Policy Interventions and Smallholder Market Linkage: Case Study from Nicaragua

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Summary

Smallholder market participation has been discussed as a catalyst against poverty. To date, a number of empirical studies have addressed the effect and implication of smallholder inclusion in commercial markets. Generally, the literature agrees that commercial marketing increases household welfare and points out several key endowments that are crucial for smallholder participation in market transactions. This dissertation extends such findings by directly addressing policy tools to enable market linkage of small farmers in rural areas. More specifically, it looks at road infrastructure improvement and NGO-based market linkage assistance. While the role of transportation infrastructure is considered crucial for market participation by small farmers, the quantification of benefits from improving rural roads had not been done in a satisfactory manner. In addition, most studies treat NGO-based intervention as one component, failing to capture distinct roles played by different activities. Therefore, this dissertation fills the gap in the literature by studying bean farmers in rural Nicaragua. The research shows that a reduction of time traveled to commercial markets by 25% would increase household income from bean sales by between 3 and 12% of the current income. Regarding the effect of different NGO activities, we find that entrepreneurial practices-related activities show positive correlation with sales volume directed to non-local markets, confirming the effectiveness of the intervention. We also show that different groups of farmers benefit from interventions differently. Those who did not participate in commercial marketing previously benefited more than those who were already part of the supply chain before the project intervention.

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List of tables

List of figures

Definitions of Key Terminologies

Supply Chains:
"the system in which a product moves from (i) the farmer and first-stage processor, who sorts, grades, packs, and does the initial processing ("upstream" in the chain), to (ii) the distributor, including assemblers and wholesalers, to the "downstream" segments, (iii) the second-stage processor or "food manufacturer" (unless the product is a fresh product), to (iv) the retailer (such as supermarket or restaurant), and thence to (v) the consumer" (Reardon et al., 2002, p. 1)

Value Chains:
the chain of activities that bring value to commodities (Feller et al., 2006)

Smallholders:
"producers of agricultural and forest products or services who manage small-scale landholdings, whose size varies according to the local context" (Donovan & Stoian, 2012, p. 14)

Traditional markets:
"wet markets" (Schipmann & Qaim, 2011, p. 346)
markets where product exchange is "loose" (Assefa & Minten, 2015, p. 8)
other terms used: local markets, wholesales markets, non-linked markets

Linked markets:
all market types except local wholesale markets as linked markets (see Chapter 3)
other terms used: non-local markets, non-traditional markets, dynamic markets

Table of Contents

1. Introduction

Commodity trade as a result of comparative advantage has long been considered as an effective tool to achieve welfare gains. Early on, David Ricardo claimed that specialization in production and exchange of goods allow individual production units to reach welfare levels higher than in the autarkic state (Ricardo, 1891). Since Ricardo, researches have shown that trade brings growth and economic development (see for example Frankel & Romer, 1999; Frankel et al., 1996; Romer, 1994).

In addition to gains from trade at the economy level, agricultural economists have drawn a link between (agricultural) commercialization and rural poverty reduction. For instance, Timmer (1997) explains how economic growth is accompanied with agricultural transformation (e.g. productivity increase, technology improvement and adoption), followed by commercialization (i.e. production specialization at the farm level), and finally society-wide agricultural diversification. This process reduces dependency on agriculture as a source of income and employment at the economy level. As a result, it allows reallocation of production resources away from agriculture and rural areas, driving development in non-farm sectors (Timmer, 1988). As Bromley & Chavas (1989) and Barrett et al. (2010) argue, economic development cannot be achieved without first transforming the agricultural sector. In this notion, policies neglecting agricultural development has been criticized as a culprit for stagnant economic growth (Binswanger, 1998).

While fundamental to developing the agricultural sector are access to productive assets and well-functioning markets for both public and private goods (Barrett, 2008), many developing countries often lack these necessary mechanisms. Lack of assets prevents smallholders from making investment (Barrett, 2008; Naschold, 2012), which leads to slow total factor productivity growth. Non-existing input and output markets increase transaction costs for smallholders to participate in commercial markets (de Janvry et al., 1991; Fafchamps, 1993; Key et al., 2000; Alene et al., 2008). As a result, many poor farmers miss out on continuous market-based exchange that provides them with necessary information, which further decreases the incentive to improve production technology (Barrett et al., 2010). Without institutional support, poor farmers in developing countries have no choice but to opt out of commercialization and remain in a poverty trap characterized with low productivity, little crop specialization and little to non-existing market participation (Barrett & Swallow, 2006; Naschold, 2012).

In essence, commercialization is impeded due to non-negligible transactions costs. This is why a large body of literature addresses their role in the context of smallholder commercialization in developing countries. Key et al. (2000) categorize transaction costs in partial transactions costs (PTCs) and fixed transaction costs (FTCs). PTCs may be generated due to physical distance and remoteness (Jacoby & Minten, 2009; Jacoby, 2000), transportation infrastructure (Fafchamps & Hill, 2005), lack of access to information (Goetz, 1992; Torero, 2011), and dysfunctional markets (de

Janvry et al., 1991; Fafchamps, 1993). Generally speaking, PTCs raise per unit cost of products exchanged, creating a "*price band* within which some households find it unprofitable to either sell or buy" (Key et al., 2000, p. 245). FTCs arise in the form of search costs for reliable and profitable markets, negotiation and bargaining under information asymmetry, and screening to control product quality (Key et al., 2000). Perceiving the risks and uncertainties associated with market participation, poor farmers strategically choose to diversify crop production and thereby forgo opportunities for commercialization and welfare gains (Barrett, 2008; Omamo, 1998a).

In practice, encouraging smallholder commercialization is a complex task (Boselie et al., 2003). Generally, the empirical literature agrees to reduce transaction costs by improving physical infrastructure to both inputs and outputs markets as well as reducing risks and uncertainties associated with marketing (Torero, 2011). More specifically, research has recommended that policy makers facilitate communication and interactions between buyers and producers (vertical coordination), encourage collective actions in a form of farmer groups and cooperatives (horizontal coordination), and improve access to production technology and other infrastructure that enables processing for value-added products (Boselie et al., 2003; Hellin et al., 2009; Minten et al., 2009; Torero, 2011; Whitfield, 2012). In addition, the policy environment should favor such commercial activities both at the national and international level (Barrett, 2008; Minten et al., 2009).

In this context, the emerging global supply chains have attracted much attention as a solution to mitigate such aforementioned problems. Driven largely by decreased trade control by national states and change in consumer preferences, the share of high-value goods traded has increased and large global retailers have increasingly integrated smallholder farmers into their global supply chains (Chopra et al., 2002; Codron et al., 2006; Dolan & Humphrey, 2000; Maertens & Swinnen, 2007; Pingali, 2007; Reardon et al., 2002). A number of studies identify positive effects on those included in the global procurement system (see for instance Minten et al., 2009; Nagaraj et al., 2008; Rao & Qaim, 2011).

However, even in the wake of globally integrated markets, aforementioned obstacles that small farmers face are visible. Coexisting with positive effects of the modern procurement system are empirical evidences that resource poor farmers lack necessary mechanisms to meet quality and quantity requirements imposed by retail companies (Farina & Reardon, 2000; Swinnen, 2007). As a result, many smallholders are unable to take advantage of the opportunities in such integrated markets in the long-run (Hazell et al., 2010; Markelova et al., 2009).

The exact mechanisms that enable smallholder market linkage is case-specific (Torero, 2011). Thus, the universally agreed upon recommendation to improve infrastructure needs to be translated to concrete implementation tools in individual cases. Moreover, effective policies are likely to be dependent on the type of producers. Torero (2011) divides smallholders in three categories[1]: those who 1. are market-oriented and competitive, 2. commercialize regionally and/or nationally, and 3.

[1] Similar classification is mentioned by Barrett (2008).

rarely participate in market transactions and live in semi-subsistence system. Increasing market participation by the first group does not require the same set of policy interventions as in the case for the third group.

While the complexity of long-term smallholder commercialization has been pointed out, the empirical literature to date fails to provide satisfactory evidences as to what extent what intervention tools are effective in building inclusive value chains. Often, problems are nested in the non-random nature of interventions (e.g. road development, donor-funded projects) (Barrett, 2008; Jacoby & Minten, 2009). As a result, eliciting causal relationship between certain interventions and commercialization is challenging. As commercialization-oriented interventions are relatively new (Jaffee et al., 2011), research to date lacks thorough discussions regarding their effectiveness (Barrett, 2008; Humphrey & Navas-Alemán, 2010; Mithofer, 2011; Stoian et al., 2012).

To fill the aforementioned gap in the literature, this dissertation studies two mechanisms that are seen effective in reducing transaction costs and thus facilitating smallholder participation in commercial markets. Building up on three essays, this dissertation addresses the following research questions:
RQ1: How much do smallholder farmers benefit from rural road development?
RQ2: Do NGO-based intervention activities link smallholders to commercial markets?
RQ3: Do NGO-based intervention activities affect entrant and already-existing farmers differently?

All case studies are conducted on staple bean producers in Nicaragua, the second poorest country in Latin America (IFAD, n.d.). Staple commodities are generally perceived less profitable than cash crops and fresh produce. This is mainly because there is little product differentiation that generates premium prices (Berdegué, 2002; Hellin et al., 2009). Moreover, prices of staple commodities are deliberately kept low through government interventions to feed the population and avoid political instability (Timmer, 2010; von Braun et al., 2008). Lacking incentive to update technology, yield of many staple grains remains low in the developing world. While commercial exchange of staple commodities implies reallocation of production resources to more profitable crops, many poor agricultural producers maintain food crop production in order to avoid being food insecure (Omamo, 1998b). Therefore, studying the case of staple beans provides insights as to what policy tools can be used to encourage commercialization of staple commodities, and therefore further extending to cash crops in the future.

Data set is obtained from a non-governmental organization (NGO), the Catholic Relief Services (CRS). CRS conducted a development project between 2007 and 2012 and recorded information on sales activities of various commodities. There are a total of 5,045 bean producers. We exploit the full unbalanced panel data set.

The first essay quantifies the benefit of rural transportation infrastructure development by scrutinizing farm-gate prices of bean producers. Improving roads in rural areas is considered as one of the key intervention tools to encourage smallholder market participation (Jacoby & Minten, 2009;

Rapsomanikis et al., 2006; Renkow et al., 2004). In addition, remote areas demonstrate less market integration compared with well-linked regions (Barrett, 1996; Baulch, 1997; Fackler & Goodwin, 2001; Ravallion, 1986). This reduces the influence of macro-level policy interventions (Barrett, 2008; Dethier & Effenberger, 2012). However, quantification of benefit has been challenging and neglected due to the non-random nature of rural road development (Jacoby & Minten, 2009). We propose a novel approach to tackle this problem by analyzing producer prices. Building up on a hedonic price model (Rosen, 1974), we confirm that larger distance to commercial markets depresses producer prices in rural areas. Our results suggest that a 25% reduction in travel time to commercial markets would increase bean sales revenue by between at least 3% and 12% annually. Since road development will benefit other producers, crops and industries, we expect the return to be larger than estimated.

