, our study on the ‘mobilizing of violence’ in village streets somewhat follows Karandinos et al., (2014) and Anderson’s (1999) work on drug gangs in inner-city Philadelphia. In this work, street violence is not necessarily random or chaotic, but often directed by individual or groups following understood ‘codes of the street’ (Bourgois 2003). Karandinos et al., (2014, p.1) describe such codes as ‘ethical norms and obligations which are recognized as legitimate’ reactions by locals as a way to navigate moral economic, and social change and crisis.

These reactions, however unseemly and ‘uncivilized’ to outsiders, are a way for localized justice to take place when the main arbitrator of justice, the state, is absent (Spierenburg 2009). The dynamics between weak states, changing neoliberal markets, and mob violence have been described in other regions as well (Abrahams 1998). For example, a wave of street justice violence and lynching in Bolivia was described as a mechanism for communities to ‘take law into their own hands’ in frustration with the lack of state response against rampant crime (Goldstein 2003). In this way, Goldstein argues, “vigilantism acts as a moral complaint against state inadequacy, challenging state legitimacy and redefining ideas about justice, citizenship, and law in the process.” (Goldstein 2003, p.22). Similarly, Smith, writing of the vigilante justice group in Nigeria known as the Bakassi Boys notes that this group killed suspected criminals in response to a perceived failure of the state to safeguard citizen rights during a time of intensified market reforms and economic change (2004).
To bring together these frameworks – commodity violence, street justice, and moral economy - we turn to the empirical case of 'street justice' violence in Madagascar surrounding the vanilla boom, which illustrates how ideas of moral economy and street justice intersect in the context of commodity production and trade. We ask what the vanilla crisis can tell us about the intersections of moral economy and justice in the context of economic volatility and uncertainty, as Malagasy farmers increasingly take matters of justice ‘into their own hands.’

3. Methods and Results

3.1 Theft and street justice in the vanilla boom

In this context of prolonged economic hardship, intense labor requirements, and decades of collusion and corruption between certain state and market forces, the theft of vanilla hits smallholder farmers particularly hard. Exasperating the challenge of vanilla security is the materiality of the vanilla plant itself, which is a relatively easy crop to steal. It is an orchid grown in multistoried ‘garden’ systems called taniboly located in relatively far distance from village homes and under insecure customary tenure systems. Beans develop on the vines between March and July, when they are vulnerable to theft, especially in May and June when the beans are relatively ripe but the official vanilla market in Madagascar has not yet opened. Thieves take advantage of this ‘lag time’ to steal green vanilla off the vine as the pods are easily swiped off without much effort and depending on moisture content relatively light to haul away. We found in our survey of 288 growers in the southern SAVA city of Antalaha, that over 58 percent (n=167) sell their vanilla early and still immature, and over 55 percent (n=159) said they do so that ‘no one will steal it’.12

The distress of the theft and subsequent violence is having a severe effect on the social and economic relations between individual vanilla growers. Over 62 percent (n=111) responded that their life has become ‘much more difficult’ since the price spike began in 2014. Although the somewhat sizable minority of 36% (n= 105) did say that having ‘more money helped make life easier’, the security situation was identified as the number one issue confronting all those surveyed, with 69 percent (n=199) saying that ‘security has gotten worse’ since the price spike. Moreover, 81 percent (n=232) responded that they have had their vanilla stolen or were affected by attempted theft.

12 ‘n’ refers to the total number N=288 respondents who choose this answer.
While vanilla theft is not a new phenomenon, the recent price spike has set off a particular harshness to the violence not as often seen in this region in the past, as farmers organize against potential vanilla bandits through measures that include direct and sometimes deadly force through 'street justice' events. In this region of Madagascar, a street justice event typically begins when a suspected thief is caught in someone’s vanilla fields, usually at night. Such thieves could be spotted by a farmer keeping watch over his or her field, by a community patrol, or by a guard hired to secure particular fields. Once a thief is apprehended, people sound the alarm through shouting and running through town, calling others to join the group. Many times, the thief is badly beaten or killed. Thieves may be local to the area or from outside the region.

If the story of street violence ‘stays local’ – meaning it does not get reported outside the region - state officials usually do not punish those who participate. However, as we see below, the state’s response changes if reports of street justice get out into international news, as Malagasy authorities need to maintain the appearance of legitimacy over market order.

Many vanilla growers in Madagascar commented on the ‘cozy’ relationships between thieves and state authorities, including gendarmes and high court officials who either refused to halt or were in some way complicit in vanilla theft. This belief led to a mistrust of the official justice system and the subsequent perceived need for farmers to ‘take matters into their own hands’. Only 21 percent (n= 61) of growers surveyed said that they felt thieves were ever ‘caught’, (meaning brought to some sort of official justice), while 72 percent (n=206) said that ‘nothing was ever done’ about reported vanilla thefts. Worse, some smallholders said that the state police forces were ‘colluding with local villagers and intermediaries, giving them the tools and protection to steal.’ As Aina, one older male vanilla grower described, there are many police, court and government officials who have a ‘relationship to the thieves’ and that ‘…when thieves are caught they are let go soon after.’ Aina went on to say:

“Let me explain what happens here. When we have caught the thieves, we hand them over to the authorities (Police National). However, the problem is that the thieves have paid the responsible officers and they are liberated afterwards…”

This collusion often continues after thieves are meant to stand trial:

“They (the thieves) are rich, but that does not restrain them from stealing. What is more, when we have filed the case at the court of justice, they withdraw the case since the thieves

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13 Anon July 2017
14 Anon July 2017
and their bosses have the financial means (to corrupt the judges), and the poor cannot do anything about it.”  

This is not to say that theft of vanilla was not always an issue – as 67 percent (n=192) of respondents say that ‘theft has always been a problem’. However, it seems that the mechanisms that were once in place to protect vanilla growers and punish thieves have broken down at the same time as the stakes of vanilla thefts have been raised. With vanilla prices at record highs, more people are taking the risk to steal.

The rise in thefts is disrupting local relationships, as many suspect that vanilla thieves are individuals from their own communities or even their own family. As noted by Herimanoa, a male grower of organic certified vanilla, “they [thieves] are those living close, commission agents as well as authorities distribute the money among young people. It is this act which obliges them to steal.” It was explained to us that ‘local recruits’ have the advantage of knowing your movements and whereabouts and therefore know when you are away. Sometimes the practice of recruiting from local villages pits family members against each other: "In my opinion, it is our children who dare to steal vanilla from their own fathers in our own fields," responded Hery, a moderately-wealthy smallholder. One common response we frequently heard was that local youth are more generally responsible for the act of stealing. Many said that they are actively recruited by both ‘commissionaires’ (informal middlemen who take commissions for finding a seller/buyer) and financed by regional police. As expressed by Lalaina, a female grower living on the economic margins, Commissionaires incentivize local people to steal, and it is them who then buy the stolen vanilla. In fact, there was a thief amongst us in this village who knew all our secrets and we did not even know that he was a bandit, but he knew all our actions and movements.”

The collusion of local youth with outside state officials against rural producers is disrupting the more usual moral economic relationships in agrarian Malagasy communities, whereby producer communities largely ‘stand together’ in the face of outside encroachment onto their land and resources (Gezon 1999; Osterhoudt 2016; Sodikoff 2012). The stakes of state corruption against farmers have also been raised; as the above quotes indicate, while state

15 Anon Aug 2017
16 Anon Aug 2017
17 Anon July 2017
18 Anon Sept 2018
officials may not have given much protection to producers in the past, the currently presumed complicity in vanilla theft crosses a moral and economic threshold for many farmers. In face of these shifting social relationships, vanilla farmers articulate the need for street justice to protect their livelihoods. By mobilizing acts of mob violence, farmers seek to secure their vanilla harvests in a way that protects them from state retribution and which maintains market relationships within local and regional systems of trade. Street justice events also work within certain existing Malagasy social and moral economic systems, including framing confrontation through the collective rather than through the individual (Lambek and Solway 2001; Sodikoff 2012) and through expression of rural solidarity against outside forces that encroach upon local land and resources (Jeroz 1999, Osterhoudt 2016). Street violence also prevents punishment by the state, by diffusing responsibility across a large, essentially anonymous group (Goldstein 2003; Smith 2004).

As described in classic work on moral economy as connected to group resistance and violence, people perpetuating violence are not irrational or intrinsically violent individuals, but are rather acting within social and moral boundaries to secure basic rights and livelihoods within more informal spheres of solidarity (Metz et al., 2010). They are thus essentially rational actors caught between powerful forces. Indeed, in Madagascar, farmers describe their position in these terms: people note that they do not enjoy having to resort to street justice tactics, but feel the economic stakes are too high to leave protection, or forms of retribution, to the mechanisms of an absent or corrupt state.
3.2 Media narratives of street justice

This unit of the collective as the locus of justice differs from western individualized notions of moral justice (Rawls 1971). One might expect that the local conceptions in rural Madagascar that farmers are performing regrettable, but understandable, acts of violence to secure their rights to property and subsistence may differ from many of the media narratives of street justice in the vanilla market. In reality, the international media has been quite sympathetic to the plight of the Malagasy grower, positioning them as reacting to a market over which they have little control, and turning to street justice as their last resort. However, for the most part, media reports at the same time have presented ‘market actors’ as not being at all complicit in the current market crisis. Companies and civil society institutions are usually cast as either victims of the breakdown of local market supply (just cannot get enough vanilla to fill your artisanal ice cream orders) and/or as ‘saviors’ who can circumvent the corrupt state officials and greedy middlemen to ‘clean up’ the supply chain.

Thus, while sympathetic to small farmers’ actions, these media accounts also assume that the best course forward is to eliminate violent forms of street justice, changing these practices primarily by improving the state control over institutionalized forms of security, poverty reduction, and legal accountability. As quoted in a leading UK newspaper:

“As vanilla becomes worth more than silver, crime takes over the Madagascan trade. It's not the backbreaking work that makes growing vanilla near impossible; it's the security problem. As it grows in value, 'vanilla murders' are becoming more common, but despite the hike in price, thousands of farmers still remain poor” (The Independent, 2018).

And in a French newspaper:

“Dozens of thieves have been apprehended in recent weeks, and such is the anger some have ended up being brutally murdered. "People trust only the people's justice…" (France24, 2018).

Other media accounts of the violence are quite sympathetic to peasants’ plight, even normalizing such acts in these areas (Figure 22 below):

“Farmers often awake to find their vines stripped bare, carried off in the night by gangs of thieves filling orders for buyers in the far-off capital of Antananarivo, who in turn supply the markets of western Europe, the US, and Asia. In some parts of Sava, say non-governmental organizations working in the region, vigilante groups have sprung up to mete out summary justice to the vanilla snatchers.” (Financial Times, 2018).
And another grower was depicted as describing moral equivalence in terms Western consumers could understand:

“Soa [a vanilla grower] is plotting ever more dire punishments for anyone who does attempt to steal her current crop. At the moment vanilla thieves face 3-4 years in prison. As far as she is concerned, that’s not enough. She wants a life sentence. “You invest all your life in growing the vanilla. Stealing it is the same thing as killing someone.”" (Time Magazine, 2018)

Figure 23 - Executives from Mars Inc. who have come to Madagascar on their first trip ever to plan development initiatives in order to stabilize farmers’ livelihoods and prices
As the above headline illustrates, international companies are sometimes presented as ‘saviors’ (Figure 23 above):

“Emmanuel Faber, chairman and chief executive of Danone… recently traveled to Madagascar for the first time to find out why it is so expensive and what can be done to secure supplies and improve farmers’ lives” (Financial Times 2018).

These headlines are effective in reaching the global market and provoke potentially strong reactions from ethical consumers. In the case of vanilla, for example, consumers drawn to Fair Trade labels to help smallholder farmers may balk at their purchase if they learn that these same farmers are involved in brutal mob killings – even if these mob events are motivated by the desire of farmers to safeguard their agrarian livelihoods. If anything, the ‘globalizing’ effect of these news stories moving them from the rural streets of vanilla growing villages to the supermarket shelves forces the ‘visible hand’ of the state to have to intervene on the ‘invisible hand’ of the violent vanilla market both to ensure stability and to regain legitimacy under the banner of ‘law and order’.

4. Discussion

4.1 State legitimacy and militarizing a broken market

Circulating media headlines on vanilla violence do not only potentially influence consumers – they are also forcing representatives in Madagascar’s government into action. In response to international criticism, the state, with donor and market support, selected some of the hardest-hit villages to ‘securitize vanilla’ through militarized-style defense training and the surveillance of smallholders. A pilot project was conducted in six communes across each of the four districts of the region. The most well-known of these initiatives was the village of Ambodivohitra Kobahina (Andapa Region) - also dubbed the ‘zero theft’ village. In this village, specific pieces of training were given to smallholders on topics including monitoring crops,

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19 It may be worth noting the role of the people identified with vanilla industry and market more generally. While smallholder vanilla farmers do not articulate resistance against market forces per se, the entrenched history of vanilla trade as imbricated in shady state practices becomes relevant. Many vanilla industry representatives remark that they must secure the loyalty of farmers in a supply-driven market, while also not falling out of favor with Malagasy government entities (who are empowered to revoke export licenses) or of international consumers, who may be upset by associations of violence with vanilla products.

20 Beyond vanilla theft, the media was also now investigating rumors that ‘new vanilla buyers’ were laundering money from illegally trafficked rosewood (The Guardian 2018).
securing paths leading to and from the fields, camouflaging, placing suspects under arrest, and transporting suspected thieves to police stations.\textsuperscript{21} Alongside new village security groups, known by villagers as \textit{police fokonolo} (the villager’s police), the state installed barricades at village entrances and exits, as well as curfews.\textsuperscript{22}

The security associations established through these projects consisted of armed men from the village who patrolled the fields day and night (especially at night) during the dangerous months of February through August. While some members dutifully handed over the bandits they apprehended to the police, others decided to forego these official channels and pursue street justice measures. In these cases, people typically beat thieves in order to deter others from stealing.\textsuperscript{23} This continuation of violence has not necessarily instilled confidence in the state to handle these matters, as stories of vicious acts in rural communities continued to circulate well after the scheme ended in 2016. Overall, the projects of militarization and \textit{‘zero theft’ villages} represent elaborate attempts by the state to restore a ‘civilized commodity production landscape’ most palatable to global consumers.

International development groups have also gotten involved in \textit{‘law and order’} vanilla initiatives. For example, in 2017, the German Development Agency, GIZ, and the Regional SAVA government drafted a new \textit{‘Dina Be,’} or the re-writing of ‘local codes of conduct’ in the village, which are meant to be written in-sync with existing national laws and regulations and be applied across multiple villages in the region (GIZ 2017). This approach seems to resonate with many Malagasy village leaders, including mayors and pastors, who commonly advocate against public justice, encouraging their constituents to pursue justice through state-sanctioned means.\textsuperscript{24}

Industry groups comprised of vanilla firms have also lent their support to campaigns against vanilla theft and street justice, launching aggressive anti-theft campaigns, such as the \textit{‘One-way Ticket for Thieves’} and a second lobbying effort to \textit{‘Ban Vigilante Justice Outright’}.\textsuperscript{25} International trading companies are motivated in part through their understanding of the intricate links between being able to secure enough high-quality vanilla and maintaining their

\textsuperscript{21} Interview with SAVA/Development Coordination Unit (DCU) 11/20/2018.
\textsuperscript{22} Interview HoS/AK 02/12/2018 and DCU11/20/2018.
\textsuperscript{23} Interview Head of Security in Ambodivohitra Kobahina (HoS/AK) 02/12/2018.
\textsuperscript{24} Interview HoS/AK 02/12/2018.
\textsuperscript{25} Interview DCU11/20/2018. This included a large workshop on ‘sensitization on the popular verdict’ held in Sambava, financed by the UNDP, and organized by the Ministry of Justice, the Ministry of Public Security, the Secretary of State of National Gendaremerie, and the Ministry of Public Security and the Interior and Decentralization.
long-standing relationships with growers. They have also supported security efforts at the local and national levels, by giving security-related material to farmers (e.g., raincoats, torches, first aid kits, and blankets) and paying to transport the thieves to Antananarivo to stand trial away from regional networks, which are seen as more corrupt. Farmers, with support of firms, have also revived the traditional labor-intensive technique of stamping each vanilla pod with their individual ‘ID code’ registered with the village commune.

In sum, regional and national Malagasy authorities condemning mob killings implore rural residents to adopt strategies of ‘law and order’ sanctioned by the state. Government initiatives ‘militarize’ vanilla farmers through state-led training with public-private contributions. International aid organizations and private vanilla businesses often support these efforts. For the regional and national Malagasy government, violence does not denote self-correcting moral economic relationships but rather a breakdown in the ability to maintain a civilized moral order in the margins, thereby indicating the need for the state to take back control over violence in rural areas.

4.2 Bringing together street justice, moral hyper-proximity, and the civilized commodity

With vanilla prices at historic highs, and incidents of vanilla theft from fields widespread, peasant smallholders in Madagascar are experiencing a moral economic repositioning between the state and market. Rather than providing protection, state police are suspected of exploiting farmers through collusion with thieves. The vanilla market, deregulated since the 1990s, also does not offer support to farmers, and instead encourages people to find illegal means to profit from the lucrative boom. Farmers resist state and market power in part by taking ‘matters into their own hands’ through acts of street justice. Thus, despite differences in gender, wealth, and ethnicity, many smallholder producers are finding a broader solidarity emerging in the vanilla crisis. This solidarity draws from moral economies that emphasize collective action and local autonomy in order to protect land and resources from outside encroachment.

As we note, the actions of smallholder farmers in this context present conceptual and empirical links with the existing literature on moral economy and subsistence ethics traditionally found within critical agrarian studies (Thompson 1971; Scott 1976; Edelman 2005; Wolford 2010). This work has been instructive for understanding uneven development between rural peasant livelihoods and state and markets. However, our work on the rural moral economies of ‘street justice’, we argue, also connects more broadly with scholarship characterizing violence in urban ‘street’ settings (Pavoni and Tulumello 2018; Karandinos et al., 2014; Anderson’s 1999; Bourgois 2003), especially the localized forms of justice materializing in the absence of
institutional and official forms of adjudication (Spierenburg 2009). Considering moral economic change through the lens of street justice can help build a conceptual bridge between rural and urban moral economies, especially during periods of economic and social crisis. This work also expands the analysis of rural moral economies to extend farther across the commodity chain and highlights the iterative relationships between producers and consumers. Such interactions, in part, stem from the changing realities of global commodity relationships and new media platforms, whereby consumers have – or believe that they have– access to a greater quantity of accurate information about conditions of production (West 2012). With the proliferation of social media market narratives, block chain technologies, and certifications, Northern consumers feel ever closer to the people producing their products (Goodman 2004; Moberg 2014). As we demonstrate, Madagascar vanilla provides a case where potential consumers may encounter both positive and negative narratives about production. It is this very tension that worries industry experts. While our study does not focus on the behavior or decisions of consumers of vanilla, we do examine how downstream market actors in the intersecting moral economies of Madagascar’s vanilla boom imagine the possible reactions of distant consumers, especially if vanilla becomes known as a ‘blood’ commodity. Indeed, a Northeastern Madagascar vanilla industry expert worried that the widespread condemnation of the incident of violence surrounding the vanilla boom would cause “Madagascar vanilla [to] be the next ‘blood diamond’ example for consumers, leading to vanilla boycotts.”

Government officials and private companies react to escalating rural street violence and the possible market fallout by imposing stricter discipline on people and agrarian landscapes, including surveillance. These ‘civilized’ law and order style responses are meant to discipline the behavior of farmers and to maintain the state monopoly of violence in rural landscapes. This process models for farmers the ‘correct’ way to act in a global commodity marketplace, according to the beliefs of private businesses, governments, and consumers as to what falls within and outside of moral limits of behaviors. Overall, governments and markets aim to fashion the ‘unruly’ and ‘violent’ vanilla bean into a more ‘civilized commodity.’ The stakes of defining what a civilized commodity looks like – how they are produced, circulated, consumed, and governed – are high. This is clearly true for smallholder farmers who

26 Anon Aug 2018
27 the increased use of certification schemes in specialty commodity chains have developed standards by which normative behaviors, such as strict working conditions, child labor, quality control, environmental and organic standards have been applied to peasant farmers by a northern consumer base (Besky 2013).
engage in acts of life and death against thieves but also for consumers as well who are increasingly urged to *vote with their dollar.* Thus, just as Elias noted that projects of societal rule consistently shift what is considered 'correct' behaviors for civilizing individuals, so too are there shifting expectations for the 'behavior' of commodities that circulate in global markets - as well as for the consumers of these commodities. Beyond Elias, Foucault’s use of ‘bio-power’ is instructive of how disciplinary tools of power and knowledge normatively prescribe behavior and to exercise sovereignty over ‘life itself’ (Cavanagh 2018, 405). As Mambe and Meintjes (2003, p.12) note, ‘...to exercise sovereignty is to exercise control over mortality and to define life as the deployment and manifestation of power’. These instruments of disciplinary power emerge as a way to legitimize state, and market, control over individuals and populations.

Yet, this process of commodity *civilization* largely overlooks the unruly spaces of materiality and sociality that mark trade of all sorts, many of which draw from alternative forms of power relationships (Dove 2011). In circulating narrow discourses of how *civilized* commodities should behave, these alternate ecologies, economies, and epistemologies can be lost, as well as the particular forms of power and meaning that connect with them (Li 2014). Further, fashioning a *civilized commodity* can result in a situation where a commodity system outwardly seems to conform with Northern, individualistic notions of justice and morality while obscuring other different types of systematic, structural, and economic violence and injustice faced by smallholder farmers (Brown 2013; Alvarez and Cooslaet 2019).
5. Conclusion

We argue that street justice by the ‘angry mob’ of peasant farmers can be interpreted as a rational behavior in the absence of credible and reliable state institutions. Moreover, we note that international commodity traders rarely mention the violence that is implicated in sourcing some of their products. Specifically, no mention of it exists in corporate social media efforts. The media does report on these issues but tends to distort by exaggerated or one-sided accounts of the narrative. Critically examining the circulating moral discourses centered on how commodities and farmers ‘should’ behave can help inform work to create more equitable arrangements for global markets. By locating the moral nexus of the smallholder, state, and the market, individuals can better locate sites of resistance, especially in our current period when the rise of rural populism seems to coincide with new forms of authoritarianism (Bosworth 2018; Mouffe 2018; Scoones et al., 2018). Indeed, much of the work of contemporary peasant research activism consists of trying to name and put in the spotlight the institutional agency - and responsibilities - behind the increasingly hard-to-place state and market entities (Edelman 2005, p.332; Scott 1976). The fraught relations of the vanilla commodity boom – and the forms of violence it engenders – demonstrate the collision of market forces, state politics, and agrarian production within increasingly volatile - and compressed - relationships of global commodity chains.
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<td>Benjamin Neimark, Lancaster University, Department: Lancaster Environment Centre</td>
<td>Sarah Osterhoudt, Indiana University, Department of Anthropology</td>
<td>Lloyd Blum, (1) Hochschule Darmstadt – University of Applied Sciences, Department of Social Sciences, Risk &amp; Sustainability Research; (2) Georg-August-Universität Göttingen, Faculty of Agricultural Sciences, Department of Agricultural Economics</td>
<td>Timothy Healy, Aquaterre Consulting, Antananarivo, Madagascar</td>
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Methodology  
Data Curation  
Formal Analysis  
Visualization

Corresponding author: [b.neimark@lancaster.ac.uk](mailto:b.neimark@lancaster.ac.uk)
Chapter 2: *Cui bono?* Determinants and benefits of contract farming participation in vanilla value chains, evidence from Madagascar

Authors: Hendrik Hänke, Lloyd Blum, Jan Barkmann

ABSTRACT

Contract Farming Arrangements (CFAs) between exporters and smallholders are rapidly expanding in the vanilla value chain in Madagascar, where the majority of global vanilla is produced. To judge the impact of CFAs on vanilla farmers, we investigate which households (HHS) are concluding contracts. Applying a logit regression model to predict contract participation by HHs with different personal and farming capital, the analysis uses data from a comprehensive baseline survey (n=1291).

We find that CFAs provide substantial benefits for participating vanilla farmers, i.e., higher vanilla prices, technical training, support in education, access to credit, and health insurance. However, it is mainly the better educated and better off HHs concluding contracts. HHs whose heads have finished primary school are 1.5 times more likely to participate in CFAs (p=0.03). Also, the number of vanilla plots (p=0.1) and the total vanilla harvest (p=0.03) are positively associated with CFA participation.

We conclude that CFAs do not target the poorest and most vulnerable vanilla farmers. We discuss possible solutions for what more inclusive CFAs could look like. Policy implications would include cooperation among stakeholders, e.g., through public-private-partnerships and a greater focus of exporters on poorer and more vulnerable vanilla farmers if truly inclusive supply chains were to be created.

Keywords:

Madagascar, contract farming, private voluntary standards, inclusive business, vanilla
1. Introduction

Madagascar is predominantly an agricultural economy: agriculture provides 74% of employment and 21% of GDP (World Bank, 2018). Yet, food self-sufficiency is chronically low (WFP 2018), and Madagascar is among the ten income-poorest countries globally (IMF 2018). Since the agricultural sector is crucial for the economies of most developing countries, it is a key driver for socio-economic development and for poverty reduction (Pingali 2007). Linking poor smallholder farmers to international value chains has become a focus of the global research and development agenda in order to foster poverty alleviation in rural economies (Minten et al., 2010; Njuki et al., 2011; Swinnen et al., 2010). One way to do so are contract farming arrangements (CFAs) between farmers and downstream processors. In CFAs, agribusiness companies sign production agreements with farmers. Such contracts offer smallholders an assured market for their crop and sometimes even provide inputs, credits as well as technical assistance commodities (Bijman 2008). CFAs can overcome market failures frequent in spot markets for agricultural commodities (Barrett et al., 2012). Particularly developing countries have been affected by the shift from spot-market in favor of CFAs and vertical integration into global value chains (Bellemare and Lim 2018). Such vertically integrated agricultural value chains are recognized as an efficient tool to reduce poverty in developing countries (Byerlee, Janvry, and Sadoulet 2009). Consequently, CFAs have substantially shaped development policies in recent years (Meemken and Bellemare 2020).

CFAs became particularly important in the context of private voluntary standards (PVS). These standards include, for example, Organic, Fair Trade, or the Rainforest Alliance “labels”. Vanilla smallholder farmers are requested to enter into CFAs in order to ensure their adherence to the terms of production prescribed by the PVS. Sustainability standards respond to consumer concerns for socially and environmentally responsible products sourced, e.g., from developing countries, when effective statutory regulation is missing, inefficient and/or unwarranted (Henson and Jaffee 2004; Swinnen 2007; Neilson 2008). Consumers from high-income countries are frequently willing to pay substantial price premia for PVS products (e.g., Didier and Lucie 2008; Grunert et al., 2014). It is often uncertain, though, to which degree primary producers profit from these premia (Minten et al., 2015).

CFAs and PVS are rapidly increasing: While in 2005, only 4% of all coffee production was PVS certified, the share doubled by 2009. By 2015 about 20-25% of coffee production was
PVS-certified (Pierrot et al., 2010; Giovannucci et al., 2014). Similarly, the DTBS (Diversity Turn Baseline Study, Hänke et al., 2018) – a study covering much of the main Malagasy vanilla-producing SAVA Region – suggests that about 15% of vanilla farmers produced under PVS or other forms of CFAs in 2017; in 2019 the number is thought to have increased to ~20% (Hänke and Fairtrade International 2019).

Several studies have assessed the impact of CFAs on smallholder farmers; however, the findings are ambiguous. Critical voices question if CFAs generate adequate benefits for poor farmers because the bargaining power of smallholder farmers is much smaller than the bargaining power of international agribusiness actors (Little and Watts, 1994; Singh 2002). Moreover, patron companies have been found to exploit labor of poor and landless people (Little and Watts 1994; Havnevik et al., 2007) and have put farmers at risk of debt (Little and Watts 1994; Porter and Phillips-Howard 1997; Singh 2002). In spite of theoretical advantages, production risks for farmers may increase (Little and Watts 1994; Rehber 1998). Furthermore, local power relations may shift as the introduction of CFAs unhinges traditional village organization (Genicot 2002; Basu 2007). Similarly, Guo et al. (2005) found that CFAs were predominantly beneficial for large-scale farmers in China, lead to increasing rural inequalities and, consequently, increased relative poverty of smallholders excluded from CFAs in the long term.

On the other hand, there is detailed evidence that the welfare of farmers participating in CFAs increases (e.g., Bijman 2008; Minten et al., 2009; Reardon et al., 2009; Bellemare 2012, 2010; Barrett et al., 2012), and that working conditions and farming techniques improve (Bhagwati 2004; Minten et al., 2009). Also, smallholders can more easily access agricultural inputs and extension services (Minten et al., 2009) while price risks diminish and incomes rise (Arnould et al., 2009; Bolwig et al., 2009; Chiputwa et al., 2015; Jena et al., 2012a; Ton et al., 2018). In the case of Madagascar, there is detailed evidence of the effects of CFAs on fresh bean production, which continually confirmed a positive impact on producer livelihoods. Obtained benefits for farmers include improved access to inputs, credit and extension services, technology adoption, increases in income, shorter lean periods, improvements in food security, and long-term soil fertility effects (Bellemare 2012, 2010; Bellemare and Novak, 2017; Minten et al., 2010, 2009).
In this study, we focus on vanilla (Vanilla planifolia) CFAs in Northeastern (NE) Madagascar. Vanilla produced in Northeastern Madagascar is “organic by default” (Brownell 2011); that is, agro-chemicals and mineral fertilizers are virtually not used even in the absence of specific organic production schemes (Hänke et al., 2018). Madagascar supplied between 50-80% of all global bourbon vanilla in the past ten years (Financial Times 2018; FAOstat, 2020). The second biggest producer is Indonesia (Kunio and Lahjie 2015; FAOstat 2020), and a smaller global share of 5% stems from Uganda (MAAIF 2019). Within Madagascar, >90% of vanilla is grown in Madagascar’s SAVA Region (Symrise 2019), our study site. The spice has seen a price boom in recent years making natural vanilla one of the most valuable agricultural commodities (Financial Times, 2018). Consequently, vanilla has become Madagascar’s most important export commodity (OEC, 2017). Yet, global vanilla prices are subject to boom-and-bust cycles (Figure 24 below), with prices often influenced by events in Madagascar, such as droughts, cyclones, and political crises (Brown 2009; Brownell 2011).

There are very few studies on the socio-economics of vanilla farming in Madagascar – and none we are aware of takes into account the current high price phase. Referring to low price conditions, Packer (2008) and Brownell (2011) reported that the vanilla industry depended on impoverished smallholders, who rarely earned more than 300 US$/yr through the sale of vanilla. The vanilla value chain used to be largely informal and involved a great number of middlemen (Sielaff et al., 2014). In effect, farmers received only 5-10% of the global market price (Sielaff et al., 2014; Financial Times 2018). Yet, natural vanilla is re-flourishing, and the situation may have changed considerably. As a response to consumer demands, many leading food industries announced to abolish additives and artificial flavors from their foods, e.g., Nestlé (Nestlé 2015b), General Mills, Hershey’s, and Kellogg’s (Bomgardner, 2016), and Unilever (Financial Times 2018). This means that artificial vanillin was reduced in sourcing portfolios, and natural vanilla was used instead.

Consequently, both demand for natural vanilla and vanilla prices increased radically and remained exceptionally high from 2014 onwards (Figure 24). In 2018, global black vanilla prices exceeded prices of $600 per kg, making it more expensive than silver (Financial Times 2018). In 2019, local farmgate prices for green vanilla increased by an additional 25% (own data, Cooks Vanilla 2019).
Farmers can sell their vanilla either (i.) green (fresh, unprocessed), (ii.) as a quality category locally known as “vrac” (semi-processed and partly dried), or (iii.) black (fully-processed and dried to ~ 20% humidity as needed for export (Frenkel et al., 2018). Five to six kg of green vanilla are needed to produce one kg of black vanilla. Once vanilla is sufficiently prepared, it can be stored for several months and -under proper conditions- for several years (Brownell 2011).

In Madagascar, the conventional vanilla value chain is complex. Typically, farmers harvest and sell green vanilla to informal commission agents who visit villages and local markets. According to the Diversity Turn Baseline Study (DTBS), the majority of vanilla farmers (63%) sold to commission agents in 2016 (Hänke et al., 2018). Commission agents resell the vanilla to bigger collectors or directly to processors. A minority of vanilla farmers sold green vanilla directly to collectors and processors in 2016 (~10%; cf. Hänke et al., 2018).

The green vanilla is blanched in hot water to uniformly kill the vanilla cells and sun-dried for around 6-8 weeks. Vanilla processing can be carried out at any link of the local value chain, starting with farmers. Finally, the dried black vanilla is transported to storage and packaging houses where it is sorted into quality categories and finally exported by plane (in low-price
phases, mainly by boat). In the destination countries, vanilla is imported by traders or brokers who sell much of it to flavor houses that produce vanilla extracts. The extracts feature as ingredients of consumer products such as ice cream, desserts, soft drinks, flavored beverages, and perfumes.

The traditional value chain is transforming. Several flavor houses and export enterprises have either established subsidiaries in Northeastern Madagascar or have partnered with traditional processors or exporters to form closer business alliances. In effect, international buyers interact much more closely with smallholder vanilla farmers since middlemen, such as commission agents and vanilla collectors, are often cut out. This already amounts to a substantial backward integration of the vanilla value chain (cf. Hänke and Fairtrade International, 2019).

Since about 2006, international actors have increasingly tried to secure the supply of sustainable vanilla, using CFAs (Brownell 2011, pp.110; Sielaff et al., 2014). The CFAs commonly include private voluntary standards (PVS) such as Rainforest Alliance, Organic and Fairtrade (Hänke and Fairtrade International 2019; Sielaff et al., 2014; Symrise 2017). In both CFAs and PVS, multiple obligations have to be fulfilled by farmers. PVS regularly include a combination of several social and environmental standards (see Appendix 1 and 2), and many companies join forces with NGOs in order to satisfy these standards in Madagascar (GIZ 2020; Save The Children 2019; Unilever 2019).

CFAs with PVS give buyer greater control over production and allow for product traceability (Bijman 2008; Barrett et al., 2012). Traceability is among the main sustainability tasks of the vanilla sector (SVI 2020), as the Malagasy vanilla sector faces challenges such as child labor (Save The Children 2019), theft and crime (Neimark et al., 2019) and low bean quality due to immature harvesting (SVI 2020). Moreover, the SAVA Region, a global biodiversity hotspot, suffers from deforestation through slash-and-burn agriculture (Arruda-Ferreira 2018; Vieilledent et al., 2018). Traceability and PVS compliance are almost impossible to guarantee in the conventional, highly fragmented vanilla value chain. Without direct farmer contact, who often produce vanilla in remote, hardly accessible areas, it is difficult to validate if production conforms to standards and conditions (cf. Brownell 2011; Sielaff et al., 2014).

For the year 2016, we estimated that around 8% of the regional vanilla farmers sold vanilla directly to exporting companies (Hänke et al., 2018). Alone the flavor house Symrise had 1,000 vanilla farmers in CFAS in 2012 in order to facilitate a Rainforest Alliance vanilla certification in the SAVA Region (Sielaff et al., 2014). Yet, that number rose to 7,000 by 2017.
(Symrise 2017) and is expected to increase to 10,000 farmers by 2020 (GIZ 2018). This trend towards contract farming and an increasing influence of private standards is apparent in the entire vanilla-producing region of Madagascar. To varying degrees, also other exporters and companies are engaged in a more thorough backward integration. Hänke and Fairtrade International (2019) estimate, for instance, that ~20% of all Malagasy vanilla farmers in 2019 produce according to PVS regularly facilitated by CFAs. These shifts in the value chain are presented as a success story by industry representatives. Cited advantages include traceability, more value that is shared with farmers (Sielaff et al., 2014; Symrise 2017), child-labor-free production (Save The Children 2019; Unilever 2019), an entirely organic production chain (free of chemical products), and particular benefits for poor farmers and women (Unilever 2014).

Several international exporters have invested in local social and environmental programs, addressing, e.g., child labor, livelihood diversification, health insurance, and education (Save The Children 2019; Sielaff et al., 2014; SVI 2020; Unilever 2019). Detailed independent empirical studies on the social impact of CFAs and associated CSR (Corporate Social Responsibility) benefits are lacking, however.

Many CFA studies focus predominantly on the impacts of CFAs on the welfare of smallholder farmers, on income effects, and on institutional factors (Minten et al., 2015; Bellemare and Bloem 2018; Ton et al., 2018). However, little attention has been paid to the question if benefits from CFAs are distributed equally among the target population. In fact, there is evidence that better-off smallholders with relatively more land benefit more strongly than the lowest strata of the rural population (Key and Runsten 1999; Glover, n.d.; Guo et al., 2005; Barrett et al., 2012; Ton et al., 2018). Likewise, higher benefits are associated with larger agricultural production (Key and Runsten 1999; Guo et al., 2005; Wainaina 2012), more assets owned (e.g., Ton et al., 2018), and better education (e.g., Arumugam et al., 2011; Musara et al., 2011; Mwambi et al., 2016). Many studies found that the poorest HHs (households) are often excluded from vertically-integrated markets (Key and Runsten 1999; Guo et al., 2005; Johannessen and Willhite 2010; Haight 2011; Freguin-Gres et al., 2012; Wainaina et al., 2012; Mwambi et al., 2016; Ton et al., 2018). If better-off HHs benefit much more strongly, the potential for CFAs to substantially reduce poverty is in doubt (cf. Bellemare and Bloem 2018). In fact, social inequality may increase (cf. Key and Runsten 1999; Guo et al., 2005).
In sum, the literature suggests (i) that CFAs – particularly if coupled with additional CSR measures – can alleviate farmer poverty but that (ii) it is unclear if mean increases in welfare and income, in fact, accrue to HHs most in need as they may be less likely to participate. Thus, we seek to answer the following two research questions:

1. What are the mean benefits for poor vanilla smallholders who accept CFAs?
2. Which farm or farmer capital attributes are associated with CFA participation?

Regarding (1), we identify the different CFAs offered in the SAVA Region and quantify benefits actually accrued by vanilla smallholders using a descriptive analysis of benefits and obligations that vanilla farmers receive through their CFA partners.

Regarding (2), we use a range of farm and farmer capital attributes to estimate the likelihood for a vanilla farming HH to participate in CFAs. In order to reduce endogeneity effects in the analysis, only attributes are included that are unlikely to be an effect of CFA participation (experience in vanilla farming, years that the HH is living in the village, educational levels, HH size). The analysis uses a logit regression to predict CFA participation (see Materials and Methods below).
2. Materials and Methods

2.1 Study site and sampling design

The SAVA Region lies in tropical Northeastern Madagascar. “SAVA” is an abbreviation of the four districts and major towns of the region Sambava, Antalaha, Vohemar, and Andapa (Figure 25 below). In the SAVA Region, an estimated 70,000-80,000 smallholder farmers produce around 90% of all Malagasy vanilla (Symrise 2019a). In 2016, key informant interviews with vanilla exporters and traders, government officials, and NGOs were conducted to define the core vanilla growing region inside the SAVA Region (referred to as the “vanilla triangle”, see Figure 2)\(^\text{28}\). Eighty-three percent of the HHs in SAVA Region villages sampled in 2016 practiced vanilla farming (Hänke et al., 2018).

Figure 25 - Study region showing the 60 villages captured by the baseline survey (yellow diamonds) in the SAVA Region and 323 villages that were pre-surveyed (grey dots)

(Figure taken from Hänke et al., 2018)

\(^{28}\) The vanilla growing region continues down to Maroantsetra (south of Antalaha), where a track can be walked in 2-3 days. Likewise, west of Sambava and Antalaha, and a bit north of our study region, vanilla is also cultivated in very remote areas, according to local experts.
Due to logistic constraints, we only included villages up to 10 km away from primary (paved), secondary (non-paved), or tertiary (non-paved) roads (see Figure 25 above). In an initial village pre-survey, we identified 322 villages in the research area and conducted brief interviews with the chefs du village. Among other information, we inquired if local farmers participated in CFAs.

For the main DTBS (Hänke et al., 2018), village selection was done through a stratified random sample using village size and the presence of CFAs as stratification criteria. This led to a sample of 30 villages where ex-ante no CFAs with vanilla farmers existed and 30 villages where CFAs ex-ante did exist.

Successively, we received population lists (inhabitants >18 years old) as well as lists of farmer organizations (e.g., associations, cooperatives etc.). In villages where (i.) CFAs were ex-ante absent, and 30 HHs were randomly sampled from a population list. In villages where CFAs were ex-ante present, we sampled 15 HHs per village randomly from the population list and 15 randomly from the farmer organization’s list, respectively (see Hänke et al., 2018) for more details on the sampling design of the overall research project and sampling weights). The final sample includes HHs with CFAs (contracted farmers) and HHs without CFAs (non-contracted farmers).

2.2 Survey

We use original data from a socio-economic and farm baseline survey (DTBS), which was piloted in the vanilla triangle in 2017. Prior to the survey, project scientists qualitatively explored various aspects of the vanilla value chain from October to December 2016. Using expert interviews and written CFA texts provided by farmers, we identified CFA as well as PVS obligations and benefits as actually encountered in the research area (see Appendix 3). Obligations and benefits were further triangulated using focus group interviews with N=61 farmers in four villages across the study area. Expert interviews during the exploratory phase of 2016 included sustainability managers at enterprises involved in vanilla preparation and export, several exporters, and staff of international development agencies engaged in the vanilla value chain.

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29 In subsequent field visits by the research team, a potential selection bias by Hänke et al. (2018) was identified in 8 of 60 villages. We have reason to believe that either village chiefs contributed to a bias in HH selection or that our team-leaders did not follow sampling instructions strictly enough. Therefore, the respective 8 villages were excluded for the analysis in this study.
Farmer interviews were conducted with HH heads. If s/he was not available, we conducted the survey with another family member instead, mostly with the wife/spouse.

The questionnaire of the DTBS Baseline Survey featured the following sections (see Hänke et al., 2018, for details):

a. Socio-economics, demographics, and education of all household members
b. Agriculture (excluding vanilla)
c. Vanilla plots, management and production (time reference = past three years),
d. Vanilla preparation and markets,
e. CFAs and PVS,
f. Living standard/household assets,
g. Income and livelihood diversification.

A database was prepared through XLS programming (see xlsform.org) to facilitate mobile data entry with tablets equipped with the KoboCollect software (see kobotoolbox.org). Data collection took place between April and June 2017. The data were collected with the support of 20 student assistants, grouped into teams of five, with one additional non-student team leader per group. Students and supervisors received a training of ten days from the lead author. The questionnaire was translated into the regional dialect with the support of our local coordinators and student assistants. The survey was pre-tested in two villages (n=60 HHs), with each enumerator pre-testing the survey with three different HHs.

Concerning all open numerical questions, we removed outliers based on Grubbs’ outlier tests at $\alpha = 0.05$ (Grubbs 1950).

### 2.3 Identification of contracted and non-contracted vanilla farmers

We used a non-experimental design with comparison groups to compare contracted vs. non-contracted vanilla farming HHs.

Based on questions on obligations and benefits towards their contracting/business partner, vanilla farming HHs were split into contracting vanilla farming HHs (n=309) and non-contracting vanilla farming HHs (n=982). Contracted HHs were defined as those who received at least one benefit associated with CFAs as listed in the questionnaire (see Appendix 3). Options of advantages also included non-monetary benefits.

Contracting HHs can have a formal or informal contract with a vanilla preparator or exporter (who may work with several collectors) and additional PVS attached (Rainforest Alliance, Fair
Trade, and Organic were most commonly found see Appendix 2). However, due to confidentiality agreements with both farmers and companies, we do not provide names of sourcing vanilla companies or specific certification bodies.

2.4 Benefits derived from CFAs

We surveyed the benefits that contracted vanilla-growing HHs receive and provided a descriptive analysis of those benefits in Figure 27. As price premia are offered by many CFAs (see Figure 27), we tested if there were differences in vanilla prices received between contracted and non-contracted HHs in 2016 through t-tests (cf. Hänke et al., 2018). Even though the survey took place in 2017, many questions address vanilla sales in 2016 retrospectively. Both green and black vanilla were analyzed (see Figure 26).

2.5 Statistical analyses: Identification of multi-dimensionally poor households

Rural poverty is a multifaceted, complex issue that goes well beyond farming household income (Alkire et al., 2015). Also, the assumption that income earned from agriculture is spent on satisfying basic needs might not be accurate (Ogutu and Qaim 2018). Therefore, we use a multidimensional (MD) measure of poverty that takes several variables beyond income into account. With this MD Poverty Index (MPI, Alkire, and Santos 2010), we identified MD poor and MD non-poor HHs. The MPI measures the (in)abilities to meet indicators related to the Millennium Development Goals, including different basic needs (Alkire and Santos 2014; UNDP 2018). The MDI regularly includes an indicator of nutritional status. As suggested by Alkire (et al., 2015), we assigned all HHs a value of 0 for nutritional status because nutrition could not be sampled.

Its ten indicators cover three dimensions: education, health, and living standards. Using dummies (0 and 1) for all ten indicators, we calculate an MPI for each HH (“total HH deprivation score”, Alkire et al., 2015). Each of the three dimensions has a weight of a third in sum, but the indicators differ (see Table 4 below). The MPI value is a value between 0-1, whereas the larger the value, the higher the level of deprivation, that is, MD poverty.

Different data analyses for measuring MD poverty are commonly used, i.e., inter- and intra-HH comparisons, ordinal approaches, factor and cluster analysis, and weighting procedures (Alkire and Santos 2014, Arndt et al., 2012, UNDP 2018). In this paper, we use two different MPI approaches. For our regression estimation, we use the international MPI threshold value as a dummy (MD poor: MPI ≤ 0.33, MD non-poor: MPI >0.33, Alkire et al., 2015).
However, to test if there is a correlation between MD poverty and CFAs, i.e. if the years that a HH is under contract have a negative influence on MD poverty, we use the MPI value in a cardinal approach as a “total deprivation score” (0-1, Alkire et al., 2015).

**Table 4 - Calculation of Multidimensional Poverty Index**

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<tr>
<th>Dimension</th>
<th>Indicator</th>
<th>Deprived if …</th>
<th>Relative weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Years of schooling</td>
<td>No household member has completed five years of schooling.</td>
<td>1/6</td>
</tr>
<tr>
<td></td>
<td>Child school attendance</td>
<td>Any school-aged child is not attending school up to the age at which they would complete class 8.</td>
<td>1/6</td>
</tr>
<tr>
<td>Health</td>
<td>Child mortality</td>
<td>Any child has died in the household.</td>
<td>1/6</td>
</tr>
<tr>
<td></td>
<td>Nutrition</td>
<td>Any adult or child for whom there is nutritional information, is malnourished.</td>
<td>1/6</td>
</tr>
<tr>
<td>Living standard</td>
<td>Electricity</td>
<td>The household has no electricity at home.</td>
<td>1/18</td>
</tr>
<tr>
<td></td>
<td>Improved sanitation</td>
<td>The household’s sanitation facility is not improved (according to MDG guidelines) or improved but shared with other households.</td>
<td>1/18</td>
</tr>
<tr>
<td></td>
<td>Safe drinking water</td>
<td>The household does not have access to safe drinking water (according to MDG guidelines), or safe drinking water is more than a 30-minute walk from home. Roundtrip.</td>
<td>1/18</td>
</tr>
<tr>
<td></td>
<td>Flooring</td>
<td>The household has a dirt, sand, or dung floor.</td>
<td>1/18</td>
</tr>
<tr>
<td></td>
<td>Cooking fuel</td>
<td>The household cooks with dung, wood, or charcoal.</td>
<td>1/18</td>
</tr>
<tr>
<td></td>
<td>Assets</td>
<td>The household does not own more than one radio, TV, telephone, bike, motorbike, or refrigerator and does not own a car or truck.</td>
<td>1/18</td>
</tr>
</tbody>
</table>

(Table based on Alkire et al., 2015)
2.6 Statistical analyses: Logit regression to predict contract participation

As the dependent variable in our regression is binary (contract/no contract), only Logit or Probit models can be used (Doksum and Gasko, 1990). Consequently, we used a logit regression model to assess determinants of CFA participation. Variables included in the regression are variables that we hypothesize to influence contract participation. The dependent variable is a dummy: contract = 1, no contract = 0. Independent variables included in the analysis are described in Table 6.

Vanilla plots younger than three years are excluded from the analysis as vanilla vines usually give fruits after three years only (Havkin-Frenkel and Belanger 2011). Furthermore, field sizes are often included in similar analyses (cf. Arumugam et al., 2011; Musara et al., 2011; Mwambi et al., 2016). However, a recent longitudinal survey (Andrianisaina et al., unpublished), where field plots were measured in situ through GPS devices (n=180) from HHs who also participated in this survey, revealed that the self-estimated field size data collected in 2017 (Hänke et al., 2018) is unreliable. Therefore, self-estimated plot sizes are not included in the regression model.

2.7 Statistical analyses: Testing for the impact of CFAs and multi-dimensional poverty

As contracted HHs may be less multi-dimensionally-poor (MD-poor) because of a CFA (e.g., Barrett et al., 2012; Bellemare 2012; Bijman 2008; Minten et al., 2009; Reardon et al., 2009; Singh, 2002), we tested if there is a negative correlation between the MPI value and the years that the HH is under contract. That is, the longer the HH is under contract, the lower the MPI. Secondly, we also tested if there is a relationship between the years that the HH is under contract and the number of assets owned by the HH (e.g., radio, mobile phone, bicycle, fridge, television, motorbike, car). This addresses only contracted farmers.
3. Results

3.1 Summary statistics of contracted and non-contracted vanilla farmers

From the 1,291 surveyed HHs, 982 HHs are non-contracted vanilla farmers, and 309 HHs are contracted. On average, contracted farmers have 3.99 ± 0.15 years (min= 1; max = 18) of experience with CFAs. As shown in Table 5 (below), a significantly higher share of contracted HHs has completed primary school, contracted HH heads live longer in the village, have larger HH sizes, and have more HH members older than 16 years old. Likewise, a significantly higher share of contracted HHs owns a mobile phone and a motorbike. Contracted HHs also farm on significantly more vanilla plots, possess older vanilla plots, and have significantly larger vanilla harvests (p=0.01). A higher share of contracted HHs is a member of a farmer organization as well as a higher share of contracted farmers cure vanilla themselves, i.e. transform green to black vanilla.

Table 5 - Household characteristics of vanilla farmers with vs. without contract [N=1291]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Contracted (n=309)</th>
<th>Non-contracted (n=982)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Error</td>
<td>Mean</td>
</tr>
<tr>
<td>Age household head</td>
<td>50.24 ± 0.71</td>
<td>49.26 ± 1.95</td>
<td>0.65&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Household head finished primary school (dummy)</td>
<td>0.33 ± 0.03</td>
<td>0.28 ± 0.01</td>
<td>0.03&lt;sup&gt;2&lt;/sup&gt;*&lt;sup&gt;**&lt;/sup&gt;</td>
</tr>
<tr>
<td>Number of years living in the village</td>
<td>37.5 ± 0.97</td>
<td>34.81 ± 0.58</td>
<td>0.01&lt;sup&gt;1&lt;/sup&gt;***</td>
</tr>
<tr>
<td>Household size</td>
<td>5.20 ± 0.11</td>
<td>4.90 ± 0.07</td>
<td>0.01&lt;sup&gt;1&lt;/sup&gt;***</td>
</tr>
<tr>
<td>Number of household members older than 16 years (MPI) (dummy)</td>
<td>3.09 ± 0.07</td>
<td>2.84 ± 0.04</td>
<td>0.01&lt;sup&gt;1&lt;/sup&gt;***</td>
</tr>
<tr>
<td>Female household head (dummy)</td>
<td>0.14 ± 0.02</td>
<td>0.14 ± 0.01</td>
<td>0.82&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Household owns a mobile phone (dummy)</td>
<td>0.60 ± 0.03</td>
<td>0.50 ± 0.02</td>
<td>0.01&lt;sup&gt;2&lt;/sup&gt;***</td>
</tr>
<tr>
<td>Household owns a motorbike (dummy)</td>
<td>0.24 ± 0.02</td>
<td>0.12 ± 0.01</td>
<td>0.01&lt;sup&gt;2&lt;/sup&gt;***</td>
</tr>
<tr>
<td>Number of agricultural plots (excl. Vanilla)</td>
<td>1.66 ± 0.06</td>
<td>1.67 ± 0.03</td>
<td>0.76&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Number of vanilla plots</td>
<td>1.66 ± 0.05</td>
<td>1.44 ± 0.02</td>
<td>0.01&lt;sup&gt;1&lt;/sup&gt;***</td>
</tr>
<tr>
<td>Age of the oldest field</td>
<td>15.45 ± 0.66</td>
<td>11.88 ± 0.35</td>
<td>0.01&lt;sup&gt;1&lt;/sup&gt;***</td>
</tr>
<tr>
<td>Total harvest of green vanilla (kg)</td>
<td>77.6 ± 4.34</td>
<td>43.48 ± 1.81</td>
<td>0.01&lt;sup&gt;1&lt;/sup&gt;***</td>
</tr>
<tr>
<td>Farmer group member (dummy)</td>
<td>0.98 ± 0.01</td>
<td>0.18 ± 0.01</td>
<td>0.01&lt;sup&gt;2&lt;/sup&gt;***</td>
</tr>
<tr>
<td>Curing (dummy)</td>
<td>0.57 ± 0.03</td>
<td>0.41 ± 0.02</td>
<td>0.01&lt;sup&gt;2&lt;/sup&gt;***</td>
</tr>
</tbody>
</table>

Note: <sup>1</sup> based on independent sample T-tests, <sup>2</sup> based on χ<sup>2</sup> tests, significant at *10% ** 5% and *** 1% level
3.2 Differences in prices received by contracted and non-contracted vanilla farmers

In 2016, June and July were the months were most HHs sold their green vanilla. Contracted HHs received significantly higher prices for green vanilla in June and July than non-contracted HHs (t-tests, June= t(1.89), p=0.05; July= t(193), p=<0.001, see Figure 26a). The mean difference in June and July were 5,885 ± 374 Ariary (1.8€ ± 0.1€) and 9425 ± 248 Ariary (2.8€ ± 0.1€), respectively.

Fifty-nine percent of contracted farmers also sold at least some black vanilla, respectively. When looking at black vanilla, there are significant differences in prices received in October (t(104)=1.864, p=0.065, see Figure 26b). The mean difference is 93,493 ± 50,162 Ariary (28.3€ ± 15.2€). Contracted HHs also received significantly higher prices in November (t(94) = 2.68, p=0.009), and December, (t(126) = 2.969, p=0.004). On average, contracted HHs received 122,321 ± 45,649 Ariary (37.0€ ± 13.8€, November) and 171,819 ± 57,871 Ariary (52.0€ ±17.5€, December) higher prices than non-contracted HHs for black vanilla.

Figure 26 - Prices received by contracted vs. non-contracted vanilla farmers for a) green vanilla (June 2016) and b) black vanilla (June 2016-March 2017), in Malagasy Ariary & Euro [N=1291]

Note: 1€=3300 Ariary at time of the survey in 2017. Between 5-6 kg of green vanilla are needed to produce 1 kg of black vanilla, provided the unprocessed (green) vanilla was fully ripe. (Figure adapted from Hänke et al., 2018)
3.3 Benefits received due to contract with business partner

As shown in Figure 27 (below), the advantages that contracted vanilla farmers receive through contract partners are manifold. Most common are “price premia” (36%), “equipment to secure vanilla fields” (28%), “interest free credit during lean season” (27%). Furthermore, 22% of respondents perceived to have an “assured market” due to their vanilla buyer. Other often mentioned benefits are “food loans during the lean season”, “health insurance”, “school support for children” and “agricultural trainings”. However, most contracted farmers receive a combination of the illustrated benefits. None of the non-contracted vanilla farmers cited any of the listed benefits.

Figure 27 - Benefits due to contract with buyer [n=360 out of N=1291]

Note: multiple answers were possible
3.4 Logistic regression

Table 6 (below) presents the maximum likelihood estimates and marginal effects from the Logit regression. A Nagelkerke’s R² test suggested that our regression model explains 64.8 % of the variation in the outcome, and the omnibus test of model coefficients indicated that the regression model is highly significant (χ²=729.97, p=<0.01).

Several variables influence the probability of participation in vanilla CFAs at least at the 10 percent significance level. HHs whose HH head has finished primary school are 1.5 times more likely to participate (p=0.03). If the HH is MD-poor, its probability of participating in CFAs decreases by 35% (p=<0.08). The number of vanilla plots (p=0.10) and total harvest (p=0.03) are positively associated with CFA participation. HHs whose head is a member of a farmer organization are more likely to conclude contracts. The result is highly significant (p=<0.01), and its coefficient is the largest in the regression model. If the HH is curing and selling black vanilla, its probability of engaging in CFAs significantly decreases by 67% (p= <0.01).

Table 6 - Logistic regression: results for correlates of household participation in CF [N=1291]

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age household head</td>
<td>.001</td>
<td>.003</td>
<td>.130</td>
<td>.718</td>
<td>1.001</td>
</tr>
<tr>
<td>Household head finished primary school (dummy)*</td>
<td>.467</td>
<td>.213</td>
<td>4.821</td>
<td>.028</td>
<td>1.595</td>
</tr>
<tr>
<td>Household size</td>
<td>-.021</td>
<td>.045</td>
<td>.207</td>
<td>.649</td>
<td>.980</td>
</tr>
<tr>
<td>Number of household members older than 16 years</td>
<td>0.107</td>
<td>0.096</td>
<td>1.245</td>
<td>.264</td>
<td>1.113</td>
</tr>
<tr>
<td>Multidimensionally poor (dummy)*</td>
<td>-.346</td>
<td>.199</td>
<td>3.032</td>
<td>.082</td>
<td>.708</td>
</tr>
<tr>
<td>Number of agricultural plots (excl. vanilla)</td>
<td>.001</td>
<td>.097</td>
<td>.000</td>
<td>.991</td>
<td>1.001</td>
</tr>
<tr>
<td>Number of vanilla plots*</td>
<td>.235</td>
<td>.142</td>
<td>2.731</td>
<td>.098</td>
<td>1.265</td>
</tr>
<tr>
<td>Age of the oldest field</td>
<td>.002</td>
<td>.008</td>
<td>.087</td>
<td>.768</td>
<td>1.002</td>
</tr>
<tr>
<td>Total harvest vanilla (kg)**</td>
<td>.003</td>
<td>.001</td>
<td>4.535</td>
<td>.033</td>
<td>1.003</td>
</tr>
<tr>
<td>Farmer group member (dummy)***</td>
<td>5.253</td>
<td>.395</td>
<td>177.101</td>
<td>.000</td>
<td>191.169</td>
</tr>
<tr>
<td>Curing (dummy)***</td>
<td>-0.671</td>
<td>0.208</td>
<td>10.390</td>
<td>.001</td>
<td>0.511</td>
</tr>
<tr>
<td>Constant***</td>
<td>-5.288</td>
<td>.534</td>
<td>98.060</td>
<td>.001</td>
<td>.005</td>
</tr>
</tbody>
</table>

Note: *significant at 10% **significant at 5% and *** significant at 1% , n=309, overall P-value = 0.000; Pseudo R² = 0.648
3.5 Influence of number of years in contracts on MD poverty

As illustrated in Section 4., MD poor HHs are significantly less likely to participate in contracts. However, contracted HHs might also be less MD poor because of the contract and its accompanying benefits (cf. Minten et al., 2009, Barrett et al., 2012). Therefore, we also tested if there is a negative relationship between the MPI value in a cardinal approach (total deprivation score, Alkire et al., 2015) and the years that the HH is under contracts in a Pearson correlation test.

However, the test showed that there is no correlation between the HH’s MPI value and the number of years under contracts (n=360, r= -0.051, p=0.359, Pearson correlation).