The second essay scrutinizes capacity building activities undertaken by an NGO in order to understand the effectiveness of project interventions. Donor-funded projects show increasing interest in supporting smallholder participation in commercial markets (Barrett, 2008; Humphrey & Navas-Alemán, 2010; Shepherd, 2007). While NGO-based activities are generally found useful (e.g. Carletto et al., 2011; Kersting & Wollni, 2012), there is a lack of empirical evidence as to whether and how much desired outcomes are attributed to NGO interventions (Jaffee et al., 2011; Mithofer, 2011). Using a difference-in-differences approach, we identify what intervention activities have positive effects on linking smallholders to markets. We find entrepreneurial training increases bean market linkage by between 0.2 and 0.5 percentage points. Moreover, the higher the percentage of outputs sold in dynamic markets, the larger the sales income.

The third essay extends the analysis done in the third chapter by identifying who benefit most. The empirical literature emphasizes heterogeneity among agricultural producers in regard to commercialization. Generally speaking, those who are integrated in commercial markets are physically, personally, and/or institutionally more endowed than those who are excluded (e.g. Barrett et al., 2012; Berdegué et al., 2005; Gulati et al., 2007; Swinnen, 2007). To test whether NGO activities assist particularly those that had not participated in dynamic markets before being intervened, we employ the concept of intensive and extensive margins from the trade literature. We divide bean producers into two groups: those who had participated in commercial activities prior to NGO interventions and those who had not. The evidences suggest that trainings on commercialization have positive influences on previously excluded farmers but show no effect on the rest at both margins. Based on the findings, we recommend future projects to focus solely on training those who had lacked access to dynamic markets prior to interventions as well as conduct thorough contextual analysis prior to interventions.

The rest of this dissertation is organized as follows. Chapter 2 presents the first essay on quantification of benefits from road development. Chapter 3 investigates the effectiveness of an NGO project in linking farmers to commercial markets (Essay Two). Chapter 4 gives insights as to who benefit from the interventions (Essay Three). Finally, Chapter 5 summarizes and concludes. All supplementary materials are found in Chapter 6.

2. Transportation Infrastructure and Producer Prices[2]

2.1. Introduction

In today's changing agri-food system, smallholder participation in commercial markets has attracted attention as a potential catalyst for alleviation of poverty. Farmers who are included in the global procurement system are found to benefit from premium product prices (Gulati et al., 2007), reduced transactions costs in product marketing (Nagaraj et al., 2008; Vieira, 2008), and access to necessary assets (Minten et al., 2009; Nagaraj et al., 2008; Swinnen, 2007). As a result, participating farmers are able to improve productivity, household income and/or asset holdings (Minten et al., 2009; Miyata et al., 2009; Reardon et al., 2009). However, participation in global supply chains requires good access to roads and other transportation infrastructure, production assets (e.g. irrigation system), and thorough knowledge of farming techniques among others (Barrett et al., 2012; Donovan & Poole, 2008; Hernandez et al., 2012; Michelson, 2013; Murray, 1991; Rao & Qaim, 2011). For lack of these factors, small farmers in rural areas are often excluded from the global retail markets and therefore unable to enjoy benefits that the global procurement system can provide.

In response to the difficulties that small farmers face, empirical studies suggest mechanisms that assist small farmers' participation in the global supply chain. For instance, Hellin et al. (2009) and Narrod et al. (2009) show the importance of collective actions by looking at cases in Central America, and Kenya and India, respectively. By forming farmer organizations, individual smallholders can conduct product marketing as a group, enabling access to improved market information as well as sales of larger quantities which can reduce transaction costs. Minten et al. (2009) argue that intensive farm technical assistance allows farmers to meet complex quality requirements imposed by buyers. They find that participating farmers in Madagascar are provided with necessary inputs by the buyer to ensure the quality of final products. Based on a negative experience in the pineapple industry in Ghana, Whitfield (2012) also highlights the importance of updating production technology as well as trade-friendly policy environments.

In essence, such mechanisms aim to reduce the transactions costs that smallholders face when accessing markets. Transactions costs are seen as one of the key factors that influence market participation and welfare of small farmers (Pingali & Khwaja, 2005; Barrett, 2008). Poor infrastructure in rural areas in particular can prevent smallholders in developing countries from participating in market-based economic activities (Mabaya, 2003; Moser et al., 2009). At the macro-level, geographically isolated areas demonstrate less market integration than those that are well-connected (Ravallion, 1986; Barrett, 1996; Baulch, 1997; Fackler & Goodwin, 2001). Rapsomanikis et al. (2006) show that high transfer costs due to poor infrastructure and lack of

[2] This paper is a joint work with Pamela Alejandra Velasco Pacheco and Stephan von Cramon-Taubadel at the University of Göttingen. The manuscript was submitted to Agricultural Economics in April, 2015.

communication can create large marketing margins. Renkow et al. (2004) estimate that fixed transaction costs are equivalent to a 15% ad valorem tax on maize farmers in Kenya, and Jacoby and Minten (2009) show that transportation cost can be up to 50% of final product price in the case of rice farmers in remote areas of Madagascar. As a result, high transportation costs encourage farmers in rural areas to stay in subsistence farming (Dillon & Barrett, 2013; Key et al., 2000).

When markets are isolated, local players such as traders can acquire regional monopsony or oligopsony power (Barrett, 2008; Faminow & Benson, 1990; Graubner et al., 2011). As a result, commodity prices in geographically segregated areas often respond less quickly to changes in macro-level prices and are less integrated than in markets that are well linked to national and international markets (Getnet et al., 2005; Goletti et al., 1995; Siqueira et al., 2010). In dealing with market participants who have market power, smallholders will tend to pay more for inputs and receive less for their products, thus exacerbating the problem of low margins and poverty traps.

All of these considerations underline the recognized importance of transportation infrastructure improvement (Jacoby, 2000). Given the potential for infrastructure development in rural areas to alleviate poverty, there is an increasing interest in developing rural infrastructure (World Bank, 2007). However, quantifying the optimal level of infrastructure investment is a difficult task.

If policy makers ignore the effect of market segregation due to transportation cost on low farm prices, the optimal level of investment can be underestimated (Mérel et al., 2009). In order to take appropriate investment decisions, policy makers require quantitative information on the potential effect of rural road improvement. In this chapter we generate such information by studying how farm-gate prices are affected by physical distance and traveling time from farms to markets. Building up on the hedonic price model, we identify product-, producer- and marketing-attributes, including physical distance and traveling time, which influence producer prices.

As a case study, we select the bean sector in rural Nicaragua. Bean is one of the most important crops for food security in Nicaragua besides maize and rice (FAO, 2012; INIDE, 2011). In the recent years, Nicaraguan bean sector suffered from stagnation of productivity and restriction of agricultural land expansion (FAO, 2012). In addition, as a key staple crop, beans are subject to government policy interventions that have arbitrary effects on bean producers. During 2010 and 2011, export restrictions were put in place by the government. This interrupted trade flows to major importers in neighboring Central American countries (FAO, 2012; La Prensa, 2011). Moreover, transportation costs within Nicaragua are high: on average, transportation costs within Nicaragua to local seaports account for 50% of total freight rates to the U.S. (World Bank, 2012). As a result, bean producers face difficulty in participating in commercial sales, particularly marginalizing those in remote areas. Our paper analyzes factors that influence producer prices of beans in Nicaragua. We pay particular attention to the role played by infrastructure and geographical location.

The rest of the chapter is organized as follows. The next section describes the bean sector in Nicaragua. In section 2.3, we then explain our conceptual framework, data set and econometric

model. Descriptive statistics and regression results are presented in section 2.4, and we discuss the findings and conclude in section 2.5.

2.2. Background

Beans are important for Nicaraguans not only as a staple food crop but also as a major income source for the poor (FAO, 2012; INIDE, 2011). Beans are produced throughout the country and especially in the Northwest (FAO, 2012). More specifically, production of beans is prominent in the departments[3] of Jinotega, Matagalpa and Nueva Segovia (INIDE, 2011).

Nicaragua's bean production is predominantly conducted by small producers. Approximately 50% of bean producers in the country farm less than 7ha[4] of land (Table 2.1). These small bean producers account for 30% of the land used for bean production. Considering that at the national level only 6% of total agricultural land is farmed by those who own less than 7ha of land (INIDE, 2011), beans are more important to small producers than other commodities. The bean sector has seen little improvement regarding production technology (FAO, 2012). As a result, yield growth has been stagnant over the last 20 years (FAO, n.d.).

Table 2.1. Farm size and number of bean producers in Nicaragua: 2011

Size	Bean producers			Bean cultivation area		
(Ha)	Number	%	Cumulative %	Ha	%	Cumulative %
<0.4	1,583	1.1	1.1	279	0.1	0.1
0.4-0.7	5,176	3.8	4.9	1,796	0.8	0.9
0.7-1.8	19,749	14.3	19.2	12,658	5.6	6.5
1.8-3.5	20,934	15.2	34.4	21,411	9.5	16.0
3.5-7	20,978	15.2	49.6	29,056	12.9	28.9
7-14	19,558	14.2	63.8	33,696	14.9	43.8
14-35	25,060	18.2	82.0	51,558	22.8	66.6
35<	24,841	18.0	100.0	75,508	33.4	100.0
Total	137,879	100.0	---	225,962	100.0	---

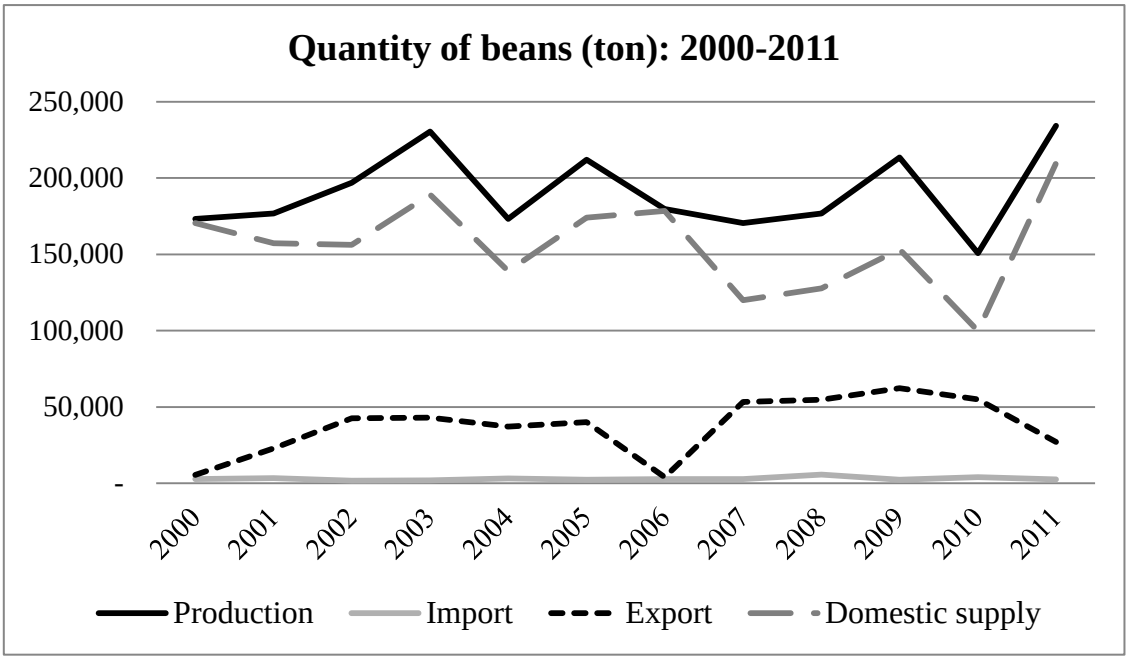
Source: (INIDE, 2011)

The majority of beans produced in Nicaragua are sold domestically but the export market has grown in the last decade (Figure 2.1). Between 2007 and 2010, on average 30% of total production was directed to the export markets (FAO, n.d.-a). Central American countries are the biggest importers of Nicaraguan beans (Table 2.2). Since 2007, Nicaraguan exports to El Salvador, Costa Rica and Honduras have increased. El Salvador is now the largest importer of beans produced in Nicaragua,

[3] Geographical unit goes from departments, municipalities, and communities with departments being the largest units.
[4] In Nicaragua, land area is measured using Manzanas (Mz). 1 Mz=0.704ha.

while a relatively small share is directed to the U.S. The active exchange of the commodity in the Central American region may be due to the Dominican Republic-Central America Free Trade Agreement (DR-CAFTA) signed by the Dominican Republic, the U.S. and Central American nations including Nicaragua in 2004 (USTR, n.d.). Bean exports to Venezuela have also grown since 2008 (Table 2.2).

Figure 2.1. Production, domestic supply and trade of beans in Nicaragua: 2000-2011



Source: (FAO, n.d.-a)

Two types of beans are produced in Nicaragua: red and black. Red beans are a staple commodity not only in Nicaragua but also in many other Central American countries. Therefore, production of red beans is significantly more than black beans. Although black beans may be exchanged domestically and regionally, they are mostly targeted for export to Venezuela (FAO, 2012). However, the sustainability as well as the potential of the Venezuelan market is questioned. Nicaragua and Venezuela do not have an official trade agreement such as DR-CAFTA, and exports to Venezuela are coordinated exclusively by the Nicaraguan government as a part of an alliance called ALBA (Bolivarian Alliance for the Peoples of Our America, Spanish acronym) (FAO, 2012). As a result, the transactions lack transparency (COHA, 2010) and there are concerns that the recent surge in black bean export to Venezuela may be temporary and do not provide income-generating opportunity for all producers.

As a key food security crop, beans are subject to policy interventions in Nicaragua. In 2010 and 2011, an informal restriction was put on red bean export in order to protect consumers in Nicaragua (The Economist, 2011). However, this policy was criticized for reducing Nicaragua's share of the

regional red bean market (FAO, 2012; La Prensa, 2011). As seen in Table 2.2, bean export to El Salvador, Costa Rica and Honduras decreased significantly in 2010 and 2011. The resulting shortage of red beans in these Central American markets has been replaced by competitors such as China (FAO, 2012), which could result in Nicaragua losing these markets permanently.

Table 2.2. Destination of Nicaraguan bean export

Destination	2006	2007	2008	2009	2010	2011
North America						
USA	3,744	3,789	5,523	5,732	4,886	2,540
Canada				80		20
Central America						
Guatemala	225	496	259	832	472	683
El Salvador		21,710	27,253	25,149	18,306	9,713
Costa Rica		17,981	14,264	14,525	12,675	3,766
Honduras		9,231	6,682	13,522	4,654	536
Panama			0	20	0	0
Others						
Venezuela			660	2,460	14,040	9,806

Source: (FAO, n.d.-a)

Transportation costs are considered as one of the key factors that hinder both international and domestic product exchange in Nicaragua. According to World Bank (2012), Nicaraguan domestic transportation costs can make up more than 50% of the total freight costs to the U.S. For instance, transportation costs incurred within Nicaragua from Matagalpa, Jinotega and Nueva Segovia to the port of Corinto are 59%, 62% and 64%, respectively, of the total freight costs from these locations to Miami.

In summary, beans are important for smallholders in Nicaragua, many of whom live in remote areas without satisfactory transportation infrastructure. Accessibility to commercial markets differs significantly based on location. Our study intends to understand the role of transportation infrastructure to reach commercial markets in determining producer prices of beans. The next section explains our estimation strategy and the data that we employ.

2.3. Empirical estimation strategy

2.3.1. Conceptual framework

Our model is based on the hedonic price model developed by Rosen (1974). The hedonic price model decomposes observed market prices based on implicit characteristics of the goods exchanged. This model enables us to isolate product attributes of interest and assess how they influence market prices.

In the context of agricultural commodities, the hedonic price model has been mainly used to analyze consumer preferences for product attributes. For instance, a number of hedonic analyses of coffee prices have been published (e.g. Donnet et al., 2007, 2008; Teuber & Herrmann, 2012). Faye et al. (2004) and Mishili et al. (2009) look at cowpea prices in Senegal and Nigeria, Ghana and Mali, respectively. These studies analyze consumer preferences for individual products attributes in order to understand the factors that influence consumer choices. Our study applies an analogous methodology to disentangle product characteristics that influence prices received at the farm level. To the best of our knowledge, this is the first study to employ the hedonic price model in the context of producer prices.

Mathematically, the model is written as:

$$P_{it} = f(X_{jt}) + \varepsilon_{it} \quad (2.1)$$

where P_{it} is the prices received by producer *i* at time *t*; the X_{it} is a vector of covariates that explain producer prices; and ε_{it} is the error term. We present possible covariates below and econometric issues will be discussed in the econometric model section.

Based on findings from the literature and the empirical context of Nicaraguan bean sector, we identify several variables that are potentially important determinants of farm-gate bean prices. Product quality is one of the most well-documented factors that influence prices (Donnet et al., 2007; Faye et al., 2004; Mishili et al., 2009). Quality characteristics can be implicit (e.g. reputation, brand, preferred production practices) or explicit (e.g. color, shape, size, taste). Marketing practices are often found to be important as well. In their consumer price study, Donnet et al. (2007) show that a large quantity decreases product prices. This may be because sellers are willing to give discount for a larger quantity of sales. However, we note that producer prices may increase with an increase in quantity exchanged since a large seller may be able to take advantage of the leverage. Gender might also play a role as female farmers may have less negotiation power than men and can face disadvantages when marketing (Dolan, 2001; Zhang et al., 2006). As a result, they may receive lower prices than their male counterparts.

Distance and lack of access to markets can have negative effects on producer prices. For instance, Fafchamps and Hill (2005) show that coffee producers in Uganda are offered lower prices by traders in their villages than at commercial markets due to the cost of traveling to remote villages. In addition, remoteness can reduce competition and enable oligopsonistic traders to offer lower farm-gate prices (Graubner et al., 2011). Michelson et al. (2012) show that farm-gate prices are significantly lower than wholesale prices in the capital city in Nicaragua. This may result from the exploitation of market power by traders in farming communities when individual transportation to commercial markets is not easy due to poor transportation infrastructure.

Based on these considerations, we employ various measures of product quality, quantity exchanged and transfer costs to major ports as explanatory variables in our analysis. We use total distance and traveling time between farming communities and commercial markets as proxies for transfer costs.

No matter who travels the distance, farm-gate prices are set lower if the overall transfer costs are high. Therefore, our analysis applies total distance and traveling time from communities to major commercial centers instead of markets where producers could sell their products.

2.3.2. Data

We analyze sales data recorded by CRS. CRS implemented a development project in rural Nicaragua between September 2007 and October 2012. This project targeted small farmers in Nicaragua who own less than 10 hectares of land. Among the information that was collected are records of individual sales by farmers over the five-year project period. In total, there are 3,893 bean producers in the data. Each producer sold beans at least once during the five years and the average producer sold beans three times, which sums up to a total of 11,719 observations. We exploit the full unbalanced panel data set.

The farmers included in the data set were not chosen randomly. Instead, CRS applied several criteria in selecting individuals to participate in its project[5]. However, the project did not include any interventions that directly influence farm-gate prices. Moreover, the information provided by CRS is rich in the factors that may influence farm-gate prices. The credibility of the information is high since the information on sales was collected every three months, which is approximately one cultivation cycle of beans. Price data are available for each individual sales transaction and include information on the buyers, destination countries, and product quality.

The dependent variable, the farm-gate prices of beans, was originally recorded in the local currency, Nicaraguan Córdobas. We converted the values to USD to facilitate result interpretation, using the exchange rates recorded throughout the project period. Our explanatory variables are transfer cost, and both non-binary and binary variables which are categorized as marketing-, product-, and farmer-related variables.

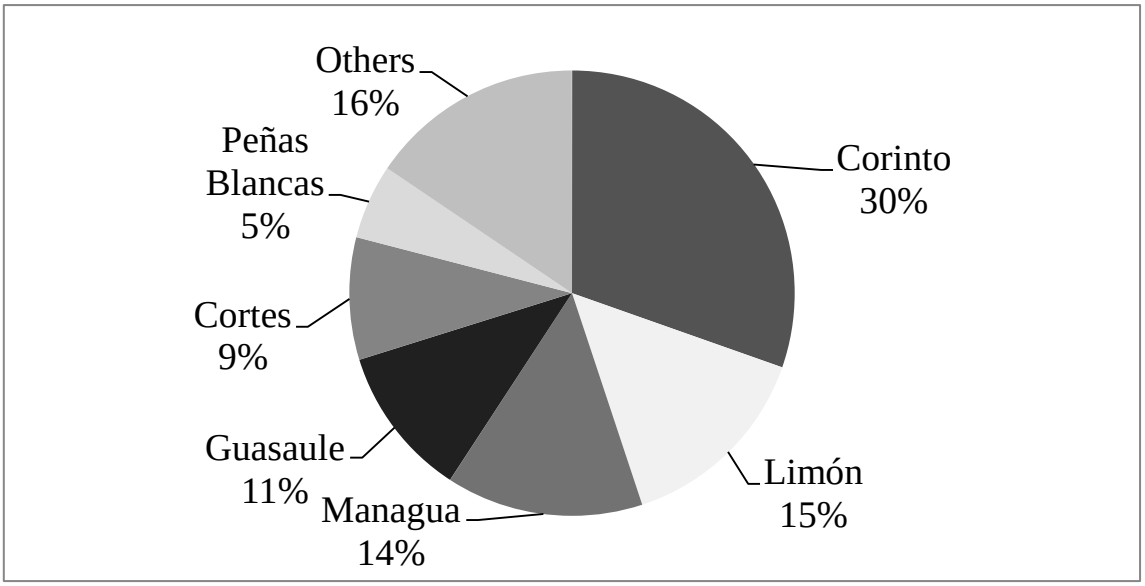
The exact location of each farm is not coded in the dataset, but for each farm we do know in which municipality it is located. Our data represent 54 out of a total of 153 municipalities in Nicaragua. The 54 municipalities on average each extend over 571 km², and most do not extend over 40 km in the longest dimension, while the distance to commercial markets range between 156km and 690km. While we are confident that the municipality provides a good first approximation of a farm's location, GPS data would clearly facilitate future research. For each farm we calculate distances and traveling time between three major commercial centers and the center of communities in each municipality in which it is located using Google Maps. Both measurements are used since using only distances may not capture the quality of roads.