In addition, we also tested if there is a correlation between the years under contracts and the number of assets owned by the HH (bicycle, motorbike, refrigerator, mobile telephone, television, car; Alkire et al., 2015). There is a statistically significant correlation between the number of years the HH is in different contracts and the number of assets owned. However, the correlation coefficient is very weak (r=0.143, p=0.007). Thus, there is strong evidence that there is a very weak correlation between the time a farmer is under contract and the number of assets owned.
4. Discussion

Vanilla farming HHs who engage in CFAs obtain multiple benefits. Contracted farmers receive support for schooling, support in financial planning through farmer business schools, agricultural capacity building, access to (interest-free) financial credit, support in cash crop diversification, subsidized health insurance, and higher prices for both green and black vanilla. In spite of these benefits, several controversial constraints arise with the use of CFAs in vanilla production. Firstly, most patrons exclusively offer CFAs for buying green vanilla. This prevents contracted farmers from moving up the vanilla value chain themselves by processing and producing the value-added black vanilla (cf. Hänke et al., 2018). Secondly, HHs concluding contracts are better-off HHs. As socio-economic factors influencing CFA participation is the central topic of this paper, we focus on a detailed analysis of how and why participating and non-participating HHs differ in the following.

Contracted vanilla farmers own more vanilla plots and have larger vanilla harvests (p=0.01, Table 5), both of which are significantly correlated with the likelihood of entering a CFA (Table 6). Likewise, heads of contracted HHs significantly more often finished primary school (Table 5, p=0.001), and contracted HHs have significantly more HH members older than 16 years, providing more agricultural labor.

The fact that farmers with larger production and bigger field sizes enter into CFAs has been reported by many other studies. In a recent review of 22 studies on income effects by CFAs, Ton et al. (2018) found that most contracted farmers had bigger land sizes and larger production. CFA studies confirming this pattern include avocado farms in Kenya (Mwambi et al., 2016), cotton farms in Zimbabwe (Musara et al., 2011), wheat farms in India (Kumar et al., 2010), and fresh fruits and vegetables farms in Malaysia (Arumugam et al., 2011) and South Africa (Freguin-Gresh et al., 2012).

As in this study, contracted farmers often have higher education levels than non-contracted farmers (Arumugam et al., 2011; Musara et al., 2011; Mwambi et al., 2016); education has also been found to influence farmer participation in microcredit schemes (Owuor 2009). The fact that a minimum level of education is required to accept a contract or agreement, in which conditions need to be mutually understood and written reporting may be required, is likely to affect contract participation. Consequently, our logit model shows that if the HH head has at least finished primary school, s/he is 1.5 times more likely to participate in CFAs (p=0.08).
Education can increase trust (Borgonovi 2012; Charron and Rothstein 2016), and it has been found that contracted vanilla farmers in Madagascar show higher levels of trust than non-contracted farmers toward their respective vanilla buyers (Hänke et al., 2018: 73).

Contracted vanilla farmers have also lived longer in the village and have more years of experience in vanilla farming (see Table 5). These factors facilitate access to social networks and agricultural know-how. Similar patterns were found in comparable studies, e.g., among cotton farmers in Zimbabwe (Musara et al., 2011). Contracted HHs own significantly more often mobile telephones and motorbikes (p=0.001, Table 5). Mobile telephones improve access to cash transfers as well as to information (Aker and Ksoll 2016). However, mobile telephones are far more common in the area than motorbikes (Hänke et al. 2018). Motorbikes improve mobility, access to information, and communication for vanilla farmers, particularly considering that the infrastructure is very weak in the SAVA Region.

The logit model also shows that being a member of a farmer organization (e.g., producer association / cooperative) significantly increases the likelihood of concluding contracts. This is not surprising, as being a member of a farmer group is a prerequisite in certified CFA schemes. Exporters who initiate contracts typically group farmers into producer associations in order to make CF economically viable (Prowse 2007).

If the HH is curing and selling black vanilla, its probability of engaging in CFAs significantly decreases (p= <0.01). In fact, few CF schemes buy (processed) black vanilla directly from the farmers. Contracted vanilla is mainly bought as (unprocessed) green vanilla through CF schemes in the SAVA Region (Blum et al., in review).

If a HH is multidimensionally (MD) poor, its probability of participating in CFAs decreases by 35% (p=0.08). This finding needs some context. Most of the investigated Malagasy vanilla farmers could be defined as “poor” based on international criteria, i.e., World Bank’s international poverty line (World Bank 2019; Hänke and Fairtrade International 2019), MD poverty among vanilla farmers (Hänke et al., 2018) or living income (Anker and Anker 2017; Hänke and Fairtrade International, 2019). However, compared to other regions in Madagascar, the SAVA Region has lower poverty-headcount ratios (SEDAC, 2007), and there are considerable differences between the HHs (see Table 5).

Potential determinants of CFA participation that we did not cover include risk attitude and land ownership. Risk attitude can influence the probability that a farmer participates in CFAs: risk-
averse farmers may be inclined to participate in CFAs that help to reduce risks (Wainaina et al., 2014). Likewise, land ownership can be an important determinant of CFA participation (Arumugam et al., 2011). Furthermore, CFA adoption may be influenced by farmer attributes such as motivation, ability, and access to information (Barrett et al., 2012; Bellemare, 2012; Wainaina et al., 2014), which we did not cover in this study.

The exclusion of poor farmers, by contrast, can also stem from poor infrastructure, fluctuating agricultural production, and inconsistent quality of products (Minot and Sawyer 2016). Moreover, poorer HHs might not have sufficient resources to effectively participate in CFAs (cf. Stoian et al., 2016). Poorer farmers might face considerable trade-offs when using their resources, e.g., labor reallocation from subsistence crops to cash crops demanding them to invest essential capital and/or labor (Stoian et al., 2016). At the very least, participation in value chains requires farmers to have secure access to land, relevant knowledge and skills, capacity, and organization, which might not be the case for impoverished and asset-poor smallholders (cf. Horton et al., 2016). Participation in value chains might thus be difficult for smallholders who subsist below minimum asset thresholds (Donovan and Poole 2014).

When used on cross-sectional data to identify influences on the adoption of innovations, binomial logit regression models face issues of endogeneity, unobservables, and “Simpson’s paradox” (Pearl 2009, pp.174). Thus, a significant statistical influence on CFA participation does not, by itself, indicate a causal link. In a study using cross-sectional data, it is non-trivial to differentiate between socio-economic factors that genuinely foster CFA participation and factors that change because of CFA participation (cf. Huang et al., 2018). Thus, an observed correlation between a factor and participation in Logit analysis can be an effect of CFA participation instead of an influence. We are confident, however, that the influences reported here do, in fact, reflect causality, not just correlation. For instance, the average experience of contracted vanilla farmers with CFAs in our sample is only 3.99 +/- 0.15 (Mean +/- SE) years. This is a brief period of time for substantial improvements, e.g., in HH’s MD poverty. Most importantly, we included mainly variables that are unlikely to be CFA effects. This includes the age of the HH head (average age = 50.54 +/- 0.66 years), education of the HH head, number of HH members older than 16 years, years of experience in vanilla farming, and the number of vanilla plots, as vanilla plots had been first planted 16.6 +/-0.3 years ago, on average. In these cases, the significant influence of these variables indicates that the variables, in fact, represent ex-ante selection criteria by companies that seek experienced farmers with sufficiently large vanilla production and sufficient education. Such a strategy will reduce transaction costs in
procuring vanilla from smallholders and improve economies of scale in Northeastern Madagascar: It is simply more costly to source the same amount of vanilla from a higher number of smallholder and less educated farmers. Still, self-selection by farmers can contribute to CFA participation as less poor and better-educated farmers feel more competent to participate. While the selection mechanism differs, it results in the same pattern: The relatively better-off farming HHs profit proportionally more from vanilla buyers principally offering CFAs than the poorest vanilla-producing HHs, irrelevant of whether this is due to self-selection by farmers or by companies.

Malagasy vanilla contracts are so far not representing an all-encompassing rural development solution as they only include a small fraction of smallholder farmers. Contracted vanilla farmers represent around 20% of all Malagasy vanilla farmers, and the large majority are not contracted (80%, Hänke, and Fairtrade International 2019). If the current setup is not corrected, it could lead to increasing income inequality over time (cf. Minot 2011). However, further research is needed to study the self-selection processes by vanilla farmers and how certified CF schemes could possibly be designed so as to benefit more vulnerable smallholder vanilla producers.

4.1 Policy Implications

The scientific evidence shows that CFAs can increase the production, quality, income and welfare of contracting HHs (Bellemare 2012; Chiputwa et al., 2015; Swinnen and Maertens 2007; Ton et al., 2015). Likewise, despite our results for vanilla from Madagascar, a review of contract farming in Sub-Saharan Africa found that contract farming schemes can actually switch from larger farmers to smallholder farmers, concluding that public policies might play a role in encouraging the participation of smallholders in CFAs (Minot 2011). Also, it has been shown that it is possible to link (impoverished) smallholders to vertically integrated markets (Horton et al., 2016). However, evidence of successful examples remains scarce (Donovan et al., 2020).

Part of the strategy to reduce transaction costs for companies could be public-private partnerships that provide technical extension services, CFA benefits, or the task of mobilizing farmers into producer groups (cf. Donovan 2011). Certification costs could be reduced for exporters through group certifications (Prowse 2007). However, in the Northeastern Malagasy project area, buyer/exporter-independent producer groups are rare.
If “pro-poor” or “inclusive value chain development” is the goal, that is, including resource-poor farmers, youth, minorities, and women (UNIDO 2011; Devaux et al., 2016; Stoian et al., 2016), there is a need for greater coordination and/or collaboration among the diverse stakeholders interfering in value chains (cf. Donovan et al., 2016). In order to support rural development and smallholders, some of the bigger vanilla companies in Northeastern Madagascar have already started integrated development programs in public-private-partnerships with NGOs and bilateral aid agencies (for a prominent example of a PPP in the vanilla business, see for instance, the GIZ-Symrise partnership via: developpp.de). The complex task of setting up inclusive value chains can, in fact, be achieved by the financial and logistical support of bi- or multilateral organizations (cf. UNIDO 2011). Development partnerships could contribute expertise to complement the efforts of private companies in Madagascar. If stakeholders muster the required financial resources and allow for mutual learning to overcome the business-driven limitations, it might be possible to include smaller, poorer, and less consistent producers in supply chains (cf. Donovan et al., 2020).
CFAs have become increasingly more common in the vanilla business of Madagascar. Many companies have made substantial investments in associated social, economic, and environmental programs. Most of these programs are related to corporate social responsibility commitments of international vanilla buyers as well as to private sustainability standards demanded by the food and beverage industry.

We find that CFAs offer substantial benefits for vanilla farmers in Northeastern Madagascar, including significantly higher prices for green and black vanilla, technical training, support in livelihood diversification and education, access to credit, equipment, and subsidized health insurance. These benefits, however, accrue predominantly to the relatively better-off and better-educated vanilla farming households. Thus, the current way how CFAs are implemented cannot replace genuine poverty reduction mechanisms in favor of the poorest and most vulnerable share of the population. Without changes, CFAs may even lead to increasing social inequalities among the vanilla farming population in Northeastern Madagascar.

Lower transaction costs for companies who i.) engage with smallholders producing lower or inconsistent quantities of vanilla and who ii.) integrate resource-poor farmers into their operations might be accomplished if vanilla companies team up with other stakeholders who can cover (absorb) some of the required transaction costs. Cooperation among stakeholders in value chains can reduce logistical challenges for private businesses and improve the cost structure (Donovan et al., 2016), and value chain development promoted by bi- and/or multilateral donors can foster poverty reduction (Stoian et al., 2012). Addressing poor and vulnerable smallholders requires simultaneous support in farming, credit access, education, skills, and technology development, and market access. Policy implications also include an improved design of certified CF arrangements in order to incorporate poorer and more vulnerable vanilla farmers in Northeastern Madagascar.
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Cui bono? Determinants and benefits of contract farming participation in vanilla value chains, evidence from Madagascar

1st Author: Hendrik Hänke,
Georg-August-Universität Göttingen,
Faculty of Agricultural Sciences,
Department of Agricultural Economics and Rural Development

2nd Author: Lloyd Blum,
(1) Hochschule Darmstadt - University of Applied Sciences,
Department of Social Sciences, Risk & Sustainability Research;
(2) Georg-August-Universität Göttingen,
Faculty of Agricultural Sciences, Department of Agricultural Economics and Rural Development

3rd Author: Markus Hanisch,
(1) Humboldt Universität zu Berlin, Seminar für Ländliche Entwicklung

4th Author: Jan Barkmann,
(1) Hochschule Darmstadt - University of Applied Sciences, Department of Social Sciences, Risk & Sustainability Research; (2) Georg-August-Universität Göttingen, Faculty of Agricultural Sciences, Department of Agricultural Economics and Rural Development

Writing - Original Draft
Writing, Review, and Editing
Review and Editing
Review and Editing

Conceptualization

Early Conceptualization

Methodology

Contributions to Methodology

Investigation

Data Curation

Formal Analysis

Visualization

Corresponding author: hendrikhaenke@gmail.com
Chapter 3: Cash *versus* care orientation explains gendered preferences for contract farming features

Authors: Lloyd Blum, Jessica Andriamparany, Jan Barkmann

ABSTRACT

Certified contract farming spreads rapidly in the vanilla business of Madagascar. It remains unclear, however, to what extent male and female farmers are represented in these contracts. Moreover, it is unknown how each gender judges contractual terms imposed by exporters onto their HHs.

Focusing on the most prominent origin of vanilla globally, the SAVA Region in Northeastern Madagascar, we administered a *discrete choice experiment* to find out whether preferences for prevailing contract farming options differed between (n=302) female *versus* (n= 302) male vanilla producers. Our results show that both men and women perceive the biggest utility in health insurance, whereas both genders see the biggest disutility in requirements that ask HHs to abstain from improved bednets in order to deliver *Organic vanilla* qualities. Further results also show preference heterogeneity, whereby men prefer contract options that maximize immediate monetary gains while women put much greater emphasis on contractual options which minimize their labor needs and provide social protection to the HH. Our study suggests that gender-sensitive contract farming schemes would offer a promising avenue to advance the popularity of certified contracts. Moreover, we argue that more gender sensitivity is needed to promote female empowerment in export-oriented agriculture.

Keywords: Madagascar, choice experiment, smallholder preferences, contract farming, gender, vanilla
1. Introduction

Contract farming of vanilla is a recent but rapidly expanding trend. Beginning in the aftermath of the first vanilla price spike of 2002-2004, it has rapidly expanded in Northeastern Madagascar ever since. By 2016 about 15% of vanilla farming HHs were part of contract farming schemes (Hänke et al., 2018). By 2019, their share had risen to 20% of farmers (Hänke, 2019). Contract farming (CF) schemes are forward contracts that specify mutual obligations between business partners. The buyer - typically a processor or exporter - promises to acquire a certain quantity of the crop at pre-agreed prices, whereas the signatory farmer promises the trader to supply the crop at a given date (Will and Rockenbauch, 2012). Where certified trade is involved, also process qualities are of importance to the buyer. (Blum, Hänke and Barkmann, in review).

More recently, the gender dimension of CF garnered a special interest among commodity chain actors (IISD, 2019, 2020; Smith et al., 2018). The deliberate inclusion of female farmers is believed to offer possibilities to increase productivity as well as product quality improvements (IFC, 2019). Related issues remain largely understudied (Anderson et al., 2020; Maertens and Swinnen, 2012; Meemken and Qaim, 2018) though; particularly the assumed empowerment dimensions (Fair Trade International, 2009; Loconto, 2015; Rainforest Alliance, 2020). Female economic empowerment is defined as increasing the autonomy (Sen, 1987) and decision-making power of women (Kabeer, 1999). In rural HHs, this is achieved by increasing women’s command over agricultural resources, production, as well as over income (Anderson et al., 2021).

Women entered into the development discourse in the middle of the 1980s (Rauch, 2009). Since then, authors highlighted that men often decide over the income allocations within HHs (Haddad, Hoddinott, and Alderman, 1994) and the division of labor (Benería, 1979), often to the detriment of the agency of women (Sen, 1987). While evidence suggests that income controlled by women tends to have a higher developmental impact as more of it is spent on health care, nutrition, and children’s education (Quisumbing et al., 2014), striking gender inequalities persist to date (Anderson et al., 2021). These are particularly obvious in rural contexts of developing countries (Doss, 2001).

Economists summarize customary advantages in accessing land (Widman and Hart, 2019), higher agricultural productivity (Quisumbing and Pandolfelli, 2010), and better education enjoyed by men (IFPRI, 2015) under the notion of a gender asset gap (FAO, 2011). In other words: Female farmers in traditional agrarian societies are usually less productive and face
more difficulties in accessing capital than men due to poor endowment with productive assets (Quisumbing, 2014).

An important strand of literature in this respect assesses accepted social norms that underpin the traditional division of labor (Blumberg, 1979). It points to differences in decision-making powers between males and females within HHs (Alderman et al., 1995). Recognizing how culture (Kandiyoti, 1988) and ethnic origin (Raharijaona, 1967) play into social norms, however, this literature cautions against cross-cultural generalizations of the phenomenon of bargaining with patriarchy (Doss, 2001; Kandiyoti, 1988).

Theoretical arguments for strengthening the bargaining power of women within HHs date back to a critique of the so-called “unitary HH model” proposed by family economist Gary Becker (1981a, 1981b). Becker’s model of unity in families all too often over-simplified reality by assuming altruistic leadership and strong moral cohesion between individual HH members. In reality, however, interests between husbands and wives often diverge to the point that results in intra-HH conflict. Alderman et al. (1995), who reviewed the economic literature on gendered conflicts within HHs, consequently proposed economists more widely use economic models which systematically capture the interests and preferences of both male and female HH members separately.

Intra-HH conflicts can arise, for instance, as a result of development interventions, including CF schemes. Conflicts are likely to arise within HH where perceived costs of implementing specific CF requirements are not equally borne by all HH members but instead off-loaded onto weaker members, including women and children. Women are notoriously short of time (Alkire et al., 2013), i.e., rural women are frequently overcharged with the double burden of taking on reproduction-related HH work (UNDP, 2015) as well as income-earning occupations (Anderson et al., 2021). It is not only the requirements of CFs but sometimes even the opportunities which can create intra-HH conflict. For, women may be withheld from accessing these opportunities. Taking the example of introducing a new cash crop, spouses have been observed to use their unequal bargaining power within the HH to renounce their wives access to respective land (Jones, 1986), thus limiting women’s command over the new income source (Malapit, 2012); a phenomenon known as asset grabbing (IFPRI, 2015).

In a seminal study from Gambia, Judith Carney, and Michael Watts (1990) describe how development projects that are not well targeted can unwittingly catalyze intra-HH conflicts. In this particular case, resource control over pump-irrigated rice production was shifted from women to men. Bargaining resulted in women uttering their dissent by withdrawing their labor force from other agricultural tasks to be completed by the HH. Another famous study from
Burkina Faso shows how HH members may avoid pooling their resources within HHs (Udry, 1996). In this case, control over land remained individualized, confirming the relevance of the HH bargaining model and the necessity to capture the preferences of both male and female HH members (Alderman et al., 1995).

In CF with smallholder farmers, it is well known that men tend to dominate as signatories in respective schemes (Maertens and Swinnen, 2012; Meemken et al., 2017). Authors argue that the gender asset gap and transaction cost considerations drive buyers to preferentially interact with men. (Terstappen et al., 2013). There is also a social dimension to female (dis)empowerment through CF schemes. Female farmers are frequently observed to be under-represented in producer groups (Kaaria et al., 2016), i.e., groups of farmers from which buyers initiate to make CF economically viable (Prowse, 2007). Both the gender asset gap and female under-representation in producer groups (Rajoelison, 2017) are seen to put women at a structural disadvantage to benefit from CF offers and related benefits (Lyon, 2008).

In this study of CF with vanilla farmers in Madagascar, we therefore ask:

- If male and female farmers are equally represented as signatories in CF schemes?
- If preferences for prevailing CF options differ between the genders?
- How different preferences between the genders can be explained?

Female empowerment is a normative goal for human development by the United Nations (UN-Women, 2020a). It seeks to reduce the gender asset gap, increase female literacy, and create spillover effects such as improved income, increased autonomy, and equal opportunities for women in society (UN-DESA, 2015; UN-Women, 2020b). There is an emerging field of gender-sensitive agroeconomic studies that proposes that an understanding of gendered preferences can serve as a good starting point for policy makers who wish to design development interventions that better correspond to smallholder realities (Joshi et al., 2019; Ndiritu et al., 2014).

Our study makes a valuable contribution to this field as it helps to fill a knowledge gap regarding smallholder preferences for CF options (Abebe et al., 2013; Fischer and Wollni, 2018; Giovannucci and Ponte, 2005). Most recently, this knowledge gap was refocused on gendered preferences. Most gendered choice experiments, which exist so far, focus on the willingness of smallholders to adopt specific agricultural technologies (Blare and Useche, 2015; Gulati et al., 2019; Lambrecht et al., 2013; Ndiritu et al., 2014), proposed agri-
environmental schemes (Colombo et al., 2009) or crop insurance offers (Akter et al., 2016). To our knowledge, there is only one other choice experimental study so far which provides systematic evidence of gendered preferences for CF schemes (Meemken et al., 2017). In this study, we take an approach very similar to Meemken et al. (2017) in that we test for generic benefits and obligations of CF schemes which reappear across multiple sustainability standards. This has the advantage of testing CF features that are most relevant to the local population of farmers instead of fitting the economic model with set criteria of particular sustainability standards. Our results should be of interest to policy makers and vanilla traders who seek to improve the design of CF schemes toward greater gender equality.

2. Background

2.1 Vanilla production and gender in the SAVA Region of Northeastern Madagascar

Agriculture in Madagascar is dominated by small-scale family farms. On average HHs cultivate less than 2 ha of land (CIA, 2020). Vanilla typically occupies less than 1 ha per HH; often distributed on multiple plots (Hänke et al., 2018). Recurring problems with security and vanilla theft (Neimark et al., 2019) imply that men occupy fields further away from the HH, whereas women cater to fields closer to the HH. Both men and women are involved in vanilla farming. Historically, women have even dominated important production steps, including the crucial task of hand pollination (personal communication, vanilla exporter from Andapa 18/10/2016). What is more, women also dominate the post-harvest transformation of vanilla. This mainly takes place at the premises of professional preparators and exporters in the SAVA Region, typically in nearby cities (personal communication, vanilla exporter from Andapa 18/10/2016). Customs of inheritance allow women to inherit and own land individually, but patrilineal descent dominates in most communities. Thus, land ownership in Madagascar remains dominated by men (Widman and Hart, 2019). A land reform initiated in 2005 offers new possibilities of joint land titling and co-ownerships between husbands and wives, but less than 10% of rural families have made use of this official registration so far (Widman and Hart, 2019).

2.2 Gender policies of Fair Trade and Rainforest Alliance certified CF schemes

Not all private voluntary sustainability standards aim at improving gender equality. Many organic standards, including the EU Organic label, do not require traders to respect gender policies. However, both Fair Trade and Rainforest Alliance do aim at female empowerment
and require vanilla exporters in the SAV Region to implement a number of specific gender measures (see Table 7 below).

Table 7 - Gender measures of Fair Trade and Rainforest Alliance

<table>
<thead>
<tr>
<th>Gender Equality Measures</th>
<th>Fair Trade</th>
<th>Rainforest Alliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness workshops on gender inequalities</td>
<td>Training on gender issues and benefits of gender equality within HHs / farm work.</td>
<td>Training on equal opportunities must be held within the first four years following certification.</td>
</tr>
<tr>
<td>Equal opportunities</td>
<td>Gender-based discrimination in accepting members in producer groups or hiring wage laborers is forbidden. Wage records must be kept.</td>
<td>Gender-based discrimination in accepting members in producer groups or hiring wage laborers is forbidden. Wage records must be kept.</td>
</tr>
<tr>
<td>Equal participation in training and group meetings</td>
<td>Underprivileged, disadvantaged, and vulnerable members in the producer group must be identified (e.g., women, minorities, resource-poor households) and supported with specific measures.</td>
<td>Women must be informed about upcoming training. Training must be held at feasible times for women. Training records must be kept, including the gender of all participants.</td>
</tr>
<tr>
<td>Specific interventions for female farmers</td>
<td>Programs promoting female farmers may be financed by the Fair Trade premium (e.g., women groups and micro-enterprises)</td>
<td>Programs promoting female farmers must be implemented from the second year of certification (e.g., participation in decision-making in producer groups)</td>
</tr>
<tr>
<td>Health and safety</td>
<td>Pregnant and nursing women must not perform hazardous work (e.g., application of pesticides, hard physical work, etc.) Benefits for pregnant women working as wage laborers must be specified by the producer group.</td>
<td>Pregnant and nursing women must not perform hazardous work (e.g., application of pesticides, hard physical work, etc.) Pregnant women have the right to maternity leave if working as wage laborers.</td>
</tr>
<tr>
<td>Sexual harrassment</td>
<td>Sexual harassment must not be tolerated.</td>
<td>Sexual harassment must not be tolerated.</td>
</tr>
</tbody>
</table>

(Table based on Fair Trade, 2016; Rainforest Alliance, 2020a,b)
3. Methods

3.1 Data Collection

Figure 28 - Study sites surveyed for the choice experiment (black dots) in the SAVA Region

To select HHs for our choice experiment, we used a multi-stage random sampling framework. Out of N=1291 HHs interviewed in 60 villages for the baseline HH survey in 2017 (Chapter 2), we randomly drew 14 villages to re-visit 300 HHs in 2018 for our choice experiment (Figure 28 above). We systematically gendered the research design in order to capture intra-HH perspectives from male and female farmers in equal numbers. One male and one female vanilla farmer were interviewed per HH. This was executed simultaneously but in separate locations so that neither the male nor the female respondent was able to influence the answers of the other individual. Male farmers were interviewed by male enumerators, whereas female farmers were interviewed by female enumerators. This was done to ensure that female respondents would dare to open up when talking about potentially sensitive topics, as it is well-known that women sometimes feel more comfortable talking to other women (Klondylis et al., 2014). Using a gendered data-collection strategy, we ensured that individual perspectives of men and
women were captured with equal weight in our survey. HHs were targeted in a checker-board pattern along north-south and east-west transects within each village, whereby every 10th house was asked for an interview. In cases in which we were unable to find one male and one female vanilla farmer per HH – who was above 18 years of age and who had produced and sold vanilla within the last three years - we dropped that HH and searched for another one. This resulted in a choice experiment of n=302 male and n=302 female farmers from N=302 HHs. Sampling these HH from 14 villages allowed our econometric analysis a representative cut through all adult age classes of vanilla farmers whilst controlling for a gender-disaggregated perspective.

3.2 Choice experiment

Discrete choice experiments allow to measure the preferences of farmers for specific CF features in quantitative terms. The method draws on Lancaster’s theory of consumer choice (Lancaster, 1966) and McFadden’s extension thereof, known as discrete choice theory (McFadden, 1974). Choice Theory proposes that individuals derive utility from specific attributes of products rather than from the product itself (Louviere et al., 2001). Applying this to our case, a CF scheme can be seen as a service offer, which can be decomposed into its constituent terms and references – i.e., a price premium accompanying various non-monetary benefits as well as a number of obligations imposed on farmers. Some of these conditions derive from private voluntary sustainability standards which are implemented through CF schemes - e.g., a ban on using pesticides stems from Organic and Rainforest Alliance standards, a ban on child labor from Fair Trade and Rainforest Alliance, and a ban on using fire in the fields from Rainforest Alliance. CF features, which we included in the choice experiment, built on a participatory selection process that comprised several studies in the years 2016 and 2017.

Table 8 (below) presents the selected CF attributes tested in our choice experiment. Figure 29 (below) depicts the example of a choice set from which farmers had to choose a preferred buyer. In total, eight choice sets of two alternative buyer profiles were to be judged by farmers. The farmers had to contrast two alternative contractual buyer options with the terms and references of their current vanilla buyer, whose attributes were depicted on a third choice card (Figure 29).
Table 8 - Gender relevance of CF attributes tested in the choice experiment

<table>
<thead>
<tr>
<th>Offered PVSS contract</th>
<th>Attributes</th>
<th>Levels</th>
<th>Gender Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price incentive</strong></td>
<td>Price Premium per kg green vanilla</td>
<td>Market price + 15,000 MGA</td>
<td>Addresses both sexes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Market price + 10,000 MGA</td>
<td>Addresses both sexes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Market price + 5,000 MGA</td>
<td>Addresses both sexes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Market price</td>
<td>Addresses both sexes</td>
</tr>
<tr>
<td><strong>Non-monetary benefits</strong></td>
<td>Health insurance for up to 7 HH members</td>
<td>yes / no</td>
<td>Addresses both sexes to reduce the risk of financial calamity. Gives women more time and more security as it prevents children from dying of simple diseases and women from dying when giving birth.</td>
</tr>
<tr>
<td></td>
<td>Interest-free credit during the lean period</td>
<td>yes / no</td>
<td>Addresses both sexes to reduce the risk of food consumption shortfall in the lean period (February-April). Supports women in their role to ration food within the HH.</td>
</tr>
<tr>
<td></td>
<td>Support to produce cash crops in addition to vanilla</td>
<td>yes / no</td>
<td>Addresses male farmers who produce most cash crops other than vanilla, e.g., coffee, cocoa, ginger, cloves, or pepper</td>
</tr>
<tr>
<td></td>
<td>Support to protect vanilla fields against theft</td>
<td>yes / no</td>
<td>Addresses male farmers who spend days away from the HH to guard remote vanilla fields</td>
</tr>
<tr>
<td><strong>Obligations</strong></td>
<td>Only harvest ripe vanilla</td>
<td>yes / no</td>
<td>Addresses both sexes but entails an increased risk of vanilla theft</td>
</tr>
<tr>
<td></td>
<td>Stop using insecticide-treated bednets at home to produce <em>Organic</em> vanilla</td>
<td>yes / no</td>
<td>Addresses both sexes but entails an increased risk of falling ill with an insect-borne disease (e.g., Malaria, Dengue)</td>
</tr>
<tr>
<td></td>
<td>Stop slash-and-burn agriculture to produce <em>Rainforest Alliance</em> certified vanilla</td>
<td>yes / no</td>
<td>Addresses both sexes but increases labor of HH when producing hill rice or costs when HHs substitute hill rice with rice bought on the market</td>
</tr>
<tr>
<td></td>
<td>Stop child labor to produce <em>Fair Trade</em> certified vanilla</td>
<td>yes / no</td>
<td>Addresses both sexes but reduces labor force of HH to produce vanilla or to perform HH tasks</td>
</tr>
</tbody>
</table>
Figure 29 - Example of a choice set in our choice experiment

First Buyer

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm</td>
<td>Arm</td>
</tr>
<tr>
<td>Hat</td>
<td>Hat</td>
</tr>
<tr>
<td>Healer</td>
<td>Healer</td>
</tr>
<tr>
<td>Resilience to diversify your cash crops</td>
<td>Resilience to diversify your cash crops</td>
</tr>
<tr>
<td>Resilience materials to better guard your vanilla fields against theft</td>
<td>Resilience materials to better guard your vanilla fields against theft</td>
</tr>
<tr>
<td>Do not harvest unique vanilla</td>
<td>Do not harvest unique vanilla</td>
</tr>
<tr>
<td>Do not practice slash and burn</td>
<td>Do not practice slash and burn</td>
</tr>
</tbody>
</table>

Price premium per kg of green vanilla:

None

Second Buyer

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm</td>
<td>Arm</td>
</tr>
<tr>
<td>Hat</td>
<td>Hat</td>
</tr>
<tr>
<td>Healer</td>
<td>Healer</td>
</tr>
<tr>
<td>Resilience to diversify your cash crops</td>
<td>Resilience to diversify your cash crops</td>
</tr>
<tr>
<td>Resilience materials to better guard your vanilla fields against theft</td>
<td>Resilience materials to better guard your vanilla fields against theft</td>
</tr>
<tr>
<td>Do not harvest unique vanilla</td>
<td>Do not harvest unique vanilla</td>
</tr>
<tr>
<td>Do not practice slash and burn</td>
<td>Do not practice slash and burn</td>
</tr>
<tr>
<td>Do not utilize treated mosquito nets at home</td>
<td>Do not utilize treated mosquito nets at home</td>
</tr>
</tbody>
</table>

Price premium per kg of green vanilla:

10,000 Ar (50,000 FMG)

Your Current Buyer

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm</td>
<td>Arm</td>
</tr>
<tr>
<td>Hat</td>
<td>Hat</td>
</tr>
<tr>
<td>Healer</td>
<td>Healer</td>
</tr>
<tr>
<td>Resilience to diversify your cash crops</td>
<td>Resilience to diversify your cash crops</td>
</tr>
<tr>
<td>Resilience materials to better guard your vanilla fields against theft</td>
<td>Resilience materials to better guard your vanilla fields against theft</td>
</tr>
<tr>
<td>Do not harvest unique vanilla</td>
<td>Do not harvest unique vanilla</td>
</tr>
<tr>
<td>Do not practice slash and burn</td>
<td>Do not practice slash and burn</td>
</tr>
<tr>
<td>Do not utilize treated mosquito nets at home</td>
<td>Do not utilize treated mosquito nets at home</td>
</tr>
</tbody>
</table>

Price premium per kg of green vanilla:

Note: One choice set shows three alternative buyer profiles.
3.3 Econometric Approach

Given that the *Conditional Logit* model originally conceived by McFadden (1974) has several limitations which restrict its practical applicability (Luce 1959 in Bateman *et al.*, 2002), we opted for the *Mixed Logit* model (Hensher *et al.*, 2005) to conduct this study. The Mixed Logit model assumes that tastes vary between individuals but not across choices made by one and the same individual in the survey (Train, 2009). Accordingly, the perceived utility of product features is made up of an attribute-specific utility coefficient ($\alpha$) and an individual-specific utility coefficient ($\beta$) (Train, 2009). *Mixed Logit* models neither assume that all respondents use the same choice strategies (Train, 2009), nor that subsequent choices over multiple sets are made independently from each other by the same individual (Train, 2009), nor independence of choices from *irrelevant attribute levels in a third product alternative* (see IIA criterion in Hensher *et al.*, 2005). Mixed Logit models thus represent the preferred method for choice experiments where multiple choice tasks are to be performed in a row (Train 2009). In our study, the experiment consisted of eight choice sets, each with three alternative buyer profiles. The utility coefficients in our choice model were estimated using the software package STATA 16.0 and cross-checked with NLogit 5.0. A standard approach of fitting the Mixed Logit model with normally distributed random parameters for all dummy variables is applied, as well as a constant parameter for the price premium (Hensher & Greene, 2002).

**Gender-specific econometric approach to choice modeling**

We are interested in different preferences for CF options between male and female farmers. Thus, our econometric approach to model smallholder choices included a dummy variable to distinguish the utility of specific CF attributes for men and women (Equation 5).

$$U_{ij} = V_{ij} + \varepsilon_{ij} = \alpha X_{ij} + \beta Z_{ij} + \varepsilon_{ij}$$

where $U_{ij} = \begin{cases} U_{M_{ij}}: \text{Utility for men} \\ U_{F_{ij}}: \text{Utility for women} \end{cases}$

**Equation 5 - Mixed Logit model to simulate preference heterogeneity for CF attributes**

The utility ($U$) of CF attributes (i and j) for male ($U_M$) and female ($U_F$) farmers is made up of an observable element ($V$) and a random element ($\varepsilon$). The latter is known as an error term, which captures the influences over choices that cannot be observed in the experiment. Using a Mixed Logit model (Train, 2009), the observable part can be further decomposed into an attribute-specific part ($X$) and an individual-specific part ($Z$).
3.4 Estimation of *willingness to pay* for, and *willingness to accept* contract features and PVSS schemes by respondents taking part in the choice experiment

Choice experiments allow the researcher to model *willingness to pay* (WTP) and *willingness to accept* (WTA) values for each attribute. These are monetary values that respondents give to each attribute in the experiment (Bateman *et al.*, 2002). Computation of WTP and WTA is achieved by computing the quotient of the individual attribute coefficients over the coefficient of the price attribute (Louviere *et al.*, 2001); in our case represented by a price premium offered by certified vanilla buyers per kg of green vanilla (Equation 6).

\[
\text{WTP or WTA} = \frac{\alpha_{\text{attribute}}}{\alpha_{\text{price [premium] attribute}}}
\]

*Equation 6 - Estimation of Willingness to Pay (WTP) and Willingness to Accept (WTA)*

from attribute-specific utility coefficients of choice experimental results

WTP values express the maximum amount of money that farmers would be willing to pay per kg of green vanilla sold to access respective contract benefits. WTA values represent the minimum amount of money farmers would demand as compensation to respect respective contractual obligations (Bateman *et al.*, 2002).
3.5 Hypotheses

Based on the literature, we expect sex-specific differences to appear in the valuation of CF features. We expect women to value CF benefits with care characteristics more strongly than men. We also hypothesize that women are possibly under-represented as signatories and /or side-lined in decision-making tasks within the HH and producer groups dominated by cash-crop-dominating males. Our precise hypotheses are formulated in Table 9 (below).

**Table 9 - Background and experimental hypotheses related to the gendered partition of labor in farming activities and gendered preferred for contract farming options, respectively**

| B1: | With income generation being a male-dominated task in many contexts, men are expected to make up the majority of self-proclaimed decision-makers within HHs in tasks such as (a) signing contracts with exporters, (b) selling vanilla to buyers, (c) deciding over income, (d) managing HH finances and (e) deciding over investments related to vanilla. |
| B2: | With formal education being more advanced among men in many previous studies, HH representation is expected to be male-dominated. In turn, the social mobility of females (e.g., participation in producer groups) is expected to be lower than for men. |
| H1: | Given that prevailing social norms tend to result in a gendered division of labor, preferences for contract farming options are expected to differ between men and women. |
| H2: | Rural women are known to be short of time and tend to spend a larger share of income on food and the educational needs of children than men. As a consequence, women may avoid labor-intensive agricultural tasks but more readily follow CF obligations that promote the educational development of their children (e.g., the ban on child labor) than men. |
### 4. Results

#### 4.1 Descriptive statistics

Table 10 - Socio-demographic characteristics of vanilla farmers [representative sample, N=604]

<table>
<thead>
<tr>
<th>Averages</th>
<th>Personal characteristics of (N=604) vanilla farmers in a representative sample</th>
<th>Male farmers (n=302)</th>
<th>Std. Error</th>
<th>Female farmers (n=302)</th>
<th>Std. Error</th>
<th>p-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td>49</td>
<td>1.09</td>
<td>43</td>
<td>0.77</td>
<td>5.35 e-08</td>
<td>***</td>
</tr>
<tr>
<td>Years in school</td>
<td></td>
<td>6</td>
<td>0.25</td>
<td>5</td>
<td>0.18</td>
<td>7.36 e-06</td>
<td>***</td>
</tr>
<tr>
<td>Annual harvest of vanilla (kg)</td>
<td></td>
<td>48</td>
<td>6.06</td>
<td>38</td>
<td>4.29</td>
<td>0.0789</td>
<td>*</td>
</tr>
<tr>
<td>Annual income from vanilla (in MGA)</td>
<td></td>
<td>5,994,235</td>
<td>1,309,762</td>
<td>2,884,288</td>
<td>1,852,283</td>
<td>5.74 e-08</td>
<td>***</td>
</tr>
<tr>
<td>Daily personal expenditures (in MGA)</td>
<td></td>
<td>19,356</td>
<td>5,168</td>
<td>11,750</td>
<td>7,309</td>
<td>0.000197</td>
<td>***</td>
</tr>
<tr>
<td>Percent who show</td>
<td>Observed Males</td>
<td>Expected Males</td>
<td>Observed Females</td>
<td>Expected Females</td>
<td>p-value</td>
<td>Significance</td>
<td></td>
</tr>
<tr>
<td>Basic literacy skills</td>
<td>88%</td>
<td>83%</td>
<td>79%</td>
<td>83%</td>
<td>0.0062</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Ability to save money</td>
<td>32%</td>
<td>32%</td>
<td>31%</td>
<td>32%</td>
<td>0.7932</td>
<td>no significant difference</td>
<td></td>
</tr>
<tr>
<td>Need to take predatory credit/loan (“contrat de fleurs”)</td>
<td>6%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>0.7123</td>
<td>no significant difference</td>
<td></td>
</tr>
</tbody>
</table>

Note:

1) ***, **, * significant at 1%, 5% and 10% level respectively
2) Significant tests for interval/ratio data based on two-sample t-tests, for nominal data based on Chi-Square
Figure 30 - Gender-specific responsibilities within vanilla-farming HH [self-reported responsibilities, n=302 men vs. n=302 women]

Who is responsible for which tasks within HHs of vanilla farmers?

- Guarding vanilla: Men's Role (100%)
- Signing the contract: Men's Role (100%), Women's Role (10%), Performing task together (90%)
- Negotiating prices: Men's Role (50%), Women's Role (40%), Performing task together (10%)
- Harvesting vanilla: Men's Role (80%), Women's Role (20%), Performing task together (10%)
- Deciding on investments: Men's Role (60%), Women's Role (40%), Performing task together (10%)
- Pollinating vanilla: Men's Role (20%), Women's Role (80%), Performing task together (10%)
- Managing expenditures: Women's Role (100%)

Note:
1) ***, **, * significant at 1%, 5% and 10% level respectively
2) Significant tests based on Chi-Square
### 4.2 Choice model estimation

#### Table 11 - Mean utility of tested CF features for male vs. female vanilla farmers in the study region [stated preferences, n=586]

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Intra-HH Model: Male vs. Female Utilities associated with CF options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male Vanilla Farmers (n=294)</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td>Mean Utility (α)</td>
</tr>
<tr>
<td>Price Premium per 10000 MGA</td>
<td>1.80 ***</td>
</tr>
</tbody>
</table>
| Health insurance for up to 7 HH members | 1.57 *** | 0.16 | 9.93 | (0.78**) | 1.71 *** | 0.16 | 10.63 | (1.10***)
| Credit during hunger season | 0.71 *** | 0.26 | 2.78 | (1.84*** | 1.65 *** | 0.24 | 6.83 | (2.21***)
| Cash crop diversification support | 0.73 *** | 0.13 | 5.45 | (1.02*** | 0.57 *** | 0.12 | 4.94 | (0.60***)
| Security materials to reduce vanilla theft | 0.90 *** | 0.15 | 6.17 | (0.14) | 0.68 *** | 0.14 | 4.71 | (0.66***)
| Only harvest ripe vanilla | 1.59 *** | 0.40 | 4.01 | (2.57*** | 0.55 not sign. | 0.34 | 1.59 | (1.72***)
| Stop "slash-and-burn" | -0.66 *** | 0.21 | -3.06 | (2.90*** | -1.29 *** | 0.26 | -4.97 | (3.61***)
| Stop "child labor" | -0.17 not sign. | 0.12 | -1.41 | (1.03*** | -0.43 *** | 0.12 | -3.56 | (0.99***)
| Produce "organic" | -1.95 *** | 0.40 | -8.91 | (1.62*** | -2.49 *** | 0.36 | -7.02 | (2.93***
| Change buyer for contract (ASC) | -0.35 not sign. | 0.23 | -1.53 | (1.52*** | -0.44 ** | 0.19 | -2.35 | (0.34**

Note:

1) Log-Likelihood Male Model = -1518.82; Log-Likelihood Female Model = -1566.27
2) LR Chi2 (Male Model) = 985.39 ; LR Chi2 (Female Model) = 987.07
3) Pseudo R2 (Male Model) = 0.42; Pseudo R2 (Female Model) = 0.39
4) Significance Level (Male Model) = .0000; Significance Level (Female Model) = .0000
5) ***, **, * mean coefficients significant at 1%, 5% and 10% level respectively

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Visualization of main effects [choice coefficients ($\alpha$)]: gendered preferences for CF features

Figure 31 - Preferences for CF benefits by male vs. female vanilla farmers [stated preferences, n=586]
Visualization of main effects [choice coefficients (\(\alpha\))]: gendered preferences for CF features (cont.)

Figure 32 - Avoidance of CF obligations by male vs. female vanilla farmers [stated preferences, n=586]

Marginal Disutilities of CF Obligations for Male vs. Female Vanilla Farmers

- Produce "organic"
- Stop "slash and burn"
- Stop "child labour"
- Change buyer for contract

Mean Utility (\(\alpha\))
4.3 Aggregate willingness to pay

Table 12 - Willingness to Pay (WTP) for and Willingness to Accept (WTA) tested CF features by male vs. female vanilla farmers in the study region [stated preferences, n=586]

<table>
<thead>
<tr>
<th>Contract Attribute</th>
<th>Male WTP</th>
<th>Female WTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health insurance</td>
<td>9,000 MGA</td>
<td>20,000 MGA</td>
</tr>
<tr>
<td>Interest free credit</td>
<td>4,000 MGA</td>
<td>20,000 MGA</td>
</tr>
<tr>
<td>Cash crop diversification</td>
<td>4,000 MGA</td>
<td>7,000 MGA</td>
</tr>
<tr>
<td>Security materials donated by a buyer to protect vanilla fields against theft</td>
<td>5,000 MGA</td>
<td>8,000 MGA</td>
</tr>
<tr>
<td>Only harvest ripe vanilla</td>
<td>9,000 MGA</td>
<td>6,000 MGA</td>
</tr>
<tr>
<td><strong>Contract Attribute</strong></td>
<td><strong>Male WTA</strong></td>
<td><strong>Female WTA</strong></td>
</tr>
<tr>
<td>Produce organic</td>
<td>- 11,000 MGA</td>
<td>- 29,000 MGA</td>
</tr>
<tr>
<td>Stop slash-and-burn</td>
<td>- 4,000 MGA</td>
<td>- 15,000 MGA</td>
</tr>
<tr>
<td>Stop &quot;child labor&quot;</td>
<td>- 1,000 MGA</td>
<td>- 5,000 MGA</td>
</tr>
<tr>
<td>Change buyer for contract (ASC)</td>
<td>- 2,000 MGA</td>
<td>- 5,000 MGA</td>
</tr>
<tr>
<td><strong>Sum of WTP and WTA</strong></td>
<td><strong>13,000 MGA</strong></td>
<td><strong>7,000 MGA</strong></td>
</tr>
</tbody>
</table>

Note:
1) WTP and WTA values for each attribute are based on bootstraps with 10,000 Halton draws
2) WTP and WTA values for each attribute were rounded to the nearest 1,000 Malagasy Ariary
5. Discussion

5.1 Role of women within vanilla farming HHs

Compared with other high-value cash crops in international trade, i.e., coffee from Uganda (Meemken et al., 2017), tea from Tanzania (Loconto, 2015), cocoa, cashew, or sugarcane from Ghana (Carr, 2008), vanilla from Madagascar offers promising opportunities to promote female empowerment as it is produced by both men and women. Thus, the crop is not entirely controlled by men.

It is encouraging to see that female vanilla producers dominate essential stages of production, including the crucial task of hand pollination (Figure 30). More importantly, our results show that women are implicated in HH financial management and also co-decide on vanilla-related investments within their HHs (Figure 30). The fact that female farmers are allowed to actively manage some part of the HH income originating from vanilla confirms claims that women in northern Madagascar have long been observed to be economically more empowered than in many other parts of the island (Raharijaona, 1967). Occasions for females taking co-decisions comprise situations when a HH decides to increase the stocking density of vanilla in response to rising vanilla prices, but also situations when a HH needs to replace damaged vanilla vines following the passage of a cyclone (personal communication with female vanilla farmers).

Yet, we do need to recognize that male farmers still dominate all marketing aspects of the crop, including price negotiation, sale, and signing of vanilla contract farming schemes (Figure 30), confirming our first hypothesis (Table 9, B1). Prevailing social norms in Northeastern Madagascar expect men to bring the money into the HH, whereas women are expected to manage and ration that part of income, which is willingly shared by husbands, meaning that men control the HH income. While this type of sharing tasks within the HH is known from other crops and countries, it is also known to contribute to potential conflicts and non-cooperative bargaining in HHs (Malapit, 2012). In the study region, males hold, on average, twice as much income as females (Table 10); that means one-third of annual income is shared with females, and the remaining two-thirds are being managed by males or hidden for private hobbies. The economic empowerment of female vanilla farmers is, therefore, still limited by possibilities for intra-HH bargaining due to males retaining control over vanilla income. This circumstance also holds true for contract farmers, where males are mainly represented as signatories in respective CF schemes (See Table A and Figure A in Appendix 7 showing revealed preference data). Male farmers are, on average older, better educated, and more
productive than female vanilla farmers (Table 10), confirming a typical gender asset gap (FAO, 2011). It is also important to realize that men typically represent the HHs in public life in Northeastern Madagascar. Women, by contrast, largely remain homebound, limiting their social mobility. Typical daily tasks of women include the production of various food crops, raising and nursing the children, preparing food, collecting wood, fetching water and performing other HH chores next to working on vanilla. Lower female social mobility, among other, is also reflected in a lower degree of female self-mobilization into agricultural producer groups (See Table B in Appendix 7 showing revealed preference data).

5.2 Role of women within producer groups of vanilla contract farming schemes

Producer groups in the study region are composed of both male and female farmers. However, our results clearly show that female participation within producer groups is judged as low by both male and female farmers who are part of CF schemes (See Figure B in Appendix 7 showing revealed preference data). As a consequence, women have difficulties making themselves heard or raising complaints about the implementation of CF obligations that their husbands have signed up for. Gender equality policies - as advertised by Fair Trade (Fair Trade International, 2016) or Rainforest Alliance (Rainforest Alliance, 2020a) - appear to fall short of expectations, to strengthen women’s participation in CF schemes in general and in producer groups in particular. Our results closely mirror what other authors have found for certified coffee in Latin America (Lyon et al., 2010), for tea in Tanzania (Loconto, 2015) as well as for different certification schemes (Terstappen et al., 2013). In fact, male dominance in producer groups is not limited to CF schemes in the study region (Rajoelison, 2017) nor to northern Madagascar (Raharinjanahary et al., 2012). The lack of female participation in farmer groups troubles rural development projects worldwide (Kaaria et al., 2016). The issue confirms our second hypothesis (Table 9, B2). Social disempowerment of women can be explained by prevailing social norms which expect men to be “breadwinners” within HHs. Men thus also represent the HH in much of public life. Changing these norms is a long-term, inter-generational challenge, yet CF schemes can identify entry points for awareness building and sharing of responsibilities (Meemken and Qaim, 2018).
5.3 Gender preferences for contract farming options

The results of our choice experiment reveal that male vanilla farmers see about twice as much value (13,000 MGA / kg green vanilla) than female farmers (7,000 MGA / kg green vanilla) in prevailing CF options (Table 12). Both sexes see a big utility in the health insurance option (cf. Figure 31 and Table 12), which is typically offered as part of a Rainforest Alliance contract in the SAVA Region. By contrast, both genders see big disutility in a CF obligation that requires HHs to refrain from using insecticide-treated mosquito nets at home (cf. Figure 32 and Table 12) in order to produce Organic vanilla.

Clearly, different preferences exist between male and female farmers for tested CF features, confirming our first experimental hypothesis (Table 9, H1). Summarizing significant differences in utility associated with CF benefits (Figure 31) and CF obligations (Figure 32), we identify two themes for the sexes from our results:

Men more strongly favor CF options that offer immediate monetary gain (i.e., men are significantly more price-sensitive to the price premium attribute and see significantly more utility in harvesting quality [ripe] vanilla than women. Men also see higher utility in diversifying into additional cash crops and in receiving support to protect vanilla fields against theft [although the latter two aspects show no significant differences to women]; Figure 31). Women more strongly favor CF options which reduce the possibility for the HH to fall short of food or money (e.g., women see significantly greater utility than men in the CF option to access interest-free credits during the lean period; cf. Figure 31). Female vanilla farmers more strongly favor CF options, too, which minimize individual labor needs (as expressed by a significantly stronger avoidance tendency of women of CF offers, which oblige farmers to stop “slash-and-burn” agriculture and which oblige to give up on “child labor”; cf. Figure 32).

The preference pattern of male farmers is explained by prevailing social norms in Northeastern Madagascar, norms that underpin the gendered division of intra-HH labor. Strong male preferences for immediate monetary return are a direct result of the social expectation that reproduces men as principal “breadwinners” of the HHs. Against this reality, it is no coincidence that male farmers dominate all marketing aspects of vanilla, from price negotiation to vanilla sale and signing of CF schemes (Figure 30). Unfortunately, these social expectations also reproduce female disempowerment in both economic as well as social terms. On the one hand, male dominance in selling vanilla upholds male control over HH income. On the other
hand, male dominance in price negotiation and signing of CF schemes means that women are not respected as equally important members during decision-making sessions in producer groups. As a result, many females do not even take part in such producer group meetings (Raharinjanahary et al., 2012), regardless of Fair Trade or Rainforest Alliance policies for gender equality or formal inscription (personal communication).

The preference pattern of female farmers is rooted in socially reproduced HH roles, too, but to a large degree, it is explained by female time shortage and greater risk aversion displayed by women. The so-called “double burden” of domestic and productive work describes how rural women are often involved in long hours of unpaid care work (UNDP, 2015) and domestic tasks within HHs (Njuki, 2017), next to performing agricultural roles (FAO, 2016). Against this backdrop, it should come as no surprise that female vanilla farmers see about three times higher costs in implementing tested CF options (WTA sum = 54,000 MGA / kg green vanilla; Table 6) than their male counterparts (WTA sum = 18,000 MGA/ kg green vanilla; Table 12). Many women assume an increased workload when asked to imagine entering a CF scheme with tested obligations. Interviewed women stressed that they already faced a time shortage now. Consequently, the CF obligation requiring HHs to ban any form of “child labor” is avoided significantly stronger by women than by men (Figure 32). To our surprise, female vanilla farmers in Northeastern Madagascar appear to trade off considerations of their individual labor charge with obligations demanding them to formally educate their children. Female producers repeatedly mentioned that they would face difficulties in completing all assigned domestic and agricultural tasks when they imagined that they had to send all children (above the age of 15 years) to school regularly (personal communication with female vanilla farmers during post-experimental interviews, cf. Appendix 8A). The ban on child labor demanded by Fair Trade and Rainforest Alliance contracts is, therefore, more strongly resisted by women than by men. This finding rejected our second experimental hypothesis (Table 9, H2) in which we expected women to support the ban on child labor more fervently than men, given that a large body of literature stresses female dominance in the caring economy (Haddad, Hoddinott, and Alderman, 1994; Quisumbing, 2003; UNDP, 2015). In the case of Malagasy vanilla farmers, the opposite was found to be true. Men were more inclined to send all children to school than women, particularly now that prices for vanilla and related HH income are high.

Ignoring female time shortages in a shared cash crop like vanilla, where males sign CF schemes but both sexes work on the crop, can contribute to intra-HH conflicts if the interests of women remain unheard in the long run. Time poverty and heavy workloads of women also re-surfaced
in responses explaining their stronger avoidance of vanilla buyers who require farmers to ban “slash-and-burn” agriculture (cf. Figure 32 and Table 12). This is demanded by Rainforest Alliance certified contracts. The concurrent argument which resonated, too, was female anxiety that such a ban could endanger HH food security. In Northeastern Madagascar, slash-and-burn is mainly practiced for hill rice (Malagasy: “Tavy”), the staple food of the local population. Almost every family tries to produce at least some share of rice by themselves, regardless of their ability to buy imported rice. It is a culturally-engrained livelihood strategy (Laney and Turner, 2015). Female vanilla farmers regard food production as well as financial management as two of their main responsibilities within the HH (personal communication). A ban of slash-and-burn was therefore strongly opposed by female producers as it meant increased work and/or increased risk of HH food insecurity. In an attempt to prevent food consumption shortfalls, female vanilla farmers also showed stronger preferences for credit access options provided by exporters during the lean season. This concerns the months of February to April, when the vanilla income from the last season is used up and when HHs need to ration their food. Stronger female preferences to access food credits (cf. Figure 31 and Table 12) are very much in line with the aforementioned body of literature, which stresses women’s dominance in caring roles (Benería, 1979; Blumberg, 1979; Doss, 2013; FAO, 2011; Quisumbing, 2003; Sen, 1987; UNDP, 2015).

Moreover, the identified pattern of gendered CF preferences also confirms economic evidence, which suggests that women tend to be more risk-averse than men when making decisions to change agricultural practices (Kumar and Clarke, 2014; Mishra et al., 2018). Croson and Gneezy (2009), who reviewed economic experiments on gender differences in preferences, propose that a greater risk aversion of women is influenced by women’s stronger emotional capacity. Women tend to perceive failures as bigger emotional disappointments than men. As a consequence, women avoid taking unnecessary gambles. It evokes a stronger sense of disutility in them than among men.
5.4 Policy implications

Gender equality policies of private voluntary standards are to empower women through CF schemes. These policies are guided by normative goals to create equal opportunities whilst recognizing the different abilities of men and women (Fair Trade International, 2016; Rainforest Alliance, 2020a). They follow a rights-based approach to female empowerment as proposed by the United Nations (UN-DESA, 2015). Restrictive cultural norms, however, often prevent women from developing their capabilities (Kandiyoti, 1988; Sen, 1987). Stressing rights alone is, therefore, not sufficient. As a consequence, gender equality policies of certified CF schemes include specific and measurable targets, such as closing the gender asset gap (Rainforest Alliance, 2020a), guaranteeing “equal pay for equal work” (Rainforest Alliance, 2020b) or increasing the participation of women in producer groups (Fair Trade International, 2016; Rainforest Alliance, 2020a). Female time shortage resulting from competing labor demands within HHs is acknowledged in these private sector policies (IFC, 2019). Women, who are overworked, are seen to create negative consequences for the entire HH, including child labor or lower-than-expected agricultural productivity (Fair Trade International, 2016; IFC, 2019; Rainforest Alliance, 2020a).

Simply having a good gender policy is not enough. For it also needs to be implemented (Njuki, 2016). In vanilla CF schemes in Northeastern Madagascar, standardized contracts are currently offered to farming HHs in an attempt by exporters to create exclusive supplier networks. Exporters see these contracts as a vehicle to implement private voluntary sustainability standards, which their international buyers demand of them (cf. post-experimental interviews with certified exporters in Appendix 8C). These CF schemes, however, are overwhelmingly signed by male farmers. They do not differentiate sufficiently between tasks to be performed by men and women, although female HH members are integrally implicated in vanilla production. Female preferences and HH roles do not find sufficient consideration in the current CF offers. Vanilla CF schemes in Northeastern Madagascar are, therefore, largely gender-blind. Whether the observed absence of gender integration is a case of lacking the political will or a financial limitation for exporters is debatable. Insufficient gender awareness among staff, as documented in many other development projects (Njuki, 2016), appears to be certainly involved. Over the long run, gender blindness can lead to unnecessary resistance against CF schemes as intra-HH conflicts can arise about time and labor allocation or control of HH income (Carney and Watts, 1990; Haddad, Hoddinott, and Alderman, 1994).
Given that women are integrally involved in vanilla production and, at least to some degree, already implicated in decision-making within HHs, we propose the following recommendations.

First, we believe that female control over income could be strengthened by encouraging more women to actively sign contract farming schemes. If this was to fail due to cultural resistance, exporters could still make efforts to include women in Farmer Field Schools and related business training provided through CF schemes. This could strengthen the financial literacy of women. But to this end, exporters would need to consider how to increase female participation in producer groups. One way would be to offer pieces of training at a time and a location that is easily accessible to women (Rainforest Alliance, 2020a).

Next, buyers implementing voluntary standards via CF schemes are advised to be sensitive to female workloads. Situations are to be avoided where signatory husbands outsource labor-intensive practices that are associated with novel requirements to female HH members. This is particularly true for cash crops in which women are involved in production or post-harvest handling, such as vanilla. In order to control for this, a sex-disaggregated collection of data for monitoring and evaluation would be required (Rainforest Alliance, 2020b).