The three commercial centers are identified in terms of national and international product exchange: namely, Managua international airport, the Port of Corinto and the Port of Limón. The Port of

[5] The details of the selection criteria are explained in Section 6.1.

Limón is the major seaport in Costa Rica while the Port of Corinto is in Nicaragua. In terms of Nicaragua's total export values, 30%, 15% and 14% are exchanged annually from Port of Corinto, Port of Limón and Managua international airport, respectively (Figure 2.2). As the nation's capital, Managua is an important point of commercial exchange for domestic consumption of beans. Thus we include Managua even though it is unlikely that beans are exported by air.

Figure 2.2. Share of value exported from various ports in Central America



Source: (CETREX, 2015)

For marketing-related variables, we use information about buyers and the intended destination of the beans exchanged. Buyers are divided into five categories: local markets, intermediaries, farmer organizations/cooperatives, private companies, and private export companies. In the analysis, we drop the dummy variable representing local markets as a point of comparison. We expect product prices to be higher when the buyer is a farmer organization/cooperative rather than the local market or a private company. This is because cooperatives' main objective is not profit but rather enhancing members' welfare (Giannakas & Fulton, 2005). The information regarding destination countries was obtained through cooperatives. Approximately 90% of farmers in the sample belong to a cooperative and these cooperatives are aware of all the buyers outside local wholesale markets. Therefore, the cooperatives provided information regarding product destination countries corresponding to each buyer. All of the beans sold are destined for the domestic Nicaraguan market or for export to Costa Rica, El Salvador or Venezuela. In order to test whether prices differ by destination, we apply one dummy variable for each of the export destinations. Hence, the default destination is the domestic market in Nicaragua. While it is possible beans destined for export markets fetch higher prices, in the case of Venezuela the prices may be lower due to an agreement

between the governments. Therefore, the expected effect of these destination dummy variables is unclear a priori.

For product-related variables, we apply product quality and variety. The quality variable is recorded as 1 if the bean sold is of a high quality. According to the NGO, quality was determined mainly based on grain size[6]. The variety variable equals 1 if the bean sold is red bean and 0 if it is black bean. We expect that the higher the quality of the product, the higher its price (Donnet et al., 2007; Faye et al., 2004; Mishili et al., 2009). Therefore, the quality variable is expected to have a positive coefficient. In terms of bean variety, red beans may receive higher and more volatile prices than black beans because black bean prices may be regulated by the Nicaraguan and Venezuelan governments while red bean prices are determined freely in the market.

For farmer-related variables, we employ two farmer characteristics variables: gender and household head. Gender of the producer is recorded as 1 if female and 0 if male. The household head variable equals 1 if the producer is the head of the household. The gender variable will have a negative coefficient if females face disadvantage when marketing compared with males (Dolan, 2001; Zhang et al., 2006). The effect of being a household head on producer prices is ambiguous.

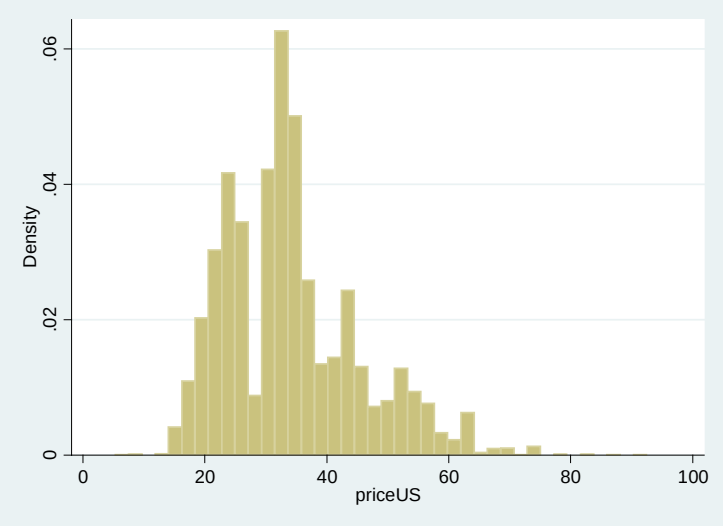
2.3.3. Econometric model

In order to quantify how physical distance affects farm-gate prices in our panel data, we estimate a double log random-effects model. We conclude that this model is appropriate based on several diagnostic tests. First, we test for omitted variables problem and heteroskedasticity following Ramsey (1969) and Breusch & Pagan (1979), respectively. We find that pooled OLS estimation yields omitted variable problems and our data demonstrate heteroskedasticity. To mitigate the heteroskedasticity problem, we report heteroskedasticity-robust variances throughout. The omitted variable problems can be solved by exploiting the panel nature of our data set (Wooldridge, 2010). We use the random-effects model as our main interest lies in the distance and travel time variables, which are time-invariant.

Second, we test whether our dependent variable, farm-gate prices, is normally distributed. In Figure 2.3, we see that the distribution is skewed to the left and has several kinks. Diagnostic tests suggested by D'agostino et al. (1990) and Royston (1992) confirm that the distribution is skewed and displays non-normal kurtosis. Therefore, we transform the dependent variable by taking a logarithm, and by applying a theta value estimated by the Box-Cox method. Both of these transformations yield normality in terms of skewness. We select the logarithmic transformation because the double-log model allows us to interpret estimated coefficients as elasticities.

[6] Generally speaking, international markets only accept "first grade", or high quality, and the lowest quality (below third grade) goes to animal feed. Beans that are not sold to international markets or feed processors are processed for human consumption or sold at local markets where the food quality standard is low.

Figure 2.3. Distribution of farm-gate prices



Source: Authors' calculation

Hence, we estimate the following specification of the model outlined in equation (2.1):

$$\ln P_{it} = \alpha + \beta_1 \ln TC_i + \beta_2 \ln Q_{it} + \gamma_j \sum_{j=1}^{J} X_{jt} + \xi_t + u_{it} \quad (2.2)$$

where P_{it} is the farm-gate prices received by farmer i at time t; TC_i is the transfer cost (distance or time traveled to markets) between the municipality that farmer i lives in and the commercial center; Q_{it} is the quantity of beans sold; the X_{jt} are other characteristics that influence farm-gate prices; ξ_t are year dummies; and u_{it} is the error term. The covariates in X_{jt} include buyers (intermediaries, farmer organizations/cooperatives, private companies, private export companies), countries to which products were sold to (Costa Rica, El Salvador, Venezuela), product characteristics (product quality, red beans), and farmer characteristics (gender and head of the household).

2.4. Estimation results

Table 2.3 presents descriptive statistics for our data set. On average, the price of a quintal (qq) of beans is 34.13USD over all observations (see also Figure 2.3). A farmer sells about 21qq in one sales transaction while incurring 32.23USD of production costs. This generates 689.68USD of profit on average per sales transaction. Annually, a representative farmer produces 28.51qq of beans and incurs 43.79USD of production cost. The mean annual profit of all producers in the sample is 937.01USD per year. The annual profit ranges between -261USD and 18,319USD.

Few farmers sell their products at non-local markets: only about 7% of producers sell to intermediaries, farmer organizations, and private companies. 14% of the producers are female and about half are heads of a household. Nearly 80% of the products were of high quality and 92% of

products were red beans. Small percentage of produce is exported: approximately 8% to Costa Rica, El Salvador and Venezuela together.

Table 2.3. Descriptive statistics

	Mean	S.D.	Min	Max
Price of beans(USD/qq*)	34.13	11.21	5.3	93
Quantity(qq)	20.99	24.96	0.5	416
Total production cost(USD)	32.23	39.45	0.5	739
Profit/sale(USD)	689.68	890.16	-396.4	13,394
Annual quantity/producer(qq)	28.51	33.71	0.5	476
Annual production cost/producer(USD)	43.79	52.20	0.7	1,109
Annual profit/producer(USD)	937.01	1,212.21	-260.8	18,319
Intermediary	0.03	0.18	0.0	1
Organization	0.00	0.04	0.0	1
Private company	0.02	0.15	0.0	1
Private-export company	0.02	0.13	0.0	1
Quality: first	0.79	0.40	0.0	1
Gender	0.14	0.35	0.0	1
Head of family	0.53	0.50	0.0	1
Red bean	0.92	0.26	0.0	1
Costa Rica	0.02	0.13	0.0	1
El Salvador	0.03	0.17	0.0	1
Venezuela	0.03	0.16	0.0	1
Distance (km) from municipalities to				
Managua	156.28	48.66	82	284
Port of Corinto	212.63	44.81	157	418
Port of Limón	690.08	49.15	444	818
Travel time (minutes) by motor vehicle to				
Managua	133.17	41.60	68	242
Port of Corinto	183.24	41.78	127	362
Port of Limón	596.04	41.54	386	705
Observations	11,718			

*Nicaraguan quintales. 1 qq = 100lbs or approximately 45kg.
Source: Authors' calculation

On average, producers are located at a distance of 156km, 213km and 690km from Managua airport, the Port of Corinto and the Port of Limón, respectively. This confirms that the error introduced by using municipality rather than exact location for each farm is comparatively small. The average traveling times are 133, 183 and 596 minutes for Managua airport, the Port of Corinto and the Port of Limón, respectively.

Table 2.4 shows the estimated coefficients for all models. Overall the regressions are able to explain roughly one-half of the variation in the observed farm-gate prices. Most of our expectations are met. A one percent increase in quantity exchanged reduces farm-gate prices by 0.01%. For an average farmer, it is equivalent to a decrease by 0.3 cents/qq. While the coefficients in all models are statistically significant and negative, the magnitude of the effect is relatively small.

As expected, farmer organizations offer higher prices than local markets, while private companies offer less. Product quality is strongly and statistically significantly linked to higher farm-gate prices, which is consistent with the findings from the empirical literature. The magnitude of the effect highlights the importance of quality attribute in determination of bean prices compared with other variables. First quality products receive 0.54% higher prices than the rest, which is approximately 18 cents/qq for an average exchange. Female sellers tend to receive lower prices than males, and household heads are likely to receive higher prices than non-household heads. Red beans are associated with higher prices than black beans. Prices of beans for the Costa Rican market tend to be lower than those that stay in Nicaragua. This might be due to their preference for black beans (Rodríguez Lizano, 2014). While the Salvadorian market offers higher prices than in Nicaragua, the coefficient for Venezuela is not statistically significant[7].

Regarding the estimated coefficients of distances, our main interest, all coefficients are negative and statistically significant. This indicates that a longer distance to the points of commerce is associated with a decrease in farm-gate prices. A one-percent increase in the distance to Managua, Corinto and Limón is associated with a 0.07%, 0.13% and 0.32% decrease in farm-gate prices, respectively. Evaluated at mean values, these estimated distance effects are equivalent to price reductions of 2 cents per qq and km of distance.