Finally, where all of the above is not feasible for exporters to implement because of financial or logistical limitations, a grievance mechanism could be considered. This is a confidential communication channel for farmers, which guarantees their anonymity when filing complaints (World Bank, 2018). Female self-help groups, for instance, would be one format in which women dare to speak up freely (IFC, 2019; Kaaria et al., 2016). Including females as extension staff can also aid in that direction (Kondylis et al., 2014). A grievance mechanism would allow exporters to understand female discontent early on and take appropriate countermeasures.
5.5 Limitations

In asking whether certified CF schemes could be improved toward greater gender sensitivity, we explicitly focus on the subjective preferences of smallholders without addressing broader questions of how contracts should ideally look like or what exporters could realistically offer to communities, logistically or financially. While these broader questions are highly relevant, they were beyond the scope of this study. Taking a smallholder perspective is partial but important as smallholders need to implement respective CF schemes. Smallholders depend on farming as their main source of livelihood but often have little voice in uttering their preferences in the current expansion of CF schemes. Sustainability standards are demand-driven in nature and industry-led. A solid understanding of CF features that are particularly liked or disliked by smallholders is therefore important to better tailor related programs to smallholder realities. Unfortunately, little gender-disaggregated quantitative data exists on these issues to date (Meemken et al., 2017). Taking a choice experimental approach has the advantage of decomposing CF schemes into their constituent terms and references. It also allows focusing on specific contract features which reappear across multiple sustainability standards. Building on a participatory approach, we exclusively focus on contract features that were most relevant to vanilla farmers in the SAVA Region at the time of writing. Any experimental approach, however, is limited to testing a small number of CF options, whereas in reality, specific sustainability standards - such as Organic, Fair Trade, and/or Rainforest Alliance - consist of many more conditions. Nevertheless, we believe that taking a representative quantitative approach to test some of the most relevant CF options from the smallholder perspective should offer exporters and policy makers valuable guidance in search of possible improvements to implement their certified CF schemes.
6. Conclusion

Focusing on the needs and preferences of farmers is important for two reasons: preferences influence their decisions on which marketing channel to use as well as whether to adopt new farming practices. Gender blindness in this regard is, however, still a problem. Female preferences tend to be ignored, despite existing gender policies guiding certified CF schemes. Preferences for CF options typically differ between male and female farmers due to different HH roles. These are determined by prevailing social norms. For vanilla CF schemes in Madagascar, we show that male farmers favor CF options offering immediate monetary gains, whereas female farmers express significantly greater preferences for CF options minimizing individual labor needs and allowing their HHs to reduce consumption shortfall. It highlights one more time that women tend to be short of time due to domestic and agricultural tasks and are also more risk-averse than men who control the HH income.

Nevertheless, the case of vanilla from Madagascar appears promising for female empowerment. Women have traditionally been involved in the production of vanilla and are already involved in partial financial management within their HH, too. Current CF schemes, however, mainly count male farmers as signatories. What is more, women do not participate much in producer groups initiated by contractual exporters. Although greater female inclusion holds promise to achieve increased productivity and improved product quality, exporters mainly interact with men so far. An existing gender asset gap and limited social mobility of women are part of the underlying reasons. To avoid conflicts of interest within contracted HHs over the long run, we propose several recommendations for CF schemes:

1. Encourage both women and men to sign and actively join CF schemes
2. Offer financial management training to women who are included via their husbands
3. Avoid requirements that increase female labor, promote labor-saving technologies
4. Ask husbands to contribute their workforce to labor-intensive CF requirements
5. Include grievance mechanisms via women's self-help groups as part of any CF scheme.

Proposed interventions stand a chance to benefit female vanilla farmers to gain more control over the HH income as well as to increase their voice within HHs and producer groups. This is not only expected to lead to greater female satisfaction with CF schemes but also to improved financial management in vanilla farming HHs.
References for Chapter 3


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Credit Author Statement for Chapter 3

Cash versus care orientation explains gendered preferences for contract farming options

<table>
<thead>
<tr>
<th>1st Author: Lloyd Blum, (1) Hochschule Darmstadt - University of Applied Sciences, Department of Social Sciences, Risk &amp; Sustainability Research; (2) Georg-August-Universität Göttingen, Faculty of Agricultural Sciences, Department of Agricultural Economics and Rural Development</th>
<th>2nd Author: Jessica Andriamparany, Georg-August-Universität Göttingen, Faculty of Agricultural Sciences, Department of Animal Husbandry in the Tropics and Subtropics</th>
<th>3rd Author: Jan Barkmann, (1) Hochschule Darmstadt - University of Applied Sciences, Department of Social Sciences, Risk &amp; Sustainability Research; (2) Georg-August-Universität Göttingen, Faculty of Agricultural Sciences, Department of Agricultural Economics and Rural Development</th>
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Corresponding author: lloyd.blum@gmail.com
Chapter 4: Acceptability of voluntary sustainability standards in the booming vanilla business of Madagascar: a smallholder perspective

Authors: Lloyd Blum, Hendrik Hänke, Jan Barkmann

ABSTRACT

A growing share of vanilla is certified with one of three private voluntary sustainability standards (PVSS): Fair Trade, Organic, or Rainforest Alliance. Used by retailers for product market differentiation, PVSS verify social and environmental process qualities. Moreover, PVSS are popular among industrial vanilla buyers as they provide a mechanism for product traceability. It is unclear, however, if PVSS are equally popular among smallholder farmers. To find that out, we conducted a choice experiment among 604 vanilla farmers in Northeastern Madagascar - the main origin of vanilla globally. Our results suggest that Malagasy vanilla farmers favor Fair Trade over Organic or Rainforest Alliance. Production requirements of Organic and Rainforest Alliance are tagged with unattractive cost-to-benefit ratios. Yet, international vanilla buyers demand mostly Rainforest Alliance. Our results are important for policy makers, development practitioners, and agribusiness alike, as the growth trend for PVSS indicates a further expansion of certified contract farming. Only if contractual conditions correspond to smallholder capacities will contract farming schemes stand a chance to be rewarded with smallholder fidelity. Possible solutions to incentivize the implementation of unpopular PVSS include (a) offering higher price premia, (b) combining different PVSS, and (c) adding strategic corporate social responsibility into contract farming schemes. This is the first study of its kind to provide a detailed economic valuation of certified contracts in the global vanilla business. It gives Malagasy vanilla farmers a voice regarding preferred contract farming options, informing development cooperation and agribusiness leaders about possibilities to improve the design of their contract farming offers.

Keywords:
Madagascar, choice experiment, smallholder vanilla farmers, willingness to pay, private voluntary sustainability standards, corporate social responsibility
1. Introduction

Integrating smallholder farmers into global supply chains is regarded as a promising strategy to reduce poverty in developing countries (Byerlee and Sadoulet, 2007). Following market reforms in the 1990s, there has been an expansion of contract farming schemes (Giovannucci and Ponte, 2005; Grosh, 1994) in which international agribusiness companies sign production agreements with smallholders in an effort to secure exclusive access to agricultural commodities (Minot and Ronchi, 2014). Such contracts offer smallholders an assured market for part of their crop as well as access to inputs, credit, and technical assistance (Bijman, 2008). Lack thereof commonly prevents farmers from moving from subsistence-based production of low-value staples to commercial production of high-value crops (Eaton and Shepherd, 2001). Thus, contract farming has been heralded as an opportunity to increase smallholder welfare (Meemken and Bellemare, 2020) and productivity (Brüntrup and Peltzer, 2006).

An important set of contract farming conditions are based on private voluntary sustainability standards (PVSS). PVSS are process standards that address sustainability challenges in supply chains. In agriculture, PVSS aim to improve economic viability, environmental conservation, and/or social inclusion within farming communities by defining how products are to be produced (Giovannucci and Ponte, 2005). To consumers, PVSS signal that a particular product or ingredient has been produced in accordance with Organic, Fair Trade, or Rainforest Alliance rules.

Lead companies in value chains use PVSS to differentiate their products on the market (Lee et al., 2012), as PVSS allow these companies to access higher-value niche markets (Lernoud and Willer, 2017). This is because end consumers are willing to pay substantial price premia for certified products (Didier and Lucie, 2008). Since a positive public image is believed to translate into higher sales (Castaldo, Perrini, Misani, & Tencati, 2009), transnational corporations in the food and beverage industry make wide use of PVSS for branding and marketing purposes today. Between 2013 and 2017 alone, the total area of tropical agricultural commodities under PVSS certification increased by 66% (Lernoud et al., 2019), continuing a trend of rapid expansion since the 1970s (Potts et al., 2014).

PVSS are also part of corporate social responsibility (CSR) strategies of transnational corporations. Defined as “the incorporation of social and environmental concerns into business operations on a voluntary basis” (European Commission, 2011), CSR plays an important role in the branding and product marketing of international companies. With rising awareness on
behalf of regulators (Wiese and Toporowski, 2013) and final consumers (Castaldo et al., 2009) regarding social and environmental problems of overseas production, CSR has become increasingly important for traders of tropical agricultural commodities (OECD-FAO, 2016). As substantial reputational damage can be caused to an entire commodity chain if only one major buyer of raw materials violates social or environmental norms (Wiese and Toporowski, 2013), transnational corporations in the food and beverage industry join commodity-specific sustainability initiatives (Potts et al., 2010) to implement measures of product traceability (Andrade and Voora, 2015; SVI, 2019). The need to trace internationally traded products back to their source originally arose from phytosanitary standards on health and safety issues in international trade (Giovannucci and Ponte, 2005). Today, however, product traceability is increasingly relevant to verify sustainability claims fixed within CSR strategies (Campbell, 2018; Kolk, 2005; Mohan, 2009; Perk, 2006; Raynolds, 2009). PVSS offer a mechanism to implement product traceability. In fact, many of the major PVSS exist in so-called “chain of custody” versions (ISEAL Alliance, 2016) which intend “[to] cover the entire [supply] chain from farmer to consumer” (Giovannucci and Ponte, 2005 p. 286). Transnational food and beverage companies in sustainability initiatives mutually commit to these standards to aid the credibility of CSR claims and reduce the reputational risk of major buyers by providing transparency to their supply chains (Andrade and Voora, 2015; Potts et al., 2010). CSR, however, has been criticized for its inefficiency. Uncoordinated philanthropic activities were undertaken merely to boost public relations without achieving any measurable impact on society (Porter and Kramer, 2006). In recognition of this criticism, an increasing number of companies have started to employ more strategic forms of CSR. Their understanding of CSR has shifted from pure branding for profit generation to “generation of shared value” (Latapí Agudelo et al., 2019). So-called strategic CSR is designed to be mutually beneficial to the company as well as to its suppliers or major customers (Porter and Kramer, 2006). Related measures aim to increase productivity, cut costs, or retain staff. Examples include investments into a reduction of resource use, waste, or emissions to cut costs, or better working conditions, education, and health care packages for workers to retain future staff (Rangan et al., 2015). Strategic use of CSR can help companies gain competitive advantage (Porter and Kramer, 2006). Some commodity buyers in developing countries offer their suppliers additional advantages that go beyond PVSS requirements to secure the fidelity of suppliers against other buyers when sourcing raw materials (Sielaff et al., 2014).
The implementation of both PVSS and CSR can pose major challenges for smallholder producers, however. Firstly, PVSS are being implemented by the clients of vanilla in a demand-driven fashion. This organization implies structural neglect of agricultural supplier interests (Glasbergen, 2018). At the end of the day it is the final consumer who chooses certified products and in doing so, sends a signal to traders and food processors as to which particular standards to implement with smallholder farmers. Farmers typically lack a voice as to what changes of production are appropriate in their given circumstances and are often under-represented in industry-led sustainability initiatives (Giovannucci and Ponte, 2005). If smallholders are represented, it is most often indirectly through NGOs who speak on their behalf (Potts et al., 2010). Consequently, it is uncertain to which degree smallholders benefit from PVSS:

(i) Price premia can be too small to reduce poverty (Ibanez and Blackman, 2016; Jena et al., 2012b; Minten et al., 2015),

(ii) Compliance costs can be higher for the farmer than the materialization of benefits (Beuchelt et al., 2009; Ragasa et al., 2018), potentially reducing the welfare effects of PVSS for participating farmers (Beuchelt & Zeller, 2011).

A ban on child labor (Luckstead et al., 2019; Vlaeminck et al., 2015), the implementation of organic production standards (Meemken et al., 2017a; Rauch, 2010), or biodiversity-friendly farming practices (Freitas 2017 a,b; Glasbergen 2018), for example, do often come with substantial additional labor costs for smallholders. Primary benefits to smallholders may be low. Typical benefits of certified contract farming schemes comprise price premia (Giovannucci and Ponte, 2005), non-monetary incentives (Andrade, 2016; Wenban-Smith, 2012), and sometimes also minimum prices (R.J. Brownell, 2011; Hänke, 2019). Despite this, taking the examples of coffee in Nicaragua and Kenya (Beuchelt and Zeller, 2011; van Rijsbergen et al., 2016) or palm oil and rubber production in Indonesia (Glasbergen, 2018; Oosterveer et al., 2014) benefits were found to be insufficient to offset PVSS-related costs to smallholder producers, indicating that induced costs of the standards can be substantial.

This study focuses on smallholder vanilla production in Madagascar, the main origin of this popular natural flavor (Havkin-Frenkel and Belanger, 2011). Global demand for natural vanilla has increased in recent years, and prices rose sharply between 2012 and 2019 (Neimark et al., 2019a). Simultaneously, the share of contracted vanilla farmers increased (Hänke & Fairtrade International 2019), with some of the larger vanilla exporters each contracting 5,000 farmers or more (Symrise, 2019; IDH, 2020). From 2016 to 2019 alone, the share of vanilla farmers in
supplier contracts increased from an estimated 15% (Hänke et al., 2018) to 20% (Hänke, 2019) in the SAVA Region in Northeastern (NE) Madagascar. Located between the provinces of Sambava, Antalaha, Vohemar, and Andapa, the SAVA Region is known as the world’s most important vanilla-growing region (SVI, 2019). Despite its rising importance in the Malagasy vanilla business, very little is known about the economic implications of certified contract farming. To our knowledge, no previous study exists that evaluates the costs and benefits of PVSS and CSR to vanilla-producing farmers in microeconomic terms. The most commonly used PVSS in Madagascar are Organic, Fair Trade, and Rainforest Alliance.

In this study, we ask:

1. Which costs do smallholder vanilla producers in Madagascar ascribe to contract clauses, and which economic values do farmers ascribe to benefits that stem from PVSS?
2. Which of the offered PVSS do vanilla farmers find most attractive overall, and which the least?
3. Does the predominant sustainability standard on the market match smallholder preferences?

Using a discrete choice experiment, we provide a detailed *ex-ante* analysis of farmer preferences for typical certified contract farming schemes found in the region. The practical application of our results can inform representatives of vanilla farmers of their collective preferences and help certification bodies as well as vanilla exporters to better account for actual smallholder preferences when designing certified contracts.

This paper is structured as follows. It starts with a background section on vanilla in Madagascar, including prominent sustainability challenges. Next, we introduce the different PVSS that are in use by vanilla buyers/exporters in the SAVA Region before describing methods and results. In the discussion, we explain how vanilla producers value different PVSS schemes with their constituent terms and conditions. Costs and benefits detailed in the results section will be put into context, including a discussion about what exporters can do to prevent the breakdown of certified schemes in the current period of an acute market boom. Finally, a conclusion is drawn, which summarizes our key findings.
2. Background

2.1 Vanilla from Madagascar

Vanilla *planifolia* is a strategic crop for Madagascar. The country has dominated the international vanilla trade for the past 200 years (Goergen, 2017). Worldwide 2000-3000 tons of processed vanilla beans are exported annually (Cadot *et al*., 2006), to which Madagascar contributes between 50% and 80% (World Bank, 2017), depending on the international market situation. Vanilla is the country’s single most important export crop (ITC, 2019) and its principal foreign exchange earner in the agricultural sector (World Bank, 2019). About 80% of vanilla production in Madagascar originates from the Northeastern SAVA Region (Iwundu, 2014). Here, about 80,000 small-scale farmers (Iwundu, 2014) cultivate an estimated 30,000 hectares of vanilla (Cadot, Dutoit, and Melo 2006) on their own land and in family labor (Iwundu, 2014).

Following trade liberalization in 1993-1995 (Barrett, 1997), vanilla prices started to fluctuate (USAID, 1999; Cadot, Dutoit, and Melo 2006). Cyclones and fungal diseases (World Bank, 2017), as well as speculative trade, contribute to price spikes (World Bank, 2019), whereas above-average harvests and phases of low demand lead to low prices (Pokorná and Smutka, 2011). Since the mid-1990s, vanilla prices have experienced two boom phases and one extended bust period. During our study period in 2018, maximum export prices for processed vanilla reached over 600 US$/kg (Neimark *et al*., 2019a), a tenfold increase from 2012 (Cooks Vanilla, 2019). In Figure 24 (Chapter 2), average export prices of processed (black) vanilla are presented. This type of vanilla is produced in an artisanal drying process that takes three months of manual daily labor, starting from the freshly harvested green vanilla beans (Havkin-Frenkel and Belanger, 2011).

Unfortunately, vanilla theft from farmers' fields increases in frequency and severity in terms of human casualties whenever prices rise (Neimark *et al*., 2019a). Farmers react by harvesting premature vanilla of low quality early (Havkin-Frenkel and Belanger, 2011). In response, buyers have turned to other countries for quality vanilla (Cooks Vanilla, 2019) or switched to synthetic vanilla flavors in the past (Goergen, 2017). Fluctuating prices have pushed the industry towards increased vertical integration (Nestle, 2015; Rodelle, 2016; Symrise, 2006). By cutting out exporters, importers, and/or informal middlemen, the value chain shortens, thus helping vertically-integrated companies to capture more added value (Slangen *et al*., 2008).
Whether farmers benefit from vertically-integrated supplier contracts in the Malagasy vanilla business through improved farmgate prices over the long term is in question, however (Campbell, 2018; Neimark et al., 2019a). Most farmers only sell their (unprocessed) green vanilla through certified contract farming schemes, leaving much of the value addition to processors and exporters (see results section 4.2.3). The relationship between vanilla farmers and buyers is often strained as farmers believe that buyers profit from vanilla theft (Neimark et al., 2019a).

Sustainability challenges in the Malagasy vanilla business include incidents of domestic child labor affecting an estimated 11,000 children (ILO, 2016) as well as distress sales of vanilla with predatory lending arrangements when the annual vanilla income runs out in the months before the next harvest (Neimark et al., 2019a). Moreover, “slash-and-burn” is a persistent form of agriculture in the SAVA Region, leading to primary forest loss, in particular for staple food production (Laney and Turner, 2015).

2.2 PVSS in the Malagasy vanilla sector

According to the International Trade Centre’s Standards Map, more than 80 different PVSS are in use for Madagascan vanilla (ITC, 2020). The most common standards in the field, however, are Organic, Fair Trade, and Rainforest Alliance.

**Organic** standards follow the objective of guaranteeing pesticide-free vanilla production (European Commission, 2016) as well as prohibiting artificial preservatives, colors, or flavors in the final product (US Department of Agriculture, 2019). Different Organic PVSS have been in operation in the Malagasy vanilla business since 1998. They are the oldest sustainability standards in the vanilla industry. The current trading volume is not known for Madagascar (personal communication with Ecocert, 2020).

**Fair Trade** describes its mission as increasing incomes and improving the working conditions of smallholders. It aims to strengthen the self-organization of farmers into co-operatives (Fairtrade International, 2020a). Fair Trade is the only PVSS that offers guaranteed minimum prices. At present, the Fair Trade minimum price for vanilla from Africa stands at US$ 41 per kg of processed vanilla and US$ 5.6 per kg for green vanilla. Fair Trade also guarantees a fixed price premium. The Fair Trade premium amounts to US$ 6.5 per kg of processed vanilla and US$ 0.5 per kg of green vanilla (Fairtrade International, 2020b). Unlike the other
certification schemes, however, *Fair Trade* does not pay its premium to individual farmers but to the certified producer group whose members are to prioritize and implement community development activities of their choice (Fairtrade International, 2020c). Between 2013 and 2019, *Fair Trade* certified vanilla from Madagascar amounted to a production of about 148 tons of unprocessed vanilla each year. On average, another 27 tons of vanilla per year were bought already processed by *Fair Trade* producer groups each year, but the amount fluctuated between a minimum of 12 tons in 2017 to a maximum of 58 tons in 2018. *Fair Trade* thus sets itself apart from *Rainforest Alliance* and *Organic* in that it promotes traders to buy a share of about 50% of vanilla that is transformed by smallholders (personal communication with Fair Trade International, 2020).

*Rainforest Alliance* currently covers about 12,000 ha (18% of the vanilla surface in the SAVA Region). Between 2013 and 2019, production was estimated at about 180 tons of unprocessed, certified vanilla each year (personal communication with Rainforest Alliance, 2020). Exporters have considerable flexibility in choosing benefits to offer to their contract farmers, while farmers need to implement chosen production rules. Based on our qualitative interviews, a set of 10 fixed production rules are typically communicated to *Rainforest Alliance* certified farmers. These rules include guidelines on traceability, integrated pest management, forest and wildlife conservation, soil and water conservation, waste management, as well as avoidance of child labor.
3. Methods

3.1 Study region and sampling design
Stratified random sampling was used to conduct the quantitative survey that contained the choice experiment for this study. The sampling comprised 14 villages, which were randomly selected from a list of 60 villages covered by the Diversity Turn Baseline Study (Hänke et al., 2018). Selected villages were almost equally distributed between the provinces of Antalaha, Sambava, and Andapa (see Figure 28 in Chapter 3). Interviews for the choice experiment took place between August and December 2018. For household (HH) selection, we proceeded along checkerboard patterned transects (N-S, E-W) through the villages without starting at a particular location, asking every tenth house for an interview. One male and one female vanilla farmer were interviewed per HH to capture a gender-balanced perspective. Only HHs who sold vanilla in 2016, 2017, or 2018 were included to ensure recall questions would be answered with sufficient accuracy. In total, N=604 farmers were captured by our quantitative survey for this study.

3.2 Mixed methods approach of data collection
The study design for the choice experiment was embedded in an elaborate mixed methods approach to assess farmer preferences (see Table 13 below). The CE itself was designed following a participatory identification process of CF offered to farmers across the SAVA Region and complemented by qualitative methods, both in preparation and following up on the economic HH survey that included the experiment. In 2016, focus groups with contract farmers were conducted in four villages across the SAVA Region, from which we abstracted a first list of PVSS attributes of high relevance to vanilla farmers (cf. Appendix 4) to design the CE. Moreover, semi-structured expert interviews were conducted with six vanilla exporters to compare farmer preferences on PVSS design with the view of exporters. In 2017, a pre-experimental qualitative study was conducted with N= 78 vanilla producers from four villages across the SAVA Region to identify the production and marketing strategies of vanilla farmers, including pre-existing knowledge of farmers on PVSS. Only after two pilot studies in 2017 and 2018 did we administer the choice experiment to a representative sample of (N=604) vanilla producers. Data were collected and entered by eight enumerators using tablet computers. The HH survey questionnaire, including the choice experiment, was designed using the software Kobo Collect. The questionnaire included standardized information boxes and visual aids to guide farmers through the household survey.
and toward the choice experiment. Quantitative results were interpreted in a preliminary fashion already whilst running the experiment. After 150 interviews each (i.e., following three villages of data collection), focus group workshops were held with our local enumerators to interrogate preliminary quantitative results (e.g., Likert Scale responses) as they were elicited to gain qualitative insights into repeated argumentations of farmers pertaining to the quantitative results elicited by HH survey and choice experiment.

Table 13 - Research phases involved in designing and conducting the choice experiment

<table>
<thead>
<tr>
<th>Year</th>
<th>Phase Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td><strong>Exploratory phase (survey 1):</strong> Focus group interviews with 80 farmers participating in CF schemes with five different exporters in 4 villages spread across the study region (Appendix 4)</td>
</tr>
<tr>
<td>2016</td>
<td><strong>Exploratory phase (survey 2):</strong> Likert Scale questions with 20 randomly selected farmers in four villages concerning 15 conditions written down in Rainforest Alliance contracts by leading vanilla exporters in the SAVA Region. Questions focused on the difficulties of farmers to respect those 15 conditions stipulated in a prominent Rainforest Alliance contract (Appendix 4)</td>
</tr>
<tr>
<td>2016</td>
<td><strong>Exploratory phase (survey 3):</strong> Expert interviews with two sustainability managers of Rainforest Alliance certified exporters. Aim: to triangulate the perspective of responsible staff at certified exporters on perceived difficulties of farmers to respect stipulated obligations (Appendix 4)</td>
</tr>
<tr>
<td>2017</td>
<td><strong>Quantitative baseline survey:</strong> Diversity Turn Baseline Survey administered to 1800 vanilla farmers in 60 randomly drawn villages of the SAVA Region (Hänke et al., 2018); included Likert Scale questions about the popularity of identified CF conditions (Appendix 4)</td>
</tr>
<tr>
<td>2017</td>
<td><strong>Qualitative study before the choice experiment:</strong> Individual interviews with 78 randomly selected farmers in 8 villages across all four districts of the SAVA Region. Aim: to identify farmers’ main problems, marketing strategies, and pre-existing knowledge of CF and PVSS (Appendix 4)</td>
</tr>
<tr>
<td>2017</td>
<td><strong>Design of choice experiment and 1st pilot study:</strong> 14 days of testing the initial design of choice experiment among 122 farmers in 6 villages in Sambava District</td>
</tr>
<tr>
<td>2018</td>
<td><strong>Simplification of choice experiment and 2nd pilot study:</strong> 14 days of testing a simplified design of choice experiment among 106 farmers in 6 villages of Antalaha District</td>
</tr>
<tr>
<td>2018</td>
<td><strong>Implementation of choice experiment with a quantitative household survey:</strong> Interviews with 604 farmers in 14 randomly selected villages across all four districts of the SAVA Region between August and December 2018 (Results)</td>
</tr>
<tr>
<td>2018</td>
<td><strong>Quantitative feedback workshops with local enumerators on preliminary results of quantitative HH survey</strong> Four post-experimental focus group workshops were held with our eight enumerators who conducted the CE to interrogate preliminary quantitative results for triangulated qualitative arguments of vanilla farmers to select aspects (e.g., Likert Scales, CE, etc.)</td>
</tr>
<tr>
<td>2018</td>
<td><strong>Post-experimental interviews with contracted farmers</strong> Following the CE, the principal investigator conducted short (10-minute) semi-structured wrap-up interviews with (N=70) contracted farmers on CE and CF-related questions.</td>
</tr>
</tbody>
</table>
3.3 Choice Experiment

3.3.1 Discrete Choice Experimentation

To estimate the effect of different contractual attributes on smallholder preferences for PVSS, we used a *discrete choice experiment (CE)* (Bateman et al., 2002). Discrete choice experiments allow to measure farmer preferences for specific CF attributes in quantitative and quasi-monetary terms. See section 3.2 in General Introduction and section 3.2 in Chapter 3 for more detail on experimental choice theory.

3.3.2 Selection of contract attributes and attribute levels in the choice experiment

An overview of selected attributes and attribute levels for our choice experiment is presented in Table 14 (below). All of these are taken from real examples of certified exporters running contract farming schemes with smallholder vanilla producers in the SAVA Region.

<table>
<thead>
<tr>
<th>Table 14 - CF attributes and attribute levels used in the choice experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Offered PVSS contract</strong></td>
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<tr>
<td>----------------------------</td>
</tr>
<tr>
<td><strong>Price incentive</strong></td>
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<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Non-monetary incentives</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Obligations</strong></td>
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<td></td>
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</tr>
</tbody>
</table>

Note: US$1 = 3,750 MGA during the survey in 2018
Certified contract offers of potential vanilla buyers in the choice experiment consisted of (i) a price premium on top of spot market prices; (ii) up to four non-monetary benefits (which were termed “opportunities” during the experiment); and (iii) up to four obligations (which were termed “conditions” during the experiment). See Figure 29 (in Chapter 3) for an example of a choice set.

The first attribute is the price premium. In Northeastern Madagascar, certified vanilla exporters typically add a price premium to the spot market price that varies from year to year. Our pilot studies revealed that the maximum price premia amounted to 6,000 MGA (US$ 1.56) per kg of green vanilla (see Results). Since spot market prices rose sharply in 2017, we included price premia of up to 15,000 MGA per kg of green vanilla. Organic and Rainforest Alliance premia are paid out to individual farmers but do vary among exporters. The Fair Trade premium, by contrast, is fixed by the standard body and stands at 25,000 MGA (US$ 6.50) per kg of processed vanilla and 2,000 MGA (US$ 0.5) per kg of green vanilla (Fairtrade International, 2020b). Additionally, Fair Trade guarantees minimum floor prices for vanilla. If Fair Trade is combined with Organic, the sum of both premia is handed down to producer groups, and farmers are paid the Organic amount individually, whereas the Fair Trade amount goes into a revolving fund of the certified producer association, whereby members are required to exercise collective decision making overspending, for example, to construct a school, a health facility, etc.

A second benefit relates to a health insurance covering hospitalization as well as prescribed medicines, which some certified exporters offer to signatory contract farmers. It is subsidized by the exporter up to 80% of medical costs, including medicines. Up to seven HH members can be covered. Its administration is outsourced by exporters to a local health insurance company called Mahavelona.

The third benefit concerns interest-free credit. Some vanilla exporters offer such credits to contract farmers in order to reduce the risk of distress sales of vanilla during the lean season (typically: February to April) when vanilla farmers run out of savings from the previous year (a result of expert interviews in 2016). Interest-free credits are offered to buy food, but the credit can also pay guardians to help farmers protect their vanilla fields against incidents of theft.

The fourth benefit is an offer to diversify the cash crops of vanilla farmers. In order to assist contract farmers in preparing for years of low vanilla prices, some exporters offer support in producing and/or by buying additional cash crops on top of vanilla. The portfolio of cash crops
that are promoted may include coffee, cocoa, cloves, pepper, or ginger (to name just a few). If the case, exporters also tend to provide seeds, seedlings, inputs, and training for signatory farmers to realize these goals.

**A fifth benefit** is an offer to support farmers in protecting their vanilla fields against theft. Exporters donate equipment that typically includes raincoats, rubber boots, torches, first aid kits, or alarm whistles (everything but arms) to help farmers and their guards stay for extended periods in their fields and guard their vanilla crop during critical months (February to July).

In addition to these benefits, our choice experiment included **several restrictive clauses** associated with contract farming.

**The first obligation** is that vanilla exporters demand contracted farmers only to harvest and deliver well-matured (ripe) vanilla. Many vanilla farmers harvest their vanilla several weeks before full maturation when in urgent need of cash or after incidents of theft in the village. This obligation is not related to any specific PVSS but represents a generic quality requirement that buyers demand from farmers: Only maturely harvested vanilla can be easily processed as it has a high content of vanillin and other aromatic substances (Havkin-Frenkel and Belanger, 2011). **Three additional production restrictions** in the choice experiment were related to PVSS requirements. First, there is the production of *Organic* vanilla qualities. Vanilla in Madagascar is generally cultivated without any use of inorganic fertilizers, herbicides, or pesticides. Insecticides, such as *permethrin* or *delta-methrin,* are used to enhance the effectiveness of mosquito nets, however. Insecticide residues stemming from mosquito nets have been found in batches of vanilla, effectively preventing certification as *organic* (a result of expert interviews with several exporters between 2016 and 2018). *Organic* and *Rainforest Alliance* contracts typically require farmers to abstain from using treated bednets at their home.

**Next,** there is the production of *Rainforest Alliance* certified vanilla, which requires farmers to stop slash-and-burn agriculture. Fire, however, is used by smallholders to open up the forest cover and/or “to clean” (i.e., to weed and fertilize) fallow land in preparation of the next planting season of maize, beans, manioc, and for the Malagasy staple rice (slash-and-burn in Malagasy is known as “*tavy*”). *Tavy* contributes to deforestation, habitat destruction, and soil degradation (Laney and Turner, 2015). A prohibition of *tavy*-agriculture is a core requirement of *Rainforest Alliance,* however. At the very least, farmers are required to respect the rules of the regional environmental authority (*Direction Regional de l’Eau et Fôret*) when using fire in preparing their fields (a result of expert interviews in 2016).
A final restriction relates to Fair Trade and requires vanilla producers to avoid any form of child labor. This PVSS restriction is also included in Rainforest Alliance. Child labor is defined in reference to rules by the International Labor Organization (ILO) rules where children younger than 15 are to attend school and not be employed in farming during the school period. The ILO is partnering with some vanilla companies in the SAVA Region to ban child labor in vanilla production (SVI, 2019).

3.3.3 Econometric approach
Following the same econometric approach as in Chapter 3, we estimate the utility of discrete CF options through elicited Willingness to Pay (WTP) and Willingness to Accept (WTA) values of sampled smallholders. This time, we use the choice experiment to have farmers evaluate contractual offers that correspond to typical PVSS-certified CF schemes pursued by contractual buyers in the SAVA Region (Table 15 below). Attribute combinations that represent each PVSS are based on expert interviews (held with certified exporters in 2016 and 2018) and have been cross-checked with the help of Standards Map – a PVSS reference database maintained by the International Trade Centre (ITC, 2020).

Table 15 - CF attributes derived from private voluntary sustainability standards

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Fair Trade</th>
<th>Organic and Fair Trade</th>
<th>Rainforest Alliance</th>
<th>Organic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Premium</td>
<td>fair trade premium + minimum price</td>
<td>organic premium + minimum price</td>
<td>defined by exporter</td>
<td>defined by exporter</td>
</tr>
<tr>
<td>Health care provision</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Credit provision</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash crop diversification</td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td><strong>Obligations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stop use of insecticide treated bednets</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Stop slash-and-burn agriculture</td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Stop child labor</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Note: Support to protect fields against theft is not mandated by any PVSS; the requirement to only harvest mature vanilla is widespread but not officially mandated by any PVSS
3.3.5 Econometric design of the choice experiment

A full factorial design would imply \(2^8 \times 4^1\) = 1024 attribute-level combinations (Hensher et al., 2005). As this was impractical to administer, we created an orthogonal design where each buyer profile represented a vanilla production contract potentially offered to farmers. Choice sets were designed using a “mix-and-match” procedure following (Chrzan and Orme 2000). Eight resulting choice sets consisted of two designed contractual buyer profiles and a third profile representing the actual terms and conditions of the current buyer of the farmer. This third choice reflects an individualized status quo option regularly accessible to farmers (see Figure 3). A realistic status quo option grounds the choice experiment better in farmer reality than a standard no option often used in choice experiments (Barkmann et al., 2008). In practice, the status quo option was verified with each farmer during restitution of the household survey directly preceding the choice experiment.

3.3.6 Implementation of choice experiment

During two pilot studies in 2017 and 2018, the choice experiment was tested and optimized (cf. Table 13). Using the final design (see Figure 29 in Chapter 3), our enumerators introduced each attribute to farmers using large format (A4) visual aids whilst presenting standardized information about each contractual term. These image pictograms representing attribute levels reappeared on the choice cards. Before proceeding to the choice tasks, one evaluative phase was dedicated to ensuring that each respondent understood the trade-offs between profiles of each choice set. The first author closely supervised enumerators in the field to make sure that enumerators did not rush through the experiment.

Farmers were made aware of the consequences of defaulting on contractual obligations: once directly before the choice tasks and again mid-way through after the fourth choice task. We explained that defaulting on contractual obligations may be detected by buyers, resulting in a termination of the contract and a loss of all benefits. Out of (N=604) respondents, n=586 successfully completed all choice sets resulting in a total of 4,688 observations.
4. Results

4.1 Knowledge base of vanilla farmers about PVSS

Exploratory research in 2016 and 2017 revealed that contracted vanilla farmers are often unaware that they are part of a PVSS-certified CF scheme, although their exporters were working towards a sustainability standard (Table 16 below).

Table 16 - Self-reported (un)awareness about content, meaning and philosophy of PVSS

<table>
<thead>
<tr>
<th>Level of Awareness</th>
<th>Contracted farmers (n=46)</th>
<th>Non-contracted farmers (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic</td>
<td>56% not aware of content</td>
<td>81% not aware of content</td>
</tr>
<tr>
<td>Fair Trade</td>
<td>83% not aware of content</td>
<td>88% not aware of content</td>
</tr>
<tr>
<td>Rainforest Alliance</td>
<td>76% not aware of content</td>
<td>78% not aware of content</td>
</tr>
</tbody>
</table>

Note: The information above is based on N=78 vanilla farmers interviewed during preliminary qualitative study (2017) preceding the choice experiment.

Expert interviews with the extension staff of two different export companies and one development organization revealed that exporters frequently limit their communication with farmers about PVSS. Many exporters simply explain the production conditions without giving much detail on the origin and philosophy of the PVSS or the price premia they obtain for it at export. To a variable degree, exporters then offer (often quite elaborate) training to meet stipulated PVSS obligations and to pass associated audits.
4.2 Quantitative results regarding contract farming and PVSS

4.2.1 Descriptive statistics

The representative choice survey (N=604) indicates that certified farmers produced significantly more vanilla, had better housing conditions, and also had an increased ability to save money compared to non-certified farmers (Table 17 below).

Table 17 - Household characteristics of PVSS-certified vs. non-certified vanilla farmers

<table>
<thead>
<tr>
<th>Descriptives</th>
<th>Characteristics of the average vanilla farmer in the representative sample for the SAVA Region (N=604)</th>
<th>Test of Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Certified farmers (n=54) / Non-certified farmers (n=550)</td>
<td>p-value</td>
</tr>
<tr>
<td></td>
<td>Min / Max</td>
<td>Average</td>
</tr>
<tr>
<td>Age (years)</td>
<td>25-70</td>
<td>46.21</td>
</tr>
<tr>
<td>Formal education (years)</td>
<td>0-12</td>
<td>5.66</td>
</tr>
<tr>
<td>HH size (number of people)</td>
<td>2-12</td>
<td>5.57</td>
</tr>
<tr>
<td>Vanilla plants (number of vines)</td>
<td>100-10,000</td>
<td>1630.19</td>
</tr>
<tr>
<td>Vanilla harvest in 2018 (kg)</td>
<td>0-200</td>
<td>56.04</td>
</tr>
<tr>
<td>HH income from vanilla in 2018 (in million MGA)</td>
<td>0-33</td>
<td>7.51</td>
</tr>
<tr>
<td>Daily personal expenditures (MGA)</td>
<td>2,000-50,000</td>
<td>12 868</td>
</tr>
<tr>
<td>Raffia Housing (dummy)</td>
<td>0 or 1</td>
<td>0.09</td>
</tr>
<tr>
<td>Savings Behavior (dummy)</td>
<td>0 or 1</td>
<td>0.49</td>
</tr>
<tr>
<td>Literacy (dummy)</td>
<td>0 or 1</td>
<td>0.89</td>
</tr>
</tbody>
</table>

Note:
***, **, * significant at 1%, 5% and 10% level respectively
Significance tests for interval/ratio data based on two-sample t-tests
Significance tests for nominal data based on two-sample tests of proportions
4.2.2 Prevalence of contract farming and PVSS in the SAVA Region

Our choice survey capturing (N=604) smallholders shows that 19.7% (n=119) were selling their vanilla through contract farming schemes with exporters in 2018. By contrast, 80.3% (n=485) of farmers sold their vanilla to informal traders on local spot markets, mostly to commission agents.

Moreover, the survey shows that 8.9% of farmers respected certification requirements (Table 18 below). Among the contracted farmers (n=119), 45.4% were formally certified. Most worked towards implementing Rainforest Alliance (37%), followed by Organic & Fair Trade (4.2%), Fair Trade (2.5%), and Organic only (1.7%) (Table 18).

Table 18 – Share of vanilla producers reporting to implement PVSS certification requirements in 2018

<table>
<thead>
<tr>
<th>Certification status</th>
<th>% of respondents (N=604)</th>
<th>% of contract farmers (n=119)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic (only)</td>
<td>0.3%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Fair Trade (only)</td>
<td>0.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Organic and Fair Trade</td>
<td>0.8%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Rainforest Alliance</td>
<td>7.3%</td>
<td>37.0%</td>
</tr>
<tr>
<td>Total (certified)</td>
<td>8.9%</td>
<td>45.4%</td>
</tr>
<tr>
<td>Total (not certified)</td>
<td>91.1%</td>
<td>54.6%</td>
</tr>
</tbody>
</table>

Of (n=119) contract farmers, 54.6% were not required to respect any obligations related to PVSS. These farmers were, however, required to produce quality vanilla, for which they received better prices.
4.2.3 Vanilla sold to contract farming schemes and farmgate prices received for vanilla by smallholder producers in the SAVA Region

Figure 33 (below) shows the average farmgate prices which smallholder vanilla producers received in 2017-2018.

**Figure 33 - Farmgate prices (per kg) for unprocessed (green) vanilla (June 2018), semi-processed (vrac), and fully processed (black) vanilla (June 2017- March 2018 [N=604]**

Note: Of n=119 contracted farmers in the sample of N=604 respondents, only n= 10/119 sold black vanilla in 2018, and only n=1/119 sold black vanilla as part of his/her CF scheme. Vanilla is almost exclusively sold green in CF.

Prices paid for green vanilla were, on average, significantly higher for contract farmers (165,422 ± 35,874 MGA) than prices paid on local spot markets (127,267 ± 42,667 MGA; p=0.047) in 2018. All (n=119) contract farmers were required to only harvest and sell ripe vanilla, yet 96% (n=114/119) exclusively sold (unprocessed) green vanilla to their respective exporters through the contract farming scheme. Only 4% (n=5/119) of contract farmers sold (processed) black vanilla through contract farming schemes in 2018. Semi-processed vanilla (known in Malagasy language as: “vrac”) is home-cured by household members, but was not sold through contract farming schemes – at least not in 2018. This was exclusively sold on local spot markets by most farmers in 2018.
4.2.4 Average prices premia added to contractual prices through PVSS schemes

The presented price premia in Figure 34 (below) stem from (N=604) respondents completing the choice survey. They concern the sale of (unprocessed) green vanilla among (n=54) formally certified contract farmers.

Figure 34 - Average price premia paid by exporters (per kg of green vanilla) to [n=54] certified contract farmers between 2016 and 2018

![Average price premium received at farmgate per kg unprocessed (green) vanilla in MGA](chart)

Note: data source: n=119 contracted farmers out of N=604 interviewed respondents; US$1 = 3,750 MGA

4.2.5 Average duration of vanilla contract farming schemes in the SAVA Region

On average, contract farmers remained in their contract farming schemes with individual exporters for 2.18 ± 2.05 years (mean ± STD, min=1, max=6), whereby offers had to be renewed on an annual basis in over 72% of cases. Depending on the PVSS scheme, the average time farmers remain part of their respective contract farming scheme varied (Figure 35 below)

Figure 35 - How long vanilla farmers remain in CF schemes with an individual buyer? [n=119], mean +/- std. error

![How long vanilla farmers remain in CF schemes](chart)
4.3 Results of choice experiment

4.3.1 Model estimation of vanilla farmers’ preferences for contract farming options

Table 19 (below) presents the estimated utility coefficients for all contract farming options (contractual attributes) tested in the choice experiment. Positive utility coefficients signify contract attributes that vanilla farmers preferentially select. Negative utility coefficients signify contract attributes that vanilla farmers preferentially avoid when opting for a buyer. Relative magnitudes are given by the $z$-values.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Mean Utility Coefficient</th>
<th>Standard Error</th>
<th>p-value</th>
<th>z-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Premium per 1,000 MGA</td>
<td>0.11</td>
<td>0.02</td>
<td>&lt;0.001***</td>
<td>6.30</td>
</tr>
<tr>
<td>Health insurance</td>
<td>1.60</td>
<td>0.11</td>
<td>&lt;0.001***</td>
<td>15.19</td>
</tr>
<tr>
<td>Credit during hunger season</td>
<td>1.26</td>
<td>0.17</td>
<td>&lt;0.001***</td>
<td>7.48</td>
</tr>
<tr>
<td>Cash crop diversification</td>
<td>0.51</td>
<td>0.09</td>
<td>&lt;0.001***</td>
<td>5.79</td>
</tr>
<tr>
<td>Security materials to protect fields</td>
<td>0.73</td>
<td>0.10</td>
<td>&lt;0.001***</td>
<td>7.66</td>
</tr>
<tr>
<td>against vanilla theft</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only harvest ripe vanilla</td>
<td>1.20</td>
<td>0.27</td>
<td>&lt;0.001***</td>
<td>4.38</td>
</tr>
<tr>
<td>Produce organic</td>
<td>-1.87</td>
<td>0.27</td>
<td>&lt;0.001***</td>
<td>-6.89</td>
</tr>
<tr>
<td>Stop slash-and-burn</td>
<td>-1.32</td>
<td>0.16</td>
<td>&lt;0.001***</td>
<td>-8.11</td>
</tr>
<tr>
<td>Stop child labor</td>
<td>-0.31</td>
<td>0.08</td>
<td>&lt;0.001***</td>
<td>-3.78</td>
</tr>
<tr>
<td>Change buyer from Status Quo (ASC)</td>
<td>-0.20</td>
<td>0.19</td>
<td>0.291</td>
<td>-1.06</td>
</tr>
</tbody>
</table>

Note: Mean utility coefficients and standard errors were rounded to the nearest second decimal.
Log-Likelihood of Model = -3135.45; Pseudo R2 = 0.39; Probability > Chi-Sq: <0.0001
***, **, * imply that mean coefficients are significant at the 1%, 5% and 10% levels, respectively.
4.3.2 Model estimation of farmer willingness to pay for tested contract farming options

Table 20 (below) presents *willingness to pay* (WTP) and *willingness to accept* (WTA) values that were computed from the estimated utility coefficients for contract farming options (attributes) presented in Table 14. These WTP and WTA values represent the average vanilla farmer in the study region.

Table 20 - Willingness to pay (WTP) for and willingness to accept (WTA) the tested CF options by the average vanilla farmer in the study region [stated preferences, n=586]

<table>
<thead>
<tr>
<th>Contractual Benefits</th>
<th>Average Person WTP</th>
<th>WTP Confidence Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health insurance</td>
<td>15,000 MGA</td>
<td>11,000 to 22,000 MGA</td>
</tr>
<tr>
<td>Credit during hunger season</td>
<td>12,000 MGA</td>
<td>7,000 to 21,000 MGA</td>
</tr>
<tr>
<td>Cash crop diversification</td>
<td>5,000 MGA</td>
<td>3,000 to 8,000 MGA</td>
</tr>
<tr>
<td>Security materials to protect fields against vanilla theft</td>
<td>7,000 MGA</td>
<td>4,000 to 11,000 MGA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contractual Obligations</th>
<th>Average Person WTA</th>
<th>WTA Confidence Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only harvest ripe vanilla</td>
<td>11,000 MGA</td>
<td>6,000 to 19,000 MGA</td>
</tr>
<tr>
<td>Produce organic</td>
<td>- 18,000 MGA</td>
<td>- 12,000 to -27,000 MGA</td>
</tr>
<tr>
<td>Stop slash-and-burn</td>
<td>- 12,000 MGA</td>
<td>-8,000 to -20,000 MGA</td>
</tr>
<tr>
<td>Stop child labor</td>
<td>- 3,000 MGA</td>
<td>-1,000 to -5,000 MGA</td>
</tr>
</tbody>
</table>

| Sum of WTP and WTA                            | 17,000 MGA         | 10,000 to 29,000 MGA     |

Note: WTP and WTA values for each attribute are based on bootstraps with 10,000 Halton draws mean, 95% confidence interval [rounded to the nearest 1000 Malagasy Ariary (MGA)].

*Aggregate willingness to pay* is the sum of all WTP and WTA values over all attributes considered. Talking about the hypothetical contract presented in Table 20 (above), the average vanilla farmer in the study region would be willing to spend 17,000 MGA (for each kg of green vanilla sold) in order to be able to access the mentioned benefits. This remained true, even after discounting all the costs associated with respecting the listed obligations.
4.3.3 Aggregate WTP for PVSS certified contracts

The value that smallholder vanilla farmers attribute to each PVSS certification scheme can now be simulated by reducing the set of contract attributes to those benefits and obligations that actually stem from each respective PVSS. The different economic attraction vs. deterrence potential that each PVSS evokes among the average vanilla farmer is noteworthy (Table 21 below).

Table 21 - Relative attraction of private voluntary sustainability standards (PVSS) in Northeastern Madagascar’s vanilla business from a smallholder perspective [stated preferences, n=586]

<table>
<thead>
<tr>
<th>Valuation of PVSS by smallholder vanilla producers</th>
<th>Fair Trade</th>
<th>Organic and Fair Trade</th>
<th>Rainforest Alliance</th>
<th>Organic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contractual Benefits</strong></td>
<td>Average Farmer WTP (in Malagasy Ariary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Premium</td>
<td>1,000</td>
<td>4,000</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Health insurance</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>not required</td>
</tr>
<tr>
<td>Interest-free credit</td>
<td>12,000</td>
<td>12,000</td>
<td>not required</td>
<td>not required</td>
</tr>
<tr>
<td>Cash crop diversification</td>
<td>not required</td>
<td>not required</td>
<td>5,000</td>
<td>not required</td>
</tr>
<tr>
<td>Security materials donated by a buyer to protect fields against vanilla theft</td>
<td>not required</td>
<td>not required</td>
<td>not required</td>
<td>not required</td>
</tr>
<tr>
<td><strong>Contractual Obligations</strong></td>
<td>Average Farmer WTA (in Malagasy Ariary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only harvest ripe vanilla</td>
<td>not required</td>
<td>not required</td>
<td>not required</td>
<td>not required</td>
</tr>
<tr>
<td>Produce organic</td>
<td>not required</td>
<td>- 18,000</td>
<td>-18,000</td>
<td>- 18,000</td>
</tr>
<tr>
<td>Stop slash-and-burn</td>
<td>not required</td>
<td>not required</td>
<td>- 12,000</td>
<td>not required</td>
</tr>
<tr>
<td>Stop child labor</td>
<td>- 3,000</td>
<td>- 3,000</td>
<td>- 3,000</td>
<td>not required</td>
</tr>
<tr>
<td><strong>Sum of WTP and WTA</strong></td>
<td>25,000</td>
<td>10,000</td>
<td>- 10,000</td>
<td>- 15,000</td>
</tr>
</tbody>
</table>

Note: The price premia presented are averages rounded to the nearest 1,000 Malagasy Ariary (MGA), as are the remaining WTP and WTA values. The Fair Trade price premium is a minimum price guarantee. It is paid into a collective fund of the Fair Trade producer group to whom the farmer belongs. The price premia of Rainforest Alliance and Organic vary from exporter to exporter but are paid out individually to contract farmers after the sale of their green vanilla. US$1 = 3750 MGA at the time of the survey in 2018.
4.3.4 Aggregate WTP for PVSS-certified contracts with additional CSR measures

Table 22 (below) shows aggregate WTP values for actual contract farming schemes found in the study region in 2018. It shows the microeconomic attraction potential of certified contract farming schemes that were improved by the inclusion of additional measures of CSR. Tabulated CSR was included by multiple exporters in the study region to motivate farmers to respect particular obligations of PVSS despite high vanilla prices on local spot markets.

Table 22 - Aggregate willingness to pay for PVSS-certified contracts can be improved by exporters in offering signatory smallholders additional incentives in the form of strategic CSR

<table>
<thead>
<tr>
<th>Valuation of PVSS-certified contracts with additional CSR measures by smallholder vanilla producers</th>
<th>Fair Trade</th>
<th>Organic and Fair Trade</th>
<th>Rainforest Alliance</th>
<th>Organic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contractual Benefits</strong></td>
<td>Average Farmer WTP (in Malagasy Ariary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Premium</td>
<td>1,000</td>
<td>4,000</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Health insurance</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>not provided</td>
</tr>
<tr>
<td>Interest-free credit</td>
<td>12,000</td>
<td>12,000</td>
<td>12,000</td>
<td>12,000</td>
</tr>
<tr>
<td>Cash crop diversification</td>
<td>not provided</td>
<td>not provided</td>
<td>5,000</td>
<td>not provided</td>
</tr>
<tr>
<td>Security materials donated by a buyer to protect fields against vanilla theft</td>
<td>7,000</td>
<td>7,000</td>
<td>7,000</td>
<td>7,000</td>
</tr>
</tbody>
</table>

| **Contractual Obligations** | Average Farmer WTA (in Malagasy Ariary) |
|---|---|---|---|---|
| Only harvest ripe vanilla | 11,000 | 11,000 | 11,000 | 11,000 |
| Produce organic | not required | - 18,000 | - 18,000 | - 18,000 |
| Stop slash-and-burn | not required | not required | - 12,000 | not required |
| Stop child labor | - 3,000 | - 3,000 | - 3,000 | not required |
| **Sum of WTP and WTA** | 43,000 | 28,000 | 20,000 | 15,000 |

Note: Typical CSR measures that exporters added to PVSS-certified contract farming schemes in the high-price phase are represented in bold and italics.

For a discussion of the ramifications of this main result, please refer to section 5.2
5. Discussion

PVSS-based contract farming schemes have the potential to increase household incomes (Kaplan et al., 2016), improve food security (Bellemare and Novak, 2017), create technological spillover effects (Minten et al., 2007), and provide a partial insurance mechanism against price risks (Brownell, 2011) for participating farmers. However, PVSS-based contracts also come with substantial costs to smallholder farmers who need to change agricultural production or post-harvest handling in specific ways (cf. Glasbergen, 2018). Considerations of these costs influence the decision to sign a certified contract or not, and if so, which one (Bellemare, 2018). Our analysis covers the subjective ex-ante costs and benefits associated with different PVSS using a realistically designed and contextualized choice experiment. In doing so, we asked which of the offered sustainability standards vanilla farmers find most attractive.

5.1 Smallholder preferences for contract farming options in Madagascar’s volatile vanilla business - capturing the context of the price spike in 2018

Choice experimental results show that in addition to a price premium, several PVSS contract attributes are seen as benefits: the health insurance (valued at 15,000 MGA per kg green vanilla), interest-free credits (12,000 MGA/kg), the offer to buy only ripe vanilla (11,000 MGA/kg), support to protect vanilla fields (7,000 MGA/kg) and extension for cash crop diversification (5,000 MGA/ kg; for mean values, see Table 20). Other attributes are regarded as costs. The average vanilla producer would demand a minimum compensation of 18,000 MGA per kg green vanilla to produce “organic” qualities (i.e., not use insecticide-treated bednets), he/she would demand 12,000 MGA to abstain from forest-degrading “slash-and-burn” agriculture and require a minimum compensation of 3,000 MGA per kg of green vanilla sold to send all children of the HH below 15 years of age to school regularly (Table 20).

As indicated by pilot-study results, the requirement to harvest and sell only well-matured vanilla is not regarded as a cost but as beneficial. When asked, farmers explicitly mentioned higher prices for better quality vanilla, saying that producing mature vanilla is economically attractive to them. Mature vanilla is also easier to transform into black vanilla and develops a better aroma (Havkin-Frenkel and Belanger, 2011). Thus, many farmers aim to produce high-quality vanilla despite challenges imposed on them by rising incidents of vanilla theft when prices increase. After all, quality is a reputational issue that also helps households to attract...
informal buyers roaming local spot markets. However, during high-price phases, farmers are often forced to harvest immature vanilla to avoid theft (Neimark et al., 2019).

5.2 Preferences for different sustainability standards from the smallholder perspective

In detail, simulated ex-ante preferences for PVSS contracts differ (Table 21). Farmers prefer most of the conditions constituting Fair Trade contracts (25,000 MGA/kg green vanilla), while a combination of Organic and Fair Trade is valued at 10,000 MGA/kg green vanilla. Neither Rainforest Alliance (-10,000 MGA/kg) nor Organic contracts (-15,000 MGA/kg) are economically attractive on their own. We analyze the reasons for these differing valuations below.

Rainforest Alliance is negatively valued because of several production restrictions. Most prominently, farmers need to abstain from utilizing fire when opening up fields, i.e., they need to abstain from traditional “slash-and-burn” agriculture (Malagasy: “tavy”). Although rainfed rice is not very profitable in economic terms (Andrianisaina et al., forthcoming), it can still contribute to household food security if sufficient family labor and land are available (Andraimparany et al., in review). Consequently, the obligation to abstain from slash-and-burn is valued at -12,000MGA/kg green vanilla.

Rainforest Alliance PVSS contracts also include the need to produce pesticide-free vanilla (i.e., prohibition to use insecticide-treated bed nets; -18,000 MGA/kg) and the requirement to abstain from any form of child labor (-3,000MGA/kg). Given low price premiums (mean: 3,000MGA/kg green vanilla; i.e., < US$ 1), the non-monetary benefits typically featured by Rainforest Alliance contracts do not suffice to offset the above costs. Interviewed farmers confirmed the low attractiveness of Rainforest Alliance contracts by pointing out that it is difficult to fulfill all restrictions at once. Several farmers belonging to different exporters had terminated these contracts. Local exporters we interviewed shared this concern. This issue has even been recognized by the standard-setting body itself (De Freitas, 2017).

Organic vanilla contracts are characterized by prohibiting the use of insecticide-treated bednets (-18,000 MGA/kg) and a low-price premium (3,000 MGA/kg green vanilla). In contrast to other crops (Ibanez and Blackman, 2016; Meemken et al., 2017b; Rauch, 2010), our pilot studies neither indicated increased labor nor depressed yields as a major concern for farmers as vanilla has traditionally been produced without any “chemical” inputs; it is organic by
abstain from using insecticide-treated bednets to reduce contamination during post-harvest handling is particularly unpopular among farmers. Farmers in several villages mentioned that they are scolded by village chiefs and medical personnel for not using improved nets. These have been introduced to many villages in the SAVA Region to reduce exposure to insect-borne diseases (USAID & PSI, 2019).

*Fair Trade* PVSS contracts are also perceived as costly to implement but typically include several appreciated non-monetary benefits as well as guaranteed floor prices (Brownell, 2011; Fairtrade International, 2020b). The premium for green vanilla is low (1,000 MGA/kg) and only paid to the producer association, so actual benefits to individual farmers HH is limited. The minimum price guarantee of 21,000 MGA (US$ 5.6/kg green vanilla) and 154,000 MGA (US$ 41/kg black vanilla) is much appreciated in times when vanilla prices on the open market crash. Guaranteed floor prices provide farmers with a partial price insurance mechanism (Brownell, 2011; Giovannucci and Ponte, 2005; Hänke, 2019). Non-monetary benefits typically include highly appreciated health care services (15,000 MGA/kg green vanilla) and interest-free credits (12,000 MGA/kg). In turn, *Fair Trade* only requires farmers to abstain from exploitative forms of labor (Fairtrade International, 2020a), including child labor (-3000 MGA/kg green vanilla).

In sum, our results confirm suggestions that *Fair Trade* could provide a more attractive future for vanilla smallholders in Northeastern Madagascar (Brownell 2011). However, only 1.3% of surveyed farmers and 6.7% of farmers within contracts had a *Fair Trade* contract. The low prevalence of *Fair Trade* suggests that its demand on the international market may be a limiting factor.

Contrary to its low profitability to vanilla farmers, *Rainforest Alliance* was actually the most prevalent standard, reaching 7.3% of the vanilla farming population or 37% of contracted farmers in our sample (Table 18).
Before moving on to some recommendations, we can sum up several main results:

1. Vanilla farmers regard commonly used sustainability standards as carrying very different profiles of costs and benefits.
2. The low price premiums typically paid to farmers in PVSS-certified contracts do not suffice to make these contracts, on average, profitable in the eyes of surveyed vanilla farmers.
3. While *Fair Trade* is judged the most attractive PVSS by vanilla farmers, *Rainforest Alliance* is actually in most demand by international buyers.

5.3 Policy Implications: Incentivizing sustainability standards against a backdrop of volatile market prices

How can a “win-win” situation for farmers and international buyers vanilla be created? Our results highlight three possible strategies.

The first strategy implies increasing the price premium. For example, for *Organic* qualities, a premium of at least 18,000 MGA (US$ 4.8) per kg of green vanilla was needed to neutralize the perceived cost of *Organic* production (Table 21). One exporter we interviewed in Antalaha uses this practice with success by handing down the full *Organic* premium he receives at export for cured vanilla (US$ 10/kg) to his producer groups to incentivize *Organic* production in the context of high market prices. However, we also found that the majority of exporters only hand down a small fraction of the *Organic* export premium. A widespread increase in farmgate premiums is hindered by the fact that exporters incur costs for compliance and related management. They advance the certification costs as well.

A second strategy is to combine two PVSS in order to achieve a “win-win” situation, whereby the positive aspects of one standard offset the negative aspects of the other standard from the perspective of the farmers. Some exporters in the SAVA Region, for example, successfully combine *Fair Trade* and *Organic*. The benefits of *Fair Trade* are health care services, credit opportunities, and a guaranteed *minimum price*, while *Organic* adds a price premium that is paid out to individual farmers, offsetting the criticism of producer groups about problems of mismanaged collective funds. Together, the combination of *Fair Trade* and *Organic* generates sufficient monetary and non-monetary incentives for farmers to be willing to fulfill the otherwise unpopular *Organic* criterion to abstain from the use of insecticide-treated bednets.
Mainstreaming this strategy, however, requires that international demand for *Fair Trade* vanilla increases substantially.

The third strategy comprises the inclusion of *strategic CSR* measures into PVSS contracts (Sielaff *et al.*, 2014). Some exporters incentivize the implementation of unpopular certification requirements by offering additional non-monetary benefits that are not necessary to pass certification audits but are perceived as valuable in the eyes of the farmers (Table 22). *Strategic CSR* aims at the creation of “*shared value*” (Porter & Kramer, 2006; Nestle, 2015; Rangan *et al.*, 2015; Sielaff *et al.*, 2014). It can take the form of non-monetary benefits or cost-cutting and productivity-enhancing interventions (Rangan *et al.*, 2015). In vanilla contract farming schemes in Northeastern Madagascar, the inclusion of a quality-dependent pricing mechanism would require farmers to only harvest and sell ripe vanilla to exporters. Our results suggest that this would indeed be positively received by contracted vanilla farmers, even in situations when spot market prices are high and theft pressure increases (Table 22). On average, our results also reveal that contracted vanilla farmers received up to 30% better farmgate prices for their green vanilla in 2018, if managing to deliver a properly matured crop that is (Figure 33). Introducing a quality-dependent pricing formula thus creates a “win-win” situation that motivates both buyers as well as farmers, despite the challenge of managing the production risks that result from rising incidents of vanilla theft (Neimark *et al.*, 2019a).

Some exporters also support contract farmers to protect their vanilla fields against theft. This *strategic CSR* measure creates *shared value* by reducing the risk of a production shortfall to the mutual benefit of farmers as well as contractual buyers (Table 22).

The interest-free loans that some exporters offer in the lean season to avoid distress sales to predatory lenders from the village (Neimark *et al.*, 2019b) is another example of exporters hedging against the loss of contracted vanilla by reducing the side-selling tendencies of their suppliers to alternative buyers. Farmers appreciate these credit opportunities (Table 22).
5.4 Limitations of this study

Obviously, the usual caveats of *ex-ante* simulations, or stated preference studies, as opposed to studies investigating “real” market behaviors apply (Bateman *et al.*, 2002). We regard the extent of hypothetical bias of this choice experiment as low, however, since we embedded it in a mixed methods approach and since we also limited farmers to evaluate production options that they are very familiar with in their day-to-day routines in the SAVA Region (cf. Appendices I, III, and IV).

Specifically, we asked smallholders to evaluate the costs and benefits of nine different contract farming attributes. In reality, certified contracts – particularly *Rainforest Alliance* and *Fair Trade* – have more requirements. Some of these are introduced over time to existing contracts with farmers (ITC, 2020), and some of the benefits and requirements change (Hänke, 2019; Rainforest Alliance, 2020). Our choice experiment is still very realistic in that buyers in the SAVA Region commonly communicate and monitor only core requirements to farmers. In fact, farmers are often not even aware of which PVSS they produce (Table 16).

To optimally balance realism and complexity in the choice experiment, PVSS contract attributes were carefully selected via a multi-stage research design (Table 13). In contrast to other studies, we realized a strict random sample without relying on pre-selected farmers by gatekeepers, such as vanilla exporters or international development organizations. Thus, farmers with a successful as well as an unsuccessful contract farming history were included in our sample. Out of (N=604) farmers in the representative choice survey, 97% (n=586) successfully completed all choice sets of the experiment, indicating that the task was sufficiently easy to understand.
6. Conclusion

Certified contract farming does not only provide benefits but also comes with substantial costs to smallholder vanilla producers. In the context of rapidly rising prices, between 2016 and 2018, vanilla farmers in Northeastern Madagascar preferred Fair Trade contracts over Organic or Rainforest Alliance requirements of production. Exporters mostly demand Rainforest Alliance certified vanilla, however.

If not provided with additional incentives, farmers either reject PVSS-certified contracts – or drop out as soon as they find out how difficult it is to fulfill all contract obligations. High drop-out rates lead to short contract durations and a high fluctuation in members of producer groups – creating additional organizational challenges for exporters trying to source certified, traceable vanilla of high quality.

We identify three strategies for possible solutions:

(i) offering farmers increased price premiums,

(ii) combining a popular with an unpopular PVSS in contract farming schemes,

(iii) adding strategic CSR benefits.

The latter comprise non-monetary support services that are of mutual benefit to farmers and buyers. Strategic CSR can make Rainforest Alliance and Organic contracts appear profitable to farmers.

Farmer organizations can use the valuations of different contract farming options presented in this study as a benchmark for their own operations; exporters and international development organizations can use them to design comprehensive PVSS contracts that better target farmer preferences.
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Credit Author Statement for Chapter 4

Acceptability of voluntary sustainability standards in the booming vanilla business of Madagascar: a smallholder perspective

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<tr>
<th>1st Author: Lloyd Blum, 1 Hochschule Darmstadt - University of Applied Sciences, Department of Social Sciences, Risk &amp; Sustainability Research; (2) Georg-August-Universität Göttingen, Faculty of Agricultural Sciences, Department of Agricultural Economics and Rural Development</th>
<th>2nd Author: Hendrik Hänke, Georg-August-Universität Göttingen, Department of Agricultural Economics and Rural Development</th>
<th>3rd Author: Jan Barkmann, 1 Hochschule Darmstadt - University of Applied Sciences, Department of Social Sciences, Risk &amp; Sustainability Research; (2) Georg-August-Universität Göttingen, Faculty of Agricultural Sciences, Department of Agricultural Economics and Rural Development</th>
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Corresponding author: lloyd.blum@gmail.com
Chapter 5: Choice Experimental Results in Context

In the preceding chapters, we found out that:

- CF is used as a means by international buyers and partnering exporters to incentivize the production of quality vanilla by smallholder farmers (General Introduction).
- The production of quality (i.e., ripe) vanilla is difficult to attain in a period of price boom as the phenomenon of vanilla theft causes farmers to harvest their vanilla prematurely (Chapter 1).
- From the smallholder perspective, vanilla quality matters (Chapters 3-4) as buyers pay significantly higher prices for it (Chapters 2-4).
- CF offers a possibility for farmers to benefit from about 30% higher average prices paid for green vanilla (Chapter 4). Besides that, CF offers a range of non-monetary benefits - such as health insurance coverage, support to protect vanilla fields against incidents of theft, cash/food credits that can be accessed during the hunger season without the need to repay interests, or support to diversify into other cash crops than vanilla (Chapters 2-4). Yet, resource-poorer farmers appear to be largely excluded from these benefits as they tend to be excluded from CF participation (Chapter 2).
- Female farmers are largely excluded, too, as signatories in vanilla CF (Chapter 3).
- Contractual buyers seek product as well as process qualities; process qualities (such as child-labor-free vanilla, organic and/or rainforest-conserving vanilla) are sought for reasons of product market differentiation and for product traceability. Private voluntary standards verify these process qualities. These standards are typically chosen by exporters on demand by international clients (Chapter 4).
- The average vanilla farmer shows a greater preference for production requirements related to Fair Trade than for production restrictions associated with Organic and/or Rainforest Alliance (Chapter 4).
- Rainforest Alliance-certified vanilla is in most demand by contractual buyers, however (Chapter 4).
- Cases of farmer-led cooperatives are rare in the vanilla business of Northeastern Madagascar as of today (Chapter 3).
- Possible solutions to improve the acceptability of process standards from the perspective of the smallholder producer include exporters paying higher price premia, offering additional CSR benefits, and/or offering combinations of popular and
unpopular standards, particularly the combination of Organic and Fair Trade (Chapter 4).

- Smallholder preferences for CF features are heterogeneous. Different sub-groups of respondents in the sample (e.g., male vs. female farmers) show distinct preference patterns. Contextual realities of these sub-groups differ as a result of social norms and economic capabilities, shaping their respective CF preferences (Chapter 3).

This chapter is meant to cross-check and contextualize the choice experimental results presented in Chapters 3-4. By drawing on a mixed methods approach, I will cross-check the internal validity of choice experimental results and contextualize them against the analyzed marketing behaviors of respondents based on the HH survey (N=604) that accompanied the choice experiment. I will also refer to qualitative expert interviews conducted before and after the choice experiment with both contracted farmers and contractual buyers of vanilla to give contextual meaning to the choice experimental data.

**Chapter 5 gives an overview of identified results and places them in social context:**

Chapter 5 starts with a **quantitative cross-check** to verify the internal validity of the choice experimental results. An overview of preference heterogeneities results that allow us to test for anticipated differences in aggregate willingness to pay for a Rainforest Alliance CF option (as a simulation of a real-world offer) between resource-richer vs. resource-poorer farmers, including men vs. women. Next, I attempt to explain detected preference heterogeneities for CF between resource-richer (contracted) vs. resource-poorer (non-contracted) farmers by comparing their respective vanilla marketing strategies as an indication of their revealed preferences. Reported marketing behaviors are to remove the reader's doubts over possible validity issues of the choice experimental results, including possible doubts over hypothetical bias. The inclusion of quantitative behavioral data is pursued to analyze whether a consistent logic exists between the motivations of vanilla farmers (stated preferences elicited by choice experiment) and reported marketing behaviors (revealed preferences) or not. Finally, the **quantitative cross-checking** is followed by a **qualitative cross-check**, which focuses on the question of why smallholder vanilla farmers enter and exit CF schemes. The qualitative cross-check draws primarily on post-experimental interviews conducted with contracted farmers and interviews conducted with contractual buyers. Where necessary, pre-experimental interviews are drawn on, too, which were conducted with non-contracted farmers and partnering
development organizations of further buyers. Finally, a discussion and conclusion of the CE results is reached.

5.1 Quantitative cross-check to verify internal validity of choice experimental results
What follows now is an analysis of preference heterogeneities between different groups of smallholders in our sample, i.e., between resource-richer vs. resource-poorer farmers. This is done in order to (1) cross-check the internal validity of choice experimental results and (2) to identify which group of smallholder farmers face the greatest challenges in CF.

A standard procedure to verify the internal validity in stated preference studies is to test whether one can find a positive influence of income on WTP. All other things equal, this would be expected in reality (Barkmann et al., 2008, Glenk et al., 2006, Zeller et al., 2003).

This chapter introduces another choice experimental analysis in order to quantitatively cross-check choice experimental results presented in Chapters 3 and 4. This time we contrast the contractual preferences of smallholder vanilla farmers between resource-richer (contracted) vs. resource-poorer (non-contracted) farmers (i.e., the two groups identified in Chapter 2). I add this further exploration of preference heterogeneities to respond to acknowledged criticism of economic studies, which only model choices of “the average person” (Chapter 4) despite the existence of social, ethnic, and geographic diversity (cf. methodological critique presented in section 3.2.2 of General Introduction). Furthermore, as a result of having followed a cross-sectional research design at the landscape level, a majority (in fact, about 80%) of respondents in our sample were non-contracted farmers. So they deserve further analysis as one could argue that these farmers responded without much prior experience with CF. Consequently, our choice experimental results presented in Chapter 3 (male vs. female comparison of CF preferences) and Chapter 4 (CF preferences of the average vanilla farmer with respect to sustainability standards) hold the risk of suffering from possible hypothetical bias. Strictly speaking, only the group of "contracted farmers" know what we are talking about when being asked about different CF options. With the novel CE analysis, I thus arrive at an overview of preference heterogeneities between five different sub-groups of smallholder vanilla farmers in our sample, namely: the average farmer (taken from Chapter 4), contracted farmers vs. non-contracted farmers (newly performed), and male farmers vs. female farmers (taken from Chapter 3). I contrast the aggregate WTP (sum of WTP and WTA values) for a Rainforest Alliance contract with additional CSR benefits (i.e., with security support and credit opportunity) to capture all of the tested CF features. Importantly, this combination of CF features does actually exist in reality, thus further reducing the possibilities of hypothetical bias. The choice model
simulations for each of these five groups of respondents were performed with identical model parameters and following exactly the same choice modeling procedure (cf. Chapter 3, section 3.2).

5.1.1 Contractual preferences of contracted vs. non-contracted vanilla farmers
Table 23 (below) presents the choice model simulation for contracted vs. non-contracted vanilla farmers. As expected, remarkable differences in contractual preferences can be found between contracted and non-contracted farmers.

Comparing the positive preferences for CF features, we see that contracted farmers perceive significantly greater utility in all of the tested CF benefits – that means: in the health insurance offer, in interest-free credits during the lean (hunger) season, in cash crop diversification support, and in support to securitize vanilla fields against theft. Contracted farmers also see a bigger utility in the obligation to harvest and sell ripe vanilla than non-contracted farmers. Interestingly, for the price premium feature of CF offers, the pattern is inverse. Price premia are significantly more important to non-contracted farmers than to contracted farmers (Figure 36 below).

Comparing the negative preferences– i.e., the avoidance tendencies of farmers – for tested CF features, the pattern is mixed. There is no significant difference in avoiding the Organic production restriction to abstain from using treated mosquito nets; both contracted, and non-contracted farmers perceive strong disutility in this production restriction. By contrast, contracted farmers show significantly stronger avoidance of the Rainforest Alliance restriction to stop the slash-and-burn than non-contracted farmers. Non-contracted farmers show significantly greater avoidance of buyers who require farmers to abandon child labor than contracted farmers. Interestingly, non-contracted farmers are found to be significantly less reluctant than contracted farmers to change their current buyers; whereas contracted farmers see strong disutility in giving up on their current contractual buyers, non-contracted farmers see hardly any disutility in giving up on informal buyers to whom they sell on local spot markets (Figure 37 below).

Just as for the male vs. female comparison (in Chapter 3), we see once again significant within-sample-heterogeneity in terms of elicited preferences for a number of CF features [see (β) coefficients with stars (*) in Table 23 below].
### Table 23 - Mean utility of tested CF features for contracted vs. non-contracted vanilla farmers [stated preferences, n=586]

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th><strong>Choice Experiment (N=604): Contracted vs. Non-Contracted Farmers</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Contracted (N=119)</strong></td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td>Mean Utility ($\alpha$)</td>
</tr>
<tr>
<td>Price Premium per 10000 MGA</td>
<td>0.97</td>
</tr>
<tr>
<td>Health insurance for up to 7 HH members</td>
<td>2.94</td>
</tr>
<tr>
<td>Credit during hunger season</td>
<td>2.01</td>
</tr>
<tr>
<td>Cash crop diversification support</td>
<td>0.77</td>
</tr>
<tr>
<td>Security materials to reduce vanilla theft</td>
<td>1.22</td>
</tr>
<tr>
<td>Only harvest ripe vanilla</td>
<td>1.79</td>
</tr>
<tr>
<td>Stop &quot;slash-and-burn&quot;</td>
<td>-1.93</td>
</tr>
<tr>
<td>Stop &quot;child labor&quot;</td>
<td>-0.06</td>
</tr>
<tr>
<td>Produce &quot;organic&quot;</td>
<td>-1.53</td>
</tr>
<tr>
<td>Change buyer for contract (ASC)</td>
<td>-1.85</td>
</tr>
</tbody>
</table>

**Note:**

1) Log-Likelihood Model for Contracted Farmers = -541.81; Log-Likelihood Model for Non-Contracted Farmers = -2476.80
2) LR Chi2 (Model for Contracted Farmers) = 357.59; LR Chi2 (Model for Non-Contracted Farmers) = 1725.39
3) Pseudo R2 (Model for Contracted Farmers) = 0.48; Pseudo R2 (Model for Non-Contracted Farm) = 0.40
4) Significance Level (Model for Contracted Farmers) = .0000; Significance Level (Model for Non-Contracted Farmers) = .0000
5) **, **, * mean coefficients significant at 1%, 5% and 10% level respectively
Visualization of main effects (choice coefficients ($\alpha$)): preferences for CF features of contracted vs. non-contracted vanilla farmers

Figure 36 - Preferences for CF benefits by contracted vs. non-contracted vanilla farmers [stated preferences, n=586]
Visualization of main effects [choice coefficients ($\alpha$)]: preferences for CF features of contracted vs. non-contracted vanilla farmers (cont.)

Figure 37 - Avoidance of CF obligations by contracted vs. non-contracted vanilla farmers [stated preferences, n=586]
5.1.2 Overview of preference heterogeneities to verify internal validity of CE results

The preceding choice simulation for contracted vs. non-contracted farmers allows us to present an overview of existing preference heterogeneities between distinct groups in our sample, namely: the average farmer vs. contracted farmers vs. non-contracted farmers vs. male farmers vs. female farmers. Table 24 (below) compares the willingness to pay (WTP) and willingness to accept (WTA) of these farmers for tested CF features, enabling us to detect between which groups of respondents major differences in valuation emerge.

Comparing the aggregate WTP (i.e., the sum of all WTP and WTA estimates), we can see that the most striking preference heterogeneity is found between contracted vs. non-contracted farmers. Contracted farmers (with an aggregate WTP = 34,000 MGA per kg green vanilla sold) see almost ten times more value in tested CF features than non-contracted farmers (with an aggregate WTP = 3,000 MGA per kg green vanilla sold). The full set of CF features tested corresponds to a Rainforest Alliance CF offer with additional CSR that exists in reality. The male vs. female heterogeneities have been discussed in greater detail in Chapter 3. Here, it suffices to reiterate that male farmers (with an aggregate WTP = 13,000 MGA per kg green vanilla sold) see about twice as much monetary value in the tested Rainforest Alliance option than female farmers (with an aggregate WTP = 7,000 MGA per kg green vanilla sold).

Non-contracted farmers – which make up more than 80% of respondents in the sample – do stick out by hardly recognizing any value in such a CF offer, however, whereas all other groups of farmers value such an offer more positively. Checking for the contractual obligation to produce and sell only ripe vanilla, which underpins any contract (certified or not), it is noteworthy that non-contracted farmers appreciate this condition only with a WTP of 3,000 MGA, too, which is substantially lower than for all other sub-groups of respondents in the sample (Table 24 below).

This quantitative cross-check of aggregate WTP for a Rainforest Alliance CF option re-iterates the existence of remarkable preference heterogeneities among different socio-economic groups of vanilla farmers. Following the standard procedure to test for internal validity in choice experiments, we find a positive influence of income on WTP as resource-richer (i.e., contracted and male) farmers show higher aggregate WTP valuations than resource-poorer (i.e., non-contracted and female) farmers (Table 24 below). The results of our choice experiment appear internally valid by the logic that one should expect respondents with higher income to be willing to pay more (Barkmann et al., 2008; Glenk et al., 2006; Zeller et al., 2003).
Quantitative cross-check of CE results

Table 24 - Overview of willingness to pay (WTP) for and willingness to accept (WTA) tested CF features of a Rainforest Alliance contract with additional CSR benefits by different sub-groups of smallholders in the study region [stated preferences, n=586]

<table>
<thead>
<tr>
<th>Choice Model Estimation</th>
<th>Average Farmer (N=604)</th>
<th>Contracted (n=119)</th>
<th>Non-Contracted (n=477)</th>
<th>Male Farmer (n=302)</th>
<th>Female Farmer (n=302)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contractual Benefits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health insurance</td>
<td>15,000 MGA</td>
<td>30,000 MGA</td>
<td>9,000 MGA</td>
<td>9,000 MGA</td>
<td>20,000 MGA</td>
</tr>
<tr>
<td>Credit during hunger season</td>
<td>12,000 MGA</td>
<td>21,000 MGA</td>
<td>4,000 MGA</td>
<td>4,000 MGA</td>
<td>20,000 MGA</td>
</tr>
<tr>
<td>Cash crop diversification</td>
<td>5,000 MGA</td>
<td>8,000 MGA</td>
<td>2,000 MGA</td>
<td>4,000 MGA</td>
<td>7,000 MGA</td>
</tr>
<tr>
<td>Security materials to protect fields against vanilla theft</td>
<td>7,000 MGA</td>
<td>13,000 MGA</td>
<td>4,000 MGA</td>
<td>5,000 MGA</td>
<td>8,000 MGA</td>
</tr>
<tr>
<td>Only harvest ripe vanilla</td>
<td>11,000 MGA</td>
<td>18,000 MGA</td>
<td>3,000 MGA</td>
<td>9,000 MGA</td>
<td>6,000 MGA</td>
</tr>
<tr>
<td><strong>WTP Sum</strong></td>
<td><strong>50,000 MGA</strong></td>
<td><strong>90,000 MGA</strong></td>
<td><strong>22,000 MGA</strong></td>
<td><strong>31,000 MGA</strong></td>
<td><strong>61,000 MGA</strong></td>
</tr>
<tr>
<td><strong>Contractual Obligations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produce organic</td>
<td>- 18,000 MGA</td>
<td>-16,000 MGA</td>
<td>-9,000 MGA</td>
<td>- 11,000 MGA</td>
<td>- 29,000 MGA</td>
</tr>
<tr>
<td>Stop slash-and-burn</td>
<td>- 12,000 MGA</td>
<td>-20,000 MGA</td>
<td>-7,000 MGA</td>
<td>- 4,000 MGA</td>
<td>- 15,000 MGA</td>
</tr>
<tr>
<td>Stop child labor</td>
<td>- 3,000 MGA</td>
<td>-1,000 MGA</td>
<td>-3,000 MGA</td>
<td>- 1,000 MGA</td>
<td>- 5,000 MGA</td>
</tr>
<tr>
<td><strong>WTA Sum</strong></td>
<td><strong>-33,000 MGA</strong></td>
<td><strong>-37,000 MGA</strong></td>
<td><strong>-19,000 MGA</strong></td>
<td><strong>-16,000 MGA</strong></td>
<td><strong>-49,000 MGA</strong></td>
</tr>
<tr>
<td>Non-Status Quo Choice (ASC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WTA to Change Buyer</td>
<td>- 2,000 MGA</td>
<td>- 19,000 MGA</td>
<td>0 MGA</td>
<td>- 2,000 MGA</td>
<td>- 5,000 MGA</td>
</tr>
<tr>
<td><strong>Aggregate WTP</strong></td>
<td><strong>15,000 MGA</strong></td>
<td><strong>34,000 MGA</strong></td>
<td><strong>3,000 MGA</strong></td>
<td><strong>13,000 MGA</strong></td>
<td><strong>7,000 MGA</strong></td>
</tr>
</tbody>
</table>

Note:
1) WTP and WTA estimates for the different subdivisions of the sample (N=604) are averages values rounded to the nearest 1000 Malagasy Ariary, 1US$ = 3850 MGA
2) Alternative Specific Constant (ASC) indicates minimum compensation to incite farmer to change his/her buyer for an alternative contractual buyer (Non-SQ option)
3) Aggregate WTP represents the overall value of the presented CF option. It is calculated by adding up the WTP sum and WTA sum.
5.2 Cross-checking stated preferences with reported marketing behaviors of vanilla farmers to remove any doubts over the possibility of hypothetical bias of choice experimental results

Combining preferences and behavioral measurements is useful for understanding both motivations and ultimate goals of respondents. Stated preference techniques, including the choice experiment, do only measure motivations (behavioral intentions). Whether farmers then act as they state cannot be anticipated unless their real-world actions (behaviors) are consulted, too (Bateman et al., 2002).

With respect to the choice experimental results presented in Table 24 (above), one may ask, for instance, how the difference in valuations of CF options between contracted vs. non-contracted farmers can be explained. Specifically: Why do non-contracted farmers see so little value in tested CF offers? Both the option of a simple market-specification contract (WTP for the condition to “only harvest ripe vanilla” = 3,000 MGA per kg green vanilla; Table 24) and the option of a complex production management contract (aggregate WTP for a Rainforest Alliance option = 3,000 MGA per kg green vanilla; Table 24) show the lowest quasi-monetary valuations among non-contracted farmers. Moreover, the alternative specific constant (ASC) of non-contracted farmers – which represents their willingness to accept an alternative buyer – indicates their readiness to drop the current buyer without demanding any compensation from a new potential buyer (ASC = 0 MGA per kg green vanilla; Table 24).

Does that mean that the majority of farmers in the SAVA Region would be unwilling to join a CF scheme? Figure 38 (below) shows that this is not the case. An overwhelming majority of non-contracted farmers stated at least a principal interest in testing out CF if an offer was extended to them. About 88% (n=425/485) of non-contracted farmers stated willingness to drop their current buyers to join a CF scheme. The question of whether non-contracted farmers can be expected to stick to their supply commitments when entering a CF scheme is another question that shall be explored with reference to qualitative interviews with farmers and exporters.

To better understand what distinguishes contracted vs. non-contracted farmers in their expectations towards a buyer, I am going to analyze their respective marketing strategies.
5.2.1 Different marketing strategies pursued by contracted vs. non-contracted farmers

The marketing channels that contracted vs. non-contracted farmers use are different in both the type of vanilla sold and the type of buyer chosen. While contracted farmers are required to wait until after the official market opening (see seasonal calendar) to be able to sell their vanilla and are typically asked to sell unprocessed (green) vanilla to contractual buyers, non-contracted farmers sell to informal middlemen on local spot markets, where unprocessed (green), semi-processed (vrac) and processed (black) vanilla is bought. The middlemen then link the farmers to collectors, preparators, and exporters.

Table 25 (below) summarizes the marketing channels chosen by contracted vs. non-contracted farmers in 2018. The table details the average harvest achieved by each group, next to percentages of interviewed farmers who sold the main part of that harvest to different types of buyers and in different vanilla types. The data are based on the representative HH survey for the study region, which was part of the choice experiment (N=604). Table 25 (below) also allows us to detect the percentage of farmers who suffered complete harvest failure in 2018 (0 kg of vanilla harvested) as well as the percentage of contracted farmers who sold their vanilla extra-contractually to alternative buyers before and after the official market opening.
### Table 25 - Reported marketing behavior of contracted vs. non-contracted vanilla farmers [revealed preferences, based on HH survey accompanying the choice experiment, N=604]

<table>
<thead>
<tr>
<th>Revealed marketing behaviors in 2018 based on HH Survey of Choice Experiment</th>
<th>Contracted (n=119)</th>
<th>Non-contracted (n=485)</th>
<th>Comments for contracted farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average harvest of vanilla in 2018</strong></td>
<td>58 kg</td>
<td>39.5 kg</td>
<td></td>
</tr>
<tr>
<td><strong>Main type of vanilla sold in 2018</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selling green vanilla</td>
<td>92%</td>
<td>54%</td>
<td></td>
</tr>
<tr>
<td>Average harvest of HH selling green vanilla</td>
<td>60 kg</td>
<td>35 kg</td>
<td></td>
</tr>
<tr>
<td>Selling semi-prepared vanilla (after 1.5 months)</td>
<td>0%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Average harvest of HH selling semi-prepared vrac</td>
<td>n/a</td>
<td>42 kg</td>
<td></td>
</tr>
<tr>
<td>Selling black vanilla (after 3 months or more)</td>
<td>8%</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>Average harvest of HH selling prepared vanilla</td>
<td>36 kg</td>
<td>44 kg</td>
<td></td>
</tr>
<tr>
<td><strong>Main buyer chosen in 2018</strong></td>
<td></td>
<td></td>
<td>8% side-selling</td>
</tr>
<tr>
<td>Commission Agent (French: Commissionaire)</td>
<td>8%</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>Average harvest of HH selling to Commissionaires</td>
<td>18 kg</td>
<td>39 kg</td>
<td></td>
</tr>
<tr>
<td>Village based tout (French: Rabatteur)</td>
<td>0%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Average harvest of HH selling to Rabatteurs</td>
<td>n/a</td>
<td>23 kg</td>
<td></td>
</tr>
<tr>
<td>Preparator / exporter in the city</td>
<td>2%</td>
<td>3%</td>
<td>2% side-selling</td>
</tr>
<tr>
<td>Average harvest of HH transporting own vanilla</td>
<td>57.5 kg</td>
<td>64 kg</td>
<td></td>
</tr>
<tr>
<td>Collector of preparator / exporter in the village</td>
<td>45%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Average harvest of HH supplying to a CF scheme</td>
<td>66 kg</td>
<td>85 kg</td>
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</tr>
<tr>
<td><strong>Not selling vanilla at market opening in 2018</strong></td>
<td>45%</td>
<td>30%</td>
<td>6% crop failure</td>
</tr>
<tr>
<td>due to complete loss to theft and cyclone damage</td>
<td>6%</td>
<td>16%</td>
<td>4% side-selling</td>
</tr>
<tr>
<td>because preparing vanilla to sell in early 2019</td>
<td>4%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>because taking up a flower contract in early 2018</td>
<td>0%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>because of conflicts arising in the CF relationship*</td>
<td>35%</td>
<td>n/a</td>
<td>35% side-selling</td>
</tr>
</tbody>
</table>

Note: *Conflicts in the CF relationship reported by contracted farmers concerned three specific exporters (Symrise, Tsarakahtao, and Tsara Vokatra) in 2018 out of a total of 9 contractual buyers captured in the choice experiment (See text below on emergency situations, social network effects, opportunism of exporters)
Several important observations derive from Table 25 (above). First, the average harvest of (n=119) contracted farmers was 58 kg, and thus about 32% higher than the 39.5 kg that (n=485) of non-contracted farmers harvested on average in 2018. It is important to realize, in this respect, that 92% (n=109/119) of contracted farmers sold exclusively unprocessed (green) vanilla to CF schemes, however. Only 8% (n=10/119) of contracted farmers attempted to sell the main share of their harvest in the form of processed (black) vanilla, many of whom by side-selling to commission agents. Only 2% (n=2/119) of contracted farmers sold processed (black) vanilla as part of their contractual arrangement. It is noteworthy that contracted farmers who practiced side-selling harvested substantially less vanilla (36 kg for those who sold exclusively black vanilla vs. 18 kg for those who sold green and black vanilla to commission agents) compared to their peers (60 kg) who sold green vanilla as agreed to their contractual buyers. By contrast, only 54% (n=260/485) of non-contracted farmers sold the main part of their vanilla unprocessed (green). A remarkable share of 46% (n=225/485) of non-contracted farmers prepared the main part of their harvest before selling it to informal traders on local spot markets. Again it is noteworthy that the average harvest of those non-contracted farmers who prepared was superior (42-44 kg) to that of non-contracted farmers who sold green vanilla (35 kg). Interestingly, 38% (n=185/485) of non-contracted farmers sold fully prepared vanilla in 2018 (i.e., black vanilla after three months of home processing; Table 25 above). In brief: non-contracted farmers do, on average, harvest fewer kilograms of vanilla than contracted farmers, but they expect to sell a substantial share of it in processed form – at least if they can harvest sufficiently. This highlights an important difference in the reported marketing behaviors of contracted vs. non-contracted farmers and may, in part, explain the greater price sensitivity of non-contracted farmers.

Second, a majority of 60% (n=290/485) of non-contracted farmers sold their vanilla to commission agents in 2018 Table 25 (above). Non-contracted farmers are used to haggling with informal middlemen who operate their villages and seek out individual households before and after the official market opening (Amato 2018). Farmers under contract, by contrast, need to wait to sell their crops until the vanilla market is officially opened each year. This typically happens at the end of June along the Littoral (0-500m), at the end of July at Mid-Altitude locations (500-1,500m), and at the end of August in the Highlands (>1,500m above the sea; cf. seasonal calendar, "Contractual sale of green vanilla" in Figure 41). Waiting until the official harvest date is a challenge from the perspective of most farmers. This highlights the stamina and patience that contracted farmers need to bring along. In light of escalating incidents of
vanilla theft and given an annual lean season during which farmers are short of cash and food - which nearly coincide in time each year (see the seasonal calendar in Figure 41) – it is not self-evident for households to wait with selling their vanilla until after the legal market opening date. In 2018, only 45% (n=54/119) of contracted farmers stuck to their contractual agreements. About 10% of contracted farmers were not able to patient themselves for the official market opening but sold extra contractually before the official market opening; 8% (n=10/119) of whom to commission agents and a further 2% (n=2/119) to alternative preparators and exporters (Table 25 above). The necessity for money during the lean season in order to buy food and the inability to wait for the official market opening is more pronounced among the resource-poorer non-contracted farmers, however. About 2% (n=12/485) of non-contracted farmers relied on so-called “flower contracts” - predatory lending arrangements offered by local merchants in their villages. Thus they sold their vanilla at extortionary low prices (typically 20-25% of eventual market prices) when their food became too scarce following February (cf. seasonal calendar, "Lean period" in Figure 41). Moreover, of the 60% (n=290/485) of non-contracted farmers who sold their vanilla to commission agents in 2018, a substantial number admitted during the choice experiment that they had already sold their vanilla before the official market opening for fear of theft or due to need of money.

Third, it is important to highlight that almost 45% (n=53/119) of contracted farmers did not sell any vanilla to contractual buyers at all in 2018. Likewise, about 30% (n=145/485) of non-contracted farmers were unable to sell any vanilla in 2018. These are high numbers.

Multiple reasons were implicated in this remarkable finding. About 6% (n=7/119) of contracted farmers and 16% (n=76/485) of non-contracted farmers suffered a complete loss of harvest in 2018 (0 kg of vanilla harvested). Vanilla theft and damage to their crop due to Cyclone “ENAWO” - which occurred in 2017 - were reasons that farmers stated for their harvest failure. Another 4% (n=5/119) of contracted farmers and 12% (n=57/485) of non-contracted farmers did not sell any vanilla following market opening as they intended to sell prepared vanilla later in the year and in 2019, given that prices were so exceptionally high. These farmers decided to process the main part of their vanilla harvest following the official market opening despite a continued risk of theft from home (cf. seasonal calendar, "Theft of black vanilla" in Figure 42).

Adding to the 10% of opportunistic (unprovoked) side-sellers who sold before market opening, these individuals added another 4% to the side-selling contract farmers. Most astonishingly, however, another 35% (n=41/119) of contracted farmers sold their vanilla extra-contractually.
without the intention to do so. These farmers took the risk of waiting for the official market opening; they did not lose their vanilla to thieves and were able to harvest their crops on time after the official market opening. Their contractual buyers did, however, not appear (see Table 25 above). Based on our HH survey, this unfortunate circumstance concerned at least three specific exporters in 2018 (Symrise, Tsarakalitao, and Tsara Vokatra) out of a total of nine contractual buyers captured in the choice experiment (but possibly even more buyers across the SAVA Region in that specific year). According to post-experimental interviews with (n=70/119) contracted farmers, reasons for buyers reneging varied for each exporter. In villages close to major roads (e.g., around Sambava and along the Sambava-to-Andapa road connection) Symrise, for example, stopped buying and dropped their contractual producer groups without preliminary notice, according to interviews held with farmers. Affected farmers were unsure of the precise reasons but suggested that deteriorating vanilla qualities since 2012 may have been implicated. Others mentioned disputes over prices between their producer group and the contractual buyer as possible reasons. Symrise was unavailable for an interview with us to comment on the issue. In the cases of Tsarakalitao and Tsaravokatra, contracted farmers mentioned disputes in their respective producer groups (i.e., internal conflicts). Misuse of power by management boards in producer groups was stated as the reason why many members left the CF arrangement in that year.

5.2.2 Why contracted vs. non-contracted vanilla farmers change their respective buyers (ASC of choice experiment explained through reported marketing behaviors)

When asking the vanilla farmers about reasons why to change their current buyers, more than half of all farmers, both contracted (54% or n=64/119) and non-contracted (62% or n=302/485), mentioned that unsatisfactory price offers were the main reason for dropping their current buyers (see Figure 39 below). The absence of additional benefits offered to farmers was another reason that was mentioned, followed by disappointments experienced with their buyers who did not keep their promises. For example, the date of payment can be retarded when farmers are in a producer group and part of a CF scheme. Also, CF agreements can be broken by the buyers. It is noteworthy, however, that a greater share of non-contracted farmers (27% or n=131/485) than contracted farmers (17% or n=20/119) felt that they were being deliberately cheated by their current buyers during the annual sale of vanilla (Figure 39). Likewise, a larger share of non-contracted farmers (13% or n=64/485) than contracted farmers (4% or n=6/119) had the perception that their current buyers tried to take advantage by bargaining them down on the basis of the farmer lacking information about the latest prices paid in other villages at
the start of each new season (Figure 39). During the CE farmers repeatedly stressed to our enumerators that deliberate attempts of fraud (e.g., a buyer identified as not paying the true spot market price for vanilla) would be retaliated by non-collaboration in the following season.

**Figure 39 - Why farmers change their buyers [revealed preferences]**

"Which are the reasons of farmers to search for a better buyer?" (N=604)

Note: multiple answers were possible

**5.2.3 Difficulties of contracted vs. non-contracted vanilla farmers to change their current buyers**

A related behavioral question asked for difficulties that farmers face when trying to change their current buyers (Figure 40 below). Based on the quantitative HH survey, 40% (n=195/485) of non-contracted farmers replied that no contractual buyers operate in their respective villages. Similarly, 15% (n=18/119) of contracted farmers mentioned the need to travel to other villages to join their contractual producer groups. Moreover, 27% (n=133/485) of non-contracted farmers reported small vanilla production as a bottleneck (Figure 40). Besides that, a remarkable difference was found in self-reported satisfaction with current buyers. While more than 30% (n=39/119) of contracted farmers stated general satisfaction with their current buyers and saw no need to change, only 5% (n=23/485) of non-contracted farmers were satisfied with their respective buyers (Figure 40). Informal middlemen who operate local spot markets were reported to offer very similar conditions at any given time. Thus, it is hard for farmers to pick
out a better buyer among them. Aggregating the production was judged more difficult by non-contracted farmers than by contracted farmers. Several narratives of distrust were mentioned to us as reasons why vanilla farmers hesitate to form producer groups. Among the other reasons mentioned were missing contacts with preparators or exporters, passive attitude, lack of time, and fear of being cheated or robbed.

**Figure 40 - Difficulties of farmers to change their current buyer [reported circumstances]**

![Bar chart showing difficulties of farmers to change their current buyer](image)

Note: multiple answers were possible

These real-world behaviors recalled by smallholder vanilla farmers complement the CE in that they highlight circumstances in which farmers feel compelled to change their current buyers (Figure 39) but also group-specific limitations that block them from actually finding a better buyer (Figure 40). While the reasons for changing the current buyer appear to be similar for both contracted and non-contracted farmers (Figure 39), respective limitations to finding a better buyer are quite dissimilar between the two groups (Figure 40). Consistent with choice experimental results, non-contracted farmers show greater price sensitivity than contracted farmers in these behavioral measurements. Contracted farmers pay more attention to non-monetary benefits offered by alternative buyers. This consistency check provides another indication of the validity of our CE results.
5.3 Qualitative Cross-Check: Contextualization of quantitative behavioral data through qualitative interviews with smallholder vanilla farmers

The mix of stated preference and revealed behavioral results presented above suggests that non-contracted farmers who newly enter into CF schemes appear to be the biggest obstacle to successful (reliable) implementation of CF in the SAVA Region. Almost 90% (n=425/485) of non-contracted farmers want to try out CF to take benefit of its advantages. But at the same time, this group of farmers sees the lowest value (i.e., shows the lowest willingness to pay for) tested CF features. Non-contracted farmers also display the lowest alternative specific constant of all groups (ASC = 0 MGA per kg green vanilla sold), indicating an absence of willingness to remain faithful to an exclusive supply commitment with a single buyer. Non-contracted farmers are also more price-sensitive than contracted farmers.

These results are consistent with an earlier finding presented in Chapter 4 (cf. Figure 35) in which behavioral measurements showed that non-certified contract farmers (i.e., new entrants into CF schemes) remain significantly fewer years in contractual arrangements than their certified peers. In other words: New entrants drop out - or are dropped out - significantly faster, suggesting that it is the group of new entrants into CF schemes who appear to be the main bottleneck to a successful implementation of CF.

Whether qualitative interviews with contractual buyers and contracted vanilla farmers point in the same direction to corroborate, this notion shall be investigated in the following section. Likewise, it is important to appreciate the different challenges that contracted and non-contracted farmers face throughout the seasonal calendar (cf. seasonal calendar; Figure 41 and Figure 42 below). The events that these farmers face in the seasonal calendar may be identical, but their capacity to cope with them can be quite dissimilar. Employing a mixed methods approach for this type of qualitative cross-checking is typically omitted by economic studies. Linking preference data with behavioral data and with real-world observations of smallholder circumstances is critically lacking in the economic literature. It is where this Dissertation adds more contextual knowledge to explain the detected group-specific preference heterogeneities.

One question arising from the results presented above demands a clarification of why new entrants into CF schemes drop out significantly faster from producer groups than their certified peers. What are the reasons and circumstances for that to happen? How does the selection
mechanism of smallholders into CF schemes actually work? And how does the transition from a simple market specification contract to a production management (i.e., certified) contract work? In other words: Do farmers self-select into and out of contracts, or are they actively being selected by their contractual buyers, or both?

5.3.1 Geographic heterogeneity in vanilla marketing behavior

Post-experimental feedback workshops with our enumerators who conducted the choice experiment (see Appendix 8B) highlighted not only heterogeneous marketing expectations among different groups of smallholders but also distinct geographic idiosyncrasies characterizing the sampled population. The SAVA Region is mountainous, and in the East it borders the sea. The SAVA Region is also populated by two dominant ethnic groups, the *Betsimisaraka*, and the *Tsimihety*.

The lowlands of the littoral stretch (e.g., around the cities of Sambava, Antalaha, and toward Vohemar) are predominantly inhabited by the Bestimisaraka. The Betsimisaraka are traders and fishermen practicing only a reduced complexity of agriculture. The coastal city of Antalaha is regularly hit by cyclones every couple of years. The coastal cities of Sambava and Vohemar further north face similar risks, although they have historically been less frequently hit by severe cyclone damage (confirmed by expert interview at the Regional Development Directive of the SAVA Region 01/12/2018). The vulnerability of Antalaha and its surroundings also shows up in our data. When Cyclone “Enawo” struck in 2017, it caused the greatest havoc around Antalaha. Cyclone damage typically results in depressed yields for vanilla farmers. In the villages around Antalaha, the average harvest of (n= 118) farmers was less than 8 kg of vanilla in 2018, whereas in the villages between Sambava and Vohemar (n=270) farmers had an average harvest of 48 kg in 2018. Vanilla thieves take advantage of these events as they follow up on deserted fields in the days after the cyclone. Farmers around Antalaha reported that both fallen lianas (i.e., productive vanilla plants) and premature vanilla were stolen from their fields following “Enawo”. Several farmers also suggested that higher vanilla productivity between Sambava and Vohemar was implicated in farmers at this Northern stretch of littoral known as “Bemanevika” having a habit of preparing substantially more vanilla than around Antalaha (see results of post-experimental feedback workshops with our enumerators in Appendix 8B).
Further inland, there is a mountain chain that stretches from North to South all along the coast of Eastern Madagascar. At the mid-altitudes in these mountains (i.e., between 500m and 1,500m above sea level), average temperatures are colder than at the littoral. Consequently, the maturation of vanilla takes about four weeks longer and the seasonal calendar of vanilla is retarded toward a later harvest date (cf. seasonal calendar; "Contractual sale of green vanilla" in Figure 41 and "Theft of green vanilla" in Figure 42). Both ethnic groups, the Betsimisaraka, and the Tsimihety, occupy this transitional altitudinal gradient. The agroecology there allows more crops to be produced than at the coast.

At the high altitude locations (e.g., > 1,500m above the sea, around the city of Andapa), smallholder farmers mainly belong to the ethnic group of Tsimihety. Up in the highlands (n=216) farmers had an average harvest of 56 kg of vanilla in 2018. The Tsimihety are known for their agricultural skills and cultivate many crops in addition to vanilla, both food crops (such as rice, dry beans, manioc, sweet potatoes, or maize) and cash crops (such as coffee, cocoa, ginger, garlic, cloves, pepper, and onions) next to keeping some small livestock (mainly poultry and pigs). Hence, vanilla farmers belonging to the Tsimihety prefer to sell their vanilla green as processing (curing) vanilla conflicts with their busy cropping schedule in the seasonal calendar and as HH labor is required to complete the production of various crops - labor which cannot be spared for processing green into black vanilla. Particularly the cultivation of rice (especially the rainfed hill rice that is produced in slash-and-burn) but also the production of beans and cash crops, such as coffee or ginger (cf. seasonal calendar; "Cash Crops" in Figure 41) conflict with vanilla processing. Contracted farmers at higher altitudes thus repeatedly mentioned during the CE that they preferred to sell unprocessed (green) vanilla. Like in other parts of the SAVA Region, the farmers in the highlands also mentioned the risk of theft and the risk of robbery from their homes that curing vanilla entails during the price boom phase (cf. seasonal calendar; "Theft of black vanilla" in Figure 42).
Figure 41 - Seasonal Calendar of Vanilla Contract Farming

### Pollination

<table>
<thead>
<tr>
<th>Region</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
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### Contractual sale of green vanilla

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<tr>
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Side-Sell Side-Sell Sell Sell
Side-Sell Side-Sell Sell Sell

### Lean period (food and cash shortage)

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Hunger Hunger Hunger Hunger Hunger Hunger

### Food Crops*

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<tr>
<td>Ginger</td>
<td>Weed</td>
<td>Weed</td>
<td>Harvest</td>
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<td>Sell</td>
<td>Plant</td>
<td>Weed</td>
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Note: The lean period coincides with the time in which some households rely on "flower credit" (extortionary loans) from wealthier neighbors.
*information pertaining to the context of high altitude locations in the SAVA Region; received by vanilla farmers from the Andapa Basin.
Figure 42 - Seasonal Calendar of Vanilla Theft

<table>
<thead>
<tr>
<th>Theft of lianas (from fields)</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
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<tbody>
<tr>
<td>Littoral</td>
<td>Guard Fields</td>
<td>Guard Fields</td>
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<td>Mid-Altitude</td>
<td>Guard Fields</td>
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<td>High-Altitude</td>
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<table>
<thead>
<tr>
<th>Theft of green vanilla (fields)</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
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<th>Sep</th>
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<tr>
<td>Littoral</td>
<td>Guard Fields</td>
<td>Guard Fields</td>
<td>Guard Fields</td>
<td>Official Market</td>
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<td>Mid-Altitude</td>
<td>Guard Fields</td>
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<td>Official Market</td>
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<td>Official Market</td>
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<tr>
<th>Theft of black vanilla (home)</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
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<th>Oct</th>
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</thead>
<tbody>
<tr>
<td>Littoral</td>
<td>Guard Home</td>
<td>Sell if possible</td>
<td>Sell if possible</td>
<td>Harvest (green)</td>
<td>Process (vrac)</td>
<td>Process</td>
<td>Process (black)</td>
<td>Official Market</td>
<td>Guard Home</td>
<td>Guard Home</td>
<td></td>
<td></td>
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<tr>
<td>Mid-Altitude</td>
<td>Guard Home</td>
<td>Guard Home</td>
<td>Sell if possible</td>
<td>Sell if possible</td>
<td>Harvest (green)</td>
<td>Process (vrac)</td>
<td>Process (black)</td>
<td>Official Market</td>
<td>Guard Home</td>
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<tr>
<td>High-Altitude</td>
<td>Guard Home</td>
<td>Guard Home</td>
<td>Guard Home</td>
<td>Sell if possible</td>
<td>Sell if possible</td>
<td>Harvest (green)</td>
<td>Process (vrac)</td>
<td>Process (black)</td>
<td>Official Market</td>
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<tr>
<th>Cyclone season</th>
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<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
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<td>Cyclone Risk</td>
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5.3.2 Challenges faced by smallholder vanilla farmers in the seasonal calendar

Vanilla is a labor-intensive crop. Before bearing its first fruit, vanilla (i.e., each liana) needs to be groomed for about three to four years. Following that, it takes the farmers 8-10 months of work each year to produce a crop, depending on altitude and climate. The production steps comprise hand pollination, turning the lianas back to the ground regularly to enable new roots in order to fend off problems of diseases and pests, pruning tutor trees for easy handling, to protecting the crop against thieves and harvesting (see seasonal calendar). Some of these steps are particularly labor and time-consuming. During pollination, for instance, a period of 2-3 months per year when the crop flowers (cf. seasonal calendar; "Pollination" in Figure 41 above), vanilla farmers need to tend to their fields daily as the possible window of pollination only spans 24 hours per flower. Typically, some plants open their flowers in the morning and need to be hand-pollinated until the evening, or else there will be no production for the coming year as flowers become infertile within 24 hours. With vanilla fields being often situated several kilometers away from the homestead and with much of the SAVA Region being of mountainous terrain, pollination requires a lot of labor and time. As the task requires good observational skills and delicate handling, not everyone is allowed to perform it. The responsibility of pollination has traditionally been reserved for the oldest females in the households (cf. Chapter 3 and Amato 2018), men also help out, but children are generally excluded from performing the task.

In order to understand the status quo of contracted vs. non-contracted farmers, it does not suffice, however, to state that non-contracted farmers are significantly resource-poorer than contracted farmers (a finding detected in Chapter 2) in order to capture their respective challenges. There is a need to analyze the marketing channels (i.e., the types of buyers) chosen by contracted vs. non-contracted farmers for the biggest sales of their annual harvests in order to contextualize the vanilla market and the challenges that each group face. As we will see, the seasonal calendar of selling green and black vanilla and the need to abide by a Government regulated harvest dates makes for differential challenges that farmers experience throughout the seasonal calendar.

The vanilla market offers the farmers marketing possibilities for unprocessed (green) vanilla, semi-processed (vrac), and for fully-processed (black) vanilla. It takes about 1.5 months of curing (preparation) to achieve semi-processed (so-called “vrac”) qualities, whereas it takes roughly three months of post-harvest drying to achieve fully-processed (black) vanilla. Preparation has the advantage that it allows farmers to sell some vanilla at different points in
time throughout the seasonal calendar, whereby farmers can benefit from rising prices for increasingly dry vanilla. Artisanal curing, however, also requires vanilla to be harvested ripe, as this facilitates a good vanilla aroma to develop without any bad (moldy) smell.

In this respect, one key challenge for farmers is to attend for a full 8-10 months - until maturation is complete - in order to harvest a ripe crop. However, against a backdrop of booming vanilla prices and rising incidents of theft, harvesting a ripe crop is challenging for many HHs. Generally, farmers do attempt to harvest a ripe crop as it allows them to process (some part of) and as their reputation among the buyers depends on delivering good qualities. Ripe vanilla quality is a core criterion of any CF arrangement. Also, the Malagasy Government - represented by the Ministry of Agriculture and its local authority in the SAVA Region – stipulates an official market before which any sale of vanilla is declared illegal. This market opening date for unprocessed (green) vanilla is set by the Committee Regional d’Observation de Floraison (CROF) and is to facilitate the production of ripe vanilla qualities. The CROF observes the peak of the flowering each year – i.e., the time when farmers pollinate most of their crops. It then sets the harvest and official market opening date about nine months after that peak of flowering to ensure that an intended 80% of annual vanilla production is harvested ripe. The regulation of the official market opening date is one of the few governmental mechanisms that remain intact 30 years after liberalization. Contractual buyers also support this mechanism, given that it is applied for purely technical reasons. Many international clients do search for ripe vanilla with a vanillin content of around 2% (cf. Appendix 8C).

At the littoral, the official market typically starts at the end of June. At mid- and high altitudes, it is set back by one to two months. Regional agents of the Ministry of Agriculture and local village chiefs supervise and register the farmers and traders for the market days to estimate annual production and the transactions involved. These official market days typically last for two to three days per village (Amato, 2018), during which buyers and farmers meet in public to discuss prices. Often these negotiations last until the entire village accepts. Once a price is agreed upon, farmers typically harvest all of their ripe vanilla and bring it to the official spot market in the village. Others will have already harvested in anticipation of the market and would have safely stored their vanilla at home (Amato 2018).

Apart from the official market, however, which is also not organized in each village, vanilla farmers are accustomed to waiting for informal middlemen buyers (either commission agents from the cities or village-based touts with a means of transportation) to visit their HHs individually at the farmgate to bargain for vanilla prices. Sale outside the official market may thus happen (illegally) before or (legally) after the Official Market date (cf. seasonal calendar;
"Contractual sale of green vanilla" in Figure 41 and "Theft of green vanilla" in Figure 42 above). Prices are typically better during and after the official market dates (Chapter 2) as they are subject to intense negotiation by all villagers (including the involvement of farmer groups and village chiefs). International contractual buyers exclusively buy during and after the official market opening for reputational reasons. This does not mean that they only buy ripe vanilla if an acute shortage of ripe vanilla is characterizing the market.

Vanilla theft is the major problem for farmers in this context. Vanilla theft from the fields of farmers starts in February with the beginning of the lean season when typically entire plants (lianas) are stolen for the next two months. Following April, another three months of theft concern the pods (vanilla beans), forcing farmers occasionally to harvest their vanilla prematurely in an attempt to prevent substantial crop failure. The lean period, when HH run out of cash and food reserves, and the period of vanilla theft thus almost coincide with one another. As it is often young males of neighboring HHs who are implicated in the theft, the issue is also one of eroding social cohesion in the villages. Thus the months between February and May can decide the success or failure of the vanilla season from the smallholder perspective. The three months leading up to the harvest (in the case of the Littoral: April, May June) are a period of the year when farmers sleep in their vanilla fields to guard their crops against thieves. During our study period, many farmers responded that sometimes farmers die in an effort to protect their vanilla for their families. But most HHs were ready to protect their crop as vanilla was very valuable for them when prices boomed. To put this into perspective: A typical annual income in Madagascar is around US$400 per year (REF). In 2018, one kg of green vanilla alone sold at over US$50 on average. Thus, the interviewed farmers – whose average vanilla harvest was > 40 kg that year, were able to make a perceived fortune, provided that their vanilla was not stolen or otherwise destroyed. Harvesting 40kg of green vanilla and processing it would have produced about 8 kg of black vanilla, worth over US$ 1600 at the farmgate at the time. This is about four times the average annual income in Madagascar. In some parts of the highlands, in 2018, farmers harvested an average of about 80 kg (Amato, 2018), meaning they could earn eight times the average annual Malagasy income.

Yet, many farmers are also faced with the choice of guarding their vanilla or harvesting their rice each year (Amato 2018). For, the lean period coincides with the timing of vanilla theft, and it is also the time when a variety of food crops, such as rice and beans, come into the harvest (cf. seasonal calendar; "Food Crops" in Figure 41 above). That means: February to May is very labor intensive. Farmers who do not have a sufficient labor force at home or those
who cannot afford to hire any guardians during the lean period may not be able to protect their fields effectively against thieves. This is where the resource poverty of farmers comes into play. Resource-poor HHs can find it particularly difficult to keep their vanilla until the official market opening. Accordingly, the period from February to April is also the time when contractual buyers hand out interest-free food and/or cash credits to contracted farmers (cf. seasonal calendar; "Lean period" in Figure 41 above), next to providing support to secure the fields of farmers against theft. This is done in the best interest of the contractual buyer, who does not want to lose much of the contracted vanilla to extra-contractual buyers. Contracted farmers who receive such support services sometimes divert the food credits to pay guardians (cf. Appendix 8B). Other farmers do not entrust their vanilla to guardians and may want to use credit in cash for entrepreneurial activities or to reinforce their homes to feel secure to prepare vanilla during the price boom opportunity (cf. Appendix 8B). Non-contracted farmers who are excluded from such benefits do sometimes sell vanilla to local merchants when unforeseen shocks (such as health emergencies) arise during the lean season (Amato, 2018). The sale of vanilla to local merchants from February to April – when the vanilla is still maturing – is known as a “flower contract”. For these informal village-based loans, however, farmers are typically paid extortionately low prices by the lenders. In most cases, farmers only receive 20-25% of the eventual price at which green vanilla is sold following official market opening four months later in the year (Amato, 2018).

Another risk that affects farmers equally (whether rich or poor), in principle, is the possibility of cyclone damage. However, cyclone damage is accompanied by high incidents of vanilla theft during a time when prices boom. Many interviewed farmers in the choice experiment reported to our enumerators (cf. Appendix 8B) that they faced heavy losses of lianas and vanilla in 2017 when cyclone “Enawo” struck. Much of it was due to roaming thieves following the actual damage that the cyclone had caused. When a cyclone damages a plantation, the farmers typically need to rebuild (part of) the plantation. This means they need to have sufficient money to buy new lianas to replace the dead and stolen plants, and they need to be prepared to wait for another three to four years until these new lianas come into production. A cyclone, if it hits, is thus perceived as a calamity from the smallholder perspective.

Further prominent challenge relates to the capacity of HH to manage the money earned from their cash crops to last throughout the year. Depending on how well farmers ration their money, they will experience a shortened or extended lean season from February to vanilla harvest.
Vanilla is the most expensive cash crop in the SAVA Region, regardless of market phase. Other cash crops that are typically produced by farmers - such as coffee, ginger, cocoa, or cloves - can only supplement the HH income. They do become important only when vanilla prices fall. During a vanilla boom, by contrast, smallholders do not value the other cash crops too much as they can only advance their material well-being quickly through the successful sale of vanilla. Access to financial institutions for farmers in the SAVA Region is weak, however (Amato, 2018). Whatever is earned during a few days of the sale of vanilla per year needs to be re-invested shortly after in order to be conserved. During the price boom, one could see houses refurbished and others newly built all over the vanilla farming communities in the study region (see pictures of refurbished houses in Appendix 8A). Other farmers bought motorbikes and other transport vehicles, tools, or consumer items from their vanilla revenues. The liquid rest of the money that is not re-invested is to be managed each year to last until the following harvest. Interestingly, it is in the large majority the female HH members who take on this intra-HH financial management for daily needs (see Chapter 3; cf. Amato 2018)

5.4 Smallholder vanilla farmers citing principle reasons for contract termination by buyers
When asking farmers to reflect on the most frequently observed reasons why buyers terminate a contract, almost half of all farmers reported that it was the inability of farmers to produce expected vanilla quality. The expectation of farmers to lose a contract on the basis of delivering poor vanilla quality was more pronounced among non-contracted farmers (47% or n=227/485) than among contracted farmers (39% or n=47/119). Other possible reasons for buyers to stop a contract with contracted farmers included overly high price expectations on the side of farmers, followed by non-compliance of farmers with contractual conditions, and a contractual breach by side-selling vanilla. The unwillingness of contractual buyers to accept small quantities was the least frequent cause reported by farmers. Although only contracted farmers talked out of experience in relation to these statements, we see a very similar pattern of judgement between contracted vs. non-contracted farmers (Figure 43 below). The options to choose from were derived from a qualitative pre-study of the CE (in 2017) by having coded response categories until saturation. They were derived from interviewed contract farmers. Among our enumerators, consensus was that an estimated share of 20% of non-contracted farmers who participated in the CE had already been member of a CF scheme at some point in the past (although not at the time of our survey), based on post-experimental feedback
workshops held in 2018. A cross-check with the qualitative pre-survey of the CE confirmed this suggestion, showing that up to 13% of non-contracted farmers have had previous - although short-lived experiences with contractual buyers in the past. The main difference between contracted and non-contracted farmers was their judgement of the effects of non-compliance with contractual conditions. Whereas nearly 20% (n=23/119) of contracted farmers saw non-compliance with specific conditions as the main reason for contract termination, only 10% (n=49/485) of non-contracted farmers saw any problem with it. Interestingly, among smallholder farmers, side-selling was not considered a major reason for exporters to stop the contract farming relationship.

The reasons why smallholders default on their contractual commitments shall be explored in some more detail by following up on (n=70) interviews with contracted farmers.