How does the message change if time traveled is taken into account rather than physical distance? Overall the results are very similar in all important respects. The signs of the coefficients of the time variable are negative and statistically significant. The result indicates that a one-percent increase in time traveled to the three locations is associated with a decrease in farm-gate bean prices by 0.10%, 0.15% and 0.45% for Managua, Port of Corinto and Port of Limon, respectively. Hence, on average a one-minute reduction in time traveled is associated with an increase in the bean price by approximately 2.5 cents per qq.

[7] Since Venezuela imports only black beans, there may be multicolinearity between the variables “Venezuela”, “Private company”, “Export company”, and “Red bean”. We tried excluding “Venezuela” from all estimations but omitting the variable does not change the results in terms of both signs and statistical significance.

Table 2.4. Regression results (t-values in brackets)

	Distance (km)			Travel time (minutes)		
	Managua	Corinto	Limón	Managua	Corinto	Limón
Quantity	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(3.96)***	(4.69)***	(4.01)***	(4.59)***	(5.33)***	(4.68)***
Intermediary	-0.03	-0.02	-0.03	-0.02	-0.01	-0.02
	(4.49)***	(1.96)**	(4.21)***	(3.17)***	(1.34)	(3.02)***
Organization	0.12	0.13	0.12	0.14	0.16	0.13
	(7.77)***	(9.12)***	(7.77)***	(7.72)***	(9.39)***	(7.76)***
Private company	-0.10	-0.09	-0.10	-0.10	-0.09	-0.10
	(6.67)***	(6.00)***	(6.65)***	(6.16)***	(5.62)***	(6.21)***
Export company	-0.00	0.01	-0.00	0.00	0.02	0.00
	(0.03)	(0.50)	(0.02)	(0.07)	(0.96)	(0.18)
Quality: first	0.54	0.54	0.54	0.54	0.54	0.54
	(29.79)***	(29.50)***	(29.85)***	(29.53)***	(29.13)***	(29.57)***
Sex	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
	(4.09)***	(3.98)***	(3.98)***	(3.65)***	(3.61)***	(3.64)***
Head of family	0.04	0.04	0.04	0.04	0.04	0.04
	(8.31)***	(8.82)***	(8.59)***	(8.83)***	(9.12)***	(9.11)***
Red bean	0.13	0.13	0.13	0.13	0.12	0.13
	(13.56)***	(13.44)***	(13.64)***	(13.01)***	(12.84)***	(13.23)***
Costa Rica	-0.10	-0.09	-0.09	-0.09	-0.10	-0.09
	(6.50)***	(6.81)***	(6.57)***	(6.72)***	(7.32)***	(6.81)***
El Salvador	0.24	0.26	0.25	0.25	0.26	0.25
	(32.88)***	(31.38)***	(33.10)***	(33.13)***	(32.53)***	(33.44)***
Venezuela	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01
	(0.70)	(0.73)	(0.65)	(0.63)	(0.98)	(0.62)
Transfer cost	-0.07	-0.13	-0.32	-0.10	-0.15	-0.45
	(7.85)***	(10.12)***	(8.72)***	(12.45)***	(13.56)***	(12.88)***
Constant	3.39	3.75	5.12	3.53	3.82	5.94
	(76.67)***	(54.21)***	(21.58)***	(87.34)***	(66.65)***	(26.55)***
R^2	0.49	0.50	0.50	0.50	0.50	0.50

* $p<0.1$; ** $p<0.05$; *** $p<0.01$.

Note: Regressions include time (year) fixed effects which are available from the author.

Source: Authors' calculation

2.5. Discussion

The magnitudes of the estimated distance/travel time effects reported above are reasonable. An interview with CRS staffs revealed that the cost of transporting beans is approximately 4 cents per qq and kilometer. How important are these effects for the participating farmers and the rural communities?

Suppose that the transportation infrastructure improves in the farming communities and as a result the time of transportation decreases by 25%. In other words, it takes 100, 137 and 447 minutes on average instead of 133, 183 and 596 minutes to go to Managua, Corinto and Limón, respectively. According to our estimates, this would increase revenues from bean sales by $0.84, $1.26 and $3.85 per qq for sales directed to Managua, Corinto and Limón, respectively[8]. The average farmer in our sample sells 28.51qq of beans yearly. Therefore, assuming that production costs do not change and transportation costs decrease due to road improvement, bean sales profit would increase by at least between $24 and $110 per year. This ranges between 3% and 12% of an average farming household's annual income from bean sales. For the total 11,718 sales transactions in our sample, this translates to an annual income increase of between $281,232 and $1,288,980.

At the sectorial level, our finding has a larger implication. Our analysis is limited to bean producers in selected regions. Needless to say, bean farmers in our data set produce other crops such as fresh vegetables and fruits. In addition, there are a total of approximately 260,000 agricultural producers throughout Nicaragua according to the national census (INIDE, 2011). The distance effects estimated above will also apply to these other crops and producers. Hence, investments in improved infrastructure such as roads would have a significant effect on agricultural revenues as a whole. This effect should be taken into account when calculating the benefits of infrastructure investment programs.

Note as well that our analysis of benefits to farmers of reducing transport costs does not take externalities into account. Improving rural transportation networks can have both positive and negative effects on rural communities (Straub, 2008, 2011). However, quantifying these effects is challenging (Straub, 2008) and beyond the scope of our research.

We acknowledge that our measure of distance, which is based on the municipality that a farm is located in, is imperfect. Ideally we would use GPS data to locate each farm precisely. While this might increase the explanatory power of our regressions, there is no reason to believe that error in

[8] Since we employ log-log model, the relationship between time traveled and producer prices may not be linear throughout observations even if elasticities stay constant. To check this, we calculated the effects at the mean, median, 25% quantile and 75% quantile. The results suggest that the price increase corresponding to a 25% decrease in time traveled would be between $0.75 and $3.21 at the median, $0.71 and $2.63 at the 25% quantile, and $0.69 and $3.74 at the 75% quantile. Therefore, we conclude that non-linearity does not affect our results to a large extent.

the measurement of distance biases our results in either direction. We assume that the measurement errors can be both positive and negative, which results in zero bias on average.

2.6. Conclusions

In the development literature, smallholders' market participation has attracted attention as a catalyst to poverty. One of the most important factors to enable smallholder marketing is reduction of transaction costs that small producers face in rural areas. Particularly, costs related to transportation have been discussed as important. However, quantification of benefits from improving transportation infrastructure has not been achieved by the empirical literature despite the recognized importance. Our study intends to fill the gap by taking one of the first steps towards understanding the effect of physical distance on farm-gate prices.

Using the data set collected in rural Nicaragua over five years, we estimate a hedonic price model. It enables us to separate attributes of the commodity of interest, staple beans, and understand what characteristics are associated with change in producer prices. We estimate a double-log model, using the random effects panel approach. Our main interest lies in the variable capturing distance and travel time between farming communities and major commercial centers. We selected the airport of Managua and two seaports in Nicaragua and Costa Rica which are important for agricultural marketing and trade. In addition to the distance variable, we employ other characteristics such as product quality and destination countries.

The results indicate that an increase in physical distance is indeed correlated with a decrease in farm-gate prices of beans. More specifically, we find that an increase in distance by 1km and travel time by one minute are associated with a decrease in farm-gate prices by 2-2.5 cents. We conclude that annual agricultural income from bean sales would increase by between $24 and $110 per year if travel time to markets is reduced by 25%. Considering that improvement in public roads affects multiple sectors and dimensions of poverty alleviation, the seemingly small increase in farm-gate prices can have important effects on rural households' agricultural income.

We acknowledge the limitations of our study. Our findings are limited to road development and do not take other types of transaction costs into account. Moreover, it is beyond the scope of our research to address externalities from rural road development. Therefore, we are not able to provide a comprehensive quantification as to the monetary returns to investment in public roads in rural areas. While such a task is challenging, further research should address more holistic measure of the benefits associated with development of rural roads.

3. NGO Intervention and Market Linkage[9]

3.1. Introduction

In the recent years, the topic of smallholder commercialization has received much attention in the development literature. Smallholders' inclusion in commercial markets can benefit them by providing premium prices (Gulati et al., 2007), reducing transaction costs (Nagaraj et al., 2008; Vieira, 2008), and providing access to credits and improved production technology (Minten et al., 2009; Nagaraj et al., 2008; Swinnen, 2007). However, such emerging market transactions can also pose challenges for smallholder farmers in developing countries. Small farmers may be excluded from these markets due to a lack of assets to meet more stringent standards required in the modern marketing chains, leading to further marginalization of the poor in the developing world (Barrett et al., 2012; Reardon et al., 2003; Reardon et al., 2009; Reardon & Timmer, 2007; Swinnen, 2007).

However, overcoming the difficulties that resource-poor farmers face is not a straightforward task. While the empirical literature has identified mechanisms that allow smallholder farmers to exploit the business opportunities of agricultural commodity markets (Hellin et al., 2009; Minten et al., 2009; Narrod et al., 2009; Whitfield, 2012), actual enforcement of such mechanisms is difficult particularly when private companies are the sole initiators of the implementation. In general, retail companies systematically prefer farmers with a good access to roads, physical assets (e.g. irrigation system), possession of relatively large land areas and high human capital (e.g. education, experience in horticultural production) (Barrett et al., 2012; Donovan & Poole, 2008; Michelson, 2013; Rao & Qaim, 2011). As a result, retail companies-based market linkage tends to be limited to producers who are relatively better off at the initial stage. In addition, even if smallholders are included in the marketing chains at the initial stage, many are unable to maintain participation due to both quality and quantity requirements and implicit risks (Barrett et al., 2012; Donovan & Poole, 2008).

Having identified the importance of product commercialization as well as the constraints small farmers face, many development institutions are starting to consider assisting smallholder farmers to commercialize as a catalyst for alleviation of rural poverty. A number of development projects have been launched in order to initiate better communication and increased exchange between farmers and buyers in commodity markets (Humphrey & Navas-Alemán, 2010; Barrett, 2008; Shepherd, 2007). Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD), and the Consultative Group on International Agricultural Research (CGIAR) are amongst the public institutions initiating market linkage programs for smallholder farmers throughout the world (CIAT, n.d.; FAO, n.d.-b; IFAD, 2012).

Despite the recognized potential of projects aiming at linking farmers to markets, there is a lack of empirical literature to address outcomes of intervention activities at the micro-, meso- and macro-

[9] This is a joint work with Silke Hüttel at the University of Rostock.

levels (Barrett, 2008; Mithofer, 2011). To the best of our knowledge, there is no study that explicitly assesses the effects of development projects in the context of smallholder market linkage. While many argue the importance of external support in either establishing or maintaining the industry (e.g. Bignebat & Vagneron, 2011; Carletto et al., 2011; Kersting & Wollni, 2012; Subervie & Vagneron, 2013), there is little constructive argument as to what intervention activities contribute to smallholder commercialization by how much. In addition, existing studies fail to differentiate activities in assessing effectiveness of development projects.