**Figure 43 - Why buyers terminate contracts [according to farmer observation]**

Note: only a single answer was possible
5.4.1 Contextual circumstances leading vanilla farmers to leave a CF scheme

Why farmers default on a contract can have several reasons. Post-experimental interviews with (n=70) contracted farmers revealed that the deliberate choice to leave a CF scheme is but one causal mechanism. Planned behavior of finding a better buyer along the lines of reasoned action of carefully weighing opportunities and costs of different CF offers with specific features explains smallholder behavior only partially. Side-selling, for example, is not always deliberately planned. It can also arise out of necessity and circumstance, vanilla theft being a good example of the latter. Theft evasion secures the income of the household. If the farmers happen to be part of a contract at this moment, theft evasion means that they have broken the contractual agreement as they default on delivering quality (ripe) vanilla in this case. These farmers who harvest prematurely will need to sell their vanilla within days of harvest in order to prevent the crop from rotting. In most cases, it means that they sell prematurely harvested vanilla well before the official market opening, typically to informal middlemen (e.g., to commission agents). According to post-experimental feedback from our enumerators, many vanilla farmers did not see any illegitimacy in side-selling contractual vanilla as a result of theft (cf. Appendix 8B). One farmer explained it like this:

"Farmers in our village, whose neighbors have fallen victim to vanilla theft, start harvesting their own vanilla immediately after the event, in order to prevent a loss to their own production." (personal communication with a contracted vanilla farmer from Tanambao Kobahina, 28/11/2018)

Side-selling is not always explained by a profit-maximizing search for a better buyer, but it can have its cause as well in need for quick money. In cases where farmers deliberately harvest their vanilla early, they actively search for a worse buyer. Early harvesting was reported to be carried out particularly by resource-poorer HH due to their need for early cash during the hunger season. As one farmer put it:

"If you have the choice [i.e., if you are not in need] it is really not so difficult to decide to pick only ripe vanilla. The advantages of doing so are self-explanatory if you consider the ease of preparation [i.e., vanilla processing], which results from harvesting ripe vanilla. Ripe vanilla results in better quality in terms of length, color, odor, and this results in better prices. We have been trying to preferentially harvest ripe vanilla ever since learning the trade from our parents." (personal communication with a contracted vanilla farmer from Andrakata, 30/11/2018)
Or, as another farmer added:

"The date of sale, which is fixed [by a contractual buyer] for members of the producer group, is typically retarded by several days with regard to official market opening. Some members of the producer association start selling their vanilla immediately after the official harvest date." (personal communication with a contracted vanilla farmer from Ambodiala, 15/11/2018)

Despite the better prices that are achieved through CF schemes, contracted farmers also mentioned the dimension of acting in the heat of the moment (i.e., unplanned behavior) that may arise in response to conflicts happening within producer groups. In some cases, these conflicts force some farmers to leave the CF scheme as they quit the producer group. Reports of misuse of power by management committees in producer groups were repeatedly mentioned to us during post-experimental interviews with contracted farmers. These qualitative interviews suggested conflicts in producer groups as a noteworthy reason for new entrants to leave respective CF schemes in 2017-2018. Triangulated narratives by different smallholders belonging to different producer groups and buyers in different villages corroborated this point. Conflicts within producer groups were reported to have worsened with the exceptionally high prices during the price boom period.

"I left our producer group - Association FITAMA - as the president had appointed his wife as treasurer and his son as vice president. Soon after, the managing board could not tell its members how much money was remaining in the cash register. He had been accused of having withheld 100,000 MGA from each member of our group." (personal communication with a contracted vanilla farmer from Antafiambe, 20/10/2018)

Or, as another farmer from another village reported:

"Joining a contract farming scheme, you lose your independence as you need to join a producer group. Most of the producer associations that I have seen over the years have suffered from problems in their management, most often by the weak skills of their steering committees. Either the president of the group communicates a false [e.g., a lower] price to his members, selling the vanilla more expensively to the buyer. Or he/she limits the quantity that members are to collect at the correct price, and then he/she searches for the remaining quantity of vanilla outside the producer group [where it can be bought less expensively] to sell it at the agreed price to the company with whom the contract has been made. It is difficult to change the president or the steering committee since they are the ones who created the association and who established the original contact with the company. Typically it is the
president and the members of the steering committee who enjoy the trust of the company. So, for disappointed members, it is easier to leave a dysfunctional producer group rather than to complain and fight the steering committee. Better you create a new group with people you trust. However, it remains difficult to re-establish contact with an exporter afterward."
(personal communication with a contracted vanilla farmer from Antanandava, 25/10/2018)

Another farmer from a different village confirmed these difficulties by highlighting that:
"Some producer groups - especially self-organized ones - fall apart by the hurdle of not having sufficiently large a network of contacts to potent buyers. These groups struggle from the beginning to keep their members together, as their president is accused of lack of leadership." (personal communication with a contracted vanilla farmer from Antsahanoro, 15/11/2018)

The next reason for leaving a contract farming scheme during a price boom is, of course, side-selling out of opportunistic and profit-maximizing motives. A preliminary qualitative study preceding the choice experiment suggested that a large share (39% or n=30/78) of non-contracted farmers would sell their vanilla to the highest bidding buyer, regardless of contractual obligations, if ever signing a contract. The same survey revealed that up to 35% (n=27/78) of resource-poorer (non-contracted) farmers preferred contract farming offers of short duration, preferably not longer than one year. The fear of missing out on exceptionally high prices for vanilla, both unprocessed (green) and processed (vrac or black) vanilla traded on local spot markets, entices farmers to drop contractual supply commitments. Some farmers even juggled signatures with two different contractual buyers simultaneously among HH members (e.g., the husband being with one company and the wife signing with another). The price boom is a period in which smallholder farmers can advance their material well-being quickly (cf. Figure 44 below), provided that their vanilla does not get stolen. It causes farmers to think strategically and act with heightened opportunism to reach their goals. Many of the interviewed HHs had the vision to renew their houses, start a new business, and similar, for which they needed a certain amount of money. It was not rare that our enumerators were told that the lean season credits offered by contractual buyers were diverted to finish house constructions (also to increase security against roaming vanilla thieves) or to start a micro-enterprise such as a local "gargotte" (Malagasy French for: small food shop / open kitchen in the village). Diversion of lean season credits provided by contractual buyers was also found by Amato (2018).
Figure 44 - Vanilla farmers using the price boom to advance their material well-being

Note: During the recent vanilla price boom (2012-2018), smallholder vanilla farmers across the SAVA Region, both participants, and non-participants of CF schemes, were observed to invest in their homes and houses with part of the money earned from the vanilla trade. Raffia houses (top left) were replaced with wooden constructions (bottom left) or with intermediate versions of wooden houses that were finished with corrugated iron walls (top right) where money was missing. Wealthier farmers even constructed concrete houses in the villages (bottom right). Contracted farmers admitted that some of the money received from lean season credits were typically used to finish the construction of their houses.

Moreover, the limitation of only being able to sell unprocessed (green) vanilla through CF schemes caused farmers to think strategically about what to do with vanilla that they could only harvest prematurely and what to do with their remains in case of theft. Often these remains are processed (although in a haphazardous fashion) in order to be able to store the vanilla for longer without developing mold, which buys farmers sufficient time to search for an informal middleman. Speculative buyers were willing to pay high prices for poor quality vanilla on local spot markets during the price boom years. Based on experience from the previous price boom (2000-2004), many farmers were also aware that the current price boom could be short-lived. Opportunistic side-selling appeared very much linked to the existence of the speculative market and the problem of vanilla theft. As one farmer admitted:
"We will sell to the best buyer regardless of any contractual offer. The types of buyers coming most frequently to our village are commission agents. Their prices have been good in recent years. It is the quickest and easiest way to sell vanilla. You can sell any quality and quantity to them. So I sold my vanilla outside the contract as my vanilla quantity was small this year."
(personal communication as part of qualitative pre-survey with a contracted vanilla farmer from Ambodivohitra Kobahina, 07/07/2017)

Another farmer reported:

"I decided to avoid all risk of theft this year and did not want to transport my vanilla to the producer association. A neighbor of mine works as a commission agent, and I trust him. His price was good, and I needed money before the official market opening. So I sold outside the contract."
(personal communication as part of qualitative pre-survey with a contracted vanilla farmer from Tanambao Daoud, 29/06/2017)

Last but not least, interviewed vanilla farmers were also sensitive to the relationship with their contractual buyers. In all studied cases, this relationship was mediated through producer groups which farmers had to join to benefit from better prices, and through collectors and extension staff working for the exporter or processor running the CF scheme. Some certified buyers also had a system of internal controllers (i.e., lead farmers) in place. Much of the contractual relationship as perceived by farmers thus depended on the frequency of exchanges with agents of the buyer.

A common criticism of farmers was that the exchange was intermittent and too sporadic (cf. feedback from enumerators; Appendix 8B). Farmer disapproval typically concerned late payments or collectors trying to negotiate down prices based on arguments of poor qualities. Contractual buyers completely reneging on their contract agreements existed, too, leaving farmers in the producer group not knowing whether the CF scheme was still operational:

"You cannot leave the farmers not knowing what comes next. This year our contractual buyer did not come back to our village. Neither did we hear any news from the collectors. The president of our producer group advised us to sell our crop. After several weeks of waiting, many members of our producer group decided to sell their vanilla to other buyers. Personally, I sold some part of my vanilla green [unprocessed] to a commission agent and decided to prepare the rest [into black vanilla] as it was harvested in good quality."
(personal communication with a contracted vanilla farmer from Andrakata, 29/11/2018)
Also, where farmers felt that collectors of a buyer were attempting to bargain down prices with producer groups in spite of pre-negotiated terms of quality production, farmers admitted that they would retaliate against these attempts in the form of side-selling vanilla to alternative buyers. One farmer said: "If a buyer tries to cheat us, we cannot continue to collaborate into the future. We will search for someone else instead." (personal communication with a contracted vanilla farmer from Ambodiala, 14/11/2018)

Figure 45 (below) summarizes the main reasons for smallholder vanilla farmers in the SAVA Region to leave a CF scheme during the price boom of their own accord.

**Figure 45 - Why smallholder vanilla farmers exit CF schemes during the price boom**

- **Planned Behaviour**
  - Reasoned Intentions
    - Smallholders weigh ex ante preferences for alternative CF offers before taking a rational choice to enter a supply commitment.

- **Emergency Situations**
  - Vanilla Theft
    - Smallholders cannot deliver quality vanilla due to premature harvesting and may lose their contract as a consequence.

- **Social Network Effects**
  - Producer Groups
    - Smallholders decide to leave a contract after perceived power abuses of steering committee in their producer group.

- **Opportunism of Farmers**
  - Fear of Missing Out
    - Smallholders decide to side-sell vanilla to an alternative buyer despite contract.

- **Opportunism of Exporters**
  - Exporter drops Village
    - Smallholders decide to side-sell vanilla and drop buyers judged as "unreliable."

Note: The highlighted mechanisms are based on triangulated (i.e., repeated) accounts among N=70 contracted farmers interviewed during post-experimental wrap-up interviews (2018) and N=78 respondents taking part in a qualitative study preceding the choice experiment (2017)
5.5 How exporters in the SAVA Region select vanilla farmers for their CF schemes

In Chapter 2, we presented quantitative results which showed that resource-richer vanilla farmers - i.e., those with significantly bigger fields, significantly bigger household labor availability, significantly more vanilla production, significantly higher annual household income, significantly better formal education, and significantly greater social mobility - were significantly more likely to participate in vanilla CF. Resource-poorer farmers were found to have a significantly greater likelihood of being excluded from CF schemes during the price boom. We suggested that exporters incur lower transaction costs if sourcing from fewer yet more productive smallholders and hypothesized that contractual buyers might purposively search for households with a minimum capital endowment. This would imply an active selection process at work. The propensity score matching method (a type of binomial regression) used in Chapter 2 did not allow us to interpret causation, however. To arrive at a general procedural understanding of smallholder exclusion, at least a cross-check of qualitative interviews with certified exporters appears to be necessary.

All in all, ten interviews with certified exporters were conducted over the course of this study (2016-2018). In the years leading up to the CE (2016-2017), six expert interviews were conducted with certified exporters and respective sustainability staff working for them (cf. CD with Data Backup). Following the choice experiment, another four interviews were held with certified exporters who captured specific models of CF identified in the study region (See Appendix 8C).

When asking the traders by which criteria they select farmers for their CF schemes, all but one of the exporters stressed that they typically make no distinction between rich vs. poor HH in their initial selection procedure. In other words: A majority of interviewed exporters claimed that there is no purposive preliminary screening of farmers for particular HH attributes, such as larger fields, larger vanilla production, or better education at the time of recruitment. Seven out of the ten enterprises stated that it was more important to them that farmers were willing to aggregate into producer groups so that the buyer had a chance to acquire intended quantities of quality vanilla through the contract. The following quote captures very well what multiple exporters tried to convey:

“Selection is based on free will. Whoever wants to work with us can do so, no matter how many kilograms he/she produces. But 100g per farmer is simply unacceptable.” (personal communication with a vanilla exporter from Antalaha 17/12/2018)
How does the smallholder discrimination mechanism work in practice?

A diversity of different CF schemes captured by the choice experiment suggested the existence of different CF models and the possibility of different selection mechanisms at work. Out of nine contractual buyers captured in the choice experiment, there was at least one nucleus estate model (i.e., a plantation with an outgrower scheme) and one farmer-owned cooperative. Two further CF schemes ran as multi-stakeholder models. Two other schemes were intermediary models of CF, and one did classify as a centralized model. In all cases, however, the role of the exporter was to mobilize vanilla farmers into producer groups to acquire sufficient quality vanilla for the international client. Ownership over the certification process, however, did never reside with these farmer groups, not even with the farmer-owned cooperative where the main exporter still organized and paid for the certification procedure according to the farmers.

Figure 46 - Smallholder selection mechanism of contractual vanilla buyers in the SAVA

(Figure based on a personal exchange between Blum and Barkmann, 2017)
So how do different exporters then select their signatory farmers? One of the interviewed exporters claimed that some of the large multinational buyers of vanilla do actively screen households for particular socio-economic household characteristics before extending CF offers to them. But running surveys was time-consuming for him and caused a lot of administrative challenges. (personal communication with a vanilla preparator from Andapa 26/11/2018). A manager of a local development organization partnering with the mentioned multinational buyer revealed to us that farmers who are not able to deliver quality (ripe) vanilla for two years in a row are typically dropped from the CF schemes. The same practice was confirmed by all of the other exporters we asked this question. This performance-based mechanism of smallholder retention was also confirmed by several independent households with different buyers during post-experimental interviews with (n=70) certified contract farmers (cf. Figure 46 above). How it works in concrete terms: Contracts are not being renewed for farmers who default a second season in a row. Respective smallholders are removed (excluded) from the member list of contracted producer groups by the buyers. That also explains why contractual offers extended by exporters to farmers are typically only one year long (as verified by 73% or n=64/119) of contracted farmers in the choice experiment (cf. Appendix 7, Table E). Exporters mentioned that this practice gives them the flexibility to drop defaulting farmers. Likewise, interviewed contract farmers confirmed that performance-based screening and exclusions typically happened after every season, following the sale of green vanilla after market opening. In brief: Farmers who manage to supply quality (ripe) vanilla without defaulting on agreed quantities are kept; those who cannot supply two years in a row are being dropped and exchanged by the buyers.

Certified producer groups are only selected in a second step by contractual buyers in the SAVA Region. The sustainability staff of partnering development organizations of the dominant multinational in our dataset reported that contracted farmers who manage to respect their supply commitments in terms of quantity might be asked to successively increase their production under contract over subsequent years. If they manage to continue supplying increased quantities, then additional packages of benefits - e.g., a health insurance offer or support to diversify into additional cash crops – are offered as part of the contract. Health insurance benefits, for example, are only offered after the third year by exporters (e.g., Symrise). Support to securitize fields and the offer of an interest-free lean season credit, by contrast, are typically offered earlier, although the sums on offer to farmers may be very low
resource selection for the farmers – to pass external certification audits. Those farmers who default on stipulated conditions are removed again (Figure 46 above).

Thus, to sum up, smallholder selection and exclusion by exporters works like a reinforcing feedback loop (Figure 46 above). Farmers who succeed in delivering quality (ripe) vanilla will be offered to supply larger quantities of ripe vanilla in a first step over subsequent years. Contractual buyers typically retain the most reliable smallholders in their market specification contracts (Neimark et al. 2019b). Where the demand of international clients arises for particular sustainability standards - for product traceability or for social and/or ecological process standards to be met - the exporter offers additional benefits to farmers (Campbell 2018) in order for the farmers to pass external certification audits. Those farmers who default on stipulated conditions are removed again (Figure 46 above).

While most exporters claim that they do not screen households for specific socio-economic characteristics before extending their CF offers, performance-based filtering effectively creates a strong selection pressure. Our data presented in Chapter 2 suggest that performance-based selection results in wealthier smallholders remaining participants of CF schemes, whereas resource-poorer farmers drop out over time. Recognizing the limitations of performance-based selection from the perspective of the rural population, Chapter 2 argues that vanilla CF in Northeastern Madagascar in its current form risks contributing to rather than decreasing pre-existing economic inequalities among vanilla farmers. Similar observations have been made by CF scholars in other contexts (compare CF reviews by Meemken and Bellemare 2020; Bellemare and Bloem 2018; or Ton et al., 2018). An exploration of this notion would be worthy

(typically < 200,000 MGA [< US$50] per season and household; personal communication with vanilla exporter from Sambava 28/11/2016) Again this was confirmed by select post-experimental interviews with contracted farmers (Appendix 8B). To receive those additional benefits mentioned above, smallholders of a producer group typically need to agree to respect a set of additional obligations - e.g., to avoid contamination of vanilla from insecticide-treated bednets, to abstain from child labor, to stop the “tavy” (i.e., slash-and-burn mainly practiced for rice, maize, beans, and only rarely for vanilla) and so on. These obligations derive from private voluntary sustainability standards that buyers pursue on demand for their international clients (Campbell 2018). At this point – when the farmers need to respect production restrictions that go beyond producing a ripe crop – the type of contract changes from a market specification to a production management contract. Price premia and additional non-monetary benefits add up to a service system of support whose quasi-monetary value goes well beyond the value of producing quality (ripe) vanilla in the eyes of farmers (cf. CE results in Table 24). Resource provisioning is typically part of these certified vanilla CF schemes.
of further research. Causal evidence would have to rely on experiments with randomized controls (Bellemare and Bloem 2018).

5.6 The reluctance of exporters to increase support services to contract farmers during the period of price boom (2016-2018)

In Chapter 4, it was shown that contractual producer groups suffer from instability (frequent accounts of breakdown in the villages) as indicated by a high “turnover” rate (fluctuation) of contracted members in our data. This was also a point that was confirmed with great frustration by several exporters. Statements were repetitively made, such as:

"Building loyalty among producers is very difficult because the farmers are only interested in receiving individual benefits - they are not interested in sustainability issues despite the elaborate support services we offer them in this regard. Most farmers only care about money; they do not care about other benefits that we offer them as part of our certified contracts” (personal communication with a vanilla preparator from Andapa 26/11/2018).

Referring to the price sensitivity of farmers and their opportunistic behavior in selling vanilla to alternative buyers, exporters typically blamed farmers for defaulting on agreed contractual commitments. Side-selling was considered to be a major problem from the exporter's perspective:

“Farmers’ lack of faithfulness toward the buyer and side-selling is a major problem. Despite having received substantial advantages from us over the years, farmers use every opportunity they can to sell at the highest prices.” (personal communication with a vanilla exporter from Antalaha 12/12/2018).

Other contractual buyers referred to the unreliability of vanilla farmers to deliver agreed qualities or quantities or mentioned exaggerated price expectations of farmers in view of deteriorating qualities.

“Of 250 farmers who were recruited from 4 villages (Fokontany) to enter our small but budding contract farming scheme, only 25kg of green vanilla were offered to us after 1 year of organization. We did not buy the vanilla they offered us but just promised to try again next year. I actually think it is better for the exporters to keep middlemen in between the business and the farmer as the middlemen fight with farmers for a reasonable price.” (personal communication with a vanilla exporter from Antalaha 17/12/2018)

The time new entrants (i.e., not yet certified contract farmers in market specification contracts) remain with their individual contractual buyers was measured to be just over two years (cf.
On average, contract farmers remained in their contract farming schemes with individual exporters for $2.18 \pm 2.05$ years (mean ± STD, min=1, max=6), whereby offers had to be renewed on an annual basis in over 72% of cases. Depending on the PVSS scheme, the average time farmers remain part of their respective contract farming scheme varied (Figure 35 below).

Figure 35 in Chapter 4 and Appendix 7, Table C). New entrants who default typically do so within the first two years and need to be replaced by the contractual buyer, according to post-experimental interviews with contracted farmers. Combining this finding with the choice data suggests that the problem of rapidly dropping out of CF schemes concerns, first and foremost, the group of (resource-poorer) non-contracted farmers (cf. Table 24, ASC = 0 MGA per kg green vanilla sold) who newly enter into respective CF schemes. A high default rate of farmers in CF schemes causes considerable frustration among contractual buyers for the sunken costs that it implies. For, each re-mobilization of a new producer group requires regular visits for trust-building as well as training and extension provision.

Interviewed traders acknowledged, however, that farmers had financial difficulties during the lean season (typically: February to April), which is why some exporters offer strategic credit opportunities to contractual farmers during this period of the year. These cash (or food) credits come without any interest and are to be repaid by farmers after harvest at official market prices. These lean season credits are designed as a type of micro-insurance scheme to prevent farmers from selling their vanilla outside the contract. Buyer-mediated credit opportunities are designed to prevent farmers from entering into predatory lending arrangements with vanilla traders in their villages (Amato 2018).

Interviewed exporters revealed several strategies that they employ to avoid frustrations over sunken costs. In the context of contracting smallholders during the price boom phase, one strategy pursued by several exporters interviewed was to secure good quality (ripe) vanilla by deliberately targeting remote villages for contractual production. Exporters following this strategy mentioned that villages that are difficult to access helped them to avoid buyer competition. Sourcing from remote villages for competition evasion has also been documented by Amato (2018). Farmers in these villages were reported to be more appreciative of the services that buyers offer and less difficult to negotiate with in terms of setting prices and introducing obligations. Moreover, being far away from major roads and cities also holds the advantage that it reduces the risk of theft as the latter is mediated by city-based commission agents. Thus, remoteness was associated with greater ease of sourcing quality (ripe) vanilla.
Quantities produced in these remote locations were reported to be as high as close to major roads. However, the general sentiment among exporters and processors was one of reluctance when being asked to invest in CF and certified trade during the boom (cf. also Campbell 2018). One exporter working in a vertically integrated relationship with a multinational spices company admitted that his company had decided to pursue CF only as a public relations strategy whilst trying to secure quality (ripe) vanilla mainly through an investment into a 10-ha plantation supervised by French agronomists and run by village-based day laborers for the bulk of future production (cf. Appendix 8C). He reasoned that the cost of producing 1 kg of unprocessed (green) vanilla in estate production was as low as US$3-4. This contrasted with US$ 25-45 per 1 kg that farmers demanded toward the peak of the studied price boom (2016-2018).

While a reversion to plantations (i.e., to a nucleus estate model of CF) is the most extreme exemplification of the frustration that international buyers uttered in the price boom situation, it concerned only one out of nine CF schemes. Most other exporters we interviewed had already established running CF schemes for many years and did not want to lose their functioning producer groups. All of them, however, mentioned that they work with additional incentives - so-called strategic measures of CSR (cf. Chapter 4), such as offering support to farmers to protect their vanilla fields against theft, offering subsidized construction materials for houses, or building schools or health infrastructure in the villages - which were activities appreciated by the farmers but also necessary to partner with bigger importers overseas. Other exporters experimented with combining multiple sustainability standards - e.g., Organic and Fair Trade - in an effort to make offers that were more popular among the farmers (cf. Chapter 4). One of the interviewed exporters during the exploratory research phase, however, mentioned that typically only larger traders (buyers exporting 50 tons of black vanilla per year or more) are financially capable of supporting farmer groups to implement complex certification schemes like Rainforest Alliance:

"Because if you run a certified CF scheme, you need to support the farmers with a lot of training and materials (e.g., child labor sensitization, pieces of training for women, health insurance, lean season credits, etc.), and the exporter needs to hire and pay a team of extension staff who coordinate all of these sustainability-related activities." (personal communication with vanilla exporter from Sambava 28/11/2016).

Many certified exporters have teams of 10-25 permanent sustainability staff. These buyers also need to be able to afford (i.e., to advance) the costs of annual certification audits and run regular
monitoring activities. One exporter from Antalaha calculated that producing 40t of certified vanilla cost him alone US$ 80,000 per year in organizational costs (cf. Appendix 8C)

Smaller exporters can stem these organizational challenges, too, but only when finding a partnership with NGOs or other development-funded organizations that take over some of the support services needed to target certified production (personal communication with CARE in Antalaha, 15/10/2016 and with GIZ in Sambava, 22.10.2016). Development partners in multi-stakeholder partnerships sometimes push the contractual buyers to direct farmers toward farmer-controlled producer groups with a vision to process vanilla at the village level (cf. Amato 2018 and Appendix 8C)

However, some exporters stated that the crisis of poor vanilla quality that they experienced in the boom also created inventiveness. About a dozen of large agro-industrial vanilla buyers were reported to have adopted a response to the challenge by introducing technologies of mechanized vanilla transformation, so-called “fast curing” ovens, or "quick extraction" technologies. These mechanized options were reported to be capable of concentrating the low vanillin content of prematurely harvested vanilla beans into commercially viable extracts destined for industrial purposes (Aust and Hachmann 2017). Moreover, they reported that even the lowest qualities (i.e., very prematurely picked vanilla known as “cuts”) find a market. Typically, "cuts" are being sold at a lower cost to international buyers, particularly in the US American market, where they find demand in industrial applications (see: General Discussion on FDA Regulation and Appendix 8C)

Other major buyers were reported to pursue diversion of their investments away from Madagascar and toward alternative producer countries, such as Indonesia or Uganda, to source *V. planifolia* from these alternative origins in the future. This step was undertaken in an effort to reduce their dependence on sourcing quality vanilla from Madagascar (IDH 2018).

The general impression I received during ten interviews (between 2016-2018) conducted with contractual buyers of vanilla, both exporters and processors, was one of frustration about the sunken costs involved in re-organizing producer groups or losing contracted vanilla to alternative buyers. Several exporters also openly admitted that they felt overwhelmed with the logistical and administrative challenges involved in pushing smallholders toward passing certification audits. Very similar findings were uncovered by Campbell (2018) for certified vanilla exporters from the SAVA Region.

Given the poor qualities of vanilla that were produced, exporters were generally reluctant to increase their investments and extension support to existing CF schemes beyond what was already done. Deteriorating vanilla qualities during the price boom meant that insufficient
quantities could be sourced with pre-financing received from international buyers. It forced exporters and processors to renegotiate the terms of the trade with their international clients and caused much stress. But interviewed exporters and processors were certain that prices for vanilla from Madagascar were to come down in the near future as they observed a spiral of escalating speculative trade and a surge of unacceptably low qualities.

5.7 Discussion of Choice Experimental Results in Context

By cross-checking the choice experimental results for internal validity, we found that they were consistent in both logically expected differences in WTP between resource-richer (contracted or male) vs. resource-poorer (non-contracted or female) farmers and with revealed marketing behaviors. Moreover, the qualitative accounts of contracted farmers and contractual buyers matched the choice experimental results. Thus doubts over possible hypothetical bias could be removed.

Reported marketing behaviors of smallholders in the SAVA Region revealed that vanilla farmers prefer to sell their crop in multiple installments throughout the year to benefit from different markets for unprocessed (green), semi-processed (vrač), and fully-processed (black) vanilla. Despite the elevated risk of crop theft that characterizes the price boom period, smallholder vanilla farmers were still willing to produce quality (ripe) vanilla (cf. Table 24; WTP of average vanilla farmer for only harvesting and selling ripe = 11,000 MGA per kg green vanilla sold). On the one hand, producing ripe vanilla offers farmers the possibility to sell to CF schemes to benefit from significantly higher prices for unprocessed (green) vanilla than on local spot markets. On the other hand, producing ripe vanilla allows smallholders to process vanilla using traditional artisanal means. Yet, CF schemes limit farmers to selling almost exclusively unprocessed (green) vanilla.

Previous preference studies conducted with smallholders in developing countries found that smallholders may prefer co-operative models of CF, which allow them to retain some autonomy vis-à-vis their buyers (e.g., Anh et al., 2019). Co-operatives are also a standard recipe promoted by international development organizations (e.g., see: Prowse 2007) as co-operatives offer opportunities to economically empower the farmers by allowing farmers to move slowly towards processing (Coulter et al., 1999). A few development-oriented actors in the SAVA Region attempt to aid farmers in forming cooperatives (Amato 2018; NCBA 2020) when they engage private agribusiness companies in multi-stakeholder partnerships (USAID
However, the basis for such a development appears to be slim as our data suggest that the self-mobilization of farmers into producer groups is weakly developed by smallholders in the SAVA Region (Appendix 7, Table B).

Vanilla theft is a village-based dilemma as it destroys the social fabric of solidarity among the farmers. Typically vanilla is being stolen from within the neighborhood. Most thieves, indeed, are found to be young men (between 18 and 25 years of age) from neighboring HHs, who collaborate with middlemen (commission agents) from the cities. Vanilla theft thus causes a deterioration of mutual trust among the farmers (Osterhoudt 2020, Neimark et al. 2019a), acting as a barrier to engage in collective action.

In 2018, vanilla theft (which followed cyclone damage in the 2017-2018 season) prevented up to 16% of smallholders to harvest good quality (ripe) vanilla (cf. Table 25, non-contracted farmers). The quantities of vanilla which farmers process are typically small as only some fraction of their annual harvest can be collected fully ripe; often it is the *ripe rest* (personal communication with farmer in Antsahanoro / Anatalaha Region, 29/10/2018), or the prematurely harvested vanilla that will be cured only. The small quantities that are fully ripe and which lend themselves to artisanal curing without developing a foul smell, do not create sufficient economic incentive for vanilla farmers to collectively invest in processing equipment and form cooperatives. As a result, farmer-cured vanilla remains typically of sub-standard product quality compared to that of commercial processing units in the cities of the SAVA Region (Appendix 8C).

Apart from theft, anecdotal evidence also points to frequent power abuses within producer groups. This plays into the reluctance of smallholders to group together. According to our quantitative data, these trust-based issues which prevent farmers from grouping together are stronger among resource-poorer (non-contracted) farmers than among resource-richer (contracted) farmers (cf. A related behavioral question asked for difficulties that farmers face when trying to change their current buyers (Figure 40 below). Based on the quantitative HH survey, 40% (n=195/485) of non-contracted farmers replied that no contractual buyers operate in their respective villages. Similarly, 15% (n=18/119) of contracted farmers mentioned the need to travel to other villages to join their contractual producer groups. Moreover, 27% (n=133/485) of non-contracted farmers reported small vanilla production as a bottleneck (Figure 40). Besides that, a remarkable difference was found in self-reported satisfaction with current buyers. While more than 30% (n=39/119) of contracted farmers stated general satisfaction with their current buyers and saw no need to change, only 5% (n=23/485) of non-contracted farmers were satisfied with their respective buyers (Figure 40). Informal middlemen...
who operate local spot markets were reported to offer very similar conditions at any given time. Thus, it is hard for farmers to pick out a better buyer among them. Aggregating the production was judged more difficult by non-contracted farmers than by contracted farmers. Several narratives of distrust were mentioned to us as reasons why vanilla farmers hesitate to form producer groups. Among the other reasons mentioned were missing contacts with preparators or exporters, passive attitude, lack of time, and fear of being cheated or robbed.

Figure 40). However, on their own, they do not appear to be a major obstacle to CF. Smallholder vanilla farmers still aggregate into producer groups (in order to achieve the required quantities for CF offers to materialize) in case the exporter makes the effort of aggregating them.

A major finding of this study suggests that new entrants into CF schemes are the biggest barrier to making CF a success during the price boom period. According to our choice experimental data, resource-poorer (non-contracted) farmers show the lowest willingness to pay for tested CF options. Resource-poorer (non-contracted) farmers are characterized by greater price sensitivity than resource-richer farmers (cf. Figure 36). They also display the lowest hesitation to opportunistically switch their buyers out of all the tested groups of smallholders (cf. ASC in Table 24). Like all other farmers, resource-poorer smallholders are attracted by 27% higher prices offered through CF schemes [compared to local spot market prices for unprocessed (green) vanilla]. Yet, many of the resource-poorer (non-contracted) farmers have greater difficulties than resource-richer (contracted) farmers in supplying good quality (ripe) vanilla (cf. Table 25, non-contracted farmers; Appendix 7, Figure D). Lower harvests, fewer HH labor, greater asset poverty (cf. Chapter 2), and a lower capacity to pay for guardians (cf. Amato 2018) cause resource-poorer farmers to default more frequently on their supply commitments than resource-richer farmers. Due to fear of missing out on better prices by alternative buyers in the price boom years, up to 35% (n=27/78) of non-contracted farmers stated that they do not want to be bound for more than one season to a CF offer or any single buyer. On top of that, up to 39% (n= 30/78) of these farmers openly admitted that they intended to sell their vanilla to the highest bidding buyer, regardless of any contractual obligation. This is what is meant by an opportunistic mindset. The price boom is regarded as a unique opportunity for smallholder vanilla farmers (particularly for resource-poorer households) to advance their material well-being quickly.
Yet, side-selling by farmers is not the only default of CF schemes. Triangulated qualitative answers to our choice experiment (cf. Appendix 8B) revealed that some farmers also divert contractual credit opportunities. This was also confirmed by Amato (2018).

Again other farmers simply do not manage to produce sufficient kilograms of good quality (ripe) vanilla. They have small harvest sizes and suffer from problems with vanilla theft. In 2017-2018 this was particularly the case in the Region around Antalaha which was impacted by Cyclone "Enawo".

To avoid high default rates, contractual buyers thus pursue the performance-based selection of smallholder farmers. Where certification is involved, buyers also pay the costs for it. Opportunistic farmers who engage in side-selling or in credit diversion are typically removed by the buyers following a second chance (cf. Chapter 5, Section 5.5). Vanilla CF schemes typically retain resource-richer farmers as these are better able to supply desired qualities in agreed quantities than resource-poorer farmers. Unlike Neimark et al. (2019b) suggest, it is not primarily the certified schemes - that have already been running for some time - which break down according to our data. But it is typically the novel schemes that are characterized by producer groups of weak coherence.

With regard to the implementation of sustainability standards, this study found that PVS in the Malagasy vanilla business are typically tackled as part of a second-stage contract. That means buyers only launch themselves into certification once they have managed to identify reliable suppliers (cf. Chapter 5, Section 5.5). According to our choice experiment, the implementation of production management contracts is associated with costly production restrictions that do not apply in simple market specification contracts (cf. Table 24).

While Meemken et al. (2017) found that smallholders can, in some cases, perceive production restrictions of certified CF schemes as "a welcome nudge" to upgrade their production towards more sustainable production processes (e.g., as abstaining from any pesticides demanded by Organic certification) in order to benefit from higher prices (Meemken et al., 2017), our choice experiment among vanilla farmers in Madagascar revealed that the farmers saw no such benefits in production management (cf. WTA Sums in Table 24). Smallholder vanilla farmers only saw an economic value added in the condition to produce good quality (ripe) vanilla during the price boom (cf. Table 24; WTP of the average farmer to only harvest ripe vanilla = 11,000 MGA per kg green vanilla sold). Considering the context of the price boom and the
existence of quality-differentiated pricing, it is no surprise that the focus of vanilla farmers was on product quality, and their foresight was limited to a short-term time horizon.

On the other hand, our results also show that resource-richer (contracted) farmers did perceive a big utility in certified CF offers, even in the more complex schemes requiring multiple production restrictions, such as Rainforest Alliance (cf. Table 24, Aggregate WTP for contracted farmers = 34,000 MGA per kg of green vanilla sold). Resource-richer farmers were able to remain in certified contracts for multiple (up to six) years, according to our data (cf. Appendix 7, Table C). Importantly, our data thus allow us to differentiate between different poverty classes of smallholder farmers. Resource-poorer (non-contracted) farmers saw about ten times less economic value in a certified CF offer like Rainforest Alliance, even if such an offer was already incentivized with additional measures of CSR by the buyer (cf. Table 24; Aggregate WTP for non-contracted farmers = 3,000 MGA per kg of green vanilla sold). The implementation of Rainforest Alliance was simply judged to be too complicated and costly as it contained too many production restrictions at once that were judged difficult to comply with by the resource-poorer farmers; a fact that is well-known by the standard body itself (Freitas 2017a,b).

Organic production was opposed by the average smallholder in our sample, too (cf. Table 24; WTA of average vanilla farmer = 18,000 MGA per kg green vanilla sold). It required farmers to abstain from using insecticide-treated mosquito nets at their homes in order to prevent contamination of vanilla during post-harvest handling. Playing into this objection was the fact that many vanilla farming households had been targeted by international health projects in the SAVA Region (cf. USAID/PSI 2019 and Appendix 8A), which had sensitized farmers about the health risks of sleeping without such improved bednets only a few years ago. The conflict of interest with the Organic requirement was thus on health grounds and not on the basis of increasing labor requirements as suggested from other contexts where farmers actually need to transition from using pesticides on their crops to doing without it (Hope et al., 2008; Bolwig, Gibbon, and Jones 2009; Ibanez and Blackman 2016; Meemken et al., 2017; Mishra et al., 2018). Some experts of the Malagasy vanilla business openly question whether the abstention of insecticide-treated bednets is justified, however. As vanilla is being bought unprocessed (green) by most CF schemes, there is not much post-harvest handling by the farmers at home. Moreover, the first step of transformation (at the commercial processors in the cities) involves "blanching" - a hot bath at 70°C - which washes off any residues on the waxy surface of the fresh (green) vanilla pods (cf. Campbell 2018). The Organic production restriction with the treated bednet ban is mainly upheld by exporters for fear of product rejection at phytosanitary...
controls at import. Organic is chosen for product traceability by large agro-industrial buyers (Nestlé 2015). According to our results, Fair Trade was found to be the only sustainability standard with a favorable benefit-to-cost profile from the smallholder perspective. Fair Trade does not require the contractual buyer of vanilla to add any measure of strategic CSR to be of value in the eye of the average vanilla farmer (Chapter 4). The child labor ban is welcomed by most farmers, particularly during the price boom period, when families have money to pay children's school fees. Due to the importance of the economic dimension for smallholders, who judge against a backdrop of relative poverty in their communities, Fair Trade, with its agenda of economically empowering the farmers, is popular - a result that has also been identified by other preference studies, for example, for coffee farmers in Tanzania (Pyk and Hatab 2018) or for rice farmers in Benin (Vlaeminck et al., 2015). Nevertheless, recent agroeconomic studies caution that in a majority of reviewed Fair Trade schemes, smallholders do actually not manage to break even (Dietz et al., 2020). Where farmer-controlled producer groups are involved, who need to bear the certification costs themselves (Oya, Schaefer and Skalidou 2018), this appears to be the case, in particular (Beuchelt and Zeller 2011). So, whether Fair Trade actually works out economically for participating farmers is rather context-specific once again. Among others, it depends on the organization of the supply chain (Meemken 2020) - i.e., on the CF model chosen - as well as on the poverty status of participating households (Schleifer and Sun 2019). In our case, the abolition of child labor demanded by Fair Trade was particularly opposed by women (cf. Table 24; Female WTA for stopping child labor = 5,000 MGA per kg green vanilla sold). Female farmers mentioned their double burden of domestic work and farming-related tasks. Women feared being left alone and overloaded with work in case they needed to spare all of their children from daily chores. Meanwhile, international development organizations promote the implementation of Fair Trade (TDC 2014; BMZ 2021) as a symbol of market-driven ethical consumption (Nicholls and Opal 2005; Brownell 2011), regardless of the heterogeneities in smallholder preferences (Anh and Boekelmann 2019) and capacities (Glasbergen 2018). Some economic studies come to the conclusion that sustainability standards, such as Organic, Fair Trade, or Rainforest Alliance, are beneficial only for "upper-middle-class" smallholders (Hansen and Trifkovic 2014) who can cover the many hidden costs of adaptation to their farming practices to make the transition toward more sustainable processes of production (Glasbergen 2018). Thus, CF schemes and other private-sector-led development projects need to be critically examined case by case. Not all CF arrangements offer participating smallholders a value-added. As a general rule, CF is a demand-driven undertaking. Like other value chain
projects, it may suffer from a narrow product focus rather than starting from a holistic livelihood analysis of the needs of farmers (Rauch and Brüntrup 2020).

5.8 Limitations

The choice experiment was performed as part of a cross-sectional household survey in 2018. As such, its results are limited in their validity to the market context in the SAVA Region at the time. Since the vanilla market can quickly transition from a boom into a bust phase, contextual parameters - such as the speculative trade or the frequency of vanilla theft - can quickly change, and, with it potentially the attitudes and motivations of smallholder farmers toward tested CF features. Likewise, the CE results speak only for the study region - i.e., for the road-connected context of the SAVA Region (up to the tertiary road network).

As data collection relied on the help of trained local enumerators, our results may potentially be influenced by some degree of enumerator bias, too, although we tried to keep that to a minimum by performing two consecutive pilot studies, including a total of six months of training. A standardized interview format (the use of standardized text boxes and pictograms to introduce each choice attribute) and regular controls were performed in the field to reduce enumerator bias. On top of that, cross-checking the validity of our results was pursued through the use of post-experimental qualitative interviews with farmers and feedback workshops, with enumerators.

Another possible reason for distorted results can be design-related (such as cognitive overload and attribute-non-attendance by the respondents) as well as undesirable interviewer effects (such as respondents answering along presumed social desirability). However, attribute non-attendance was greatly reduced by redesigning the choice experiment to its final (simplified) version between 2017 and 2018. In fact, during the actual study of 2018, only 5% (n=31/604) of respondents did not coherently argue their choices. We controlled for this by including red-flags in the programmes tabled based survey and discussed each case through post-experimental quality control sessions with our enumerators. Social desirability is a topic that can be countered by training of enumerators and by careful and systematic introduction of CF features, but it can never be completely ruled out.
5.9 Conclusions

This chapter has verified the validity of our choice experimental results and put them into the context of vanilla farming in the SAVA Region. The chapter highlighted the economic value that different groups of smallholder vanilla farmers associate with specific CF features that we tested. These CF options were taken from a Rainforest Alliance contract with additional CSR benefits (i.e., with added security support measures, lean season credits, and a health insurance) - a type of contract that is widely used by the biggest contractual vanilla buyer in the SAVA Region (cf. Chapter 4 and Appendix 1).

Importantly, the chapter shows that the contractual preferences of smallholder vanilla farmers are user-group-specific. While preferences for specific CF features follow the same general pattern among different groups, their willingness to pay (WTP) for and willingness to accept (WTA) specific CF features differs remarkably in magnitude among different groups of smallholders (e.g., resource-richer vs. resource-poorer, male vs. female farmers).

The first major conclusion of this study suggests that CF is generally appreciated by smallholder vanilla farmers in Northeastern Madagascar. Farmer willingness to pay to participate in market specification contracts (i.e., contracts which demand a ripe product quality) is positive across all tested groups (contracted, non-contracted, male, and female vanilla farmers). Vanilla farmers regard such CF offers as a welcome chance to benefit from significantly better (on average 27% higher) prices paid for unprocessed (green) vanilla than on local spot markets.

Secondly, vanilla farmer preferences for CF are heterogeneous with respect to different certified CF options on offer by international vanilla buyers. Although production management contracts elicit avoidance reactions by vanilla farmers. Our findings suggest that ecological standards - specifically Organic but also Rainforest Alliance - cause vanilla farmers to demand higher monetary compensations to participate. By contrast, central conditions of social standards, like Fair Trade, do not require buyers to compensate vanilla farmers to willingly participate in related CF schemes (Chapter 4).

Importantly, contractual buyers need to realize that different types of vanilla farmers (e.g., contracted vs. non-contracted, male vs. female farmers) feature unequal willingness to participate in identical CF options (e.g., in a Rainforest Alliance contract). Out of all groups of smallholder vanilla farmers, resource-poorer (non-contracted) farmers perceived the least economic value in the mentioned CF option. Despite offering security-related support and
lean season credits - both of which are popular among vanilla buyers - the willingness of resource-poorer farmers to pay for such a CF offer (WTP non-contracted = 3,000 MGA per kg of green vanilla sold) was more than ten times lower than that of resource-richest farmers (WTP contracted = 34,000 MGA per kg of green vanilla sold). That pattern did not change for a simple market specification contract for which the resource-poorer farmers stated six times lower willingness to pay (WTP non-contracted = 3,000 MGA per kg of green vanilla sold) than resource-richest farmers (WTP contracted = 18,000 MGA per kg of green vanilla sold). Greater resource poverty among non-contracted farmers, which expressed itself in fewer assets, lower harvests (cf. Table 25), and greater difficulties in producing quality vanilla (cf. Appendix 7, Figure D), translated into lower aggregate WTP for CF offers (cf. Table 24). Similarly, female farmers showed only half the willingness to pay (WTP female = 7,000 MGA per kg of green vanilla sold) to participate in a Rainforest Alliance contract than male farmers (WTP male = 13,000 MGA per kg of green vanilla sold). This was explained with reference to the gendered division of labor within households and with reference to greater female risk aversion as well as female time poverty (cf. Chapter 3). In sum, these circumstances caused female vanilla farmers to strongly avoid the production restrictions of a Rainforest Alliance contract (namely, a combination of banning child labor, slash-and-burn, and the use of insecticide-treated bednets; cf. Table 24). Female fidelity to contractual buyers, by contrast, was measured to be higher than that of men (cf. Chapter 3 and Appendix 7, Table C and Table E).

Next, smallholder vanilla farmers were found to sign up for CF schemes opportunistically during the price boom period (2016-2018). Especially resource-poorer farmers were identified as having a high likelihood to default. Despite the fact that 88% (n = 425/285) of non-contracted farmers in our quantitative study uttered principal interest test out CF, a preliminary qualitative study to the choice experiment suggested that a large share (39% or n = 30/78) of these farmers openly admitted that they intended to sell their vanilla to the highest bidding buyer (regardless of any contractual obligations, if they were ever to sign a contract). Moreover, 35% (n = 27/78) of resource-poorer (non-contracted) farmers stated that they preferred contracts of short duration (preferably no longer than one year). These results are consistent with a higher price sensitivity of resource-poorer (non-contracted) farmers (cf. Figure 36) and with their exceptionally low alternative specific constant (ASC non-contracted = 0 MGA per kg of green vanilla sold) identified by choice experimentation. These results indicate that resource-poorer (non-contracted) farmers do not hesitate to switch their buyers
opportunistically. Taken together with qualitative accounts of contractual buyers who frequently terminate contracts with new entrants, our results lead to the conclusion that it is especially new entrants of resource-poorer farmers who contribute to the high rates of contractual default witnessed during the price boom period.

**Fourth, during the studied price boom, vanilla CF schemes in Northeastern Madagascar were found to be less inclusive than CSR prospects of international vanilla traders would like to suggest.** Apart from excluding multi-dimensionally poor HHs, vanilla CF schemes also fall short in promoting gender equity. In 2018, most CF schemes in the SAVA Region were dominated by male signatories (cf. Chapter 3 and Appendix 7, Figure A). With women in the majority excluded as contractual signatories, the CF potential to affect female economic empowerment was compromised. Even if part of signatory households, females were in the majority excluded from participating in meetings and decisions of contractual producer groups (cf. Chapter 3 and Appendix 7, Figure B). Prevailing social norms and female time poverty explained in parts the latter circumstance. Active efforts and encouragement by contractual buyers would be required to win more women as signatory contract farmers. While gender equity policies do exist in a number of certified CF arrangements (e.g., in *Fair Trade* and *Rainforest Alliance* schemes), these appear to be implemented without much conviction by the buyers.

**Fifth, we conclude that virtually all (>99% of) vanilla CF schemes captured in this study restricted signatory farmers to sell exclusively unprocessed (green) vanilla in 2018.** Although contractual buyers offer significantly higher prices for unprocessed (green) vanilla - if qualities are ripe - contractual buyers do generally not offer signatory farmers the possibility to sell processed (black) vanilla. Only a few *Fair Trade* schemes and select projects of international development assistance directed producer groups toward vanilla processing (in our sample, however < 1% or n=1/119 cases) by partnering with contractual buyers. Depending on its quality and stage of preparation (i.e., length, moisture content, and aroma), processed (black) vanilla can be sold at five to eight times higher prices than unprocessed (green) vanilla on locals spot markets (cf. Chapter 4 and Appendix 8C). Revealed marketing behaviors showed that resource-poorer (non-contracted) farmers sold larger shares of their total harvest as semi-prepared (vrac) or fully-prepared (black) vanilla than resource-richer farmers. This may suggest that CF is possibly opposed as a result of limiting the farmers in their entrepreneurial freedom. However, in order to process vanilla by artisanal
means, the crop needs to be ripe at harvest, a condition that resource-poorer farmers struggled with in particular. As a result, processed vanilla that farmers sold on local spot markets was typical of poor quality and/or of small absolute quantity. The speculative spot market was the only marketing channel for that type of vanilla. The absence of possibilities to sell processed (black) vanilla to CF schemes was not a measurable obstacle to generating general interest among resource-poorer (non-contracted) farmers to join CF schemes.

**Finally, it should be acknowledged that contractual default is not only attributed to opportunistic side-selling by farmers.**

Although contractual buyers typically blamed the short-sightedness of farmers and their lack of vision/education for failing supply commitments, our results suggest that the price boom also creates emergency situations (e.g., vanilla theft), which forces contractual default as a result of premature harvests and delivery of poor qualities. Moreover, social network effects (e.g., conflicts arising among members of contractual producer groups), as well as the opportunism of buyers (e.g., contractual buyers reneging on their contractual agreements), were found to be implicated in leading to contractual default. In fact, in 2018, revealed marketing behavior of contracted vanilla farmers suggested that 35% (n= 41/119) of vanilla CF arrangements broke down as a result of contractual buyers reneging on their contractual commitment. Side-selling by farmers afflicted 14% (n= 17/119) of CF arrangements, and total harvest failure (due to vanilla theft and cyclone damage) limited 6% (n=7/119) of contracted farmers in honoring their contracts (cf. Table 25, contracted farmers).

A General Discussion and Conclusion shall explore policy-relevant implications of the presented findings in the last part of this book.
References for Chapter 5


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Credit Author Statement for Chapter 5

Choice Experimental Results in Context

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<td>1&lt;sup&gt;st&lt;/sup&gt; Author: Lloyd Blum, (1) Hochschule Darmstadt - University of Applied Sciences, Department of Social Sciences, Risk &amp; Sustainability Research; (2) Georg-August-Universität Göttingen, Faculty of Agricultural Sciences, Department of Agricultural Economics and Rural Development</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Author: none</td>
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1<sup>st</sup> Supervisor: Prof. Dr. Jan Barkmann
(1) Hochschule Darmstadt - University of Applied Sciences, Department of Social Sciences, Risk & Sustainability Research; (2) Georg-August-Universität Göttingen, Faculty of Agricultural Sciences, Department of Agricultural Economics and Rural Development

2<sup>nd</sup> Supervisor: Prof. Dr. Achim Spiller
Department of Agricultural Economics and Rural Development, Georg-August-University Göttingen, Germany

3<sup>rd</sup> Supervisor: Prof. Dr. Theo Rauch
Centre for Developing Countries Research, Institute of Geography, FU Berlin, Germany

Corresponding author: lloyd.blum@gmail.com
General Discussion

The data presented in this study suggests that over half of all CF arrangements in the SAVA Region broke down in 2018 - the year that marked the height of the most recent vanilla price boom (2012-2018). About 14% of CF arrangements defaulted on the basis of (opportunistic) side-selling by contracted farmers, a further 6% failed due to vanilla theft and cyclone damage (following Cyclone "Enawo" in 2017), and 35% of CF arrangements defaulted as a result of contractual buyers reneging on their commitments to purchase vanilla from contracted farmers due to quality and/or price issues (cf. Table 25).

A total contractual default rate of 55% (n=65/119) at a regional scale is a remarkable representation of the effects of the vanilla price boom.

Bellemare and Bloem (2018, p.267) who reviewed the CF literature with regard to welfare effects for participating smallholders contend that “most empirical studies of the impacts of contract farming focus on the benefits of participation, but to our knowledge, few studies have systematically explored the costs associated with participation. If the literature is to make an accurate statement about the welfare impacts of contract farming, we need to have an accurate representation not only of the benefits and costs of participation in contract farming, but also a good idea of how heterogeneous those benefits and costs are across a variety of contexts”. The authors go on to state: “Whether participation is sustained or not is unclear and should be investigated in future studies of contract farming, along with whether the institution is growing or shrinking, and for what reasons.” (Bellemare and Bloem 2018, p.267). The first point of Bellemare and Bloem (2018) above has motivated us to conduct a choice experiment that can help us to identify how CF offers could be improved to result in greater perceived benefit among participating farmers across a variety of contexts (cf. Chapters 3 -5). The second point of the authors motivated the overarching research question of this study. This asks whether improving CF offers on a basis of changing specific CF features could be expected to result in stronger supply commitments by smallholders, so that CF schemes would have a chance to survive the extreme price volatility, which characterizes the vanilla market in Northeastern Madagascar?

Institutional economists discuss CF as a market-based solution to overcome existing market failures (Grosh 1994; Kirsten and Sartorius 2002; Barrett 2008; Abebe et al. 2013). They tend
to stress the importance of transaction costs that result from market imperfections, coordination failures, or uncertainty (Abebe et al., 2013).

Market failures occur when the price mechanism fails to deliver an efficient allocation of resources for society, resulting in misallocations of resources by buyers and/or sellers (Slangen, Loucks and Slangen 2008). An example of a market failure would be the insufficient production of a given good (or the inability of users to access that specific good). Insufficient production of a specified good may result when buyers or sellers incur unacceptably high costs in the transaction (Slangen, Loucks and Slangen 2008). According to this definition, the extreme price volatility which characterizes the Malagasy vanilla market can be regarded as the market failure. For, it leads to a collective failure of smallholder vanilla farmers in Northeastern Madagascar to produce a quality (ripe) crop when prices boom, thus causing buyers to renege their deals as they cannot reach intended final product qualities for their international clients at acceptable prices within a competitive global vanilla market.

Price volatility is a common phenomenon in the trade of agricultural commodities (Hallam 2011). Many agricultural products - including coffee (Bellemare, Barrett and Just 2013; Lukananima and Swaray 2014), cocoa (GIZ 2018), palm oil (Sim et al., 2015), rubber (Ramli et al., 2019), cotton (Poulton et al., 2004), pepper (Sabu, Kuruvila and Subash 2020), or vanilla (Danwatch 2017) - show price fluctuations as a result of fluctuating supplies which meet continuous demand (Tothova 2011). Whereas the market players can tolerate a moderate level of price volatility, extreme price fluctuations can cause the interruption of transactions. It is not uncommon for CF schemes to break down during periods of acute commodity boom, by contrast (cf. Cramb et al., 2015; Neimark et al., 2019b; Sabu, Kuruvila and Subash 2020).

Contractual default in a price boom can have several reasons. Two prominent reasons, however, are side-selling by signatory farmers (Coulter et al., 1999) and side-buying by contractual buyers (SNDR 2018). Both phenomena are discussed in the literature as a form of rational opportunistic behavior (Coulter et al., 1999; Kirsten and Sartorius 2002; Thome and Sexton 2007; Otsuka et al., 2016). Increasing buyer competition, which characterizes a price boom phase, catalyzes these two behaviors. Buyers who compete for a commodity that is in short supply will increase demand by overbidding each other. This results in good opportunities for farmers to sell their products at attractive prices. Increasing buyer competition increases the bargaining power of farmers (Neimark et al., 2019b). In the context of CF increasing buyer competition raises the chances of farmers to engage in extra-contractual sales as farmers may find alternative buyers with relative ease who offer (more) attractive conditions than their
contractual buyer (Cramb et al., 2015). Therefore, contractual buyers typically tend to be reluctant to invest in CF schemes with smallholders whenever prices boom (Rasolofoson-Rajaonah and David 2014). On the other hand, buyer default is an opportunistic behavior in unfavorable market situations (Thome and Sexton 2007). Critical authors discuss it as a form of abuse of bargaining power (Glover 1987; Little and Watts 1994) that may happen when a buyer cannot find a profitable market for the contracted product (Thome and Sexton 2007). Much of this literature comes from low-price contexts. When market prices fall below the contracted price, the contractual buyer (an exporter or processor) can be tempted to purchase the commodity on the cheaper spot market instead of through contractual arrangements (Tekalign 2019). However, the same type of problem can also occur during an extreme price spike where contractual buyers use market-adjusted pricing to garner farmer fidelity. In that case, contracted prices remain above the open market price by design but may become prohibitively expensive to the buyer during the escalating price boom. At one point, the product becomes too expensive for the buyer to find a profitable market outlet. Since contracts in developing countries are rarely enforceable in legal terms (Reardon and Barrett 2000), CF can create a risk of market hold-up for signatory farmers (Otsuka et al., 2016). This happens when a buyer decides to reject large quantities of product on (sometimes arbitrary) arguments of quality (Minot and Ronchi 2014).

Thus, one way of understanding a price boom is to see it as a crisis of buyers and as an opportunity for farmers (Sagnier 2016). An escalating price boom constitutes a crisis for the buyer as the commodity can become so expensive, that the contractual buyer is unable to resell it at a profit. Since vanilla exporters and preparators are intermediary traders in global supply chains, their business critically depends on their international clients' willingness (and ability) to pre-finance a season and to pay the final bill. Vanilla exporters and preparators can go out of business when pre-financing agreements by a major international client is frozen (Danwatch 2017). At a fundamental level, we now understand the dependency of intermediary traders in global supply chains. By contrast, exceptionally high prices present a once-in-a-lifetime chance to the smallholder farmer to improve his/her welfare quickly (Neimark et al. 2019b).

From a more fundamental perspective, we can also stipulate that the business interests of sellers and buyers are diametrically-opposed (Bolborolla-Perez et al., 2016). While both the farmers as well as the buyers wish to sell (and resell) the agricultural commodity at a profit (i.e., both parties act as “profit maximizers” after Slangen, Loucks and Slangen 2008), buyers need to buy acceptable qualities to be able to resell at profitable prices, whereas smallholder farmers
do not need to (or cannot) supply quality during booming prices. What complicated the situation further is that signatory farmers - as consumers of CF offers - also act as utility maximizers (cf. Abebe et al., 2013). An extreme price spike, therefore, tends to expose both contractual parties’ immediate needs like few other situations. (Figure 47 below)

Figure 47 - Price boom related logic of smallholders vs. contractual buyers in a price boom

From the smallholder perspective the primary objective is to capitalize on the price boom. Based on the historical price evolution, many farmers know that a price boom presents only a short time window to maximize their profit. The risk of crop theft can result in a complete loss of harvest. Crop theft is a liability that needs to be avoided at all cost (cf. Chapter 1 and Chapter 5; see Figure 47 above). Thus, vanilla farmers are even prepared to risk their lives to defend their crops during a price boom (Neimark et al. 2019a; Osterhoudt 2020). The willingness (but not the ability) of smallholder vanilla farmers to produce a quality (ripe) crop does remain high when prices boom. This is because the farmers aim to maximize their returns during the price boom, despite the risk of theft. That is why we found that market specification contracts (i.e.,
1st level contracts, see Figure 47 above) were positively received by all sub-groups of farmers tested in the choice experiment (cf. Table 24, WTPs of harvesting only ripe vanilla). If good (ripe) product qualities cannot be supplied to the contractual buyer (due to theft or other reasons, cf. Chapter 5) then the open market still offers the farmers exceptionally high prices - compared to historical records.

The objective to meet production management requirements (i.e., a 2nd level contract; see: Figure 47 above) is only of secondary importance to most farmers in the price boom. Smallholder farmers across all different sub-groups in the choice experiment attributed negative preferences to production restrictions associated with the different certification systems (cf. Table 24, WTA values).