This is an important research gap to be addressed. The existing reports do not provide satisfactory answers as to what extent projects were successful in achieving their objectives, whether the success was due to project interventions, and if the implementation of the projects was cost effective (Humphrey & Navas-Alemán, 2010). However, such studies are difficult to assess empirically. Product participants are selected according to certain criteria. Therefore, evaluation of the effects of project interventions has to control for potential selection biases, which is challenging (Barrett, 2008). Carrying out such studies can be costly and many organizations prefer to allocate the resources for the actual implementation of the project rather than impact evaluation (Humphrey & Navas-Alemán, 2010). Moreover, assessment of impact in a long-run requires a panel data set that allows us to control for selection bias and unobserved heterogeneity.

This paper intends to fill the aforementioned gap by investigating how an NGO intervention influences market linkage of smallholder farmers. As a case study, we refer to the identical development project as in Chapter 2 whose focus was market linkage of smallholder farmers. We continue to conduct our analysis on bean farmers.

This paper contributes to the empirical literature in two aspects. The first contribution is to identify pathways that a development project influences smallholder marketing by scrutinizing how interventions with unique objectives affect the volume of bean sales in non-local markets. The project of interest consists of five individual programs, each of which addresses different aspects of production and marketing of agricultural goods. Unlike other studies, this study differentiates activities to better understand what types of intervention activities have effect on product marketing in a rural setting. To the best of our knowledge, there is no study that addresses effectiveness of different NGO-based activities in the context of commercialization of smallholder farmers.

Second, we control for unobserved heterogeneity by exploiting a panel data set. Most studies to date in the smallholder commercialization literature use cross sectional data sets or reconstructed panel data based on recall interviews. Although such studies can provide useful insights for policy makers, the lack of observations over time makes it impossible to control for potential unobservable heterogeneity that is individual-specific. By utilizing a panel data set, we are able to account for such shortcomings.

There are a few reasons why this particular project is chosen. First, CRS has recorded substantial amount of information at the household level over the five years. The information includes detailed

data at all points of sales that approximately 10,000 producers undertook. CRS recorded the information for every sales transaction[10], which ensures the reliability of the data. In addition, information about intervention activities is also well recorded. Even though there is a lack of some critical information, such detailed data can provide us useful insights as to how farmers' behavior changed over time in response to what type of intervention activities.

Second, due to the detailed information, we are able to differentiate individual intervention activities with unique objectives. In many of the aforementioned studies, intervention activities are not separated based on categories. However, activities that address productivity increase should not be treated in the same way as those focusing on post-harvest management practices. Also, scrutinizing intervention can point out important aspects that enable small farmers' participation in commercial markets even outside the context of development project intervention. With detailed information about what type of intervention was undertaken by whom, we are able to understand impact pathways for market linkage.

Third, studying this particular project can serve as a model for other market linkage projects that are being launched throughout the world. Linkage-focused interventions such as the Nicaraguan project have become popular amongst donors while evaluation of such programs has not been done in a satisfactory manner (Humphrey & Navas-Alemán, 2010). Therefore, understanding the effectiveness as well as limitation of such market linkage-oriented projects can help design new projects based on the learnings from this project in Nicaragua.

The rest of the chapter is organized as follows. The next section presents the overview of the market linkage program. Section 3.3 discusses the conceptual framework, data and econometric strategy to analyze the effects of program participation on producers' market linkage. Section 3.4 presents the results, which is further discussed in Section 3.5. Finally, Section 3.6 summarizes and concludes.

3.2. Background

Our analysis focuses on activities related to "entrepreneurial practices". The project intervention is first divided into five distinct programs: production program, environmental program, gender program, post-harvest program, and market linkage program. Each program has one or two training categories with distinct themes. Namely, the production program has trainings for agricultural practices and agricultural production, and the environmental program has trainings for water and environmental management. The gender and post-harvest[11] programs each have one category. The market linkage program is divided into two training categories: "entrepreneurial practices" and "municipality engagement". Our interest lies in eliciting effect of "entrepreneurial practices" activities.

[10] As described in Chapter 2, the maximum recall period is three months, one production cycle of beans.
[11] Post-harvest program has, in fact, activities on "post-harvest management" and "manufacturing practices". However, no bean producer participated in the latter.

Not all project participants received activities in all categories. Table 3.1 shows the number of producers who participated in activities in each program. Among the five programs, the production program was implemented most intensively, followed by the market linkage program and environmental program. Some participants took part in more than one program over time. Therefore, there is an overlap between different programs. Every year, approximately 6% of all bean producers participated in the market linkage program.

Table 3.1. Number of producers who participated in intervention activities: 2007-2012

Year/Activity	2007	2008	2009	2010	2011	2012
Production program						
Agricultural Practices	0	0	0	22	93	5
Agricultural Production	40	849	136	162	82	88
Environmental program						
Water	0	0	247	100	165	42
Environmental Manag.	0	0	0	35	115	20
Gender program	0	0	4	78	56	21
Post-harvest program	0	0	0	48	97	54
Market linkage program						
Entrepreneurial practices	30	217	99	66	133	71
Municipality eng.	0	197	86	33	74	246
Total # producers	1,128	3,191	1,539	1,071	1,541	1,367
% participation in Entrepreneurial practices	3%	7%	6%	6%	9%	5%

Source: CRS data base modified by authors

In our estimation, we hold those who participated in "entrepreneurial practices" activities as the treatment group and the rest as the control group. We are aware that farmers in the control group are also participants of the NGO project. However, our purpose is to assess effectiveness of the market linkage program rather than the project as a whole. Therefore, identification of treatment effects is possible with appropriate estimation strategies. We will discuss the details in Section 3.3.

"Entrepreneurial practices" activities targeted to develop farmer cooperatives as credible business enterprises which provide services to the members and contribute to their livelihood improvement (CRS, 2010). Workshops and knowledge exchange activities were organized in order for individual producers to understand the importance of the roles of cooperatives. Activities covered a wide range of topics such as financial sustainability and independence, book keeping, transparency in organizational governance, providing services to members, and improving environmental sustainability. In addition, individuals participated in business meetings to build network with potential buyers. Therefore, we expect that the intervention had direct effect on commercialization unlike other activity types. The detailed list of activities in all programs is presented in Section 6.2.

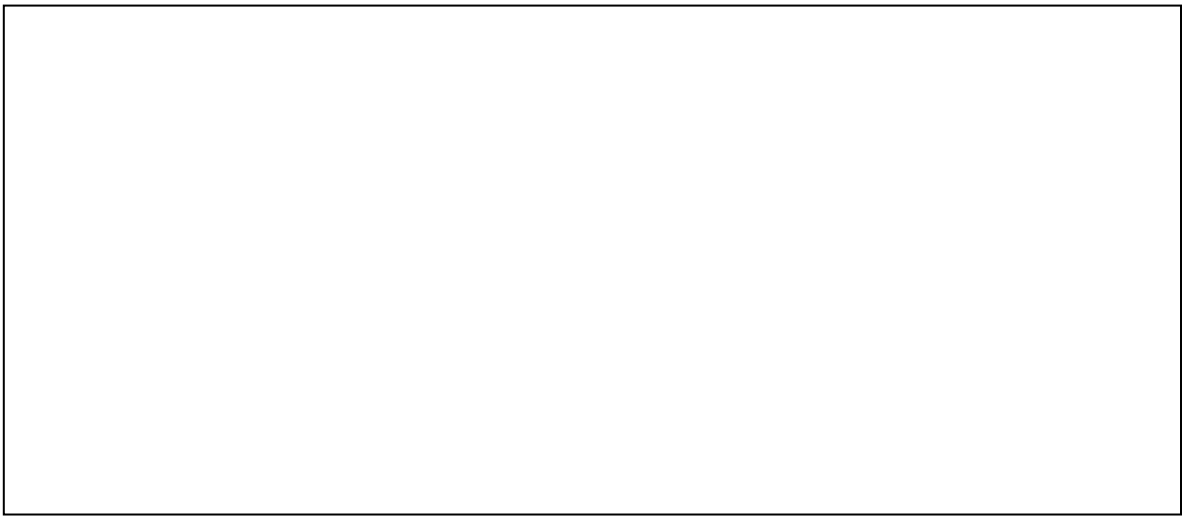
3.3. Empirical estimation strategy

3.3.1. Conceptual framework

We define all market types except local wholesale markets as linked markets. The empirical literature refers to traditional markets as "wet markets" (e.g. Schipmann & Qaim, 2011) and markets where product exchange is rather "loose" (Assefa & Minten, 2015). In our research context, only local wholesales markets meet such descriptions. Private companies require stricter product quality and quantity standards while intermediaries are directly linked to private companies (e.g. supermarkets). Once producers sell their products to cooperatives, they market the collected goods to buyers including private companies. Products may be processed within cooperatives before being commercialized. Therefore, sales outside local markets involve product standards, supply agreement and product differentiation. Such economic transactions which require commitments and compliance are virtually nonexistent in local wholesale markets. For these reasons, we classify linked markets as non-local markets.

Figure 3.1 illustrates the possible impact pathways of the market linkage program in increasing volume of sales to alternative markets. The market linkage program provides individuals with trainings on organizational structure and the importance of providing services to cooperative members. At the same time, it also initiates negotiation between cooperatives and local governments.

Figure 3.1. Possible impact pathway of the market linkage program



Source: Authors

As a result, cooperatives are able to provide adequate services and assist producers in product marketing. As producers benefit from improved management of cooperatives, they come to trust the organizations and sell their products to the cooperatives. Also, services provided by the

cooperatives can help increase production quantity and quality, which encourages product marketing to other linked buyers. Therefore, it helps small producers to market their products outside the community.

Table 3.2. Number of bean producers who sold in different markets: 2006-2012

	Local	Linked markets				
Year	market	Farmer org.	Intermediary	Private comp.	Total	%
2006	518	-	-	10	10	1.89%
2007	2,144	-	-	53	53	2.41%
2008	2,827	34	590	462	1,086	27.75%
2009	1,695	-	-	32	32	1.85%
2010	1,862	-	-	181	181	8.86%
2011	2,121	-	-	19	19	0.89%
2012	1,415	-	-	-	-	0.00%
Total	12,582	34	590	757	1,381	6.24%

Source: CRS data base modified by authors

Business exchange in linked markets was a small fraction of total sales activities and did not grow over the project intervention phase. Table 3.2 and Table 3.3 present the number of producers who sold beans to each type of markets and quantity of beans exchanged in linked and all markets in a given year, respectively. The first indicates that the majority of sales transactions occurred in local markets rather than in linked markets. On average, sales transactions in linked markets take up merely 6.24% of total sales. The figure in 2008 is the highest at 28% or 1,086 of total bean producers and the lowest is recorded in 2012 where no producer sold in linked markets.