Using these basic institutional economic logics, we can state that smallholder vanilla farmers use CF schemes opportunistically during the price boom. On the one hand, the smallholders try to take advantage of the benefits that contracts offer them (such as better prices for unprocessed vanilla, support to secure their vanilla fields, or lean season credits, etc.). On the other hand, they readily sell their contracted crop to alternative buyers to maximize their welfare gains or do not produce expected product qualities if they find a better alternative buyer (cf. Figure 47 above).

For buyers (preparators or exporters), the price boom tests their ability to meet the bottom line. Vanilla buyers struggle to find the quantity of pre-defined product qualities that their international clients demand (Appendix 8C). The buyer’s main challenge is to secure pre-financing agreements for the following season. The buyer must find usable qualities in desired quantities to survive as a business. The price boom challenges buyers logistically. Vanilla exporters and preparators run a tight logistical schedule during each market season. Many of them engage teams consisting of up to 10 collectors who simultaneously bargain with farmers in different villages following the official market opening (cf. Figure 47 above).

From the buyer’s perspective, CF schemes are mainly used to incentivize the production of pre-defined vanilla qualities. Managing CF adds a lot of additional organizational challenges, however. Identifying and aggregating farmers, regular visits for production controls, and provisioning quality extension services are just a few of the challenges to mention (cf. Figure 47 above). Production management (i.e., 2nd level) contracts, which meet the requirements of international clients' sustainability certifications, stretch the buyer's tight logistical schedule (exporter or preparator) even further. Is not uncommon to find that vanilla exporters in the SAVA Region hire a team of 10 to 25 permanent extension staff to run their certification and
sustainability requirements. All of the costs of certification (cf. Appendix 8C) as well as administrative charges to document and verify targeted process qualities to pass annual certification audits are typically pre-financed by the buyer (exporter or preparator, see Figure 47 above). Respecting sustainable (social and/or ecological) process qualities thus quickly leads to logistical overload, if buyers overestimate their financial and/or logistical capacities. Many exporters in the SAVA Region openly cursed about the need to implement private voluntary standards for their clients during the price boom period when interviewed (see Campbell 2018; or read Appendix 8C). Interviewed buyers admitted that they implemented PVS primarily for marketing purposes (cf. Appendix 8C) in order to attract (or: in order not to lose) international buyers who pre-financed (part of) their operations. One interviewed exporter, for example, said: "Actually, I am happy to keep middlemen between our business and the farmers as the middlemen help to fight the farmers for a reasonable price ... The farmers' team spirit is low ... The difficulty with contracts is that they require a lot of socio-mobilization and years of engagement to establish mutual trust. Of 250 farmers who were recruited from 4 villages to enter our small but budding contract farming scheme, only 25kg of green vanilla were offered to us after 1 year of organization ... Lack of fidelity - due to poverty - is a big problem ... Low levels of education coupled with enticingly high prices lead farmers to succumb to speculative trade ... Farmers are simply too money-driven and lack foresight." (cf. Appendix 8C). Another exporter mentioned that he needed to advance US$ 80,000 only to cover the annual certification costs for 40 tons of certified vanilla. Organizational costs (to pay salaries and missions of extension staff) are spent on top of that (cf. Appendix 8C). Another exporter mentioned that CF, particularly the implementation of certified CF schemes, burdens particularly smaller traders (those exporting 50 tons or less of processed vanilla per year). These smaller traders cannot afford to hire a sustainability team, nor can they afford to lose substantial amounts of money which need to be advanced for certification audits and necessary registrations. The risk that farmers do not supply in the boom price phase was considered very high (cf. Chapter 5; see Figure 47 above)

In response to the recent vanilla price boom (2012-2018), contractual vanilla buyers in the SAVA Region thus follow three main strategies to secure vanilla of pre-defined qualities for international clients (see Figure 48 below):
(1) Improving CF offers in an attempt to incentivize signatory farmers to produce required qualities,

(2) seeking strategic public-private-partnerships with international development organizations in order to receive financial assistance and logistical support to implement CF schemes, or,

(3) abandoning CF in Madagascar in favor of (a) producing quality vanilla (V. planifolia) in other countries (IDH 2018), (b) moving their vertical coordination mechanism toward increased self-control - e.g., by moving into plantation production (cf. Appendix 8C) or (c) specializing in the acquisition of poor quality vanilla from Madagascar for new and lower quality industrial applications (Aust and Hachmann 2017)

Figure 48 - Strategies pursued by contractual buyers to source quality vanilla in a price boom

Buyer default captured in our data was mostly linked to different examples summarised in Option (3) above (cf. Appendix 8C). However, giving up on CF in Madagascar, contributes little to the commercialization of smallholder agriculture. Specializing on acquiring poor quality vanilla from Madagascar even risks to jeopardize the reputation of Malagasy vanilla
into the future. Arguably, options (1) and (2) are more desirable from a development-oriented perspective than the buyer decisions listed under (3). For neither of the first two scenarios, risks to divert agricultural investments away from Madagascar.

The question is whether either of scenario (1) or (2) could be expected to result in increased contractual commitment by the signatory parties to prevent contractual break down? If so, which of the two scenarios would be better suited to offer a solution to an escalating vanilla price boom which may recur in Madagascar in the future?

**Improving Contractual Design**

Agricultural economists have stressed that it is possible to improve contractual design to result in greater perceived benefit by the farmers. A contractual design which offsets perceptions of costly production requirements among participating farmers is thought to result in greater popularity of CF offers. In theory, such improvements in the perceptions of mutual benefit (or "shared value", cf. Porter and Kramer 2006) can give contractual buyers a competitive advantage over alternative buyers as they may be able to attract more signatory farmers to join their respective CF schemes. Likewise, more popular CF offers are believed to incentivize stronger supply commitments (Fischer and Wollni 2018). The topic has been discussed by several authors conducting choice experiments revealing smallholder preferences for CF options (cf. Abebe et al., 2013; Meemken et al., 2017, Fischer and Wollni 2018).

Many CF cases covered in this study have already included strategic improvements compared to CF models known from other crops and market contexts in Madagascar (cf. Rasolofoson-Rajaonah and David 2014).

A price boom related adaptation that was detected, for example, was the provision of market adjusted pricing. Market adjusted pricing describes a pricing mechanism (Abebe et al., 2013) that ensures the signatory farmers that they always receive better prices than those paid on local spot markets in any given season - provided that the farmers deliver on agreed product and/or process qualities. Most CF arrangements studied as part of this Dissertation did not fix a precise price for the next season. Instead, signatory farmers were offered guaranteed top ups that varied from one contractual buyer to the next. On average, however, contractual prices were found to be 27% higher than prices paid on local spot markets at official market opening in 2018 (at the peak of the vanilla price boom).
Next, some of the buyers who were locally-experienced, integrated additional benefits for farmers which were not necessarily required by any sustainability standard. These additional benefits were offered to incentivize smallholder supply commitments and are known in the literature as measures of strategic corporate social responsibility (see: Rangan, Chase and Karim 2015). For example, the support offered to smallholders to secure their fields against vanilla theft as well as the offer of some buyers to provide signatory households with interest free food and/or cash credits during the lean season were two such examples. These support services were meant to increase gratitude and reduce side-selling by the signatory farmer, thus ultimately reducing the loss of contracted (i.e., quality) vanilla expected to be secured through contractual arrangements for the buyer. A health insurance was offered by other buyers, in part to motivate the farmers to guard their vanilla fields in order to produce a ripe crop for the buyer. This health insurance offer could also be claimed as a voluntary (i.e., alternative) certification requirement to pass Rainforest Alliance audits by buyers who did not wish to commit to paying living income prices in the future. Yet other buyers supported signatory farmers in diversification efforts into additional cash crops, apart from vanilla. Cash crop diversification was meant as a partial insurance mechanism to prepare for the next vanilla price crash that many of the buyers anticipated in the nearer future (cf. Chapter 3, Figure 29). All of the above measures had one thing in common; they were meant to reduce uncertainty for farmers in a moment of intense buyer competition, in order to maintain contractual transactions.

Importantly, some contractual buyers (cf. Appendix 8C) also practiced multiple certifications (see: Dietz et al., 2020) – e.g., by combining Organic and Fair Trade requirements through their CF offers. We analyzed (in Chapter 4) that such a contractual improvements can make microeconomic sense to incentivize smallholder supply commitments as particularly popular combinations of benefits can offset perceived costs associated with otherwise unpopular production restrictions hidden in each standard alone.

Still, all of the above could not prevent the breakdown of 55% of CF schemes in 2018. Neither did these added incentives stop 14% of contracted farmers to engage in (opportunistic) side-selling, nor did offered support measures prevent 6% of contracted farmers to lose their entire crop (cf. Chapter 5, Table 25).

One may argue that existing preference heterogeneities between different types of smallholders (resource-poor vs. resource-rich, male vs. female participants) were certainly ignored by most contractual buyers. Virtually all of the interviewed traders extended standardized (one-size-fits-all type) CF offers to producer groups; virtually all of which focused exclusively on
unprocessed (green) vanilla - regardless of the heterogeneous preferences of smallholder vanilla farmers that were being targeted as signatories. The topic of preference heterogeneity among smallholders with regard to CF has been discussed as a criticism in the agro-economic literature (for example, see: Masakure and Henson 2005; Arouna et al., 2017; Meemken et al., 2017; Fischer and Wollni 2018). The mentioned authors suggest that to this date farmer self-selection has been under-utilized in the design of CF. They propose that different contracts should be offered for different farmer profiles in order to match their willingness to perform required tasks. Fischer and Wollni (2018), for instance, contend that this could strengthen smallholder supply commitments and reduce costly production controls for contractual buyers. In practice, however, it appears unlikely to me that contractual buyers in the SAVA Region would be willing - or even capable - to make user-group specific CF offers. Interviewed buyers generally presented themselves as being overwhelmed with the challenges that the price boom context brought on them (cf. Campbell 2018). As buyers were generally constrained in time, they did not consider to screen for potential households with specific socio-economic household characteristics before designing their CF offers (Chapter 5 and Figure 47 above). In other words, some form of monitoring and evaluation was missing to specifically target CF offers to matching smallholder profiles. Thus CF offers were generally limited to standardized schemes (cf. Appendix 1). Performance-based retention of signatory vanilla farmers was the norm with the needed sacrifice to accept high drop out rates (Chapter 5 and Appendix 8C). User-group specific offers require a research-intensive pre-selection process of signatory farmers, increasing transaction costs for buyers. Summing up, the practical applicability of user-group specific contracts appeared low.

Moreover, I would argue that in the context of an escalating price boom, it may be insufficient to simply improve contractual design. This is because an escalating price boom is first and foremost a microeconomic crisis for buyers, not for signatory farmers. I side with Crane et al., (2014) who argue that strategies which aim to increase mutual benefit (or "shared value") have their limits when they threaten the profitability of the buyer. Besides that, focusing exclusively on the aspect of mutual benefit ignores several other importat preconditions for successful CF – all of which need to be in place to motivate strong mutual commitments to a contract.
Success factors of contract farming
A recent exchange by the community of practice summarizing several decades of experience with CF across Sub-Saharan Africa (SNRD 2018) stipulated that at least eight preconditions need to be fulfilled for successful (i.e., longer-lasting) CF schemes to materialize. These success factors include (1) the existence of a market opportunity (i.e., sustained demand) for the agricultural product under question, (2) the materialization of mutual benefit, (3) mutual dependence between the buyer and the signatory farmers, (4) the generation of mutual trust (Will and Rockenbauch 2012; Will 2015; Kaplan, Herforth and Brüntrup-Seidemann 2018), (5) limited buyer competition (Rasolofoson-Rajaonah and David 2014), (6) the capacity to produce desired qualities (Swinnen 2007), (7) sufficient time to improve expected outcomes, and last but not least (8) geographic proximity between the buyer and signatory farmers (SNRD 2018).

Which preconditions for successful CF were fulfilled during the vanilla price boom?
The price spike for vanilla (2016-2018) challenged several of the mentioned preconditions for successful CF at once.
First, any price boom tends to represent a shift in marketing power in favor of the smallholder farmer (Neimark 2019b). Increased buyer competition and speculative trade in Northeastern Madagascar meant that farmers were able to sell poor quality (unripe) vanilla at exceptionally high prices. This circumstance eroded the success factor of mutual dependence in CF as farmers were no longer dependent on the contractual buyer but could sell lucratively on the local spot markets or to alternative buyers. Put differently: For farmers, it still appeared advantageous to supply good quality (i.e., ripe) vanilla to a contractual buyers to benefit from significantly higher prices. But when considering the corresponding risk of vanilla theft – and with it the possibly of losing a year’s crop, or parts thereof, as a result of waiting until crop maturity to satisfy contractual buyers - respecting a contract with all its terms simply lost its priority in the eyes of smallholder farmers. Some farmers preferred to sell vanilla that was being prematurely harvested at exceptionally high prices (against historic baseline prices) to informal spot market traders to evade the risk of theft. Others reported doing so to access cash income before Independence Day (an important National Holiday on 26th of June) thus selling their vanilla illegally before official market opening (see: Chapter 5, Figure 45). Reduced dependence of farmers on their contractual buyers tends to increase opportunistic side-selling behavior.
Next, there is the CF success factor of *mutual trust*. This should be the basis for any long-lasting CF schemes (Minot and Ronchi 2014; Will 2015; Kaplan, Herforth and Brüntrup-Seidemann 2018; SNDR 2018). *Mutual trust* typically takes time to establish between contractual parties (Kaplan Herforth and Brüntrup-Seidemann 2018). *Mutual trust* benefits from another success factor of CF, which is *geographical proximity*. Being close to one another simply makes repeated interactions between the buyer (or more precisely: the buyer’s extension staff) and signatory farmers more likely in sufficient frequency. Meaning: Geographical proximity links to another success factor of CF, which is to spend *sufficient time* collaborating. More fundamentally, *mutual trust* depends on both business partners honoring their contractual expectations. Next to supplying/buying the specified crop at agreed prices, timely payments (Fischer and Wollni 2018), finding ways of resolving conflicts (Minot and Ronchi 2014), and regular communication (SNDR 2018) are necessary to build *mutual trust*. Regular exchange with and close monitoring of farmers is also vital to reduce farmer default (Kirsten and Sartorius 2002; Bellemare 2010). Therefore, *geographical proximity* of buyers to signatory farmers is considered a critical puzzle piece in establishing long-lasting contractual relations.

Escalating incidents of vanilla theft which characterize a price boom phase in Northeastern Madagascar, however, challenge the success factor of *geographical proximity*. Given that most theft incidents are reported to occur along major roads, near the cities, and nearby village trading hubs, contractual buyers deliberately sought to set up CF arrangements in remote villages of the SAVA Region (cf. Amato 2018 and Appendix 8C). Remoteness, however, reduces chances for repeated interactions and for regular communication, thus, having a destabilizing effect to CF success. It becomes difficult for buyers and their extension staff to ensure controls and close supervision of signatory farmers, so typically side-selling and related communicative challenges go up (Coulter et al., 1999).

By contrast, a closer supervision of CF farmers can be achieved if contractual buyers engage in development partnerships. Here, a partnering NGO may provide dedicated and more regular extension services than the private business partner could afford (SNDR 2018). A neutral third party - such as an NGO, a rural service provider, or even a third party certification body – can reassure signatory farmers that there is a neutral mediator in case of conflicts arising with the buyer. Studies have shown that third party mediators tend to increase product qualities as well as supply commitments by smallholders in CF arrangements (Minot and Ronchi 2014).
What hope rests in the strategy of buyers seeking development partnerships?

Above we discussed the preconditions of successful CF. This discussion lead to the conclusion that strategic development partnerships with international development organizations could be a promising way forward to increase contractual commitments by both parties, thus potentially playing a role in preventing contractual breakdown when prices boom.

It is true that international development organizations can relieve the contractual buyers of some logistical burdens to maintain regular contact with producer groups (Coulter et al., 1999; Kirsten and Sartorius 2002; Prowse 2007). An international development partner, for example a bilateral donor, may also contribute financial assistance to a contractual buyer by taking on some of the extension support services for some years (SNDR 2018). Importantly, development partners may contribute to more inclusive business practices (Kaplan, Brüntrup-Seidemann and Noltze 2016) by conditioning some of their financial assistance provided - e.g., by demanding equal participation of male and female farmers or by demanding the inclusion of resource-poorer farmers (Seville, Buxton and Vorley 2011) – especially once market conditions have relaxed and farmers find themselves re-confronted with poverty. A development partner can also exert public scrutiny on a contractual buyer - by actively defending the interests of signatory farmers when opportunistic side-buying is being contemplated by the contractual agribusiness (Rauch 2006).

On the other hand, it is also evident that not all buyers may want to enter into a development partnership, for fear of public scrutiny that such a partnership may entail. Likewise, interested buyers may not always succeed in attracting a development partner due to small enterprise size (i.e., insufficient beneficiaries / development-oriented potential) or simply due to a lack of relevant contacts. Therefore, seeking assistance from development partnership, is likely to remain an insular solution in the landscape of vanilla CF schemes in Northeastern Madagascar.

Under what conditions can CF schemes survive the remarkable price volatility that characterizes the vanilla market?

Unless the twin problems of speculative trade and vanilla theft can be reduced as driving forces of escalating prices and deteriorating vanilla qualities, there is little hope that CF schemes would survive future price boom escalations in Northeastern Madagascar. Speculative trade leads to the extraordinary price fluctuations observed in 2016-2018 (and also 2004-2005), during which vanilla may sell for up to 15 times higher prices within only a couple of years (Danwatch 2017; Zhu 2018; Neimark et al., 2019a). Speculative collectors withhold stocks and create unnecessary supply shortages in Madagascar (World Bank 2017). The flea-market-like
trade (Fafchamps and Minten 2001, 2003) of informal and speculative middlemen that resulted following liberalization in the 1990s has contributed to deteriorating vanilla qualities - such as by mixing mature and premature qualities of vanilla or by engaging in vacuum-bagging semi-processed vanilla in attempts to inflate final weights at the sale (Lepidi 2017). If vanilla is vacuum-bagged when still too moist (at semi-prepared “vrac” stage or earlier) it is susceptible to developing mould, whereby it becomes unusable in international trade (cf. Appendix 8C). Speculative trade is thus a twin problem to vanilla theft (Neimark et al., 2019a; Osterhoudt 2020). It deteriorates available qualities during the price boom in Madagascar. For agro-industrial traders seeking large and stable quantities of pre-defined qualities, the combination of escalating prices and deteriorating qualities pose a severe challenge. It threatens their investment security (Danwatch 2017) and drives contractual buyers to quit (IDH 2018) as planning security is not given to lodge an investment with a calculable profit.

Speculative trade and vanilla theft are regulatory failures that require a solution by the Malagasy Government (and Society). Both issues are partially embedded in widespread unemployment (particularly a lack of perspectives among youth). On the other hand, vanilla theft is linked as well to widespread rent-seeking among local police officers and judges at local courts who are reported to be frequently complicit in the trade of stolen vanilla by accepting bribes from thieves and their patrons (Neimark et al., 2019a). If not resolved by the Regional Government, Northeastern Madagascar will likely continue to fail producing quality vanilla whenever prices boom. As an institution, CF has not sufficient reach to resolve these problems as CF makes up only 20% of traded volumes and does not reach but the more well-off vanilla farming populations in the SAVA Region. A view that is widely shared by local experts of the vanilla trade in Northeastern Madagascar was states that "Almost eighty percent of problems affecting the vanilla from Madagascar could be resolved if only the vanilla theft could be removed" (personal communication with initiator of association "Cercle Local pour l'Amélioration du Marché" in Antalaha, 10/10/2016)

In recent years, the Malagasy Government has re-introduced a set of novel rules to govern its vanilla market. Trader-registration (MID 2017), post-harvest processing rules (MICA 2013), and the para-militarization of farming communities (GIZ/Region SAVA 2017) have been pursued among other. However, a critically informed notion is that many of these new rules are pursued for populist reasons to show that the State Government is “doing something” (Chapter 1), whereas excessive regulation also comes with the risks of deterring foreign agribusiness investors (SVI 2018; Mandimbinsoa 2020). An excellent example of that is the
most recent move of the Malagasy Government in re-establishing minimum prices for vanilla in an attempt to respond to dwindling demand for Malagasy vanilla and crashing prices post-2018 (MICA 2020).

To some extent, the new international market for natural flavors is also involved in the quality crisis of vanilla in Madagascar (cf. Aust and Hachmann 2017 and Appendix 8C). When Nestlé announced in 2015 to use only natural vanilla flavors in their products to be marketed in the USA (Melo Olarreaga and Takacs 2000; Pokorna and Smutka 2011; Sisifa et al., 2017), other big food and beverage companies followed suit not to miss the trend (Bomgardner 2016; Sisifa et al., 2017). Where non-demanding industrial applications are targeted (e.g., low-cost beverages and low cost sweets) these companies may not even need high vanilla qualities. What they do need is to conform with national regulations in the consumer countries allowing them to claim a "natural" flavor in their products.

The USA, for example, have food labeling regulations that define what can be labelled as "natural" flavor and what cannot. Interviewed exporters (Appendix 8C) as well as various sources of literature (cf. Bomgardner 2016; Lalani 2017) have mentioned in unison a Food and Drug Administration (FDA) regulation known as "CFR Code 21 / Regulation 169.175" that defines the mixing ratios of vanilla in terms of solid matter to liquid content of alcohol based extract that can legally pass as "natural vanilla" extract in the US Food and Beverage Industry (FDA 2021). Unfortunately, CFR Code 21 does not define what type of vanilla quality (in terms of maturity and vanillin content) must be used to qualify for the label "natural vanilla" flavor. According to the interviewed exporters in the SAVA Region, CFR Code 21 plays a critical role in creating demand for low-quality vanilla from Madagascar because it allows US American food and beverage companies to use among other premature vanilla of low vanillin content from Madagascar, which sells for several hundred US dollars per kg less at export than maturely harvested beans with a higher vanillin content. In using premature vanilla - some of which may even be stolen vanilla or vanilla traded illegally in Madagascar before official market opening - industrial food and beverage companies in the USA can still label their products containing "natural vanilla" flavors. So, as long as there is continued demand for poor vanilla qualities from Madagascar, there will be no end to theft and premature harvesting.

The industry-wide roundtable, known as the Sustainable Vanilla Initiative (SVI), has realized the problem (SVI 2018; IDH 2019) and agreed to increase voluntary efforts by major agro-industrial buyers (1) to reduce the share of exceptionally prematurely harvested "cuts" (vanilla beans shorter than 10cm) in their acquisition portfolios to 10% by 2018 and down to 5% by 2025 (cf. Appendix 8C) as well as (2) to engage in product traceability (SVI 2020) so that
major international vanilla buyers would at least make deliberate efforts to avoid buying stolen vanilla. However, some of the interviewed exporters admitted that it is not clear how to achieve these targets by a voluntary code of conduct. A re-introduction of quality-related quotas at export in combination with quality differentiated pricing (cf. Appendix 8C) - could be a regulatory alternative to force companies to curb the acquisition of poor vanilla qualities from Madagascar. In the absence of solutions to speculative trade or to vanilla theft in Madagascar, this study concludes that improving contractual design would not be sufficient to halt high levels of contractual breakdown when vanilla prices boom.
General Conclusion

Gaining access to predictable quantities of pre-defined quality categories is a priority for agro-industrial vanilla buyers. It is one of the main reasons pushing for vertical integration in the global supply chain of vanilla, accounting for the rapid emergence of vanilla-related CF schemes in Northeastern Madagascar in recent years. This study concludes that nearly 20% of vanilla farmers in the SAVA Region produce vanilla under contract today. Yet, 55% of these vanilla CF schemes broke down in Mid 2018 - at the peak of an escalating price boom (2012 - 2018).

The global vanilla market suffers from extraordinary price volatility. In Northeastern Madagascar, price spikes tend to be amplified by speculative trade and by escalating vanilla theft, which leads to premature harvesting behavior among smallholder vanilla farmers and deterioating product quality. Under these market circumstances, opportunistic side-selling (a farmer default) and opportunistic side-buying (a buyer default) occur and challenge the stability of CF schemes. High contractual default rates reduce the development-oriented potential of CF, however, as contractual buyers end up preferentially selecting resource-richer signatory farmers who offer more reliability in supplying agreed vanilla quantities in acceptable product quality. In this context of extreme price volatility, the opportunity to promote inclusive business in an effort to sustainably commercialize smallholder vanilla production in Northeastern Madagascar is compromised. The question of whether this dilemma could be relaxed resulted in the following conclusions:

First, possibilities exist to improve the design of CF offers in terms of increased mutual benefit during a price boom. The use of market-adjusted pricing is one example. It is widely practiced by contractual vanilla buyers in Northeastern Madagascar. Two further possibilities were identified by this study. These include the integration of (1) "strategic" measures of corporate social responsibility (CSR) and (2) multiple certifications. These solutions both make microeconomic sense from the smallholder perspective, provided that the contractual buyer is able to bear the costs involved in implementing them. Increasing microeconomic incentives as a design element of CF offers is a common strategy to reduce opportunistic side-selling by farmers. In order to succeed in the reduction of side-selling, it is important that a range of quality services is provided by the buyer that matches smallholder preferences (cf. Chapters 3-5).
Second, mutual benefit is only one among several preconditions for successful CF. Other preconditions to achieve longer-lasting supply and acquisition commitments in CF include a high (and sustained) demand for the commodity, mutual dependence, and mutual trust between the buyer and signatory farmers. Mutual trust can be increased by proximity and by repeated interactions but typically requires some time to establish. Mutual trust is compromised, by contrast, through opportunistic interactions between buyers and farmers.

Third, strategies aimed at increasing mutual benefit reach their limits if they threaten the profitability of a contractual buyer during a price boom. An escalating price boom is, first and foremost, a microeconomic crisis for the buyer, not for the signatory farmer. Opportunistic behavior of buyers, such as side-buying, occurs when the buyer struggles to find an international client willing to pay exceptionally high prices for available product qualities. In these cases, buyers may decide to reject the products of signatory farmers to buy the commodity cheaper on local spot markets – or even from other producer countries. The buyer may even change his/her vertical coordination mechanism and/or investment strategy, thus putting future contractual transactions at risk. If mutual benefit for buyers can be maintained and opportunistic behavior reduced, then CF has a chance to survive. A likely catalyst for these two virtues to happen could be the presence of a neutral mediator who supports the buyer in implementing CF, both financially and logistically.

Fourth, strategic development partnerships with international development organizations can offer a (temporary) solution to prevent a contractual breakdown during an escalating price boom. Development partnerships can provide logistical relief to contractual buyers to address the challenge of maintaining regular contact with producer groups. Frequent personal contact can help prevent signatory farmers from engaging in opportunistic side-selling, particularly during a price boom. A development partner can also provide financial assistance to a contractual buyer by taking on extension provisions. This may be particularly welcome during a costly price boom from the buyer's perspective. Importantly, a development partner may contribute to more inclusive business practices, particularly once the boom is over, by conditioning financial assistance provided (e.g., by demanding equal participation of male and female farmers or by insisting on the inclusion of resource-poorer farmers) once market conditions have relaxed. During the boom, development partners can exert some public pressure on the contractual buyer, particularly when he/she may want to decide to engage in opportunistic side-buying.
Finally, unless speculative trade and vanilla theft can be substantially reduced in Madagascar, there is little hope that CF schemes will survive a future price boom. Speculative trade and vanilla theft drive escalating prices and deteriorating vanilla qualities. These problems highlight existing regulatory failures in Madagascar (and in the USA), which need to be addressed by the Malagasy Government.

**Recommendations for buyers wishing to launch vanilla CF schemes during a price boom**

New traders seeking to establish CF schemes in Northeastern Madagascar during an evolving price boom would be given the following general advice based on the results of this study:

1) **Avoid investing in CF schemes during an acute price boom.** Our data show that CF schemes tend to have a high default rate in such a situation.

2) **Focus on simple market specification contracts, if you need to launch a CF scheme during a price boom.** Farmers are more receptive to the challenge of producing quality (ripe) vanilla rather than to respect additional process qualities related to sustainability standards during a boom. Environmental production restrictions (associated with *Organic* and *Rainforest Alliance*) are particularly unpopular in such a situation.

3) **Avoid production management contracts during a price boom, unless you have already identified reliable producers.** If required to implement private voluntary standards for an international client, try to integrate *Fair Trade* in combination with *Organic*. Multiple certifications with these two categories of sustainability standards do increase administrative costs of implementation for the trader, but in combination, these two standards can offset the economic costs that smallholder vanilla farmers associate with the implementation of *Organic*.

4) **Consider including strategic CSR measures in your CF offers, if you struggle with high contractual default rates due to side-selling by signatory farmers (or as a result of non-achievable product qualities).** Strategic CSR can help tackle these issues in business-minded manner. To give an example: In order to increase the popularity of CF offers during times of heightened vanilla theft, aim to support signatory farmers to secure their vanilla fields. This also decreases the risk of production shortfall (through flower contracts, by premature harvest or by loss of vanilla from contracted fields) from the perspective of the buyer. It is a potential win-win investment.
5) Consider reaching out to more remote communities (further up into the highlands), if you pursue an effort to avoid buyer competition during the price boom. Remoteness implies the absence of major roads and a lack of infrastructure to access. Remoteness reduces not only buyer competition but also the likelihood of vanilla theft and farmer side-selling according to triangulated buyer experience. Chances for contracted farmers to supply good quality (ripe) vanilla increase. Proximity and regular control and supervision of farmers are compromised, by contrast.

6) Allow for mutual trust-building to reduce defaulting producer groups. Ensuring regular visits by extension staff and considering transparent rules for conflict resolution go a long way in trust building between buyers and farmers. Abuses of power in producer groups are likely in the price boom phase, too. Collective action within farmer groups may be compromised due to past incidents of vanilla theft. Families who have been severely affected by vanilla theft (as victims or as perpetrators) may need some process of reconciliation in the village or else they may not be willing to aggregate the product together.

7) Offer longer-term contracts (2 years or longer) during a price boom and filter out the non-serious farmers. At first glance, this recommendation may appear counter-intuitive, following the logic of needing to select performant farmers through annual contracts - which is the standard practice in the SAVA Region. However, offering longer-term contracts (e.g., a 2 year contract) is meant to identify more seriously committed farmers by self-selection. Opportunistic farmers reported not being interested in CF offers longer than one year. As the legal system in Madagascar is unreliable and not expected to enforce CF arrangements in practice, longer-term contracts would not be of disadvantage to the buyers. New supply chain laws in consumer countries, however, give good evidence of increasing public scrutiny of agricultural commodity buyers in global supply and value chains. Consequently, buyers need to consider their investment decisions carefully before launching CF offers.

8) Wait until prices will have dropped back to lower levels before venturing into vanilla CF, particularly if you are a smaller trader (exporters or preparators who lacks the financial resources to lodge risky investments). As the price boom context is characterized by high levels of buyer competition and a high rate of contractual default, smaller agribusiness
traders lacking economic resources and financial reserves to test contractual improvements are advised to be cautious about venturing into CF during a market boom.

9) Seek a strategic partnership with development organizations (i.e., with rural service providers) to ensure more regular support of signatory farmers. This is particularly relevant for logistically-challenged buyers whose financial resources may be too limited (e.g., too scarce to support an own team of extension staff). This recommendation is also relevant for buyers who operate CF schemes without geographical proximity, as more regular communication can enhance trust building and longer-term success in CF.

10) Adopt an adaptive management philosophy in your efforts of improving contractual design.. In order to test the feasibility and efficacy of above-mentioned recommendations to achieve longer-lasting contractual commitments, adaptive management (also known as “Rapid Prototyping” or as “Design Thinking”, cf. Brown 2019, Martin 2009; Stickdorn and Schneider 2012; Reed, Fraser and Dougil 2006; Castro-Arce and Vanclay 2020) can serve buyers as a good guiding principle when improving contractual design.

Adaptive management as a possible way to test the popularity of improved CF options
Given the possibility of a rapid change in the macroeconomic market situation, the choice experimental results presented in this study should be interpreted indicatively as their validity is verified only for the studied price boom context. Nevertheless, our results can give contractual buyers (exporters and preparators of vanilla) as well as international development organizations an insight into general tendencies of contractual preferences by different groups of smallholders (average vanilla farmer in the SAVA Region vs. contracted vs. non-contracted vs. male vs. female farmers). Importantly, we found that preference heterogeneity exists within each smallholder group of vanilla farmers with regard to specific CF attributes. This can be seen from the within-sample heterogeneity coefficient ($\beta$) in our choice experimental results (cf. $\beta$ in Chapter 3, Table 11 for within male vs. within female preference heterogeneities; cf. $\beta$ in Chapter 5, Table 23 for within contracted vs. within non-contracted farmer preference heterogeneities). Therefore, identified averages of preference tendencies for each group (cf. Chapter 5, Table 24) should not be confused as having prescriptive (nor absolute) validity (with each and every individual). There are always exceptions in the samples of each group that chose
otherwise. General patterns presented here shall hold true across a large number of individuals, however.

**Smallholder preferences are heterogeneous and highly context-specific**

Apart from male vs. female preferences (Chapter 3), preferences for different process standards (Chapter 4) or preferences of resource-richer vs. resource-poorer farmers (Chapter 5) there are also social and geographic factors (Chapter 5) as well as targeted marketing channels of vanilla [green vs. vrac vs. black] (Chapter 5) which can influence smallholder preferences for specific CF features. For example, between the two ethnic groups of the SAVA Region, the Betsimisaraka (along the littoral) and the Tsimihety (in the highlands) farming systems, marketing preferences and quantities of vanilla produced are very different.

A suitable approach for exporters to test whether modifying specific CF features achieves improved popularity and supply commitment among signatory farmers is to adopt an *adaptive management* philosophy - in the business literature also known as “design thinking” approach (Brown 2019, Martin 2009; Stickdorn and Schneider 2012). In testing whether modifications of contractual design work (cf. Figure 49 below), such an approach involves *rapid prototyping* and only requires *lean investments* (Brown 2019, Martin 2009; Stickdorn and Schneider 2012). This approach is widely practiced and accepted in the business world. It is already followed by contractual buyers in the SAVA Region when engaging in performance-based retention of smallholders in their CF schemes.

Arguably, a “smart contract” is one which can adapt itself to the changing macroeconomic situation. Given that the vanilla market can quickly transition from a boom into a bust period - or vice versa - following a logic of adaptive management allows contractual buyers and development partners to evaluate after each season (Reed, Fraser and Dougil 2006; Castro-Arce and Vanclay 2020) whether an increased share of signatory smallholders respects their supply commitments or not.

**A sincere monitoring and evaluation effort is the foundation to achieve any real progress.**

A precondition for successful outcomes from testing data-driven recommendations is that exporters are willing to invest in outcome-oriented monitoring and evaluation (Ngwenya and Hagmann 2007; cf. Figure 49). Alternatively, arrangements with development partners may achieve this task. For example, records on harvested volumes and annual sales by signatory farmers should be available to monitor the stability and evolution of market specification contracts with signatory farmers. Monitoring efforts that verify successful improvements to
contractual design (by capturing indications of a change of popularity of different CF options among smallholders) for production management contracts would be expected to be substantially more complex to measure, by contrast. Tracking insecticide residues on vanilla crops would be required for Organic contracts. Including gender-disaggregated data to track welfare effects for women or resource-poorer farmers would be necessary to evaluate Fair Trade- and Rainforest Alliance contracts. Monitoring remaining forest cover and natural resource conservation (including Biodiversity) would add another level of complexity to prove the positive impact of Rainforest Alliance contracts. (cf. Figure 49) A monitoring and evaluation team should enable investors to detect improvements and failures related to their (certified) CF offers.

For the reasons mentioned above, this study highly recommends that exporters and preparators (and their funding partners) follow an adaptive management strategy while testing the feasibility of our conclusions and recommendations in practice. (cf. Figure 49)
Figure 49 - How to improve contractual design: testing modifications of CF features in an adaptive management cycle
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Appendices

Appendix 1 – Example of a “Rainforest Alliance” contract extended by a major agro-industrial buyer to groups of smallholder vanilla farmers in the SAVA Region

[French text]

1. ANDRAIKITRY NY MPANDAMIN’ASA :
   - Mitantana iraco rafipandamianana anaty (Contrôleur Interne : CL, ny Comité Local d’Approbation : CLA fizohina iraco firihipika sy ny tolo-kevitra faratsarana)
   - Mametrafa ny fandaharam-piofana mihohy manonde irery na miaraka amin’ny sampana izay miaritso roa ireo mpamokatra
   - Mitantana ny fividianam-bokatra, manana-ganaka ny hataran’ny vokatra, ny fikarikara, faradinana sy faratorana lavania izay novokana araka ny fepe tra notakin’ny RAINFOREST ALLIANCE
   - Mitantana iraco tarehi-marika avy amin’ny fikamianan’ny mpamokatra ary mitandro izany ho tsiam baratelo, atao anatin’ny fikampitokisana sy fangasaharana
   - Manampy iraco mpamokatra amin’ny fambolena iec voły hafa fanondrana, fahazovana vany, fambolen-kazo, fikajiana ny ala ary asa sosia na rano
   - Manome torimarika ny mpamokatra amin’ny fanatserana izay voatsiakirina na andavanandro na mandritra ny fitisiriana

2. ANDRAIKITRY NY MPAMOKATRA :
   - Manaja ireto fenitra manaraka ireto :
     - Tsy mampifangaro ny lavanila avy taminy tanin’ny tanin’ny lamanova fahazovana amin’ny lavanila avy taminy toerana-kafo
     - Tsy/manimba ireto tontolo manodidina sarato fady (ala, ........) renivohy lavanila
     - Tsy maka zavatra avy amin’ny alan-javabe, ary amin’ny toerana izay nanasonana DNA
     - Tsy/mitrandraka ireto harena an-kiboni ny thiny
     - Tsy manafaka ireto hazo saro-bidy
     - Tsy maka ireto zava-maniry izay efa ho lany tamingana ary tsy mihaza ireo bibidia toy ny gidro, fosa, ........
     - Mitandro ny fahadizovan’ny rano (saha, loharano, renirano) ary manadira ny tsy hanaria fako ao ari zavatra samihafa toy ny fanafody simika
     - Fanajiana ireo fepetra nofaran’ny lalanana momb ny amin’ny fanovana ny mpiasa, karana aradalana, .......
3. FAHARETANY:

Tsy voafetra ny faharetany izay fianarana ity. Azo atsalatra anefa izany amin'ireto antony manaraka ireto:

- Tsy fahatanterahana ireo fianekena avy amin'ny andanininy sy ankilany
- Fianan'ny mpamokatra ao twiray tay hafa, fahatsy

4. SAZY

Amin'ny tsy fahatanterahana ireo fenitra mahavery zo ho RA

- Mpikambana vaovao, tsy nankatoavina ny fitidirany ao
- Efa mpikambana nahazo fankafoavana ilay mpamokatra ka natsahatra tsy ho RA, ny lavanilany dia tsy azo ho vidina amin'ny fepetra takin'ny RAINFOREST ALLIANCE
- Azo atsalatra ny sazy fampiatoana azy rehetra ary nohamarinina ireo asa finitsiaka nagatahina taminy, amin'alaan'i fitsirihana vaovao

Amin'ny tsy fahatanterahana ny fenitra azo ivalozana, eroso ny drafitra fanatsaranana sy fiofanana

Raha misy hosoka izay tsoy tsoy lavina ny fajany, fiasaka anin'ny natao amin'ny fitsirihana na koa farandavana ny fanajana ny fanekeha, eson'i tsoy ho mpikambana tanteraka amin'ny RAINFOREST' insony ny mpamokatra na koa mandirian'i ny fotoana voafetra

Manaihy ireo fepetra voalaza ato anatin'ity fianekena ity ny andanininy sy ankilany ka manao sonia eto ambany

Toerana:
Daty:
Solon-teny ny mpamandamin'asa

Mpanokatra Lavania
Translation of the depicted “Rainforest Alliance” contract from Malagasy (pictures above) to French (below)

Contrat entre l'organization et le producteur.

L’ Organization :
Nom du producteur :
Code d'identification :
Adresse :
Fokontany :

C'est un contrat qui relie l'Organization d'une part et les producteurs d'autre part pour le respect des obligations certifiées par le RAINFOREST ALLIANCE, dont voici les contenus :

1° Les responsabilités de l'organization :

- La gestion des structures de l'organization interne (Contrôleur Interne : CI, le Comité Local d'Approbation : CLA); suivi des règlements et des propositions pour une amélioration.
- Elaboration des programmes de formations continues avec ou sans les partenaires.
- Gestion des achats de production, surveillance de la qualité de production, sa préparation et sa vente suivant les obligations exigées par le RAINFOREST ALLIANCE.
- Gestion des quantités (chiffres) venant de groupements des paysans en gardant celles-ci en secret. Et tout ceci se fait dans la confiance et la transparence.
- Aide les producteurs à la pratique des autres cultures de rente à part la vanille, aide pendant la période de soudure (achat du Riz), reboisement, protection de la forêt et diverses activités sociales.
- Donne des instructions aux producteurs (correction/perfectionnement) suite aux contrôles periodiques.

2° Les responsabilités de producteur :

Respecte toutes ces obligations sous-cités :

- Ne melange pas la vanille contractualisée et non contractualisée.
- Ne detruit pas l'environnement comme la forêt, .....pour la culture de la vanille.
- Ne chasse pas et ne tue pas les animaux dans les aires protégées.
- N'exploite pas les ressources minières.
- Ne coupe pas les bois précieux.
- N'exploite pas les espèces forestières qui sont en train de disparition et ne chasse pas les espèces comme les lemurisien, ........
- Veille la pureté des cours d'eau et interdit les gens d'y jeter des ordures, des produits chimiques comme des pesticides, des insecticides,.....
- Respecte les conditions stipulées par le code de travail (protection sociale, salaire, .....).
➢ N'utilise pas :
  • les enfants de moins de 15 ans;
  • Les adolescents de 15 à 17 ans en dehors de menages si il n'y a pas d'un accord au préalable de leurs parents; le cas échéant, ne pas pouvoir travailler plus de deux (02) heures par jour si c'est ceux du ménage. Il faut bien étudier le genre de travail qu'on peut leur donner : moins pénible ou peu accidentel,.....
➢ N'utilise pas des produits chimiques (insecticides,....) et maîtrise le mode d'emploi et les notices exigées par ces produits si c'est autorisé.
➢ Evite tous les contacts explosifs.
➢ Participe à la formation continue et applique (ou suit) toutes les instructions techniques recommandées.
➢ Fait connaitre les réalités locales au Contrôleur Interne (CI) et aux Contrôleurs externes, et leur permet de passer dans le champs de vanille et de faire un entretien avec.
➢ Applique toutes les corrections faites par l'Organization.
➢ Fait connaitre tous les changements qui ont pu être survenu dans le champs de vanille contractualisé.

3° Sa durée :

Ce contrat est indéterminé. Il peut être désormais suspendu pour des raisons sous-mentionnées :
  ✔ Le non respect des contenus du contrat venant de l'un ou de l'autre.
  ✔ La demission de producteur.

4° Les sanctions :

Pour la non réalisation des conditions qui pourraient perdre le droit pour être un RA.

  ✗ Nouveau adhérant, son adhésion n'est pas autorisé.
  ✗ Ancien adhérent mais suspendu de son statut de RA, sa vanille n'est pas acheté selon les conditions exigées par le RAINFOREST ALLIANCE.
  ✗ Sa suspension est levée quand les corrections demandées sont vérifiées par un nouveau contrôle.

Pour la non réalisation des normes faciles à réaliser, il est à proposer d'avancer le plan d'amélioration et de formation.

Quand il y a des fraudes vérifiées, le refus volontaire aux contrôles et aussi le non respect des contenus du contrat; le contrat avec le RAINFOREST ALLIANCE sera regilié ou suspendu pendant un certain moment.

Les deux (02) partis contractantes s'engagent à respecter les termes prevues par le présent contrat et apposent leurs signatures.

Lieu :
Date :
Le représentant de l'Organization.
Le producteur.
# Appendix 2 – Overview of Organic vs. Fair Trade vs. Rainforest Alliance certification principles

<table>
<thead>
<tr>
<th>Principles</th>
<th>EU Organic</th>
<th>Fair Trade Small Producer</th>
<th>Rainforest Alliance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improved livelihoods and human well-being</strong>&lt;br&gt;-legal minimum wages paid to farmers and wage laborers&lt;br&gt;-no use of child labor</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td><strong>Fixed minimum prices and price premia</strong>&lt;br&gt;-Certified farmers receive fixed-price premia to add up to a minimum price that allow for continued production regardless of market prices&lt;br&gt;-When the market price is higher than the Fair Minimum Price, producers should receive the current market price or the price negotiated at contract signing</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td><strong>Democratic decision making</strong>&lt;br&gt;Farmers are expected to form cooperatives that distribute the price premium. Profits should be equally distributed among the farmers. All members have a voice and vote in the decision-making process of the cooperative</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td><strong>Integrated planning and farm management</strong>&lt;br&gt;-e.g., wide crop rotation as a prerequisite for an efficient management of soil fertility&lt;br&gt;-taking advantage of on-site resources, such as livestock manure for fertilizer or feed produced on the farm&lt;br&gt;-integrated pest management</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td><strong>Strict limits on synthetic inputs</strong>&lt;br&gt;-reduction of chemical pesticide and synthetic fertilizer&lt;br&gt;-reduction of livestock antibiotics and food additives</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td><strong>Prohibition of the use of genetically-modified organisms</strong></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Biodiversity conservation</strong>&lt;br&gt;-avoiding negative consequences on nearby protected areas and aquatic systems&lt;br&gt;-maintaining wildlife corridors</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td><strong>Natural resource conservation</strong>&lt;br&gt;-certified farms work to minimize soil erosion and compaction, water conservation, solid waste management</td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

**Overview based on:**

[https://www.fairtrade.net/standards/](https://www.fairtrade.net/standards/)

[https://www.rainforest-alliance.org/business/sas/how-certification-works/farm-certification/](https://www.rainforest-alliance.org/business/sas/how-certification-works/farm-certification/)
A) Items asking about benefits that contractual farmers receive from their respective buyers; excerpt taken from questionnaire of Diversity Turn Baseline Survey (Hänke et al., 2018)

Avantages
19. a. Quels sont les avantages que vous avez grâce à votre acheteur? [Inona avy ny toboetsa azonareo avy amin’ny mpividy la vanille]

☐ marché assuré (payez est assuré de vendre toute sa vanille contractualisé, il peut compter sur ca et planifier son bénéfice) azo antoka fa misy mpividy (ny mampokatra dia matoky @ famarotany vokatra efa vita fifanarahanana, afaka miantehatra amin’io izy ary afaka mandrindra ny famplasany ny tombony)

☐ soutien alimentaire pendant la période de scoude (p. ex. provision du riz subventionné)

Tohana ara-tsakafo mandritra ny fotoan’ny maitso ahitra (ohatra famatsiana vary)

☐ crédit monétaire pendant la période de scoude

Antoka ara-bola mandritra ny fotoanan’ny maitso ahitra

☐ provision du matériel pour sécuriser les champs de vanille contre le vol (provision des torches, imperméables, kit de premier secours, etc.)

Famatsiana fitaovana ho flammenana ny vavasaha amin’ny alatra (lampe torche, imperméable, zavatra ilaina @ vorijy maika...)

☐ crédit monétaire pour le jardinage / sécurisation des champs de vanille avant la récolte

☐ crédit monétaire pour les femmes

Antoka ara-bola amin’ny flammenana vavasaha ho fiarovana ny fitsongoana la vanille alohan’ny fotoam-pihotazana

☐ mutuelle de santé tohana ara-pahasalamana

☐ appui scolaire pour les enfants (par ex. les frais scolaires sont payés, les fournitures sont payées, les écoles sont réparées / les profs payés)

(Tohanha ho amin’ny famplanarana-rives (ekolazy,fitaovana ilaina dia voaefa, voamboatra ny sekoly’ny mampianatra dia voaefa))

☐ appui technique agricole (formations sur la production amélioré de vanille, formations sur la gestion des champs agricoles)

Tohana ara tekini amin’ny famboliana (fiofanana ho amin’ny fampitombona ny vokatra, fiofanana ho amin’ny fitantanana ny tanim-pamokaranan)

☐ appui technique financière (formations sur les calcul des affaire, la compatibilité, la priorisation des cultures, etc)

Tohana ara-tekini amin’ny fitantanam-bola(fiofanana amin’ny kajikajy mpitantanana, fanomezan-doandrahara ha ny famboliana)

☐ prix correct pour ma vanille qui est plus avantageux que le systém des "contrats de fleurs" auparavant (prix du marché après date officielle)

Vidiny la vanille mianjatanana zay ahazoana tombony raha oharina amin’ny contrat fleur teo aloha

☐ primes payées sur le prix du vanille (par exemple 5000 - 25 000 Franc extra par kg pour la vanille certifié/contractualisé)

Ambony ampanangany azo amin’ny la vanille(ohatra 5000-25000 fmg isaky ny kg ny la vanille certifié

☐ appui en achat des outils ou des biens de consommation (p.ex achat des sceaux vides, des motos, des matériels de construction, etc)

Tohana amin’ny fividianana fitaovana na zakafo ho hanina (ohatra, sous-vide, moto, fitaovana ilaina amin’ny fanamboarana-trano)

☐ apui en semences ou plantules pour la diversification des cultures de rente (par exemple: cacao, café, giraffe, etc);

Tohana amin’ny masim-boly na nanakazo ho amin’ny fampidiram-bola hafa @ vokatra fanondrana (cacao, café)
□ Pas d’avantage

□ Autre avantage

Si "pas d’avantage": continuez avec 22

20.b si "prises payées":

□ prix de marché + 5000 Fr extra / kg (Vidiny eny antsena + 5000 Fr hafa/kg)

□ prix de marché + 10000 Fr extra / kg

□ prix de marché + 15000 Fr extra / kg

□ prix de marché + 20000 Fr extra / kg

□ prix de marché + 25000 Fr extra / kg

□ autre: __________

If (20a-d) = 1: Paysans avec contrat
B) A) Items asking about production restrictions which contractual farmers need to abide by in order to remain in contract farming arrangements of respective buyers; excerpt taken from questionnaire of Diversity Turn Baseline Survey (Hänke et al., 2018)
Appendix 4 – Participatory process used to design the Choice Experiment (2016-2017): Results of attribute selection studies preceding the Choice Experiment

Triangulation of most appreciated CFA benefits as stated by vanilla farmers in the SAVA Region: an overview of preliminary studies to the choice experiment conducted in 2016 and 2017 for attribute selection

### Interest free loans as financial aid at difficult moments in the seasonal calendar

- to be used to renew lianas and tutors
  - 7 of 7 (Village 3, Exporter 1) | n/a | “important”
- to be used to evade predatory lending arrangements during the hunger period
  - Top 2 of 7 (Village 4, Exporter 2) | 6 of 8 | “very important”
  - Top 2 of 6 (Village 4, Exporter 3) | 6 of 8 | “very important”
  - Top 3 of 6 (Village 3, Exporter 1) | 6 of 8 | “very important”
  - Top 2 of 3 (Village 1, Exporter 1) | 6 of 8 | “very important”
  - Top 2 of 3 (Village 2, Exporter 4) | 6 of 8 | “very important”
- to be used to guard vanilla fields before harvest time
  - Top 1 of 3 (Village 2, Exporter 5) | Top 2 of 8 | “very important”
  - 4 of 5 (Village 2, Exporter 1) | Top 2 of 8 | “very important”
  - 6 of 7 (Village 3, Exporter 1) | Top 2 of 8 | “very important”

### Income-generating activities

- to diversify cash crops though additional contract schemes offered by exporters
  - Top 4 of 7 (Village 3, Exporter 1) | Top 1 of 8 | not mentioned
  - Top 5 of 7 (Village 3, Exporter 2) | Top 1 of 8 | not mentioned
- to start micro-enterprises (Micro Credit Institutions / Enterprises or NGOs)
  - 6 of 6 (Village 3, Exporter 5) | n/a | not mentioned
  - 6 of 6 (Village 3, Exporter 5) | n/a | not mentioned

### Income-saving measures

- to receive subsidized rice during the hunger period to reduce premature sale
  - Top 3 of 6 (Village 3, Exporter 5) | 6 of 8 | “important”
- to receive subsidized tools and consumer goods to save money
  - 6 of 7 (Village 4, Exporter 2) | Top 1 of 8 | “important”
Health insurance
- to ease financial bottlenecks (only offered by Exporter 1 thus far)

<table>
<thead>
<tr>
<th>Top 1 of 7 (Village 3, Exporter 1)</th>
<th>Top 1 of 3 (Village 1, Exporter 4)</th>
<th>Top 3 of 8</th>
<th>“important”</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 of 3 (Village 1, Exporter 1)</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Support with schooling of children
- to ease financial bottlenecks

<table>
<thead>
<tr>
<th>3 of 3 (Village 1, Exporter 1)</th>
<th>5 of 8</th>
<th>“important”</th>
</tr>
</thead>
</table>

Material assistance to secure vanilla fields
- to be equipped with raincoats, waterproof gumboots, torches, whistles, first aid kits (several buyers are doing this)

<table>
<thead>
<tr>
<th>4 of 6 (Village 3, Exporter 5)</th>
<th>6 of 6 (Village 4, Exporter 3)</th>
<th>7 of 7 (Village 4, Exporter 2)</th>
<th>Top 2 of 8</th>
<th>“important”</th>
</tr>
</thead>
</table>

Advantages associated with exclusive supplier status in contract farming arrangement
- assured market at normal price for a fixed quantity of vanilla meaning that farmers can plan ahead financially (assured by any type of CFA regardless of specific contract options)

<table>
<thead>
<tr>
<th>Top 1 of 6 (Village 3, Exporter 1)</th>
<th>7 of 8</th>
<th>“very important”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 1 of 3 (Village 1, Exporter 5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- price premium of 1000Ar to 5000Ar per kg above market price for green vanilla after market opening

<table>
<thead>
<tr>
<th>Top 1 of 6 (Village 4, Exporter 2)</th>
<th>n/a</th>
<th>“very important”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 1 of 7 (Village 4, Exporter 3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend explaining “Triangulation Barometers” presented above
Sources of information mentioning presented benefits as particularly valuable to farmers:
Simple Ranking Exercise by Farmer Focus Groups (2016), N=66
Likert Scales in Baseline Survey (2017), N=1350
Qualitative Study preceding Pilots of Choice Experiment (2017), N=78
Triangulation of CFA obligations perceived most difficult to respect by vanilla farmers in the SAVA Region: an overview of preliminary studies to the choice experiment conducted in 2016 and 2017 for attribute selection purposes

**Environmental Protection**
- Forest Conservation: Do not slash and burn for rice cultivation (RA)
  - Top 1 of 3 (Village2, All) | Top 5 of 15 | Top 4 of 15 | **Top 3 of 8** | “very difficult”
- Water Conservation: Do not use open waterways and rivers as shower or toilet (RA)
  - Top 1 of 3 (Village2, All) | Top 1 of 15 | Top 1 of 15 | n/a | “very difficult”

**Adoption of “Good Agricultural Practices”**
- Respect organic standard: Do not use treated bed nets (Organic)
  - n/a | n/a | **Top 1 of 8** | “difficult”
- Do not utilize chemical pesticides or fertilizers (Organic)
  - 15 of 15 | 11 of 15 | n/a | “easy”
- Cover soil after practicing slash and burn (e.g. for African dry rice) (RA)
  - Top 4 of 15 | Top 4 of 15 | 8 of 8 | n/a
- Avoid child labor (for children < 15 years). Send them to school regularly (RA and Fair Trade)
  - 13 of 15 | 7 of 15 | n/a | “difficult”
- Pay fair wages and health bills for wage laborers (RA and Fair Trade)
  - Top 2 of 15 | Top 4 of 15 | 7 of 8 | n/a
### Quality-related conditions

- **Only harvest ripe vanilla**
  
  | mentioned (Villages 2-4, All) | n/a | n/a | Difficult: only 48% in contracts effectively respect it (161/337) | Difficult: only 40% effectively respect it (31/78) |

- **Do not vacuum bag vanilla**
  
  | n/a | n/a | n/a | easy: 98% effectively respect it (1829/1860) | easy: 95% effectively respect it (74/78) |

- **Do not mix contracted with non-contracted vanilla** (Traceability)
  
  | Top 3 of 3 (Village2, All) | Top 3 of 15 | Top 5 of 15 | Difficult: only 49% who are in contracts effectively respect it (165/337) | n/a |

### Contract-related Obligation

- **Sell agreed quantity in agreed quality to contractual buyer - not aside** (Fidelity)
  
  | mentioned (Villages 2-3, All) | n/a | n/a | Top 4 of 8 | “depends” |

---

**Legend explaining “Triangulation Barometers” presented above**

Sources of information mentioning the obligation as particularly difficult to respect:

| Simple Ranking Exercise by Farmer Focus Groups (2016), N = 66 | Pairwise Ranking by Sustainability Managers working for Exporters (2016), N = 2 |
| Likert Scales with Rainforest Alliance Certified Households (2016), N = 20 | Likert Scales in Baseline Survey (2017), N = 1350 |
| Qualitative Study preceding Pilots of Choice Experiment (2017) N = 78 |
Appendix 5 – Piloting the Choice Experiment (2017-2018)

Two Pilot Studies

1\textsuperscript{st} CE Pilot Study (2017)

- 5 villages within 4 hours
- North of Sambava
- \( N = 122 \text{ farmers} \)

2\textsuperscript{nd} CE Pilot Study (2018)

- 5 villages within 4 hours
- West of Antalaha
- \( N = 106 \text{ farmers} \)

Testing iterations of pictogrammatic illustrations to use in the CE
Appendix 6 – HH Survey of Choice Experiment (2018): Items about smallholder preferences for contract farming features asked to [N=604] smallholders in 14 randomly-selected villages across the SAVA Region

**Enquête 2018: Les Préférences Contractuelles des Producteurs de Vanille dans la Région SAVA**

<table>
<thead>
<tr>
<th>ID du ménage</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Date et horaire de l'entretien</th>
</tr>
</thead>
<tbody>
<tr>
<td>yyyy-mm-dd</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nom du village</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambalamany</td>
</tr>
<tr>
<td>Ambodiala</td>
</tr>
<tr>
<td>Ambolomadinika</td>
</tr>
<tr>
<td>Ampangadiambato</td>
</tr>
<tr>
<td>Ampatakamanitra</td>
</tr>
<tr>
<td>Andrakata</td>
</tr>
<tr>
<td>Antafialabe</td>
</tr>
<tr>
<td>Antanandava 2</td>
</tr>
<tr>
<td>Antsahameloka</td>
</tr>
<tr>
<td>Antsahanoro 1</td>
</tr>
<tr>
<td>Antsirabe Nord 2</td>
</tr>
<tr>
<td>Manakana 2</td>
</tr>
<tr>
<td>Mosorokely</td>
</tr>
<tr>
<td>Sahamazava 1</td>
</tr>
<tr>
<td>Tanambao Kobahina</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Qui tient l'entretien?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willy</td>
</tr>
<tr>
<td>Herioza</td>
</tr>
<tr>
<td>Christian</td>
</tr>
<tr>
<td>Gregoire</td>
</tr>
<tr>
<td>Leslie</td>
</tr>
<tr>
<td>Sindric</td>
</tr>
<tr>
<td>Turbli</td>
</tr>
<tr>
<td>Adele</td>
</tr>
</tbody>
</table>

355
1. Présentez-vous au producteur: Qui sommes nous, Quel est notre intérêt, Qu'est-ce qu'on peut offrir pour l'entretien.


Femme ou Homme
- Femme
- Homme

Quel est votre nom ?

Quel âge avez-vous ?