Table 3.3. Quantity of bean sales (qq) to linked and local markets: 2006-2012

Year	Total	Linked	% Linked
2006	6,026	123	2.03%
2007	29,647	672	2.27%
2008	94,215	22,133	23.49%
2009	52,668	13,827	26.25%
2010	33,611	3,144	9.35%
2011	46,700	419	0.90%
2012	31,041	-	0.00%
Total	293,907	40,318	-

Source: CRS data base modified by authors

Similarly, the amount of beans sold in linked markets is small also in terms of quantity. Quantities of beans sold in linked markets range between 0% and 26% of total sales quantity between 2006 and 2012. These observations show that the fraction of economic transactions that occurred in linked markets is rather small both in terms of the number of producers and quantity exchanged.

The economic transactions during 2008 and 2009 were more active in linked markets compared with other years. In 2008 and 2009, 24% and 26% of all bean producers sold at linked markets, respectively. The reason why sales activities in linked markets were less in 2010 and 2011 may be due to an informal export restriction imposed on beans during these two years (The Economist, 2011). The Nicaraguan government implemented this policy in order to protect domestic bean consumers. Therefore, bean export during these two years decreased (FAO, n.d.-a), which may explain the significant decrease in beans sold outside local markets in our sample.

3.3.2. Data

We utilize the same data set as in Chapter 2, which was recorded by the NGO on project participants who produce staple beans. The data set contains a total of 5,054 bean farmers and 10,194 observations[12] on bean sales. As long as an individual farmer was part of the project, the NGO reports all sales activities s/he generated during the five years. This holds true even when individuals did not participate in any activities in a given year. In addition, the data contain all individuals who participated in the project. We exploit the full unbalanced panel data set.

Our outcome variable is defined as quantity of beans sold in linked markets. We also alternate with the fraction of bean quantity sold in linked markets with respect to total sales quantity. Variables related to individual characteristics are gender, head of household, and leadership positions in a cooperative. We also use information regarding department and villages that farmers live to control for location-fixed effects.

The production-related variables are total annual production area of beans and total annual production cost of beans. Empirical literature does not have general consensus as to how production area size affects participation in modern markets (Carletto et al., 2010; Michelson, 2013; Schipmann & Qaim, 2010). However, we expect the bigger the cultivated area, the larger the volume of sales to linked markets. It is because our study is concerned solely with sales volume to non-local markets and intuitively households with larger land areas are likely to produce and sell more products than those with smaller area. Production costs can affect volume of sales in either direction. Higher production cost may mean more sophisticated production technology and therefore higher product quality. In this case, households may sell the final products to linked markets which require certain quality of goods. If, on the contrary, higher cost means low efficiency, the products are less likely to enter non-local markets.

As all producers in the data set are the project's participants, they received interventions outside the entrepreneurial practices activities over the five years. To control for participation in different activities, we include seven dummy variables that indicate participation in the remaining activity

[12] This figure differs from Chapter 2. The reason is because data used in Chapter 2 excludes sales of seeds and plants, resulting in a decrease in the number of producers. However, the observations are larger in Chapter 2 since we estimate based on all sales activities while Chapter 3 looks at annual sales activities.

categories. Namely, we generate dummies for agricultural practices and agricultural production (production program), water and environmental management (environmental program), gender (gender program), post-harvest management (post-harvest program), and municipality engagement (market linkage program). In addition to the binary variables, we apply the total number of training days participated in a year and cost of trainings that farmers incurred. Frequent participation may affect the sales volume positively while paying for trainings may be associated with higher commitment and therefore, faster adoption of the lessons learned in training sessions.

All program participation is treated as cumulative. For instance, if an individual received intervention in business social relationship activities during 2009, 2010 and 2012, s/he takes the value of "0" in year 2007 and 2008 and "1" in 2009, 2010, 2011 and 2012. In other words, even though this individual did not receive intervention during 2011, the cumulative value of the participation stays "1". The intuition is that capacity building is concerned with individual's change in behavior and knowledge. Once an individual undertakes training, s/he is likely to remember, and therefore may apply, the knowledge obtained from the trainings years before.

Table 3.4. Comparison between market linkage program participants and non-participants

	Participants (1)	Non-part. (2)	Differences (1) – (2)
Characteristics variables			
Sex (= 1, if female)	0.21	0.19	0.02
Household head (= 1, if household head)	0.52	0.46	0.06*
Cooperative membership (= 1, if member)	0.94	0.87	0.06**
Leadership (=1, if in a leadership position)	0.65	0.37	0.28***
Marketing and production variables			
Production diversification (=1, if sell other crops besides beans)	0.27	0.17	0.10***
Area (Ha)	1.50	1.20	0.30***
Total production cost (USD)	58.34	42.98	15.35***
Total quantity of beans sold (qq)	38.53	27.42	11.11***
Bean yield (qq/Ha)	32.54	28.73	3.81**
Quantity sold to linked markets (qq)	3.45	2.55	0.89**
% of beans sold to linked markets	0.10	0.09	0.01
Observations	1,302	8,892	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculation

Table 3.4 summarizes basic characteristics of producers in the treatment and control groups. The descriptive statistics show that the two groups do not have statistically significant difference regarding gender distribution. 52% of the farmers who participated in the market linkage program are household heads while the percentage drops by 6% in the control group. Less of treated farmers belong to a cooperative than untreated farmers. More producers in the treatment groups are in leadership positions in a cooperative than those in the control group.

Program participants diversify commodity sales more than non-participants. Moreover, they have larger land areas and incur higher cost of production ($15 per year more than non-participants). Also, both production quantity and production yield of program participants are larger than non-participants. Treated producers sell more to linked markets in terms of absolute quantity. The amount of beans sold to linked markets is a small fraction of total quantity sold for both groups. On average, producers in the treatment group sold 32.54qq of beans, 3.45qq of which was exchanged in linked markets. Producers in the control group sold 2.55qq in linked markets out of a total of 28.73qq on average. In other words, sales to linked markets take up merely 10.60% and 8.88% of total bean sales on average for the treatment group and control group, respectively.

3.3.3. Econometric model

This section discusses the identification strategy of the average treatment effect on the treated (ATT) of entrepreneurial practices. As an outcome variable, we select the quantity of beans sold in non-local markets. The estimation equation is specified as:

$$y_i = \beta + \alpha_i d_i + u_i \quad (3.1)$$

where y_i is the outcome variable of individual i, β is the intercept, d_i is the treatment status ($d_i = 1$ if i is treated, 0 otherwise), and u_i is the error term. In the presence of selection bias into d_i, the ATT estimator, $\propto^{ATT}$, is expressed as:

$$\begin{aligned} \propto^{ATT} &= E(\propto_i | d_i = 1) \\ &= E(\propto_i | g(Z_i, v_i) \geq 0) \end{aligned} \quad (3.2)$$

where the selection depends on a vector of covariates, Z_i, and the error term, v_i.

We employ the difference-in-differences (DID) approach in order to estimate the ATT. First, we test if program participation is endogenous, following the Hausman test (Wooldridge, 2010) and Smith-Blundell test (Smith & Blundell, 1986). Both test results indicate that the linkage program participation is endogenous, suggesting that the Two-Stage Least Square approaches are suitable to obtain unbiased estimates. However, we lack appropriate instrumental variables to explain the program participation decision. Based on a common trend assumption, DID assumes that the u_i depends on unobservable individual-specific effects and macro shock. Therefore, there is no selection on untreated outcomes when first differences are taken (Blundell & Dias, 2009):

$$E\left[u_{it_1} - u_{it_{10}} | d_i = 1\right] = \left[u_{it_1} - u_{it_{10}} | d_i = 0\right] = \left[u_{it_1} - u_{it_{10}}\right] \quad (3.3)$$

Thus, under the DID assumption, the estimation equation becomes:

$$\begin{aligned} E[y_{it} | d_i, t] &= \beta + E[\alpha_i | d_i = 1] + E[n_i | d_i = 1] + m_t \quad \text{if } d_i = 1 \text{ and } t = t_i \\ &= \beta + E[n_i | d_i = 1] + m_t \quad \text{otherwise.} \end{aligned} \quad (3.4)$$

Therefore, the estimated ATT in Equation (3.2) becomes:

$$\hat{\propto}^{DID} = \left[\bar{y}^1_{t_1} - \bar{y}^1_{t_0}\right] - \left[\bar{y}^0_{t_1} - \bar{y}^0_{t_0}\right] \quad (3.5)$$

In other words, the DID estimators are the excess change in the y in the treatment group compared with that of the control group.

Since the estimation strategy mentioned above concerns with scenarios over two distinctive periods (i.e. before and after the intervention), we modify our specification model, following Wooldridge (2010). We express the model as:

$$\Delta y_{it} = \xi_t + \beta_1 \Delta P_{it} + \beta_2 I_{it} + \delta_1 T_{it} + \Delta u_{it} \quad (3.6)$$

y_{it}, the outcome variable, is the total volume of beans that farmer i sold in year t. ξ_t are time period intercepts to control for m_t, P_{it} is a set of production-related variables in levels (total annual production area of beans, and total annual production cost of beans), and I_{it} is a set of intervention-related variables (seven dummy variables that indicate whether or not individuals participated in intervention activities outside the entrepreneurial practices activities in a given year, total number of capacity building days that farmers participated in a given year, and cost of capacity building activities that farmers themselves incurred). T_{it} represents a binary variable, indicating individuals' entrepreneurial activity participation status in year t. Therefore, the estimator, δ_1, captures the ATT of entrepreneurial practices participation, our main interest. Δ indicates that a difference was taken.

The DID estimators can be seriously biased upward in the existence of serial autocorrelation (SA) (Bertrand et al., 2004). We test for serial correlation, following Wooldridge (2010). The test result indicates that serial correlation exists in our data set. Therefore, we obtain unbiased estimators, following the two-step correction procedures suggested by Bertrand et al. (2004). For the details of the procedure, see Bertrand et al. (2004) and Michelson (2013).

For robustness check, we use lagged interventions variables to account for possible endogeneity. In addition, we control for geographical fixed effects by including dummy variables indicating individual departments and villages. Finally, we replace the outcome variable by the fraction of beans sold in linked markets. All results are presented in Table 3.5 and Table 3.6.

3.4. Estimation results

Table 3.5 presents the regression results for estimations with quantity sold in linked markets as outcome variable. All models show positive and statistically significant effect of entrepreneurial activities on the quantity sold. For instance, Column 1 indicates that those who participated in the entrepreneurial activities sold on average 2.02qq more than those who did not. Similarly, the standard SA-corrected model shows the magnitude of 2.78qq increase for participants. When geographical fixed effects are taken into account, the effect becomes 2.70qq and 2.91qq for department and village fixed effect, respectively (Columns 4 through 5). When lagged intervention variables are employed, participants of entrepreneurial practices show 4.18 qq and 6.73 qq higher sales volumes than those who did not participate (Column 2 and 6). Therefore, we can confirm that the positive and statistically significant effect of entrepreneurial activities on market linkage.