Qui est le chef de ménage?
- Moi
- Mon Époux / Épouse
- Autre
- pas de réponse

Quelle est votre relation avec le chef de ménage?
- Mère
- Père
- Fils > 18
- Fille > 18

2. Les Acheteurs de Vanille du Ménage

Boîte Info: Parmi les acheteurs de vanille il y a des rabbateurs (koba-Hava) du village ainsi que des commissionnaires. Il y a aussi des collecteurs qui travaillent pour un exportateur ou préparateur. D'habitude la vanille contractuelle est achetée par les collecteurs. Une quatrième possibilité c'est d'amener votre vanille en ville pour la vendre directement à la porte d'un exportateur / préparateur.
Combien de kg de vanille avez-vous récolter pendant cette année (en 2018) ?

__________________________

Avez vous déjà vendu de vanille cette année (en 2018) ?

☐ Oui
☐ Non

Qui a été votre acheteur principal de la vanille pendant cette année (en 2018) ?

☐ pas de réponse
☐ un rabbateur
☐ un commissionnaire
☐ un préparateur par vente à la porte
☐ un collecteur qui travail pour mon acheteur contractuel

Qui a été votre acheteur principal de la vanille l'année dernière (en 2017) ?

☐ pas de réponse
☐ un rabbateur
☐ un commissionnaire
☐ un préparateur par vente à la porte
☐ un collecteur qui travail pour mon acheteur contractuel

Qui a été votre acheteur principal de la vanille en 2016 ?

☐ pas de réponse
☐ un rabbateur
☐ un commissionnaire
☐ un préparateur par vente à la porte
☐ un collecteur qui travail pour mon acheteur contractuel

Il s'agissait de quel type de vanille ?

☐ la vanille verte
☐ la vanille en vrac
☐ la vanille préparée

Combien de kg de vanille avez-vous vendu à lui (en 2018) ?

__________________________
Combien de kg de vanille avez-vous vendu à lui (en 2017) ?

______________________________

Combien de kg de vanille avez-vous vendu à lui (en 2016) ?

______________________________

A quel prix (Ar / kg) avez-vous vendu votre vanille (en 2018) ?

______________________________

A quel prix (Ar / kg) avez-vous vendu votre vanille (en 2017) ?

______________________________

A quel prix (Ar / kg) avez-vous vendu ce type de vanille (en 2016) ?

______________________________

Avez-vous un contrat avec un exportateur ou préparateur pour vendre une partie de votre vanille ? (Exemple : Symrise, Exotique, Tsarakaïltao, Tombo Tam, Firmenich, Givaudan, Henri Fraize, RAMA Export, etc)

- Oui
- Non
- pas de réponse

Avec quel Exportateur ou Préparateur avez-vous signé un contrat en ce moment ?

______________________________

Depuis combien des années faites-vous parti des arrangements contractuels avec un exportateur ou préparateur ?

- Depuis 1 an
- Depuis 2 ans
- Depuis 3 ans
- Depuis 4 ans
- Depuis 5 ans
- Depuis 6 - 10 ans
- Depuis 11 - 15 ans
- Depuis plus de 15 ans
- pas de réponse
Quel est la durée de votre contrat avec l’exportateur / préparateur?

- 1 an
- 2 ans
- 3 ans
- 4 ans
- 5 ans
- + de 5 ans
- pas de réponse

Faites-vous partie d’un groupement des producteurs de vanille?

- Oui
- Non
- pas de réponse

Laquelle de ces propositions est l’origine de votre groupement de producteur de vanille?

- Le groupement a été créé par un exportateur ou préparateur
- Le groupement a été créé par un nous mêmes, les producteurs de vanille d’ici.
- Le groupement a été créé par un ONG (projet de développement)
- Le groupement a été créé par une initiative de l’Eglise
- Autre origine
- pas de réponse (producteur a réfusé à répondre à cette question)

Dites-moi, si vous êtes d’accord avec la déclaration suivante ou pas: “Les groupement des paysans se constituent plutôt des hommes de notre village; les femmes ont peu de voix quant à la décision quels projets à prioriser.”

- "Je ne suis pas du tout d’accord" (0 % d’accord)
- "Je ne suis pas d’accord"
- "Je ne suis plutôt pas d’accord" (Non .... Mais ...)
- "Je ne sais pas" (50% d’accord)
- "Je suis plutôt d’accord" (Oui .... Mais ...)
- "Je suis d’accord"
- "Je suis tout à fais d’accord" (100% d’accord)

3. Introduction des Opportunités et des Conditions de l’Agriculture Contractuelle dans la Région SAVA (Renseigment sur la situation actuelle du paysan)
1. Introduction des avantages en utilisant les grands images (DinaA4): "D’abord, je veux vous expliquer quelques opportunités qui sont liés aux contrats par les exportateurs et préparateurs. Il y a quelques avantages qu’ils offrent apart le prix pour la vanille. Racontez-moi après chaque si cela vous concerne ou pas."

**Instruction:** Demandez les paysans, qui ont un des avantages présentés ci-dessous, à juger la fiabilité de leur acheteur principal vis-à-vis ces avantages offerts.

a) La mutuelle de santé: Certains acheteurs offrent une assurance de santé aux ménages contractualisés. Par exemple, l’acheteur prend en charge les frais médicaux en consultation externe ainsi que l’hospitalisation. Quelques acheteurs vont contribuer jusqu’à 80% des frais médicaux. Ils offrent à enregistrer jusqu’à 7 personnes du ménage. Par contre, les 20% restant sont à payer par le ménage. C’est l’exemple de la mutuelle de Santé "Mahavelona". Question : "Est-ce que votre acheteur vous offre une mutuelle de santé subventionnée?"

- oui j’ai une assurance de santé par mon acheteur principal
- non je n’ai pas une assurance de santé par mon acheteur principal
- pas de réponse

Dites-moi, si vous êtes d'accord avec la déclaration suivante ou pas: "Mon acheteur garde bien ses promesses vis-à-vis la mutuelle de santé."

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non .... Mais ...)
- "Je ne sais pas" (50 % d'accord)
- "Je suis plutôt d'accord" (Oui .... Mais ...)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100 % d'accord)

Dites-moi, si vous êtes d'accord avec la déclaration suivante ou pas: "Ma famille est sain et tout les membres peuvent travailler."

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non .... Mais ...)
- "Je ne sais pas" (50 % d'accord)
- "Je suis plutôt d'accord" (Oui .... Mais ...)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100 % d'accord)
b) La diversification des cultures de rente: Dans le but d' aider les ménages contractualisés pendant les années de bas prix de vanille, certains acheteurs les appuient à produire d' autres cultures de rente. Des exemples incluent le cacao, le café, les girolles, le poivre, et le gingembre. Et par la suite ils achètent ces produits par un système de contrat. Par ailleurs ils fournissent les plantules et les semences requises. De ce fait, ces ménages contractualisés ont plusieurs sources de revenues. Question: "Avez-vous cet avantage? Si oui, en quelles cultures est-ce que votre acheteur vous appuie?"

- aucune
- cacao
- cade
- girolle
- poivre
- gingembre
- autre
- pas de réponse

Dites-moi, si vous êtes d' accord avec la déclaration suivante ou pas: "Mon acheteur garde bien ses promesses vis-à-vis de l'appui sur les cultures de rente."

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non ... Mais ...)
- "Je ne sais pas" (50% d'accord)
- "Je suis plutôt d'accord" (Oui ... Mais ...)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100% d'accord)

Dites-moi si vous êtes d' accord avec la déclaration suivante ou pas: "Un appui à planter plusieurs cultures de rente aide notre ménage quelquefois dans la phase bas prix de vanille."

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non ... Mais ...)
- "Je ne sais pas" (50% d'accord)
- "Je suis plutôt d'accord" (Oui ... Mais ...)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100% d'accord)
c) Appui à la sécurisation des champs de vanille: Dans le but d’aider les paysans à sécuriser leurs champs quelques entreprises offrent déjà comme avantage des dons des matériaux. Cette matériaux includir des capuc ons, des torches, des chaussure bottes, des kits de premiers secours etc. Question: "Est-ce que votre acheteur principal vous offre des matériaux pour sécuriser vos champs de vanille?"

- oui, mon acheteur principal m’appuie à sécuriser les champs de vanille de notre ménage
- non, mon acheteur principal ne m’appuie pas à sécuriser les champs de vanille de notre ménage
- pas de réponse

Dites-moi si vous êtes d’accord avec la déclaration suivante ou pas: "Mon acheteur garde bien ses promesses vis-à-vis de l’appuie à nous donner les matériaux pour sécuriser nos champs de vanille."

- "je ne suis pas du tout d'accord" (0 % d'accord)
- "je ne suis pas d'accord"
- "je ne suis plutôt pas d'accord" (Non .... Mais ...)
- "je ne sais pas" (50% d'accord)
- "je suis plutôt d'accord" (Oui .... Mais ...)
- "je suis d'accord"
- "je suis tout à fait d'accord" (100% d'accord)

Boîte Info: Maintenant je vais vous présenter trois proposition. Ces trois propositions addressent trois possibilités à sécuriser les champs de vanille. Les gens ont des opinions différentes sur l’efficacité des solutions suivantes à réduire complètement les vois sur pied.

Dites-moi si vous êtes d’accord avec la déclaration suivante ou pas: "Distribuer des matériaux pour garder les champs de vanille est très efficace à réduire les vois sur pieds." (par exemple: distribuer des capucins, des chaussures bots, des torches, des kits de premier secours, etc)

- "je ne suis pas du tout d'accord" (0 % d'accord)
- "je ne suis pas d'accord"
- "je ne suis plutôt pas d'accord" (Non .... Mais ...)
- "je ne sais pas" (50% d'accord)
- "je suis plutôt d'accord" (Oui .... Mais ...)
- "je suis d'accord"
- "je suis tout à fait d'accord" (100% d'accord)
Dites-moi si vous êtes d’accord avec la déclaration suivante ou pas: "Engager des gardiens est très efficace à réduire les vols sur pieds."

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non .... Mais ...)
- "Je ne sais pas" (50% d'accord)
- "Je suis plutôt d'accord" (Oui .... Mais ...)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100% d'accord)

Dites-moi si vous êtes d’accord avec la déclaration suivante ou pas: "Tamponner les gousser avec un code du ménage est très efficace à réduire les vols sur pieds." (engraver sicatrices sur les gousses)

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non .... Mais ...)
- "Je ne sais pas" (50% d'accord)
- "Je suis plutôt d'accord" (Oui .... Mais ...)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100% d'accord)

d) Les avancements financiers: Certains acheteurs offrent des crédits "à zéro intérêt". Ce crédit est repayé après l’ouverture du marché de vanille. Le producteur reçoit le propre prix du marché à ce moment. Le producteur peut emprunter de l’argent jusqu’à la contre valeur de 35% de vanille contractualisée.
Question: "Est-ce que votre acheteur principale vous offre un crédit sans intérêt?"

- non: je ne reçois pas des avancements financiers par mon acheteur de vanille.
- non: mon acheteur de vanille m’offre pas des crédit sans intérêt. Il m’offre seulement des crédits par le système traditionnel de "contrat de fleur" / "contrat par kg".
- oui: je reçois un crédit à 0% intérêt pour renouveler les lignes et les tuteurs
- oui: je reçois un crédit à 0% intérêt pour éviter la période de soudure
- oui: je reçois un crédit à 0% intérêt pour payer le gardinage dans le but de sécuriser ma vanille contre les bandits
- oui: je reçois un crédit à 0% intérêt pour régler les factures médicales
- oui: je reçois un crédit à 0% intérêt pour payer le frais scolaires
- oui: je reçois un crédit à 0% intérêt pour autre chose par mon acheteur de vanille
- pas de réponse
Dites-moi, si vous êtes d'accord avec la déclaration suivante ou pas: "Mon acheteur garde bien ses promesses vis-à-vis les avancements financiers."

○ "Je ne suis pas du tout d'accord" (0 % d'accord)
○ "Je ne suis pas d'accord"
○ "Je ne suis plutôt pas d'accord" (Non .... Mais ...)
○ "Je ne sais pas" (50 % d'accord)
○ "Je suis plutôt d'accord" (Oui .... Mais ...)
○ "Je suis d'accord"
○ "Je suis tout à fait d'accord" (100% d'accord)

Dites-moi si vous êtes d'accord avec la déclaration suivante ou pas: "Le crédit sans intérêt est le seul moyen pour éviter les "contrats de fleur"."

○ "Je ne suis pas du tout d'accord" (0 % d'accord)
○ "Je ne suis pas d'accord"
○ "Je ne suis plutôt pas d'accord" (Non .... Mais ...)
○ "Je ne sais pas" (50 % d'accord)
○ "Je suis plutôt d'accord" (Oui .... Mais ...)
○ "Je suis d'accord"
○ "Je suis tout à fait d'accord" (100% d'accord)

II. Instructions pour le jeu de Crédit: I. Montrez les 10 cartes de 200 000 Ar (totale de 2 000 000 Ar ou 10 000 000 FMG) au producteur à titre d'imaginaion de crédit sans intérêt. Demandez le producteur à faire une répartition de ces 10 cartes de 200 000 Ar sur les six investissements possibles: (1) acheter du riz pendant la période de soudure (2) engager des gardiens pour sécuriser la vanille sur pieds (3) renouveler les lianes et les tuteurs de vanille (4) payer les frais scolaires des enfants (5) un autre investissement important au producteur. II. Expliquez aussi qu'il y a la possibilité de mettre plusieurs billets sur une rubrique ainsi que de laisser quelques rubriques libre - selon sa priorité. III. Maintenant laissez le producteur repartir son argent avec la question: "Comment allez vous aller le argent de ce crédit selon vos priorités?"

(1) Riz: Entrez combien de cette argent le paysan voulait dépenser pour acheter du riz pendant la période de soudure!

(2) Sécurisation: Entrez combien de cette argent le paysan voulait dépenser pour le gardienage des champs de vanille?

(3) Préparation de la prochaine saison de vanille: Entrez combien de cette argent le paysan voulait dépenser pour renouveler les lianes & tuteurs?
(4) La Santé: Entrez combien de cette argent le paysan voulait dépenser pour les factures médicales

(5) L'Ecolage: Entrez combien de cette argent le paysan voulait dépenser pour les frais scolaires et les fournitures

(6) Autre activité: Entrez combien de cette argent le paysan voulait dépenser pour une autre activité importante à lui/elle.

Si le producteur veut dépenser de l'argent pour autre chose, il faut mentionner l'activité!

Prenez un photo du choix effectué sur l'utilisation du crédit de 2 000 000 Ar (10 000 000 FMG)

Click here to upload file. (<5MB)

III. Instruction: Restitution des Avantages

Quelle des 4 opportunités présentées est la plus importante pour vous?

- Des avancements financiers sans intérêt (0% d'intérêt)
- Une mutuelle de santé
- Un appui à la diversification des cultures de rente
- Un appui à la sécurisation des champs par les dons des matériels
- pas de réponse

IV. Introduction des obligations en utilisant les grands images (DinA4): "En offrant les contrats avec les avantages présentés, les exportateurs et préparateurs exigent aussi certaines conditions aux producteurs. Maintenant, je veux vous expliquer quelques conditions que les exportateurs et préparateurs exigent par les producteurs. Ce sont les obligations qui sont connues dans les arrangements contractuels dans la Région SAVA en ce moment. Racontez-moi après chaque une si cela vous concerne ou pas."
Boîte Info: Il existe aussi des systèmes de contrôles pour que les producteurs respectent ces conditions: il y a un système de contrôle interne versus un système de contrôle externe. (1) Les contrôles internes sont effectués par quelques membres (normalement 4 paysans) du groupement des producteurs qui ont signé le contrat avec l'exportateur / préparateur. Ils forment un "Committee Local d'Approbation" (CLA). Les producteurs du CLA assurent que les conditions mentionnées dans le contrat entre l'acheteur et le groupement sont respectées. En effet, ils peuvent exclure des membres du groupement qui ne respectent pas les obligations; puisque le fait de les garder peut entraîner la perte du contrat du groupement. (2) Par contre, les audits externes sont effectués par des professionnels venant de l'extérieur du village. Ils n'ont pas de liaison avec le groupement des producteurs, ni avec l'acheteur. Ils jugent des faits seulement par observation. Ils peuvent constater que les obligations n'ont pas été respectées à point par les producteurs. En conséquence le contrat peut être résilié.

Instruction: Demandes les paysans si ils respectent les obligations présentées par la suite. Sinon, à juger le risque d'être détecté par les contrôles de l'acheteur.

a) Obligation sur la qualité de la vanille: Normalement les producteurs et les acheteurs avec contrat se mettent d'accord sur la quantité de vanille à fournir la saison prochaine. A ce moment là l'acheteur prend des notes précises sur la surface des champs du producteur, les nombres des pieds, les nombres des lianes, les nombres des fleurs, etc. A titre de cette obligation l'acheteur exige que seulement de la vanille mure sera recolter l'année prochaine. Si le producteur offre l'acheteur de la vanille prématurée, le contrat sera terminé tout de suite et la vanille ne sera pas achetée. Il n'y aura pas d'avantages non plus. La même chose se passe, quand le producteur n'offre pas assez de vanille mure parce que il a vendu cette vanille à un Rabbateur ou un autre acheteur. Question: "Est-ce que votre acheteur vous demande à seulement récolter la vanille mure?"

- oui, mon acheteur principal m'exige de récolter seulement de la vanille mure
- non, mon acheteur principal achète aussi la vanille prématurée de moi
- pas de réponse

Dites-moi si vous êtes d’accord avec la déclaration suivante ou pas: "Vue le risk de vol sur pieds, c’est très difficile pour notre ménage de récolter seulement de la vanille mure."

- "Je ne suis pas du tout d’accord" (0 % d’accord)
- "Je ne suis pas d’accord"
- "Je ne suis plutôt pas d’accord" (Non .... Mais ...)
- "Je ne sais pas" (50% d’accord)
- "Je suis plutôt d’accord" (Oui .... Mais ...)
- "Je suis d’accord"
- "Je suis tout à fait d’accord" (100% d’accord)
Dites-moi si vous êtes d'accord avec la déclaration suivante ou pas: Vue qu'on a besoin de l'argent pendant la période de soudure, c'est difficile de seulement recoler de la vanille toute à fait mure.

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non .... Mais ...)
- "Je ne sais pas" (50 % d'accord)
- "Je suis plutôt d'accord" (Oui .... Mais ...)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100% d'accord)

Dites-moi si vous êtes d'accord avec la déclaration suivante ou pas: "Il est très facile pour les contrôles de l'acheteur à déterminer la qualité de la vanille."

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non .... Mais ...)
- "Je ne sais pas" (50 % d'accord)
- "Je suis plutôt d'accord" (Oui .... Mais ...)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100% d'accord)

Quel type de contrôle fait votre acheteur pour l'obligation de récolter seulement la vanille mure?

- pas de contrôle du tout
- contrôle interne
- audit externe
- pas de réponse

b) Obligation sur la protection de la forêt: Apart la vanille, beaucoup des producteurs cultivent le riz non-irrigué. Pour faciliter la préparation des terrains, souvent les gens utilisent le feu. Alors que cela peut entraîner la dégradation de sol et aussi la destruction des forêts aux alentours. On comprend quand même qu'il y a plusieurs raisons à pratiquer le "tavy" (la culture sur brulis); par exemple (1) Le riz est la nourriture principale des Malgaches. Produire beaucoup du riz aide les ménages à avoir de nourriture quand l'argent de la vanille est épuisée; aussi (2) il y a des familles qui n'ont pas d'accès à l'eau pour cultiver le riz irrigué alors il font le "tavy" pour avoir du riz; En plus (3) il y des paysans qui utilisent le feu pour élargir du terrain quand leurs familles augmentent. Pourtant, certains acheteurs exigent de ne pas utiliser le feu pour préparer vos champs des cultures. Question: "Est-ce que votre acheteur vous interdit à pratiquer le tavy?"

- oui, mon acheteur principal m'exige de ne pas pratiquer le tavy comme auparavant
- non, mon acheteur principal ne me limite pas à pratiquer le tavy
- pas de réponse
Dites-moi si vous êtes d'accord avec la déclaration suivante ou pas: "Vue la manque de riz, c'est très difficile à arrêter le "tavy".

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non .... Mais ....)
- "Je ne sais pas" (50 % d'accord)
- "Je suis plutôt d'accord" (Oui .... Mais ....)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100 % d'accord)

Dites-moi si vous êtes d’accord avec la déclaration suivante ou pas: "Les contrôles de l’acheteur détectent toujours qu’on pratique le tavy."

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non .... Mais ....)
- "Je ne sais pas" (50 % d'accord)
- "Je suis plutôt d'accord" (Oui .... Mais ....)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100 % d'accord)

Quels types de contrôle existent par votre acheteur pour l’obligation à réduire le tavy et respecter les réglement de la Direction des Eaux et Forêts?

- pas de contrôle du tout
- contrôle interne
- audit externe
- pas de réponse

c) Obligation pour respecter la qualité premium de vanille: Les Moustiquaires traitées avec des insecticides sont appelés les "super-moustiquaires" L’acheteur vous exige d’échanger les "super-moustiquaires" à la maison contre de simples moustiquaires. Cette exigence est réquise dans le but de ne pas contaminer la vanille pendant le triage après la récolte. Eviter cette contamination permet à vendre la vanille au qualité premium. Question: "Est-ce que votre acheteur vous demande à utiliser des simples moustiquaires au lieu de super-moustiquaires?"

- oui, mon acheteur principal m’exige à échanger les super-moustiquaires contre de simples moustiquaires
- non, mon acheteur principal ne me limite pas dans ce sense - notre ménage peut continuer à utiliser les super-moustiquaires
- pas de réponse
Dites-moi si vous êtes d'accord avec la déclaration suivante ou pas: "Il est très facile pour les contrôleurs de l'acheteur de savoir qu'on utilise les supermoustiquaires."

☐ "Je ne suis pas du tout d'accord" (0 % d'accord)
☐ "Je ne suis pas d'accord"
☐ "Je ne suis plutôt pas d'accord" (Non ..., Mais ...)
☐ "Je ne sais pas" (50 % d'accord)
☐ "Je suis plutôt d'accord" (Oui ..., Mais ...)
☐ "Je suis d'accord"
☐ "Je suis tout à fait d'accord" (100 % d'accord)

Quels types de contrôle existent par votre acheteur pour l'obligation de utiliser seulement de simples moustiquaires?

☐ pas de contrôle du tout
☐ contrôle interne
☐ audit externe
☐ pas de réponse

Dites-moi si vous êtes d'accord avec la déclaration suivante ou pas: "Vue le risque à tomber malade, c'est inacceptable à utiliser des simples moustiquaires."

☐ "Je ne suis pas du tout d'accord" (0 % d'accord)
☐ "Je ne suis pas d'accord"
☐ "Je ne suis plutôt pas d'accord" (Non ..., Mais ...)
☐ "Je ne sais pas" (50 % d'accord)
☐ "Je suis plutôt d'accord" (Oui ..., Mais ...)
☐ "Je suis d'accord"
☐ "Je suis tout à fait d'accord" (100 % d'accord)

d) Obligation pour arrêter le travail des enfants: La production de vanille se fait souvent en famille. Nous comprenons que la plupart des producteurs de vanille d'ici a été initié dès son enfance. La participation de tout le monde dans le ménage est souvent important pour la production. C'est pourquoi quelques ménages n'envoient pas tous les enfants du ménage à l'école régulièrement. Il y a certains acheteurs qui vous exigent quand même de ne pas faire travailler les enfants jusqu'à l'âge de 15 ans. C'est une obligation que certains exportateurs demandent car ils ne vont pas acheter la vanille autrement. Question: "Est-ce que votre acheteur vous demande de ne pas faire travailler les enfants moins de 15 ans?"

☐ oui, mon acheteur principal m’exige à ne pas faire travailler mes enfants < 15 ans pendant l’année scolaire
☐ non, mon acheteur principal ne me limite pas dans ce sense - nos enfants > 15 ans peuvent nous aider au travail
☐ pas de réponse
a) Comment jugez-vous la difficulté à respecter l'obligation de récolter seulement de la vanille mature?

- Très facile (peut démarrer demain)
- Facile
- Plutôt facile (C'est facile, mais ... il y a des exceptions comme ...)
- Moyen difficulté (pas d'expérience, mais peut être 50% de gens ont des difficulté et 50% des gens trouve cela facile)
- Plutôt difficile (C'est difficile, mais ... il y a des exceptions comme ...)
- Difficile
- Très difficile (presque impossible)
- pas de réponse

b) Comment jugez-vous la difficulté d'arrêter le "tavy"?

- Très facile (peut démarrer demain)
- Facile
- Plutôt facile (C'est facile, mais ... il y a des exceptions comme ...)
- Moyen difficulté (pas d'expérience, mais peut être 50% de gens ont des difficulté et 50% des gens trouve cela facile)
- Plutôt difficile (C'est difficile, mais ... il y a des exceptions comme ...)
- Difficile
- Très difficile (presque impossible)
- pas de réponse

c) Comment jugez-vous la difficulté d'échanger les super-moustiquaires contre les simples moustiquaires à la maison?

- Très facile (peut démarrer demain)
- Facile
- Plutôt facile (C'est facile, mais ... il y a des exceptions comme ...)
- Moyen difficulté (pas d'expérience, mais peut être 50% de gens ont des difficulté et 50% des gens trouve cela facile)
- Plutôt difficile (C'est difficile, mais ... il y a des exceptions comme ...)
- Difficile
- Très difficile (presque impossible)
- pas de réponse
d) Comment jugez-vous la difficulté d'envoyer tous les enfants du ménage (<15 ans) à l'école régulièrement?

- Très facile (peut démarrer demain)
- Facile
- Plutôt facile (C'est facile, mais ... il y a des exceptions comme ...)
- Moyen difficulté (pas d'expérience, mais peut être 50% de gens ont des difficulté et 50% des gens trouve cela facile)
- Plutôt difficile (C'est difficile, mais ... il y a des exceptions comme ...)
- Difficile
- Très difficile (presque impossible)
- pas de réponse

Quelle de ces 4 conditions sont impossibles pour vous à respecter?

- Aucune (toutes ces conditions sont possibles pour moi à respecter)
- La condition d’arrêter le tavy est impossible pour moi à respecter
- La condition d’utiliser les simple moustiquaires (non-traité) est impossible pour moi à respecter
- La condition d’envoyer tous les enfants < 15 ans à l’école régulièrement est impossible pour moi à respecter
- La condition de récolter seulement la vanille mure est impossible pour moi à respecter
- pas de réponse

Quelle de ces 4 conditions est la moins acceptable pour vous?

- Aucune
- La condition d’arrêter le tavy
- La condition d’utiliser les simple moustiquaires (non-traité)
- La condition d’envoyer tous les enfants < 15 ans à l’école régulièrement
- La condition de récolter seulement la vanille mure
- pas de réponse

Quelles des 4 obligations respectez-vous déjà?

- Aucune
- La condition d’arrêter le tavy
- La condition d’utiliser les simple moustiquaires (non-traité)
- La condition d’envoyer tous les enfants < 15 ans à l’école régulièrement
- La condition de récolter seulement la vanille mure
- pas de réponse
Pourquoi respectez-vous déjà à récolter seulement de la vanille mature?

- Parce que mon acheteur de vanille m’exige cela
- Parce que mon groupement (par ex: la coopérative) m’exige cela
- Parce que j’ai peur d’être détecté par les autorités
- Parce que j’ai peur de perdre mes acheteurs. Vendre la mauvaise qualité de vanille me donne une mauvaise réputation
- Parce que j’ai peur que les gens parlent mauvaise de moi et mon ménage.
- Parce que d’avoir de bonne qualité de vanille est une précondition pour la préparation de la vanille
- Parce que la vanille mature se vende au meilleur prix
- Autre Raison
- pas de réponse

Pourquoi vous respectez déjà à ne pas pratiquer le "tavy"?

- Parce que mon acheteur de vanille m’exige cela
- Parce que mon groupement (la coopérative) m’exige cela
- Parce que j’ai peur d’être détecté par les autorités
- Parce que j’ai peur d’avoir des problèmes avec les voisins si le feu m’échappe
- Parce que j’ai peur que les gens parlent mauvaise de moi et mon ménage
- Parce que je cultive que le riz irrigué
- Parce que je n’ai plus de terrain à ma disponibilité à ouvrir
- Parce que je ne veux pas détruire mon sol.
- Autre Raison
- pas de réponse

Pourquoi n’utilisez vous pas des supermoustiquaires?

- Parce que mon acheteur de vanille m’exige cela
- Parce que mon groupement (la coopérative) m’exige cela
- Parce que on n’a pas acces aux supermoustiquaires
- Parce que je ne supporte pas les supermoustiquaires (trop chaud etc), je préfère les simples moustiquaires
- Autre Raison
- pas de réponse
Pourquoi vous ne faites pas travailler les enfants < 15 ans?

- Parce que mon acheteur de vanille m’exige cela
- Parce que mon groupement (la coopérative) m’exige cela
- Parce que j’ai peur d’être détecté par les autorités
- Parce que j’ai peur que les gens parlent mauvaise de moi et mon ménage
- Parce que je souhaite un meilleur avenir pour mes enfants
- Parce que j’ai seulement un (ou peu d’) enfant (s). Alors c’est très facile pour nous à couvrir le couts pour les envoyer à l’école
- Parce que toutes mes enfants sont déjà partis. On n’a plus d’enfants dans notre ménage.
- Parce que mes enfants n’ont pas encore l’age à travailler (< 10 ans)
- Autre Raison
- pas de réponse

Parmis les conditions (obligations) présentées, lesquelles sont derespectées par la majorité des paysans ici?

- Aucune
- La condition d’arrêter le tavy
- La condition d’utiliser les simple moustiquaires (non-traité)
- La condition d’envoyer tous les enfants < 15 ans à l’école régulièrement
- La condition de récolter seulement la vanille mure
- pas de réponse

VI. Introduction des Primes sur le Prix du Marché en utilisant les grands images (DinA4): "Finalement, je veux vous expliquer les primes pour la vanille contractualisée. Quelques exportateurs et préparateurs dans la Région SAVA paient leurs producteurs de vanille un montant fixe sur le prix du marché."
e) Les primes: Certains acheteurs offrent des primes par kg en surplus du prix au marché local. Seul les producteurs qui arrivent à respecter les exigences de l'acheteur reçoivent ce prime. Différents acheteurs offrent différentes primes. Question: "Quelle prime a été payée par votre acheteur principal pour la vanille verte pendant cette année?"

- 0 Ar (0 FMG) par Kg
- 1000 Ar (5000 FMG) par kg
- 2000 Ar (10 000 FMG) par kg
- 3000 Ar (15 000 FMG) par kg
- 4000 Ar (20 000 FMG) par kg
- 5000 Ar (25 000 FMG) par kg
- 6000 Ar (30 000 FMG) par kg
- 7000 Ar (35 000 FMG) par kg
- 8000 Ar (40 000 FMG) par kg
- 9000 Ar (45 000 FMG) par kg
- 10000 Ar (50 000 FMG) par kg
- autre prime
- prime payée à l'association des producteurs de vanille (la coopérative)
- pas de réponse

Si la prime que le paysan reçoit par kg pour la vanille verte en ce moment surpasse 10 000 Ar / kg (50 000 FMG/ kg pour la vanille préparée), faites entrer cette prime en Ariary ici!

Dites-moi, si vous êtes d'accord avec la déclaration suivante ou pas: "Mon acheteur me donne toujours la prime qu'il m'a promis."

- "Je ne suis pas du tout d'accord" (0 % d'accord)
- "Je ne suis pas d'accord"
- "Je ne suis plutôt pas d'accord" (Non .... Mais ...)
- "Je ne sais pas" (50% d'accord)
- "Je suis plutôt d'accord" (Oui .... Mais ...)
- "Je suis d'accord"
- "Je suis tout à fait d'accord" (100% d'accord)
Dites-moi si vous êtes d’accord avec la déclaration suivante ou pas: "Une prime de 5000 Ar / kg pour la vanille verte (25 000 Ar / kg pour la vanille préparée) ajoute peu de chose à notre revenu aujourd’hui."

- "Je ne suis pas du tout d’accord" (0 % d’accord)
- "Je ne suis pas d’accord"
- "Je ne suis plutôt pas d'accord" (Non .... Mais ....)
- "Je ne sais pas" (50 % d’accord)
- "Je suis plutôt d'accord" (Oui .... Mais ....)
- "Je suis d’accord"
- "Je suis tout à fait d’accord" (100 % d’accord)

4. Affichage de la Situation Actuelle du Paysan sur une Carte de Choix

Instruction: Sur la carte qui s’appelle "Situation Actuelle" (Option 3) identifiez tous les avantages qui correspondent à la situation actuelle du producteur. En vérifiant avec les réponses du producteur, couvres / caches tous les images des avantages non-existant avec du papier et bande collante.

Instruction: Maintenant faites la même chose pour les conditions sur la carte qui s’appelle "Situation Actuelle". En vérifiant avec les réponses du producteur, identifiez tous les obligations qui correspondent à sa situation actuelle. Avec du papier et bande collante, couvres / caches tous les images des conditions non-existant.

Prenez un photo de la carte remplie sur la Situation Actuelle du producteur

Click here to upload file. (< 5MB)

Instruction: Expliquez au Producteur comment exprimer sa Préférence Contractuelle par effectuer un choix sur les cartes qui représentent des Acheteurs

1ère Instruction: Présentez au producteur la carte qui montre sa situation actuelle. Utilisez acheteur No. 2 de Set No. 2, afin d’expliquer au paysan les différences qui se présentent en terme des opportunités et conditions. Détaillez les opportunités et les conditions un par un. Mentionnez aussi le montant de la prime de chaque acheteur. Expliquez que la prime sera payé seulement au cas où tous les conditions sont respectées à la satisfaction de l’acheteur. Demandez: "Qui est le meilleur acheteur?"

2ième Instruction: Répétes la même chose pour le deuxième acheteur.

3ième Instruction: Demandez: "Qui est le meilleur acheteur entre les deux choix préférés?"
4ème Instruction: Maintenant montrez tous les trois cartes du set. Expliquez au producteur qu'il faut concentrer son attention sur les différences qui se présentent par rapport à sa situation actuelle!! Demandez-le producteur à expliquer sa compréhension de chaque acheteur et à expliquer son choix parmis les trois acheteurs.

5ème Instruction: Avant de laisser le paysan choisir son acheteur préféré, menez le producteur à réfléchir sur le risque d'être détecté au regard du non-respect des obligations. Dans ce cas il/elle va perdre son contrat avec tous les avantages y afférent. Demandez-lui/elle: "Etes-vous sûre de pouvoir respecter ces obligations?" Après cet avertissement, faites le producteur choisir, en disant: "Car vous avez une idée à juger les risques maintenant, nous allons vous laisser choisir!"

6ème Instruction: C'est la même procédure pour les choix suivants (Répètez avec les autres 7 sets de 3 cartes qui restent en ordre suivant: après Set 2, Set 7, Set 8, Set 1-6)

5. Elicitation des Préférences Contractuelles en utilisant les Cartes de Choix N°1 - N°8 sur les Acheteurs

"Version A" ou "Version B" des Cartes de Choix

- Version A
- Version B

Set 2: Quel acheteur est-ce que vous préférez?

- Acheteur No. 1
- Acheteur No. 2
- Mon Acheteur Actuel (La Situation Actuelle)
- pas de réponse

Set 7: Quel acheteur est-ce que vous préférez?

- Acheteur No. 1
- Acheteur No. 2
- Mon Acheteur Actuel (La Situation Actuelle)
- pas de réponse

Set 8: Quel acheteur est-ce que vous préférez?

- Acheteur No. 1
- Acheteur No. 2
- Mon Acheteur Actuel (La Situation Actuelle)
- pas de réponse
Set 1: Quel acheteur est-ce que vous préférez?

- Acheteur No. 1
- Acheteur No. 2
- Mon Acheteur Actuel (La Situation Actuelle)
- pas de réponse

Rappel: Avant de laisser le paysan choisir son option préféré sur la carte, menez le paysan à réfléchir sur le risque d'être détecté au cas du non-respect des obligations. Dans ce cas il va perdre son contrat avec tous les avantages y afférent: "Etes-vous sûre de pouvoir respecter ces obligations?" Fais le paysan choisir maintenant en disant: "Car vous avez une idée à juger les risques maintenant, nous allons vous laisser choisir!"

Set 3: Quel acheteur est-ce que vous préférez?

- Acheteur No. 1
- Acheteur No. 2
- Mon Acheteur Actuel (La Situation Actuelle)
- pas de réponse

Set 4: Quel acheteur est-ce que vous préférez?

- Acheteur No. 1
- Acheteur No. 2
- Mon Acheteur Actuel (La Situation Actuelle)
- pas de réponse

Set 5: Quel acheteur est-ce que vous préférez?

- Acheteur No. 1
- Acheteur No. 2
- Mon Acheteur Actuel (La Situation Actuelle)
- pas de réponse

Set 6: Quel acheteur est-ce que vous préférez?

- Acheteur No. 1
- Acheteur No. 2
- Mon Acheteur Actuel (La Situation Actuelle)
- pas de réponse
Instruction: Prenez La Carte de Acheteur No. 2 Set No. 6. et demandez les paysan son jugement du réalisme de l'offre montré : "Maintenant une dernière question avec les cartes: Est-ce que vous pensez qu'un offre comme celui-ci existe par les exportateurs / préparateurs en réalité?"

- Oui
- Non

Maintenant imaginez vous qu'un acheteur ne vous offre pas d'opportunités autre que la prime. Il vous exige quand même à respecter les obligations suivantes: (1) arrêter le tabac (2) envoyer tous les enfants < 15 ans à l'école régulièrement (3) à utiliser que des simples moustiquaires. Question: "Combien d'argent demandez-vous en terme de prime minimum par kg pour la vanille pour respecter ces 3 obligations?"

- 0 Ar / kg
- 5000 Ar / kg
- 10000 Ar / kg
- 15000 Ar / kg
- autre prime
- condition(s) impossible(s) à respecter
- pas de réponse (producteur a réfusé à répondre à cette question)

Instruction: Si la prime demandée par le producteur pour respecter les trois obligations surpasse les 15 000 Ar (75 000 FMG) par kg, entre cela (en Ar / kg) ici

Est-ce que vous pouvez m'expliquer comment vous êtes arrivé à cette prime?

- Oui
- Non

1. Arreter le Travail des Enfants: Parcontre, si on vous demande seulement à respecter d'envoyer tous les enfants (<15 ans) à l'école régulièrement, quelle sera la prime minimale que vous demandez pour celui-la?

- 0 Ar / kg
- 5000 Ar / kg
- 10000 Ar / kg
- 15000 Ar / kg
- autre prime
- condition(s) impossible(s) à respecter
- pas de réponse (producteur a réfusé à répondre à cette question)

Instruction: Si la prime demandée par le producteur pour respecter seulemtnt l'obligation sur l'éducation des enfants surpasse les 15 000 Ar (75 000 FMG) par kg, entre cela (en Ar / kg) ici
2. Echanger les Supermoustiquaires: Et si on vous demande seulement à utiliser que de simples moustiquaires, quelle sera la prime minimale que vous demandez pour celui-la?

- 0 Ar / kg
- 5000 Ar / kg
- 10000 Ar / kg
- 15000 Ar / kg
- autre prime
- condition(s) impossible(s) à respecter
- pas de réponse (producteur a refusé à répondre à cette question)

Instruction: Si la prime demandée par le producteur pour échanger les supermoustiquaires surpasse les 15 000 Ar (75 000 FMG) par kg, entre cela (en Ar / kg) ici

3. Arrêter l’agriculture sur brulis (le “tavy”): Et si on vous demande seulement à arrêter le tavy, quelle sera la prime minimale que vous demandez pour celui-la?

- 0 Ar / kg
- 5000 Ar / kg
- 10000 Ar / kg
- 15000 Ar / kg
- autre prime
- condition(s) impossible(s) à respecter
- pas de réponse (producteur a refusé à répondre à cette question)

Instruction: Si la prime demandée par le producteur pour arrêter le tavy, surpasse les 15 000 Ar (75 000 FMG) par kg, entre cela (en Ar / kg) ici

6. Verification des Résultats
(a) Pourquoi est-ce que les acheteurs arrêtent le contrat avec les producteurs de vanille? Quelle est la cause la plus fréquente?

- Mauvaise qualité de la vanille offert par le producteur
- Exigence de prix par le producteur est trop élevé
- L'infidélité de producteur (vente de vanille ailleurs)
- Le non respect des conditions.
- Petite quantité de la vanille offerte
- Autre
- pas de réponse

(b) Quelles sont les raisons des producteurs à chercher un meilleur acheteur?

- "Les prix des acheteurs sont trop bas."
- "Les acheteurs n'offrent pas des avantages."
- "Les producteurs sont décus par des fausses promesses de leurs acheteurs."
- "Les acheteurs essaient de tricher avec leurs balances" (coûts de balances)
- "Les acheteurs profitent des faiblesses des paysans qui manquent des informations."
- Autre
- pas de réponse

(c) Est-ce que vous voulez changer votre acheteur principal pour un acheteur contractuel?

- Oui
- Non

(d) Pourquoi vous ne pouvez pas trouver un meilleur acheteur? (Qu'est-ce qui vous bloque?)

- "Mon acheteur me suffit: j'ai confiance à lui"
- "C'est difficile à trouver un meilleur acheteur: ils offrent à peu près les mêmes conditions."
- "J'ai peur de perdre le patronage de mon acheteur actuel."
- "Je n'ai pas assez de vanille à vendre."
- "Il n'y a pas des acheteurs contractuels."
- "Il me manque de moyen à transporter ma vanille en ville."
- "Ils nous manque des groupements de producteur ici: alors notre pouvoir de négociation reste faible."
- "Il c'est vraiment difficile à faire des choses ensemble: il y a la méfiance entre les paysans"
- Autre
- pas de réponse

7. Les Rôles des Hommes et Femmes au Ménage par rapport à la Vanille
Qui sont les premiers responsables de la pollinisation de la vanille dans votre ménage?

- Moi
- Mon époux seulement
- Mon épouse seulement
- Moi et mon époux / épouse ensemble
- Le père et les fils
- La mère et les filles
- Chaque un s'en occupe de cela soit même
- Autre
- Pas de réponse

Qui sont les premiers responsables à sécuriser la vanille contre le vol sur pied dans votre ménage? (Qui fait la garde)

- Moi
- Mon époux seulement
- Mon épouse seulement
- Moi et mon époux / épouse ensemble
- Le père et les fils
- La mère et les filles
- Chaque un s'en occupe de cela soit même
- Autre
- Pas de réponse

Qui sont les premiers responsables de la récolte de vanille dans votre ménage?

- Moi
- Mon époux seulement
- Mon épouse seulement
- Moi et mon époux / épouse ensemble
- Le père et les fils
- La mère et les filles
- Chaque un s'en occupe de cela soit même
- Autre
- Pas de réponse
Qui sont les premiers responsables pour la négociation et la vente de vanille dans votre ménage?

- Moi
- Mon Epoux seulement
- Mon Epouse seulement
- Moi et mon Epoux / Epouse ensemble
- Le père et les fils
- La mère et les filles
- Chaque un s'en occupe de cela soit même
- Autre
- pas de réponse

Qui décide dans votre ménage sur les investissements dans la vanille?

- Moi
- Mon Epoux seulement
- Mon Epouse seulement
- Moi et mon Epoux / Epouse ensemble
- Le père et les fils
- La mère et les filles
- Chaque un s'en occupe de cela soit même
- Autre
- pas de réponse

Qui sont les premiers responsables à gérer la comptabilité (le cahier de caisse) des revenus et dépenses de votre ménage?

- Moi
- Mon Epoux seulement
- Mon Epouse seulement
- Moi et mon Epoux / Epouse ensemble
- Le père et les fils
- La mère et les filles
- Chaque un s'en occupe de cela soit même
- Autre
- pas de réponse
Qui va signer le contrat dans votre ménage s’il y aura un offre par un exportateur / préparateur?

- Moi
- Mon Epoux seulement
- Mon Epouse seulement
- Moi et mon Epoux / Epouse ensemble
- Le père et les fils
- La mère et les filles
- Chac’un s’en occupe de cela soit même
- Autre
- pas de réponse

Est-ce qu’on peut prendre un photo de votre contrat pour mieux comprendre son contenu?

- Oui
- Non

Prenez un photo du contrat que le producteur a signé avec son exportateur / préparateur!

Click here to upload file. (< 5MB)

8. Questions sur le Ménage du Paysan

Combien des années avez-vous passé à l’école? (Vous êtes arrêté à quelle classe?)

__________________________

Etes vous capable de lire et écrire?

- oui
- non

Combien de personnes vivent dans votre ménage? (Définition de ménage: Les personnes qui utilisent le même four à la maison)

__________________________

Combien d’argent est-ce que votre ménage a gagné par la vente de vanille l’année dernière? (Demande pour une estimation en Ar / an / menage)

__________________________

Combien d’argent dépensez-vous par jour? Faites une estimation! (Demande pour une estimation en Ar / jour / menage)

__________________________
Est-ce que vous avez l’habitude d’épargnez de l’argent? (par exemple: avec le Mvola, avec l’ Orange Money, ou bien avec un “compte-épargne” à une banque en ville etc.)

☐ oui  
☐ non

Combien de pieds de vanille cultivez-vous dans l’ensemble du ménage?

9. Observation sur le Ménage du Paysan

Le type de la maison

☐ maison en dure (cimenté)
☐ maison en bois
☐ maison en matériaux mélangés
☐ maison en raffia ("baobao") ou en Bamboo
☐ toit en tôlé
☐ toit en feuilles
☐ maison avec panneau solaire

10. Evaluation

Prenez un photo du choix effectué sur Set No. 2 par le producteur!

Click here to upload file, (< 5MB)

Prenez un photo du choix effectué sur Set No. 7 par le producteur!

Click here to upload file, (< 5MB)

Prenez un photo du choix effectué sur Set No. 8 par le producteur!

Click here to upload file, (< 5MB)

Prenez un photo du choix effectué sur Set No. 1 par le producteur!

Click here to upload file, (< 5MB)

Prenez un photo du choix effectué sur Set No. 3 par le producteur!

Click here to upload file, (< 5MB)
Prenez un photo du choix effectué sur Set No.4 par le producteur!
Click here to upload file. (< 5MB)

Prenez un photo du choix effectué sur Set No.5 par le producteur!
Click here to upload file. (< 5MB)

Prenez un photo du choix effectué sur Set No.6 par le producteur!
Click here to upload file. (< 5MB)

Evaluation de compréhension des cartes de choix par l'interlocuteur (Est-ce qu'il y avait une manque d'intérêt / manque d'attention / manque de compréhension du méthode ou des attributs?)

- Producteur a réfusé la méthode de choix. Il / elle a croché n'importe quel acheteur à titre de finir vite. (Manque d'Intérêt / Réponses de Protest)
- Producteur a perdu sa concentration pendant la méthode de choix (Manque d'attention)
- Producteur a eu du mal à choisir le meilleur acheteur (Manque de compréhension de la méthode)
- Producteur a ciblé son attention seulement sur quelques attributs (opportunités ou conditions) mais pas sur tout l'ensemble (Ignorer beaucoup d'attributs)
- Producteur a jugé seulement par le prix et la prime mais pas du tout par les autres attributs
- Producteur a jugé seulement par les avantages mais pas inclu les obligations dans son choix du meilleur acheteur
- Producteur a jugé seulement par les obligations mais pas inclu les avantages dans son choix du meilleur acheteur
- Il / elle a bien réfléchi sur les attributs et le meilleur acheteur

Prenez un photo de la carte sur la prime minimale demandée par le producteur pour respecter les 3 obligations!
Click here to upload file. (< 5MB)

Evaluation de la tendance à répondre selon la pression sociale: Est-ce que le producteur a répondu selon les attentes sociales?

- Oui
- Non
Evaluation des Fausses Réponses: Il y a une forte doute qu’il n’a probablement pas dit la vérité sur un/plusieurs de ces 4 critères:

- [ ] Pas dit la vérité sur l’obligation d’envoyer tous les enfants < 15 ans à l’école
- [ ] Pas dit la vérité sur l’obligation d’arrêter le tavy
- [ ] Pas dit la vérité concernant le revenu annuel du ménage par la vente de vanille
- [ ] Pas dit la vérité sur l’épargne

Evaluation globale de la manière à répondre aux questions

- [ ] Interlocuteur a répondu sans réfléchir beaucoup et sans donner des arguments précis (Réponses associatives)
- [ ] Interlocuteur a répondu avec beaucoup de réflexion en donnant des arguments précis (Réponses détaillées)

Résumé:
Appendix 7 - Contextual circumstances of revealed behaviors of contracted vanilla farmers in the study region, 2018 [N=604]

Table A: Share of vanilla farmers in contracts and in producer groups [reported circumstance]

<table>
<thead>
<tr>
<th>Percent of farmers in representative sample</th>
<th>contract farmers (n=119)</th>
<th>farmers in producer groups (n=222)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (N=604)</td>
<td>19.7%</td>
<td>36.8%</td>
</tr>
</tbody>
</table>

Figure A: Share of male vs. female contract farmers signing CF arrangement with exporter [reported behaviour]

- 77% of men signing themselves
- 8% of men leave signature to wife
- 15% of men signed after consulting wife

- 17 % of women sign themselves
- 73 % of women leave signature to husband
- 10 % of women signed after consulting husband
Table B: History of farmer groups to which male and female farmers adhere to [reported circumstance]

<table>
<thead>
<tr>
<th>Percent of farmers in producer groups</th>
<th>in groups organized by exporters</th>
<th>in self-organized producer groups</th>
<th>in groups organized by development projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>males (n=111)</td>
<td>73,4%</td>
<td>24,8%</td>
<td>1,8%</td>
</tr>
<tr>
<td>females (n=111)</td>
<td>87,0%</td>
<td>12,0%</td>
<td>0,9%</td>
</tr>
<tr>
<td>Total (n=222)</td>
<td>80,2%</td>
<td>18,4%</td>
<td>1,4%</td>
</tr>
</tbody>
</table>

Figure B: Participation of women in producer groups: “Farmer groups in our village: Women have little voice when decisions are taken which projects to prioritize”, Likert Scale Judgement (n=222) [reported behavior]
<table>
<thead>
<tr>
<th>Disagree</th>
<th>Rather Disagree</th>
<th>Don’t know</th>
<th>Rather Agree</th>
<th>Agree</th>
</tr>
</thead>
</table>
| **Single Women:**
   Women have a lot more chores and work in the HH. So women cannot take the role as group leaders. However, we participate at regular meetings. | **Men:**
   We listen to them because they are indispensable members of our farmers' groups and they produce vanilla too. | **Woman:**
   In our village (Manakana), there are no other groups than women’s groups. Yet they don’t have anything to do with the sale of vanilla (e.g., Groupe de 08 Mars to celebrate Women’s Day) | **Men:**
   It’s true there are few women in the groups, but we listen to their opinions because we need their ideas. | **Women and Men:**
   There are a lot more men than women in the groups. Despite having the same possibilities to adhere to a group, it is women themselves who hesitate to join. |

| **Woman:**
   Women and men have the same rights today. | **Woman:**
   It’s true that men dominate the farmers groups but that does not mean that women do not have a say. It’s our husbands who represent our HH in the meetings. However, we decide together what our position is. | **Woman:**
   Men are typically the household heads here. They make most of the decisions. Plus our women are frequently less educated. So it is men who take up the role of joining farmers’ groups. | **Woman who completely agrees:**
   Even in our women’s groups some men do participate. And it is usually them who take a dominating role when it comes to making decisions. |

**Note:** Answers in the table above relate to Figure B and were highlighted by enumerator feedback.
### Table C:
Average length of contracts (turnover time of signatory farmers in CFAs)

<table>
<thead>
<tr>
<th>How long farmers stay in contracts</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Significance (P-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males (n=61)</td>
<td>1</td>
<td>6</td>
<td>2.00</td>
<td>1.98</td>
<td>0.44</td>
</tr>
<tr>
<td>Females (n=58)</td>
<td>1</td>
<td>6</td>
<td>2.44</td>
<td>2.15</td>
<td></td>
</tr>
<tr>
<td>All farmers in contracts (n=119)</td>
<td>1</td>
<td>6</td>
<td>2.18</td>
<td>2.05</td>
<td></td>
</tr>
</tbody>
</table>

### Table D:
What share of contracted farmers have written /verbal contracts?

<table>
<thead>
<tr>
<th>Farmers</th>
<th>written</th>
<th>verbal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>2</td>
<td>59</td>
<td>61</td>
</tr>
<tr>
<td>Females</td>
<td>2</td>
<td>56</td>
<td>58</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>115</td>
<td>119</td>
</tr>
<tr>
<td>%</td>
<td>3%</td>
<td>97%</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Table E:
Length of CF offers by exporters?

<table>
<thead>
<tr>
<th>%</th>
<th>1 year renewable</th>
<th>2 years or longer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males (n=61)</td>
<td>78.1%</td>
<td>21.9%</td>
</tr>
<tr>
<td>Females (n=58)</td>
<td>65.2%</td>
<td>34.8%</td>
</tr>
<tr>
<td>All farmers in contracts (n=119)</td>
<td>72.7%</td>
<td>27.3%</td>
</tr>
</tbody>
</table>
Figure C:
Likert scales about farmer satisfaction with the reliability of contractual buyers in supporting signatory farmers with services in 2018

"My buyer keeps his promises to pay us the health insurance." (n=119 Contracted Farmers)

"My buyer keeps his promise to provide us with a lean season credit." (n=119 Contracted Farmers)

"My buyer keeps his promise to support us in diversifying our cash crops." (n=119 Contracted Farmers)
"My buyer is keeps his promise to support us with materials to secure our vanilla fields." (n=119 Contracted Farmers)

"My buyer always gives me the price premium promised." 
(n=119 Contracted Farmers)
Figure D: Likert Scales comparing Contracted vs. Non-Contracted farmers in their respective difficulties to harvest only ripe vanilla for a buyer

"Given the risk of vanilla theft, it is very difficult for our household to harvest only ripe vanilla"

"How difficult is it for you to harvest only ripe vanilla?"
<table>
<thead>
<tr>
<th>Disagree</th>
<th>Rather Disagree</th>
<th>Don’t know</th>
<th>Rather Agree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Old) Men:</strong> Even if there is theft it is not difficult to harvest only mature vanilla. For, immature vanilla is difficult to prepare and it does not give a lot of money.</td>
<td><strong>Men and Women:</strong> I don’t agree I respect that already but if there is a theft incident on my field I have to content myself with whatever is left.</td>
<td></td>
<td><strong>Women:</strong> Yes it is very difficult but if we are given money to engage a guardian it will not be difficult.</td>
<td><strong>Women:</strong> Yes it is true we are worried about the security and health of our husbands, so we don’t want them to guard the fields.</td>
</tr>
<tr>
<td><strong>Men and Women:</strong> Immature vanilla is difficult to handle during preparation. It starts to stink.</td>
<td><strong>Men and Women:</strong> No it is not difficult to respect but if my neighbors all harvest prematurely because there have been theft incidents in their fields I will follow suit.</td>
<td></td>
<td><strong>Men and Women:</strong> Yes it is very difficult but if a buyer with a contract asks us to do so we will make it possible.</td>
<td><strong>Men and Women:</strong> It is dangerous to guard the fields when there are thefts around.</td>
</tr>
<tr>
<td><strong>Men:</strong> “I prefer to have my vanilla stolen rather than to harvest it prematurely”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** These answers are examples recalled by our enumerators during feedback workshops that pertain to the two Likert Scales presented above. The ideas presented in the table were mentioned repetitively by different farmers in different villages in which we conducted the quantitative HH survey of the choice experiment.
Figure E:
Likert Scales asking Contracted vs. Non-Contracted farmers about their position of the effectiveness of hiring guards to protect their fields against vanilla theft

Note: Some of the wealthier HH who can afford to pay guardians actually pursue this strategy. Poorer HH cannot afford to do so.
<table>
<thead>
<tr>
<th>Disagree</th>
<th>Rather Disagree</th>
<th>Don’t know</th>
<th>Rather Agree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Man:</strong> Guardians may be collaborating with the thieves. It is dangerous to show someone where our vanilla fields are situated.</td>
<td><strong>Man:</strong> I don’t need a gardien I can do it myself, but sometimes when I am really busy that is a good strategy to protect the fields.</td>
<td></td>
<td><strong>Men and women:</strong> Yes guardiens help to deter thieves but they are expensive.</td>
<td><strong>Man:</strong> It was really efficient with my neighbor, he could harvest all of his vanilla since he engaged a guardian to deter.</td>
</tr>
<tr>
<td><strong>Man with big vanilla field strongly disagreeing:</strong> I will never trust a guardian as he is in need of money. Once he sees the value of vanilla hanging on my field I am at risk of theft.</td>
<td><strong>Woman at Ampatakamanitra and Man at Antsahnoro:</strong> I don’t think this can work as the guardians are the first thieves. But if it is a member from within our family I have more trust in him.</td>
<td></td>
<td><strong>Women at Ampangadiambato and Ampatakamanitra:</strong> It can help to deter thieves to engage a gardien but if it is someone out of the family it is not very efficient as they start stealing some pods of vanilla themselves to have some pocket money.</td>
<td><strong>Man with big vanilla field strongly agreeing:</strong> My field is too big to remain unguarded. I cannot do it all myself. Also I am not ready to carry an arm: I have 4800 plants. So I want to engage the police (gendarmerie)</td>
</tr>
<tr>
<td><strong>Men:</strong> It can only work if you accompany the guardians and protect the fields together with them (a matter of distrust)</td>
<td></td>
<td></td>
<td><strong>Men at Women from Antsirabe Nord:</strong> It is only working if you engage people from outside the SAVA region as they have not many contacts who can support them to steal themselves</td>
<td><strong>Men and women:</strong> Thieves observe the owner of the field and attack when the owner is away. It always helps if someone is on the field.</td>
</tr>
</tbody>
</table>

**Note:** These answers above are examples recalled by our enumerators during feedback workshops that pertain to Figure E above. Presented ideas were mentioned repetitively by different farmers in different villages in which we conducted the quantitative HH survey of the choice experiment.
Figure F:
Likert Scales asking Contracted vs. Non-Contracted farmers about the quality differentiated market for vanilla and the aptitude of farmgate buyer to distinguish good from bad qualities

"It is very easy for the buyers to determine the quality of the vanilla."

Note: Contractual buyers were reported by farmers to complain about poor vanilla qualities produced by signatory farmers. An example: Men and women of the Symrise Group in Ampatakamanitira sold unprocessed (green) vanilla at 130 000 MGA / kg in 2017 after cyclone ENAWO instead of at 160 000 MGA / kg like the year before. Market prices offered by the collectors of Symrise were lower in 2017 as they saw that it was of bad quality. However, the farmers were only paid 65 000 MGA/kg (50%) upfront. Given that the quality of their vanilla was verified to be of bad quality in the laboratory (after shipping) it was returned to Symrise and Symrise never paid the second half to the farmers according to the farmers. This caused a lot of anger and disappointment in the group of contracted farmers.
<table>
<thead>
<tr>
<th>Disagree</th>
<th>Rather Disagree</th>
<th>Don’t know</th>
<th>Rather Agree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men and Women:</strong> If there is a control the controllers sometimes don’t look carefully enough to spot bad vanilla in the lot.</td>
<td><strong>Women:</strong> It is not easy to detect if the controller have to check a lot of vanilla. But if the quantities are small it is easy to spot bad vanilla.</td>
<td><strong>Men and Women:</strong> Usually there are no controls.</td>
<td><strong>Man:</strong> Yes it is easy to detect from its appearance for the internal controllers but not for the external controllers. or: Yes it is easy to detect vanilla low in vaillin content in the laboratory for external controllers but not for internal controls.</td>
<td><strong>Men and Women:</strong> The buyers and their controllers know very well how to distinguish good from bad vanilla.</td>
</tr>
<tr>
<td><strong>Men and Women:</strong> If you mix it up it is not easy to spot bad vanilla for a control</td>
<td><strong>Women:</strong> I don’t know how to judge this</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: The answers above are examples recalled by our enumerators during feedback workshops. They pertain to Figure F above. The ideas presented in the table were mentioned repetitively by different farmers in different villages in which we conducted the quantitative HH survey of the choice experiment.*
Appendix 8 – Post-experimental validation of CE results

(A) Post-experimental interviews with (n=70) contracted farmers following the CE via Semi-Structured Wrap Up: 10 minutes each
# Vente de Vanille Verte Recoltée en 2023

## Varotra Voalohany

<table>
<thead>
<tr>
<th>Vente N°01</th>
<th>Varotra Saharoa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Avis</td>
</tr>
<tr>
<td>Lieu</td>
<td>Avis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vente N°02</th>
<th>Varotra Saharoa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Avis</td>
</tr>
<tr>
<td>Lieu</td>
<td>Avis</td>
</tr>
</tbody>
</table>

### Notes
- Année: 2023
- N° de Planter: 1
- Variété: Vanille Verte
- Lieu: Nampahiribe
- Vente: 120 kg
- Prix: 85,400 FJ

### Signature
- Varotra Voalohany
- Varotra Saharoa

---

###附加信息
- [Image of a hand holding a handful of green vanilla beans]
- [Image of a person standing next to a pile of green vanilla leaves]
<table>
<thead>
<tr>
<th>Totoitra</th>
<th>Taha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visites dokotora</td>
<td>80%</td>
</tr>
<tr>
<td>Aody</td>
<td>70%</td>
</tr>
<tr>
<td>Fitsabona nify</td>
<td>80%</td>
</tr>
<tr>
<td>Fitilana asty</td>
<td>80%</td>
</tr>
<tr>
<td>Fikarana radio sy echographie</td>
<td>80%</td>
</tr>
<tr>
<td>Fizahana maso</td>
<td>80%</td>
</tr>
<tr>
<td>Fizahana</td>
<td>100%</td>
</tr>
<tr>
<td>Fizahana hopitaly</td>
<td>100%</td>
</tr>
<tr>
<td>Fandidiana</td>
<td>100%</td>
</tr>
</tbody>
</table>

Bureau SYMIRGE - Besancon ANDAPA
Tel: 0227 677 953
Mikasa Manasa
E-mail: info.bosco.contact@gwiz.org
01/01/1962 — Lahy

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**Mutuelle de Sante**

<table>
<thead>
<tr>
<th>Isana ny tolotra ara-phasalamanana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fizahana dokotora</td>
</tr>
<tr>
<td>Fizabona nify</td>
</tr>
<tr>
<td>Fananarana</td>
</tr>
<tr>
<td>Fizahana maso</td>
</tr>
<tr>
<td>Echographie</td>
</tr>
<tr>
<td>Fizahana hopitaly</td>
</tr>
</tbody>
</table>

**Entina foana ny karatra maha mpikambana rehetra manatona toeram-pitsabona mpiana-misa misy hahazoana ny tombonkana.**

---

**Mikasa Manasa...**
FIZARANA MITOHY LAY MISY ODIMOKA MAHARITRA

Matoria isak’alina ary mandava-taona anaty Lay misy odimoka iarovana antsika amin’ny tazomoka

Manatona ny sefo fokontany maka fanampim-panazavana!

MAIMAIMPONA

U.S. President’s Malaria Initiative
(B) Post-experimental validation workshops with enumerators
Mauvaise Récolte

La Vanille se vend à bas prix

Vente de la Vanille en Vrac ou Préparée

Village pas moderne

Pour gagner un peu plus, car la Vanille Préparée se vend plus cher.

Renouvellement de Lianes

Moins de producteur
Peu de récolte.

Culture de rente à cycle court: Maïs, haricots secs, Riz, irigé, Manioc

Autres cultures de rente pratiquées: Gingembre, cannelle

Diminution de dégât de la période de Soudure.

ANTALABA
Andapa
- Andrikata
- Antsamihoka
- Sahamasons
- Ambodivohitra Johinina
- Tanhananmery

Haute sécurisation

Beaucoup de producteurs de vanille

Acès faible

Culture de rente remarquable

Le taux de vol est très faible

Bonnes qualité de vanille

Vente à bon prix

Niveau intellectuel plus élevé

Recolte très abondant

Beaucoup de groupements

Niveau de vie amélioré

La période de soucière est très courte

Impossible d’arrêter le Tohy

Ambodivohitra
- Dénombrement de Tohy
- Vente de la vanille Tohy
- Climat de soucière d’acculte fès
- Tohy
- Production de bois

Rmk
CONCEPTION DES PRODUCTEURS VIS À VIS LE MOT CONTRAT

Ceux qui sont en contrat: 34/454

Avantages
Groupement
Sécurisation plus sûre
Meilleur prix

Faux promesses
Tout est à rembourser
Trop d’obligations
Vente en retard

CONCEPTION DES PRODUCTEURS VIS À VIS LE MOT CONTRAT

Ceux qui Ne sont PAS dans le contract: 420/454

Une bonne chose
Intéressant
Risque
Trop de obligations
Contrat de fleur

Dégoût (expériment)
Meilleur prix
Vente trop tard
Tout est à rembourser
Méfiance observation
CONCEPTION DES PRODUCTEURS VIS À VIS LE MOT CONTRAT

**Point communs**
- Meilleurs prix
- Trop d'obligation
- Tout est à rembourser
- Sécurisation plus sur
- Vente en retard

**Remarques**
- Le fait ne pas avoir signé un papier rend le contrat moins important.
- Les producteurs ne se rendent pas compte qu'ils sont en contrat car il n'y a pas suffisamment de sensibilisation.
- Les producteurs ne comprennent pas la différence entre un contrat de fleurs et le contrat formel même si ils sont en contrat.

**Problèmes majeurs qui peuvent bloquer les producteurs à trouver meilleurs acheteurs**

*La Méfiance*  
Avantages:  
- Marquage de qualité  
- Célébrité de marque  
- Le produit est bénéfique pour la santé des consommateurs  
- Crédit sans intérêt  

*La Peur*  
Avantages:  
- Travailler en continuité de la même manière  
- Vente mondiale  
- Peur d'être abandonné  
- Peur de ne pas pouvoir ramener le produit  

*La Déception*  
Avantages:  
- Appui aux matières premières  
- Appui au développement  
- Gestion des risques  
- Diversification des cultures de rente  

*Autres*  
- Je veux que ce soit le client qui vienne vers nous (demande d'information)  
- Les meilleurs producteurs sont déjà en contact avec les commissionnaires  
- Manque d'objectif des groupements  
- Ne pas devoir passer des ordres (impossible)
<table>
<thead>
<tr>
<th>Avantages contractuels</th>
<th>Femmes</th>
<th>Hommes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assurance de santé</td>
<td>En importance similaire que le crédit sans intérêt: Si les femmes ont une assurance de santé, elles se trouvent plus tranquil, particulièrement en période de soudure, quand beaucoup des gens tombent malade, surtout les enfants et les vieux.</td>
<td>Quand ils sont en bonne santé les hommes disent ils peuvent travailler sans crédit ou assurance. Mais une assurance de santé les donne une tranquilité d’esprit sur la situation financière du menage.</td>
</tr>
<tr>
<td>Crédit sans intérêt</td>
<td>L’avantage le plus important pour la plupart des femmes. Souvent, les femmes veulent vraiment utiliser le credit pour acheter du riz pendant la période de soudure ou bien pour payer l’écologe des enfants. Epargner l’argent comme reserve est un cas frequent (aussi pour des obligations sociales: les cotisations familiales aux cas des funérails) Quelques femmes veulent utiliser l’avance financière à titre d’une investissement comme un micro-crédit. Par exemple: pour ouvrir une gargotte, un kiosk, une boutique, etc.</td>
<td>Important, mais pas aussi que pour les femmes. Aussi les hommes, des fois, veulent utiliser le credit pour une chose que la nourriture pendant la période de soudure. Par exemple: pour faire des commission de vanille pour continuer ou finir la construction d’une maison (aussi pour renforcer la sécurité des maisons contre les bandits) pour epargner l’argent comme une reserve au cas d’accident ou des urgences de maladie pour démarrer une activité génératrice de revenue</td>
</tr>
<tr>
<td>Avantages contractuels</td>
<td>Femmes</td>
<td>Hommes</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Diversification des cultures de rente</td>
<td>Important pour les femmes comme cela donne plus des opportunités pour le ménages en période prix bas de vanille. Elles savent l'agriculture et l'avantage de plusieurs cultures de rente.</td>
<td>Un des avantages moins important pour les hommes.</td>
</tr>
<tr>
<td>Matériels à sécuriser les champs de vanille</td>
<td>Un des avantages le moins préféré par les femmes: Les maris peuvent rester plus longtemps au champs avec cet appui. Alors c'est vue comme une bonne chose, même si les matériels en offer par les exportateurs ne peuvent pas empêcher les voleurs, parce que les voleurs sont armés avec des fusine et avec des couteaux.</td>
<td>Moins préféré: 1. Ce n'est pas suffisant pour assurer la sécurisation des champs 2. Quelques matériels ne sont pas très pratiques. Par exemple: Les chaussures botes sont lourdes et ils font du bruit qui est dangereux. Les siffles ne sont pas pratiquable parce que tu es loins du village est ne personne t'aide. 3. Il n'y a pas des fusines en offre. 4. Les chaussures botes et les capucons sont plutôt utilisés pour la cultivation des champs, mais pas pour la sécurisation. 5. L'argent est plus efficace car tu peux engager des gardiens.</td>
</tr>
<tr>
<td>Avantages contractuels</td>
<td>Femmes</td>
<td>Hommes</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| La prime sur le prix de vanille | Proposition 5000 Ar/ kg verte n’est pas beaucoup par rapport aux prix du marché en 2018:  
« Oui, pour les ménage de 5 personnes ou plus (qui dépensent 10 000 Ar ou plus par jour) une prime de 5000 Ar / kg verte n’ajoute pas grande chose »  
Cela dépend de la quantité de vanille (les kg) qu’on vent. Si on vent peu de vanille cela n’ajoute pas grande chose. | Observation:  
Pendant l’élicitation de l’acheteur préféré, la prime est seulement quelque fois le critère primordial. Souvent c’est plutôt le prix de la vanilla négocié, les avantages non-monetaire, ou bien quelques obligations clés qui sont difficile ou impossible à respecter.  
C’est par rapport aux obligations que la plupart des hommes regardent les avantages: Si les obligations sont difficiles à respecter ou beaucoup, ils demandent plus d’avantages et plus de primes. |
<table>
<thead>
<tr>
<th>Obligations contractuelles</th>
<th>Femmes</th>
<th>Hommes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Récolter la vanille mure</td>
<td>La mauvaise sécurité risque la santé des maris. « Même si on nous donne des matériaux à sécuriser les champs, ce n’est pas suffisant à garantir à récolter la vanille sans pertes. »</td>
<td>Impossible: La peur du vol sur pieds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Très difficile: Les incidents du vol sur pied autour (avec les voisins) démotivent les paysans à respecter cette obligation. Ils essaient à le faire mais quand il y a un incident avec les autres ils récoltent la vanille</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moins acceptable: Plusieurs hommes veulent seulement respecter cela si on les appuie à la sécurisation avec des avancements financiers. Avec cette argent ils veulent engager des gardiens. La trahison par les gardiens est quelquefois liée à la petite somme d’argent qu’ils reçoivent pour le gardinage. Le paiement ce fait dès fois sous condition que la vanilla reste intact sur champ.</td>
</tr>
<tr>
<td>Arrêter l’agriculture sur brûlis (le « tavy »)</td>
<td>Le riz coute déjà cher. Le riz n’est pas suffisant même si on a une culture de riz irrigué. « Nous sommes nombreux dans notre ménage et on accueille souvent des visiteur, alors ce n’est pas une bonne idée à seulement acheteur du riz- Cela faisait beaucoup de dépenses. »</td>
<td>Impossible: Le riz n’est pas suffisant même si on a une culture de riz irrigué.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Très difficile: Ils n’ont pas accès aux boeux pour laborer le sol. Le sol devient plus fertile quand on le brûle. « C’est notre habitude depuis toujours (même si c’est fatiguant à enlever les mauvaises herbes après le brûle pendant 2-3 mois) »</td>
</tr>
<tr>
<td>Obligations contractuelles</td>
<td>Femmes</td>
<td>Hommes</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Remplacer les super-moustiquaires</td>
<td><strong>Femmes avec des enfants</strong>&lt;br&gt;Pour elles c’est impossible à cause des enfants.&lt;br&gt;« Les autorités, les docteurs ou les ONGs distribuent les super-moustiquaires. Ils nous obligent à utiliser cela. On ne veut pas être confronté avec des réproches. »</td>
<td><strong>Très difficile:</strong>&lt;br&gt;La peur à tomber malade et la peur du docteur qui vient chaque mois pour contrôler les super-moustiquaires (aussi dans les associations “bio”)&lt;br&gt;« Quand on est à l’hôpital avec quelqu’un malade, on ne veut pas être confronté avec des réproches par les médecins »&lt;br&gt;&lt;br&gt;&lt;br&gt;Moins acceptable:&lt;br&gt;Si on les appuie avec une assurance de santé, ils sont prêts à utiliser les simples moustiquaires.</td>
</tr>
</tbody>
</table>
| Envoyer tous les enfants du ménage à l’école régulièrement | A partir du jeune âge les enfants doivent apprendre à travailler les champs parce que l’école n’assure pas forcément un meilleur avenir.<br>« D’abord l’apprentissage, après l’éducation. » | **Impossible:**<br>Au cas ou les enfants ont des difficultés à l’école c’est important à les entraîner dans le métier de l’agriculture. A partir de 14 ans les enfants aident aux champs quand quelqu’un d’autre tombe malade.<br><br><br>Très difficile:<br>Si on les entraîne pas dans l’agriculture, ils deviennent incapable à se débrouiller dans la vie – par exemple: ils deviennent des bandits, paresseux, etc.<br><br><br>Moins acceptable:<br>Seulement possible s’il y a des aides financières car l’obligation demande qu’ on envoie TOUS les enfants (< 15 ans) à l’école régulièrement.
(C) Post-experimental interviews with \(n=4\) certified vanilla exporters regarding their contract farming arrangements and the implementation of private voluntary sustainability standards with smallholder vanilla farmers - focusing on the national regulatory framework and the price boom period experienced in the SAVA Region (2016-2018)

<table>
<thead>
<tr>
<th>Semi-Structured Interview Guideline for Certified Exporters following Completion of Choice Experiment with the Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives:</strong></td>
</tr>
<tr>
<td>1. Capturing the buyer perspective</td>
</tr>
<tr>
<td>2. Contextualizing smallholder preferences</td>
</tr>
<tr>
<td>3. Cross-checking quantitative results of the CE and HH survey through triangulation of observed issues through</td>
</tr>
</tbody>
</table>

**Offsetting the Malagasy Production Deficit**

1) How could vanilla production from Madagascar be increased in future?

**Price Volatility**

2) What would be adequate measures to reduce price volatility of fresh vanilla on the Malagasy market?

**Vertical Integration in the Vanilla Value Chain**

3) When did multi-national aroma producers begin to establish export outposts in Madagascar to shorten their supply chains? (year)
Contracts with Farmers

4) Which advantages are offered to farmers through your contracts?

Extra Question:
What status do contracts have in the export business?

Ask more about the contract itself:
Why contracts?
Does it work in your perspective? What does and what doesn't work?
What is offered to farmers and what needs to be organised for them?
Who organises this for an exporter (Own Staff vs. NGO)?
Would a centralized CF model with multiple-stakeholders in public private partnership be preferred over a co-operative (intermediary) model?
Can a co-operative model be integrated into current supplier contracts at some later stage?

5) Which obligations do farmers need to meet to obtain your contract?

6) Which obligations do farmers struggle with in particular from your perspective? Why?

Extra Questions:
How do you assess the success of your contracts?
What are things to improve?

7) What incentives would you be willing to offer in future to motivate farmers to meet those obligations?
Private Voluntary Sustainability Standards

8) Which certificate do you use? Why this one in particular?

**Extra questions:**

Does the certification apply to all the crop sourced by the exporter?

What does it take to get farmers certified (Training, inputs, etc.)?

9) Which of the advantages you offer in your contracts are mandated by the chosen sustainability standard?

10) What works well with implementation of the sustainability standard?

11) What does not work so well with its implementation?

12) Is there scope of adaptation of any obligations to the local context or does the standard set out a list of obligations that need to be achieved over a certain time, regardless of the local situation?

13) What are your possibilities to negotiate the time frame of goal achievement vis-à-vis the auditing body in order not to lose accreditation? Is there any scope of re-negotiation?

14) In what frequency do you need to undergo certification?

15) Who pays for the certification process, you or your client (importer: aroma and fragrance company)?
Purpose of Official Harvest Date

16) When was the official harvest date installed by the Malagasy Government? (year)

17) Which of the below purposes does the official vanilla harvest date effectively achieve?
   To keep vanilla quality high by preventing farmers to harvest and sell a premature crop (Yes/No)
   (a) To prevent buyers from demanding premature vanilla by making any trade before the harvest date illegal (Yes/No)
   (b) To scare off thieves from stealing and trading premature vanilla (Yes/No)
   (c) To ensure that about 80% of vanilla will be harvested ripe enough to be processed by the traditional curing practice (Yes/No)
   (d) None of the above

18) What other reasons do exist in your opinion for the official Malagasy vanilla harvest date?

…

Misaotra Bezaka!
Interview with CEO of Société Vanamad in Andapa

Questions to certified exporters in the SAVA Region (2018)

Offsetting the Malagasy Production Deficit

1) How could vanilla production from Madagascar be increased in future?

CEO of Vanamad:
The youth are key to this question. But few of them are interested in following any agricultural activity, particularly once they are better educated than their peasant fathers. Returning back to the countryside after you have completed a “Baccalaureat” degree is seen as a shame. The youth prefer to quit the countryside and move to the cities nowadays to search for non-agricultural work there (“rural exodus”).

Plus, the knowledge is being lost about how to cultivate vanilla among the younger generation. Being a successful vanilla farmer depends on technique, stamina and a love for the crop - all of which are lacking among the new generation around Andapa (close to the city). Adolescents just plant the crop opportunistically when prices rise. They are really more interested in becoming commission agents rather than farmers, contributing to unreasonable prices.

Next there is the frustration about recurrent cyclone damage and the difficulty to produce vanilla under increasingly unpredictable rainy seasons due to climate change which farmers witness. This year and in 2017 it was too wet (heavy rainfall events). In the second half of 2018 also the temperatures remained too low so that the flowering of the 2018-2019 crop is severely compromised (about 30% less flowering according to the latest observations by the CROF).

All of this adds to a long-term challenge.
Concerted action by the Government is missing, too. We would need science and technology to go hand in hand with the promotion of young vanilla farmers to increase Madagascar’s production. But there is no agronomic institute for vanilla (like the old FOFIFA Station at Ambohitsara) in the SAVA Region anymore despite the importance of vanilla for Madagascar as a foreign exchange earner. A vanilla research institute in Antananarivo is also missing, showing the lack of interest by the Malagasy Government to commit to professionalize the commodity sector.

**Price Volatility**

2) *What would be adequate measures to reduce price volatility of vanilla on the Malagasy market?*

**CEO of Vanamad:** *Three factors cause price volatility of vanilla*

1. global demand
2. national demand
3. speculation (buying vanilla in low price phase and hoarding it when price rise)

The solution would be for the Government to fix the prices at a minimum level in low price phases and to buy the vanilla from the farmers. This could also motivate more young farmers to keep growing it.
Vertical Integration in the Vanilla Value Chain

3) When did multi-national aroma producers begin to establish export outposts in Madagascar to shorten their supply chains? (year)

CEO of Vanamad:
It started in 2005 with Symrise but many exporters and preparators really just got interested in the possibilities of launching contracts over the past 3-4 years: 2014-2018.

Contracts with Farmers
7) What incentives would you be willing to offer in future to motivate farmers to meet contractual obligations?

CEO of Vanamad:
"Building loyalty among producers is very, very difficult, because the farmers are only interested in themselves - they are not interested in the sustainability issues and elaborate support services we offer them in this regard. Most farmers only care about money, they do not care about other benefits that we offer them as part of our certified contracts”

Extra Question (Discrimination Mechanism):
According to which criteria are farmers selected by exporters to be part of a contract farming scheme?

CEO of Vanamad:
Symrise preferentially selects farmers with bigger production capacity to have less work in finding their quantities. At Vanamad, there is no such systematic discrimination despite higher transaction costs this incurs. At Vanamad, we advertise with this circumstance among our international Fair Trade clients to grow this niche.
Private Voluntary Sustainability Standards
8) Which certificate do you use? Why this one in particular?

CEO of Vanamad: Bio and Fair Trade

He has experience with Bio (Organic) since 1998 already when he was Director of Rama Export in Antalaha. Under his own export business he started to source organic from Ambodivohitra Kobahina and Antanambao Kobahina from 2010 onwards.

Fair Trade came later but demand from the buyers is much lower as the product sells more expensively.

Rainforest Alliance is too complex to organise given the lack of capacity and interest among the farmers.

It takes a develop team of controllers and agronomic technicians (“animators”) to sensitize, to train and to audit the farmers. He currently employs 8 people permanently to source Bio and Fair Trade certified vanilla from two villages. He thinks that it is a costly exercise.

Extra Question:
Does certification apply to all of the crop sourced by the exporter?

CEO of Vanamad:
No, currently only 10% of Tombo’s vanilla is certified “Bio” and 3% is certified Fair Trade as he lacks a customer base who would demand more.

14) In what frequency do you undergo certification?

CEO of Vanamad:
“You need to be certified every year to keep the certificate. It is a costly exercise.”
15) Who pays for the certification process, you or your client (importer: aroma and fragrance company)?

**CEO of Vanamad:**
It is the preparator / exporter who wants to offer certified vanilla who bears the upfront costs of certification himself/herself. But, of course, these charges are handed down the supply chain to the importer. Fully prepared “Bio” vanilla was sold for US$ 10-15 more per kg than conventional vanilla in 2017 and 2018. Conventional Vanilla was sold at around US$ 500 in 2017 (once fully prepared).

**Key information:**

<table>
<thead>
<tr>
<th>Prices received by exporters and farmers peaking in different years</th>
</tr>
</thead>
<tbody>
<tr>
<td>“While exporters’ prices peaked in 2016 and declined thereafter, producer prices have been at their all time highs in 2017 and 2018, meaning that exporters reaped their best profit shares between 2012-2016 and were able to trade only fewer quantities of quality vanilla in 2017 and 2018.” (Reason: Demand of his clients dropped, given increasing prices and decreasing product quality. The cyclone damage of “Enawo in 2017 and the wet seasons of 2017 and 2018 further reduced available quantities.”)</td>
</tr>
</tbody>
</table>

Tombo said that he reduced his operations to virtually stopping his vanilla trade between 2016 to 2018. In 2018 he bought a mere 7 tonnes of green vanilla to be prepared compared to 50-70 tonnes in the years before 2016.

He attributed this to the rising prices for green vanilla ever since Symrise, Authentic and Promabio had started buying big quantities at elevated prices following 2012-2013. He also said that “almost all good” traditional preparators have closed since the introduction of fast-curing and fast-extraction technologies which are being used to produce industrial vanilla. He sees a future business opportunity in this trend but a decline in traditional preparation given the deteriorating vanilla qualities brought about by the price boom and continued price volatility.
Official Harvest Date

Extra Question: Who sets the official harvest date?

CEO of Vanamad:
The “Committée Regional d’Observation de Floraison” (CROF) which is constituted of:
   1. DRAE (Direction Régional de l’Agriculture et Elévage)
   2. PRCP (plateforme régionale de concertation pour le pilotage de la filière vanilla)
   3. Région SAVA

17) Which of the below purposes does the official vanilla harvest date effectively achieve?

(e) To keep vanilla quality high by preventing farmers to harvest and sell a premature crop
   No, because the farmers want and need money before the 26th of June (due to National Holiday: Independence Day and due to continued lean period)

(f) To prevent buyers from demanding premature vanilla
   No, because many buyers who buy big quantities of immature vanilla do so after market opening (especially those exporters who have specialised on industrial vanilla with their fast-curing technologies)

(g) To scare off thieves from stealing and trading premature vanilla.
   Yes, in part, but that depends also a lot on the social cohesion and security measures taken in the villages.

(h) To ensure that about 80% of vanilla will be harvested ripe enough to be processed by the traditional curing practice
   Yes, if the date was set purely by technical considerations that would be the case. In fact, this year (2018) it was fixed
for purely technical reasons for the first time in years. The 80% target of ripe vanilla is the very reason for the existence of the Harvest Date and for the CROF, the administrative council who sets the date but local politicians do advance the date for reasons of increasing their popularity to be re-elected.

18) What other reasons do exist in your opinion for the official Malagasy vanilla harvest date?

**CEO of Vanamad:**
Political reasons: allowing farmers to have money before the 26^{th} of June is a matter of popularity of ruling political parties in their efforts to increase chances of being re-elected.

**Position of PRCP on the Official Harvest Date:**
When asked about the protectionist character that the Harvest Date potentially has for well-connected traditional vanilla traders, Tombo agreed that this may also have been a reason in the past. As vice-president of the PRCP he currently engages himself to argue for a purely technical procedure to set the harvest date and he says the the majority of members in the PRCP argue for this position despite the complaints of farmers and politicians. Even Yssouf Mevazara (representing the farmers union) is for a purely technical definition of the date. Because all members of the PRCP argue that good quality vanilla is the basis for long-term competitiveness of Madagascar.

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Misaotra Bezaka!
Interview with CEO of PromaBio in Antalaha
Questions to certified exporters in the SAVA Region (2018)

Vertical Integration in the Vanilla Value Chain
3) When did multi-national aroma producers begin to establish export outposts in Madagascar to shorten their supply chains? (year)
Symrise came in 2005
Other major buyers followed

Contracts with Farmers
4) Which advantages are offered to farmers through your contracts?

CEO of PromaBio:
We buy directly from the farmers. That means that the farmers and us, we can circumvent the middlemen. By doing so we pay farmers a better price than what they receive on local markets. We also top up these better prices paid through our contracts for quality vanilla by a price premium according to the sustainability certificate in action. At the moment, when spot prices are reaching all-time highs, we hand down the complete price premium paid by the importer to us to give the farmer an attractive price. For Bio this is currently US$ 10 / kg of cured vanilla sold. For Fair Trade we currently receive US$ 6,5 / kg of exported vanilla and pay this into the Fair Trade producer association whose members prioritise their own investments. We leave them free to decide what to spend this money on, even though we support them in articulating the voices of all members by organising regular group meetings (4 times a year there is an “Assemblée Générale”) where decisions are prepared an taken. For “Bio and Fair” vanilla farmers thus receive the same individual price premium as with Bio but then their association receives an additional US$ 6,5 / kg of semi-prepared vanilla which enters into a revolving fund of their registered group (i.e., we pay US$ 16,5 / kg extra for semi-prepared vanilla). With the Fair Trade Label we try to steer farmers to prepare their vanilla themselves so that they can reap a higher income and sell vanilla at several points in time
throughout the season. All of our Fair Trade groups are also Bio certified. For, we follow a sequence of certification with our contract farmers that we perceive as popular among farmers:

**Diagramme drawn by CEO of PromaBio:**

| Conventional Farmers | => Bio certified (after 2 years) | => Fair Trade Certified (after 1 additional year that it takes to register their association) | => Rainforest Alliance Certified (taking 3 more years until the farmers can satisfy the core criteria so that we can pass the audit) |

**CEO of PromaBio:**

“For Rainforest Alliance certified farmers there is not much difference in terms of benefits that they receive from us when compared to our Bio & Fair Trade farmers. RA farmers just receive US$ 1 extra in terms of price premium (i.e., PromaBio currently spends US$ 17.5 / kg RA vanilla). But this US$ 1/ kg extra is not paid out individually, nor can the producer association freely decide what to do with it. Instead, PromaBio ties this US$ 1 extra / kg to activities that need to be funded to meet the RA criteria. That means farmers have no additional benefit by joining RA as opposed to Bio-Fair Trade apart from being able to sell green vanilla. Farmers do have a lot more obligations to respect, however, and participate for other reasons than short term economic self-interest. We push those groups that are strong in supplying us with quality (ripe) vanilla into the direction of certification, according to respective demand for sustainability standards from our buyers.”

"Rainforest Alliance is just so wide-spread in the region because Symrise has promoted respective contracts in large scale across the SAVA Region. But few Exporters actually manage to implement that."

**Key information:**

**From PromaBio’s experience the Bio - Fair Trade combination is the most popular among farmers.** “Farmers reap most economic benefits with ‘Bio and Fair Trade’. It is possible to find ‘Bio and Fair Trade’ groups that produce 10, 20 or even up to 30 t of vanilla in some places we work at. This is not achieved by groups implementing any of these labels on their own!”
Ask more about the contract itself:

- Why contracts?

**CEO of PromaBio:**
Contracts assure access to the resource for the exporter and offer better prices for the farmer than the middlemen-dominated market.

- Does it work in your perspective? What does and what doesn't work?

**CEO of PromaBio:**
By and large it works for PromaBio. There are sometimes difficulties in the groups and at other times it even happens that an entire village wants to stop working with the contracting buyer. But then there is always more demand to join the groups than to leave them. So to find new recruits or to relaunch a group in another village is always possible.
The crux rests on appointing a good managing board (conseil d’administration: Président, Trésorié, Sécrétaire, etc.) who do not try to exclude the general assembly (Assemblée Générale) from participation in decision-making.
The managing board consists of 10 people out of 100-200 farmers in the general assembly (all farmers in the group). It must include accepted leaders in the village (“Chefs de Fokonolo” as opposed to Chef de Fokontany).

- Would a centralized CF model with multiple-stakeholders in public private partnership be preferred over a co-operative (intermediary) model?

**CEO of PromaBio:**
In our view, the co-operative model is more beneficial to the farmers, a centralized CF model with multiple stakeholders lends more negotiation power and offer more control to the buyer.
• Can a co-operative model be integrated into current supplier contracts at some later stage?

**CEO of PromaBio:**
Actually, the move towards Fair Trade certification (and in PromaBio’s case also for RA groups) heads farmers into the direction of creating their own cooperatives. PromaBio would have no problem buying vanilla from farmers who run their own co-operative. The co-operative would only have to be willing to collaborate to the point of accepting the certification criteria that are demanded by the market and supply reliably. But, unfortunately, farmer co-operatives are hard to come by in the SAVA Region. There are hardly any successful cases to learn from.

**Private Voluntary Sustainability Standards**
8) Which certificate do you use? Why this one in particular?

**CEO of PromaBio:**
- Bio
- Fair Trade
- Rainforest Alliance
  … in response to customer demand.

There has been demand for **Bio since 1997**.
Demand for **Fair Trade came up in 2003**.
Demand for **Rainforest Alliance** is more recent, **starting in 2012**.
Key information:

It is mainly Symrise who do Rainforest Alliance so far. Some others like us at PromaBio have ventured into it more recently. But for farmers a combination of “Bio and Fair Trade” is the most interesting option, followed by Fair Trade. I would say that Bio is the most commonly targeted standard by exporters as it is in high demand, as it is used to verify traceability and as it is achieved quickly (in short time) in terms of its administrative procedure given that vanilla has always been produced without chemical inputs in Madagascar. Demand for Fair Trade has been increasing in recent years though. But Rainforest Alliance is growing even faster. There is quite a lot of demand for “Bio and Fair Trade” at the moment, too. We tend to buy Bio Vanilla (green) and Bio & Fair Trade vanilla (green as well as semi-prepared: vrac). Rainforest Alliance vanilla is mainly bought green.

Extra Question:
What does it take to get farmers certified? 
(training, inputs, other services)

CEO of PromaBio:
PromaBio has a permanent staff of 10 development workers who help to mobilize farmers to group into associations, who execute technical trainings, information sharing sessions, material distributions, and monitoring. Only where expert knowledge is required, may PromaBio outsource extension to a specialized service provider (e.g., Consultants, to Private Business Partners or to NGOs etc.)

Extra Question:
Does the certification apply to all the crop sourced by the exporter?

CEO of PromaBio:
30-40% of all our crop is sourced and traded unde one of the mentioned three labels or a combination thereof. This amounts to about 40t of certified crop per year. Promabio has specialised on the Gourmet Segment, though, which makes up only 25% of the vanilla market. We are trading in traditionally cured vanilla.
9) Which of the advantages you offer in your contracts are mandated by the chosen sustainability standard?

**CEO of PromaBio:**
Many of them although not all.

12) Is there scope of adaptation of any obligations to the local context or does the standard set out a list of obligations that need to be achieved over a certain time, regardless of the local situation?

**CEO of PromaBio:**
Yes: scope of local adaptations is built into many standards by the possibility to choose elective activities over the years next to obligatory requirements to be met as minimum criteria.

13) What are your possibilities to negotiate the time frame of goal achievement vis-à-vis the auditing body in order not to lose accreditation? Is there any scope of re-negotiation?

**CEO of PromaBio:**
Yes: If you are quicker than the scheduled pathway to certification it is obviously no problem as long as you can provide all necessary administrative checks. For example, to achieve the organic standard it usually takes us 2-3 years to convert a “conventional” group of vanilla farmer to an organic groups with all the paper work and verification procedures necessary. We did achieve this in just 2 years after presenting stamped verifications of the village chiefs that our farmers are producing organically and have not been using any inorganic inputs on their vanilla plots for the past years. If you are creative in collecting proofs you are quicker.

If you are slower than the intended time frame, you simply have to wait until you meet all the criteria to be able to have the certificate.

If you are already certified and insufficiencies appear during subsequent certification audits, you usually get a second and a third chance to rectify the issues before being confronted with losing the certificate.
14) In what frequency do you need to undergo certification?

**CEO of PromaBio:**
every year

15) Who pays for the certification process, you or your client (the importer: aroma and fragrance company)?

**CEO of PromaBio:**
We as exporters pay upfront and hand down the costs to the importers once the vanilla is exported. In Promabio’s case the 40t of certified vanilla cost us US$ 80 000 per year in organizational costs. This is invoiced (handed down) as a USD$ 2 per kg charge to the importer. Of these US$80,000 the certification process for the 3 labels cost us US$ 15,000 (US$ 5,000 per label) and the rest is transaction cost to supervise and organise the farmers to achieve respective standard requirements. That means: The exporter typically advances the costs at his/her own risk, but the buyer actually bears the cost of certification. It is handed down the value chain.

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Misaotra Bezaka!
Interview with CEO of Soarary in Antalaha

Questions to certified exporters in the SAVA Region (2018)

Professional Background of CEO of Soarary

- 1986-1997: Director of RAMA Export (Antalaha), managing an export volume of 250-300t per year.
- 1993-1996: Double head as president of “Groupe Nationale des Exportateurs de Vanille” (GNEV) which was to become the “Groupe des Exportateurs de Vanille de Madagascar” (GEVM)
- 2000-2001: worked for Stabex (European Union) on rebuilding the vanilla sector of the SAVA following Cyclone “Huda”. Quantity and quality were destroyed in the aftermath of the cyclone. (Stabex objective was: “Vanille Naturelle Commercialisée”)

Vertical Integration in the Vanilla Value Chain

3) When did multi-national aroma producers begin to establish export outposts in Madagascar to shorten their supply chains? (year)

CEO of Soarary:
This trend really started with the liberalization of the vanilla value chain in 1993. You can approximate it to the number of export societies who operate in Madagascar nowadays. Most of the big ones are foreign entities today.

<table>
<thead>
<tr>
<th>Year</th>
<th>Vanilla Preparation and Export Societies registered in Madagascar</th>
<th>From Overseas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>3 enterprises</td>
<td>0 enterprises</td>
</tr>
<tr>
<td>1996</td>
<td>23 enterprises</td>
<td>&lt; 10 enterprises</td>
</tr>
<tr>
<td>2018</td>
<td>150 enterprises</td>
<td>&gt; 35 enterprises</td>
</tr>
</tbody>
</table>
The argument for the liberalization was that the price of Malagasy, Comorian and Mauritian/Reunion Vanilla was too high and had no relation to quality or demand. The slogan in 1993 was “The Malagasy don’t prepare the vanilla well”. Liberalization was deemed to attract:

**Better preparators => Better quality => Better prices**

American and European investors were attracted. Among other, traders came to Madagascar such as:
- Givaudan
- Prova
- Aust & Hachmann
- Virginia Dare
- etc.

**Contracts with Farmers**
Following the period at Stabex, George created “Soarary” which has been managed by his son, Faly, for the past two years. Currently, Soarary works in collaboration with American Importers:
- Virginia Dare
- Nielsen Massey

Soarary buys vanilla from Malagasy preparators, among other, from:
- Société Vanamad

**Collaboration with Virginia Dare, New York since 2014/2015:**

Trying to establish farmer associations along the Ambinany river and around Antalaha. Following a Fair Trade logic, these farmer groups were to prepare vanilla themselves to retain a bigger profit share. The intention was to buy semi-prepared vanilla from farmers in September, so that the export value would be shared a little fairer with the producers.
4) Which advantages are offered to farmers through your contracts?

CEO of Soarary:

1. **Professional tools have been offered for preparing vanilla:**
   Virginia Dare pre-financed and Soarary distributed professional tools and materials for vanilla preparation among farmers within the newly created producer groups:
   i.e.,
   - wooden cases
   - chronometers (timers)
   - thermometres
   - blankets
   - etc.

2. **Rice Credits:**
   Soarary also offered Rice Credits in November – December as an insurance function against losing semi-prepared vanilla to “contrat de fleur” like offers by middlemen traders. But the intervention failed as farmer groups did not keep their word and sold vanilla to alternative buyers or fell apart due to internal conflicts.

5) Which obligations do farmers need to meet to obtain your contract?

CEO of Soarary:

- Willingness to form a producer association
- Faithfulness
- Deliver Good Quality Vanilla (Semi-Prepared)
- Ambition to move toward “Self-Marketing” entities (Co-operatives)

The model of Virginia Dare foresaw that farmer associations would evolve into independent co-operatives which could continue without continuous support from Soarary after some years, from which Soarary and Virginia Dare would have bought vanilla according to their offers. This was the CSR pledge by Virginia Dare.
6) Which obligations do farmers struggle with in particular from your perspective? Why?

CEO of Soarary:
- **Lack of Faithfulness** (farmer side-selling is ubiquitous)

**Ask more about the contract itself:**

- Why contracts?

CEO of Soarary:
⇒ More stable access to the resource is being pursued by exporters in offering contracts to farmers

- Does it work in your perspective? What does and what doesn't work?

CEO of Soarary:
⇒ It’s a challenge / not an easy task to organize a stable CF scheme
⇒ Requires a lot of communication, more than most private businesses are willing to invest

- What is offered to farmers and what needs to be organised for them?

CEO of Soarary:
⇒ A whole service system needs to be established by the exporter, including socio-mobilization akin to what an NGO would otherwise do.

- Who organises this for an exporter (Own Staff vs. NGO)?

CEO of Soarary:
⇒ Either own staff
⇒ Or outsourced to NGO or PPP
• Would a centralized CF model with multiple-stakeholders in public private partnership be preferred over a co-operative (intermediary) model?

CEO of Soarary:
⇒ A cooperative model would be the ideal solution for us as the exporter since transaction costs for socio-mobilization, and service support could be minimized
⇒ Yet self-mobilization – the willingness to aggregate out of own accord - is extremely low among vanilla farmers in Northeastern Madagascar. There are impeding issues, above all, a lack of trust among the villagers (in part because of the vanilla theft problem, in other part due to former abuses of power experiences within producer groups).

• Can a co-operative model be integrated into current supplier contracts at some later stage?

CEO of Soarary:
⇒ It requires time, continued commitment, and long-term support to establish mutual trust between farmers and exporters
⇒ Lack of faithfulness of farmers stands in the way
⇒ There is also distrust toward the buyers
⇒ Exporters drop side-selling farmers after the 2\textsuperscript{nd} year in row of defaulting on their contractual supply commitments
Private Voluntary Sustainability Standards

8) Which certificate do you use? Why this one in particular?

CEO of Soarary:

| Soarary only buys and re-sells certified vanilla, the company is not actually involved in organizing certified farmer groups |

For Bio and Fair Trade there is a collaboration with a certified preparator and exporter in Andapa, called Société Vanamad:

- Requested quantities fluctuate according to customer demand (demand-driven by importers)
- Quantities bought also fluctuate with Vanamad’s output and price
- If Vanamad is too expensive compared to his competitors in a given year, Soarary searches another Bio or Fair Trade supplier for the importer among preparators and exporters in the SAVA
- If Bio and Fair Trade vanilla cannot be found at the requested price and quality description, Soarary declines the importer’s demand
- Unreasonable prices demanded by farmers can be a reason why exporters organizing certified schemes become more expensive over the years. Varying qualities on offer can be another reason

Key information:

| Bio and Fair Trade is the ideal combination for farmers. Because of its popularity we believe it is a promising avenue for promoting longer-term buyer-farmer relationships |
9) Which of the advantages you offer in your contracts are mandated by the chosen sustainability standard?

CEO of Soarary:
As mentioned, Soarary only engaged in non-certified contracts so far. But from former experience, building a local health station is demanded by Fair Trade: Tombo Tam for example builds at local health station at Ambodivohirtra Kobahina and has had trained Paramedics for it. This initiative came out of the Fair Trade Standard and the farmers’ association which saw a need in such an infrastructure in their village.

11) What does not work so well with the implementation of certified contract farming schemes?

Quote CEO of Soarary:
“Farmers’ lack of faithfulness toward the buyer and side-selling is a major problem. Despite having received substantial advantages from us over the years, farmers use every opportunity they can to sell at highest prices.”

Official Harvest Date

16) When was the official harvest date established by the Malagasy Government? (year)

CEO of Soarary:
It was established by the Ministry of Agriculture and existed already before liberalization. It was the “Groupement Interprofessionnel de la Vanille” (GNIV) which upheld its importance after liberalization.
Extra Question:
What vanilla qualities constitute the current shares of total vanilla export from the SAVA Region today?

CEO of Soarary:

Total exports of prepared vanilla from Madagascar are estimated at 2000 Mt per year. Given that the original weight of this vanilla was about 6 times more at harvest, annual production from Madagascar is estimated at about 12 000 Mt per year.

Of this, in 2016-2017, about:
- 75% were prepared into beans >12cm
- 9,5% were prepared into beans 10-12cm (“short pods”)
- 15% were prepared into beans < 10cm (so called “cuts”)
- 0,5% (600-700 Mt) were processed into liquid extracts from green vanilla (mainly by Symrise).
Extra Question:
What vanilla qualities constituted the shares of total vanilla export from the SAVA Region before liberalization?

CEO of Soarary:

Before liberalization of the vanilla market in 1993, there were Government set rules in place that exporters had to respect at export. In 1992 an exported lot of vanilla needed to be constituted of following “minimum quality” criteria:

- min. 25% dark red pods > 12cm (Quality “Rouge Fondue”)
- min. 60% of other pods > 12cm (Quality “+12/13”)
- max. 10% of short pods 10-12cm (Quality “Courte < 12”)
- max. 5% of “cuts” < 10cm (Quality “Cuts”)

This lot had a fixed – government regulated price – at around US$ 50/kg (which could vary from one year to the next).
Extra Question: 
So what is being done by the industry against this loss of quality?

CEO of Soarary: 
The SVI has set a goal to reduce the share of cuts back to a maximum of 5% until 2025. The targeted roadmap is:
- share of “cuts” down to 10% by 2018
- share of “cuts” down to 5% by 2025

But it is not clear how to achieve this by a code of conduct alone. The 2018 goal was roughly met due to an official harvest date which, for the first time in years, had been defined by purely technical reasons. Moreover, the incident of vanilla theft could be noticeably reduced in 2018 (at least in the Northern parts of the SAVA Region) thanks to a campaign by exporters and the State to denounce thieves and to reduce the corruption at the courts and at the national police.

Extra Question: 
Who is responsible for this loss of quality in the vanilla value chain from Madagascar?

CEO of Soarary: 
First and foremost, the buyers of premature vanilla (“cuts”) are responsible for the quality deterioration we have seen in recent years of price boom. In particular, the US American market is implicated in demanding low quality product categories traded after official market opening. Thieves and speculative traders, some of whom are said to launder money from illicit activities such as the rosewood trade – are believed to buy premature vanilla before official market opening. The fact, that American industrial buyers demand large quantities of premature vanilla is related to the lower price per kg for cuts. In the USA, there is a regulation by the US Food and Drug Administration (FDA) in place that defines the production of legally authorized liquid extracts of natural flavors to be sold in the USA by the food and beverage industry.
"The FDA regulation governing the production of liquid extracts from spices states that an importer has a maximum allowance say of 1000 L liquid extract in which he must use a minimum of 100 kg of natural vanilla processed."

(Precise formula of the FDA rule is: 13.35 ounce of vanilla for 1 gallon of extract and 35% of alcohol)

"The FDA regulation does not state which quality category of vanilla are to make up the 100 kg of solid base material, however. So instead of demanding 100 kg of mature vanilla (>12cm long) at a price of currently US$500/kg, the importers from the US demand 100 kg of vanilla with a large fraction of cuts. Cuts (<10cm) currently sell at US$350/kg, so with each kg bought, the importer saves US$150. He can still produce his 1000 L of liquid extract from 100 kg cuts. Food and beverage manufacturers are still allowed to label their products with the indication “natural vanilla flavor”. If the liquid extract ends up to lack the desired vanillin content and taste profile, some manufacturers of liquid extracts simply enrich these extracts using chemically or biotechnologically derived vanillin."

###

Misaotra Bezaka!
Professional Background of CEO of Agri Resources

- Graduate from ISTOM, France
- Afterwards in agribusiness in the Francophone world
- Since 2014 in Madagascar to set up and manage a Spice Trading Outpost for Agri-Ressources in Antalaha (New Vanilla Exporter)

Agri-Ressources

- Internationally operating agribusiness (headquarter in Monaco)
- Trading in commodities and spices from Asia and Africa
- In Madagascar since 2014, intending to export spices
- Follow a plantation model rather than contract farming as principal business strategy
- Already bought 12ha (for spices other than vanilla) and 10ha (for cultivation of vanilla) around Antalaha to start
- Intention of acquiring a total of 150ha of which 40ha are intended for vanilla
- Reasoning: The cost of producing 1 kg of green vanilla in a plantation have been calculated to be as low as US$3-4. This contrasts to US$25-45 that farmers demand for 1 kg during the current price boom.
- Agri-Ressources does not implement any sustainability standard so far. In terms of vanilla from the SAVA, the company just attempts to prove traceability for now (to trace quality vanilla to its source and to avoid buying a stolen product).
- In future, Agri-Ressources intend to venture into sustainability standards once their production is established. In terms of vanilla 3-5 years are required for that.
Strategy of Agri Resources in sourcing vanilla from the SAVA:

- A plantation (nucleus estate) serves to acquire the bulk product.
- Contracts implemented through producer associations serve the enterprise for marketing purposes.
- Agri Resources needs sustainability standards for marketing purposes as their international customers ask for these labels.

**Quote CEO of Agri Resources:**

“Everyone needs some % of certified product for marketing.”

According to the CEO of Agri Resources, “the key limitation in Madagascar is lack of human resources. Levels of education are poor and technical agricultural skills are low among a large part of the rural population.”

In order to rationalise production (i.e., to make it more efficient) Agri-Resources pursues a plantation model. The company hires French agronomists (young graduates from ISTOM) who oversee plantation establishment and who control daily wage laborers (Possible criticisms of this set up: “neo-colonial”, “land grabbing”, etc.)

But the problem with farmers during price boom was their opportunistic selling behaviors. “They are simply too money-driven.” Lack of faithfulness towards buyers is reported to be a wide-spread phenomenon observed among farmers.

**Quote CEO of Agri Resources:**

“Of 250 farmers who were recruited from 4 villages (Fokontany) to enter our small but budding contract farming scheme, only 25kg of green vanilla were offered to us after 1 year of organization. We did not buy the vanilla they offered us but just promised to try again next year. Actually, I am happy to keep middlemen between our business and the farmers as the middlemen help to fight the farmers for a reasonable price.”
Key information:

Buying vanilla from remote villages - a strategy adopted by some international traders to source quality vanilla …

Acquisition of vanilla from far away villages as opposed from major roads or peri-urban locations is deemed advantageous by M. Lougarre. Despite difficulties to access remote parts of the countryside, M. Lougarre judges vanilla quantities produced in remote locations to be bigger on an individual household basis and qualities to be better (riper) in general. But the problem with this strategy is to pay farmers on time. Transporting large sums of money in cash is risky, too. The latter is a necessity as many farmers do not possess bank accounts. Also, money paid to producer groups cannot be trusted to reach individual members in these groups.

Agri-Ressources plans to buy 10% of its total vanilla via contract farming schemes from farmer associations. The remaining 90% of vanilla are to be sourced from their plantation.

Quote CEO of Agri Resources:
“The difficulty with contracts is that they require a lot of socio-mobilization and years of engagement to establish mutual trust.”

Quote CEO of Agri Resources:
“The farmers’ team spirit is low. With those farmer groups we started so far, it still requires price negotiations with each individual member before a price can be proposed that will be agreed upon.”

Extra Question (Discrimination Mechanism):
According to which criteria are farmers selected by exporters to be part of a contract farming scheme?

Quote CEO of Agri Resources:
“Selection is based on free will. Whoever wants to work with us can do so, no matter how many kilograms he/she produces. But 100g per farmer are simply unacceptable. Our vision is to help farmers prepare vanilla professionally in the villages in future.”
Contracts with Farmers

4) Which advantages are offered to farmers through your contracts?

CEO of Agri Resources:
Agri-Ressources offers farmers to establish a village-based vanilla warehouse (French: “magasin villageois”). In this warehouse farmers can deposit their harvested vanilla and it will be protected against theft. Agri-Ressources pays the costs of protection and the vanilla stays in the village. The farmers are offered to sell their vanilla at market prices to Agri-Ressources and can do so at different moments of preparation.

Besides protection of vanilla in a village-based warehouse, Agri-Ressources intends to provide:

- Materials and tools guaranteeing quality preparation
- Trainings on professional preparation

… these activities are planned to be pre-financed by the importer (same CSR strategy as mentioned by Soarary/Virginia Dare)
5) Which obligations do farmers need to meet to obtain your contract?

**CEO of Agri Resources:**
Sell the promised quantity of vanilla to us.

6) Which obligations do farmers struggle with in particular from your perspective? Why?

**CEO of Agri Resources:**
“Lack of fidelity due to poverty is a big problem. Low levels of education coupled with enticingly high prices lead farmers to succumb to speculative trade. Farmers are simply too money-driven and lack foresight.”

**Ask more about the contract itself:**

- **Why contracts?**

  **CEO of Agri Resources:**
  For marketing purposes only
  Not desireable for access to quantities

- **Does it work in your perspective? What does and what doesn't work?**

  **CEO of Agri Resources:**
  No not very well

- **What is offererd to farmers and what needs to be organised for them?**

  **CEO of Agri Resources:**
  Preparing vanilla themselves
  Securing vanilla in a protected warehouse in the village
  Selling vanilla at market price to Agri-Ressource over time
• Who organises this for an exporter (Own Staff vs. NGO)?

**CEO of Agri Resources:**
Own staff: French agronomists with MSc degree

• Would a centralized CF model with multiple-stakeholders in public private partnership be preferred over a co-operative (intermediary) model?

**CEO of Agri Resources:**
Yes, since cohesion among farmers is weak

• Can a co-operative model be integrated into current supplier contracts at some later stage?

**CEO of Agri Resources:**
Only for marketing purposes
Private Voluntary Sustainability Standards
8) Which certificate do you use? Why this one in particular?

CEO of Agri Resources:
“None so far, maybe in future for marketing.”

Official Harvest Date
17) Which of the below purposes does the official vanilla harvest date effectively achieve?

(i) To keep vanilla quality high by preventing farmers to harvest and sell a premature crop (Yes/No)
   Yes, in 2018 this worked out to some extent.

(j) To prevent buyers from demanding premature vanilla by making trade before the official date illegal (Yes/No)
   No, this is more related to the Code of Conduct established by the SVI at the moment.

(k) To scare off thieves from stealing and trading premature vanilla (Yes/No)
   No

(l) To ensure that about 80% of vanilla will be harvested ripe enough to be processed by the traditional curing practice (Yes/No)
   No

Quote CEO of Agri Resources:
“The problem with bad vanilla qualities do not only result from the implementation of the harvest date itself but are also due to issues of theft. Moreover, a market for low quality vanilla exists.”

CEO of Agri Resources pointed to the fact, that …
“vanilla is stolen as early as February when vanilla is not yet ripe at all. This vanilla results in horrible qualities. The main problem is that there are speculative buyers who are ready to buy even extremely low quality vanilla which is then mixed locally with quantities of better quality vanilla lateron, after harvest and/or during preparation.”
18) What other reasons do exist in your opinion for the official Malagasy vanilla harvest date?

[The protectionist argument of the harvest date was new to him].

According to the CEO of Agri Resources the main argument does not centre around getting hold of the first vanilla that is ripe but to secure the overall quantities of quality vanilla demanded by the clients. The main problem was that there was a large market for poor quality vanilla during the price boom, due to speculative domestic traders but also due to industrial demand, e.g., due to exports to the USA.

Extra Question:
Is the existence of the official harvest date justified?

CEO of Agri Resources:
Yes, otherwise qualities would be even worse.

Pollination happens in a window from August to December. And vanilla takes about 9 months to mature. So, the idea that a single date exists for the harvest of vanilla is not ideal as it does not allow all vanilla flowers to pass their required time to maturation to result in a good quality (ripe) vanilla bean. But the logic to respect a maturation of 9 months is sensible to achieve high qualities of vanilla. It is based on agronomy and the plant’s process of biological growth and reproduction.

Quote CEO of Agri Resources:
“The problem with the date lies in its technical implementation. Farmers do not mark each bunch of flowers as to their precise date of pollination. The vanilla is not marked by farmers at the time it is pollinated. So, it is hard to verify for each bunch that it has really ripened for 9 months.”

“The harvest happens in a window from May to September, reflecting 9 months after pollination at different altitudes.”

In 2018, the harvest date was implemented to the satisfaction of Agri Resources. It was a result of concerted efforts by the supporters of the
CROF (exporters and farmers association in the PRCP and the Region and DRAE agreed) to fix it purely on the 9 month maturation rule and not by political interests.

**Quote CEO of Agri Resources:**

“In 2017, a Senator close to the President of Madagascar vetoed the technical approach of the CROF by judging it politically unpopular. Almost single-handedly, he decided that the date needed to be fixed for the period before the 26th of June (Malagasy Independence Day) for which most of the farmers require money. The calculation behind this move was that the falling President was to regain political popularity among vanilla farmers in the year running up to the elections. But quality turned out to be horrible in 2017, in part also due to Cyclone ‘ENAWO’”

**Extra Question: Who buys low quality vanilla?**

**CEO of Agri Resources:**

“Industrial buyers of vanilla, especially importers from the USA, preferentially demand low quality vanilla. Some of the US buyers are even demanding to buy 100% of cuts. Other industrial qualities destined for the US American market are ‘short and red’.”

“The main reason why bad quality vanilla exists is that people are ready to pay for it. And it is cheaper than good quality vanilla per kg.”

“The main reason why US importers demand a lot of bad quality vanilla is an FDA legislation which fixes the right to produce 1t of liquid extract from a certain kg mass of natural vanilla as base material.”

**Quote CEO of Agri Resources:**

“Quantity not quality dominates the industrial US American market.”
Key information:

European importers have a tendency to demand a high vanillin content in the beans. To them quality is more important. Large importers from the USA tend to focus on quantity rather than quality.

Information about difficulties to source quality vanilla from Madagascar from the perspective of a preparator or exporter:

Quote CEO of Agri Resources:
“As a preparator you only realise the different qualities that are hidden in the lot of green vanilla that you buy once you have actually started sorting the beans during the preparation process.”

Quote CEO of Agri Resources:
“You can prevent this acquisition gamble and management challenge if you plant, harvest and cure the vanilla yourself. That’s why we prefer a plantation model over contract farming schemes for our vertical integration strategy.”

Vanillin has anti-fungal properties. The higher the vanillin concentration of the bean, the less likely it is to rot. Green vanilla after harvest typically consists of 85% water and 15% vegetal material. As the humidity content of the beans decreases during the drying process (curing), the concentration of vanillin (as a % of dry matter weight) increases.

CEO of Agri Resources:
“Once the humidity is down to 32%, preparators/exporters typically do a first ‘stability’ test. If the bean has a vanillin concentration of 1% per dry matter weight or more, then it passes the stability test. This means that it will not rot during dry storage conditions anymore. You also know that this bean was harvested maturely if the vanillin content passes the 1% mark at 32% humidity. By contrast, if the vanillin content is < 1% (say 0.4%) then you know you have a prematurely harvested bean (0.4% vanillin concentration at 32% humidity is a typical value for “cuts”). So, you need to continue drying these beans until they reach stability against mould.”
<table>
<thead>
<tr>
<th>Stability Tests</th>
<th>Humidity</th>
<th>Vanillin Concen. of mature beans</th>
<th>Vanillin Concen. of “Cuts”</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; Test</td>
<td>32%</td>
<td>1,0%</td>
<td>0,4%</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Test</td>
<td>15%</td>
<td>1,2%</td>
<td>0,8%</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; Test</td>
<td>0%</td>
<td>1,6%</td>
<td>1,0%</td>
</tr>
</tbody>
</table>

Note: From a vanillin concentration of 1% and more the beans are stable and good to ship. Further drying then depends on the vanillin concentration and humidity level demanded by the buyer.

Likewise, also the conversion ratio of green-to-cured weight of vanilla crucially depends on its maturity at harvest. “You can transform 4,3kg of green vanilla into 1 kg of fully cured vanilla (at 32% humidity) if the beans are harvested well ripe. By contrast, the short beans (< 10cms) and cuts (< 8cms) may have a transformation ratio of 7-8kg of green to 1kg of fully cured vanilla (down towards 0% humidity).

**Quote CEO of Agri Resources:**

“*Based on the technical challenges of obtaining large quantities of good quality vanilla, a lot speaks for pursuing a plantation model instead of contract farming.*”

Typical conversion ratios and humidity values of Gourmet vanilla vs. EU Rouge vanilla vs. USA Rouge vanilla vs. “Cuts” are given below

<table>
<thead>
<tr>
<th>Vanilla Type</th>
<th>Conversion Ratio</th>
<th>Humidity</th>
<th>Dry Matter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Vanilla</td>
<td>Depending on Maturity</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>Black Gourmet Vanilla &gt;12cm</td>
<td>4 kg green - to - 1 kg stable</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>Red Vanilla for EU Market (10-12cm)</td>
<td>5 kg green - to - 1 kg stable</td>
<td>26%</td>
<td>74%</td>
</tr>
<tr>
<td>Red Vanilla for US Market (10-12cm)</td>
<td>6kg green - to - 1 kg stable</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>“Cuts” (8-10cm)</td>
<td>7kg green - to - 1 kg stable</td>
<td>15%</td>
<td>85%</td>
</tr>
<tr>
<td>“Cuts” (&lt;8cm)</td>
<td>8kg green - to - 1 kg stable</td>
<td>15%</td>
<td>85%</td>
</tr>
</tbody>
</table>

Note: The red vanilla beans, the short beans, and the cuts are qualities with industrial destinations.
Quote CEO of Agri Resources:
“In 2017, a lot of vanilla was prepared at a conversion ratio of 7-8kg green to 1kg stable. In 2018, a lot of vanilla was prepared at a conversion ratio of 5-6 kg green to 1kg stable vanilla.”

“The situation can change dramatically from one year to the next, depending on how well farmers respect maturity at harvest.”

Vanilla lengths acquired by Agri-Ressource in 2017 vs. 2018

<table>
<thead>
<tr>
<th>Year / Vanilla Length</th>
<th>Long &amp; Short Vanilla (&gt;12cm &gt;=10cm)</th>
<th>Cuts (&lt;10cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>2018</td>
<td>93%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Note: Only Symrise is preparing locally-produced extracts before export from cuts. Very few of the cuts are locally ground up into vanilla powder despite cheap labor force due to distrust of importers over alleged qualities in such products. Importers prefer to have the entire beans shipped to produce extracts and powders in their own facilities overseas.

…

Misaotra Bezaka!