Table 3.5. Regression results: Y = Quantity (qq) sold in linked markets (t-value in brackets)

	Standard DID		Serial autocorrelation corrected			
	DID	Interventions lagged	SA corrected	Department fixed effect	Village fixed effect	Interventions lagged
	(1)	(2)	(3)	(4)	(5)	(6)
Production area	6.48	6.34				
	(5.14)***	(22.18)***				
Production cost	-0.00	0.00				
	(0.06)	(0.03)				
Entrepreneurial	2.02	4.18	2.78	2.70	2.91	6.73
practices	(2.13)**	(3.55)***	(5.94)***	(5.81)***	(6.30)***	(7.88)***
Municipality	-1.69	-0.89	-2.81	-3.18	-3.30	-2.20
training	(2.32)**	(0.66)	(6.03)***	(6.81)***	(6.92)***	(2.24)**
Agricultural	2.33	4.91	-0.12	-0.35	0.01	0.32
practices	(1.54)	(1.44)	(0.10)	(0.31)	(0.01)	(0.13)
Agricultural	-1.98	-5.64	-0.39	-0.25	-0.58	-2.25
production	(3.18)***	(6.04)***	(1.12)	(0.71)	(1.67)*	(3.41)***
Water	-0.28	-5.07	-0.67	-0.50	-0.04	-1.75
	(0.32)	(3.97)***	(1.34)	(1.01)	(0.09)	(1.92)*
Environmental	-0.10	5.50	0.22	-0.18	-2.02	0.06
management	(0.09)	(2.37)**	(0.24)	(0.20)	(2.28)**	(0.04)
Gender	-3.33	2.24	-3.71	-3.52	-1.66	-1.61
	(1.40)	(0.90)	(3.89)***	(3.70)***	(1.76)*	(0.89)
Post-harvest	-0.25	2.86	-1.16	-0.74	-1.16	-1.09
program	(0.14)	(1.02)	(1.28)	(0.82)	(1.30)	(0.53)
Days	0.39	-0.10	1.35	1.15	1.12	-0.32
participated	(1.74)*	(0.34)	(7.46)***	(6.37)***	(6.30)***	(1.52)
Cost for farmers	-0.03	-0.02	-0.06	-0.06	-0.05	0.04
	(2.21)**	(0.96)	(4.29)***	(4.11)***	(3.88)***	(2.32)**
R^2	0.21	0.22	0.01	0.04	0.09	0.02
N	5,149	5,149	10,194	10,194	10,194	5,149

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Source: Authors' calculation

Another robust and positive results are the total number of days participated. Standard SA-corrected model shows that an additional day participated is associated with an increase in sales volume by 1.35 qq on average (Column 3). Similarly, an additional day participated would increase the sales quantity in dynamic markets by 1.15 qq and 1.12 qq with department and village fixed effects, respectively (Column 4 through 5).

When the DID estimators are corrected to account for serial autocorrelation, production variables and basic characteristic indicators are not included in the second-stage estimation. That is why the standard DID models present production variables while the SA-corrected models do not. The reason why the elicited R^2 values are low is also due to the two-stage estimation procedure. Therefore, the standard DID models explain larger variation of the observations than in SA-corrected models.

Table 3.6 presents results with fraction of quantity sold in linked markets with respect to total bean quantity sold in any market as an outcome variable. The results are similar to those in Table 3.5 in terms of the direction of effect. Standard DID model shows that entrepreneurial practices participants sold 0.2 percentage points more beans to dynamic markets than non-participants (Column 1). Likewise, SA-corrected model indicates that the difference is 0.5 percentage points.

Positive influence of general participation is also confirmed. All estimation results except in those with lagged intervention variables show positive correlation between total number of days participated and percentage of beans sold in linked markets. An additional day of capacity building participated is associated with a 0.4 percentage point increase on average when estimated in a SA-corrected DID model (Column 3). With geographical fixed effects, the effect becomes 0.3 percentage point increase (Column 4 and 5).

In all estimations, we cannot find robust, positive and statistically significant effect of any other intervention activities. This may indicate that classical extension services concerning agricultural productivity increase do not have effects on market linkage. Put in another way, facilitating smallholder commercialization requires a distinct set of intervention activities in addition to activities related to productivity increase.

3.5. Discussion

In order to map an impact pathway, we estimate how increase in bean sales in dynamic markets affects sales income, controlling for intervention activities undertaken by individual producers. The result is presented in Table 3.7. We show solely the SA-corrected estimators since the DID estimators show similar trends as to the presented results.

All estimation models indicate that the higher the percentage of beans sold in dynamic markets, the

Table 3.6. Regression results: Y = Fraction (%) of quantity sold in linked markets (t-value in brackets)

	Standard DID		Serial autocorrelation corrected			
	DID	Interventions lagged	SA corrected	Department fixed effect	Village fixed effect	Interventions lagged
	(1)	(2)	(3)	(4)	(5)	(6)
Production area	0.02	0.02				
	(3.29)***	(3.78)***				
Production cost	-0.00	-0.00				
	(1.57)	(1.49)				
Entrepreneurial	0.03	-0.00	0.05	0.04	0.04	0.06
practices	(2.45)**	(0.26)	(4.89)***	(4.45)***	(5.32)***	(4.56)***
Municipality	-0.04	-0.00	-0.07	-0.07	-0.08	-0.07
training	(2.84)***	(0.08)	(7.19)***	(8.24)***	(9.49)***	(4.72)***
Agricultural	0.04	0.18	-0.03	-0.03	-0.02	-0.01
practices	(1.15)	(3.30)***	(1.34)	(1.38)	(1.11)	(0.28)
Agricultural	-0.05	-0.10	-0.00	-0.00	-0.03	-0.03
production	(4.50)***	(6.64)***	(0.63)	(0.14)	(4.53)***	(2.96)***
Water	0.02	-0.08	0.01	0.02	0.03	-0.00
	(1.52)	(3.85)***	(1.27)	(2.04)**	(3.09)***	(0.32)
Environmental	-0.01	0.23	0.01	-0.00	-0.05	0.02
management	(0.29)	(6.24)***	(0.34)	(0.05)	(3.52)***	(0.82)
Gender	0.02	0.07	-0.09	-0.07	-0.00	-0.06
	(0.86)	(1.81)*	(4.91)***	(3.94)***	(0.29)	(1.98)**
Post-harvest	0.07	0.11	-0.04	-0.01	0.01	-0.03
program	(2.89)***	(2.43)**	(2.01)**	(0.69)	(0.55)	(1.09)
Days	0.01	0.00	0.04	0.03	0.03	-0.01
participated	(1.85)*	(0.09)	(10.00)***	(7.72)***	(8.87)***	(4.20)***
Cost for farmers	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
	(2.70)***	(1.92)*	(5.60)***	(5.35)***	(5.52)***	(3.26)***
R^2	0.15	0.16	0.02	0.08	0.28	0.01
N	5,148	5,148	10,124	10,124	10,124	5,149

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Source: Authors' calculation

higher sales income is. More specifically, a percentage point increase in bean sales to linked markets is associated with an increase in total sales income by 0.30 USD (Column 1). With department and village-level fixed effects, the effect is approximately 0.50 USD (Column 2 and 3). Such findings confirm that increased engagement in commercialization has positive effect on increasing welfare. This is consistent with findings in the empirical literature. Therefore, we can confirm that entrepreneurial practices assist alleviation of poverty through facilitating commercialization by smallholders.

Table 3.7. Regression results: Y = total bean sales income (USD) (t-value in brackets)

	SA corrected	Department fixed effect	Village fixed effect	Interventions lagged
	(1)	(2)	(3)	(4)
% bean sales to linked markets	0.30 (6.36)***	0.50 (10.22)***	0.51 (10.19)***	0.32 (6.84)***
Entrepreneurial practices	0.09 (2.55)**	0.12 (3.54)***	0.06 (1.75)*	0.17 (3.53)***
Municipality training	-0.06 (1.88)*	0.00 (0.12)	-0.00 (0.09)	-0.13 (2.49)**
Agricultural practices	0.08 (0.98)	0.14 (1.73)*	0.19 (2.34)**	0.24 (1.68)*
Agricultural production	-0.05 (1.71)*	0.00 (0.10)	0.03 (1.24)	-0.21 (6.30)***
Water	0.14 (3.92)***	0.11 (3.16)***	0.09 (2.39)**	0.09 (1.84)*
Environmental management	-0.08 (1.37)	0.01 (0.16)	0.08 (1.40)	-0.06 (0.68)
Gender	0.16 (2.35)**	0.20 (2.91)***	0.10 (1.53)	0.12 (1.14)
Post-harvest program	-0.05 (0.72)	-0.04 (0.53)	0.05 (0.73)	-0.12 (1.03)
Days participated	0.01 (0.53)	0.00 (0.24)	0.00 (0.15)	0.01 (0.44)
Cost for farmers	-0.00 (0.45)	0.00 (0.25)	0.00 (0.11)	0.00 (0.24)
R^2	0.02	0.08	0.12	0.02
N	5,148	5,148	5,148	5,148

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Source: Author's calculation

It is also noteworthy that traditional intervention activities such as agricultural practices and water-related activities show positive correlation with sales income. Our findings confirm the positive link between farm extension services and market linkage that research suggests (e.g. Bignebat & Vagneron, 2011; Carletto et al., 2011; Kersting & Wollni, 2012; Subervie & Vagneron, 2013). While such traditional intervention activities do not show positive effect on commercialization, they play important role in contributing to household income, and therefore reduction of poverty.

3.6. Conclusions

Commercialization of agricultural commodities has been seen essential for economic development and alleviation of poverty. Recognizing the importance and potential of market linkage, a number of development agencies are launching on projects that focus on smallholder commercialization. However, empirical research to date lacks evidences to show whether such projects have effect on commercialization and by how much. Corresponding to such shortcomings, our research scrutinizes one NGO-based project in order to understand impact pathways how donor-funded interventions can influence smallholder commercialization. As a case study, we select an NGO-project undertaken in rural Nicaragua between 2007 and 2012. We conduct our analysis on staple bean farmers.

Using an unbalanced panel data set recorded by the NGO, we test whether training farmers regarding entrepreneurial practices has positive effect on commercialization outside local wholesales markets. In our analysis, we define linked markets as sales directed to farmer cooperatives, intermediaries and private companies. We measure commercialization with absolute quantity and share of beans sold in linked markets. In order to draw causal links, we employ the difference-in-differences approach and account for unobserved heterogeneity. The DID estimators suffer from serial autocorrelation. Thus, we solve this problem by applying a two-stage estimation procedure suggested by Bertrand et al. (2004).

The results indicate that activities regarding entrepreneurial practices have positive and statistically significant effect on commercialization. We also find that increased commercialization is positively correlated with total bean sales income, suggesting a positive indirect effect of the activities. Other activities demonstrate no positive and robust effect on commercialization while direct positive effects on sales income can be observed. This implies that market linkage of smallholder farmers require different sets of intervention tools than traditional farm technical assistance.

We recognize limitations in our study. There is no information available outside project participants in our data set. While the DID approach eliminates unobserved heterogeneity, future studies must account for selection bias into intervention activities by applying different estimation methods (e.g. instrumental variables approach, matching). Another untouched aspect is sustainability of donor-funded effort to link small farmers to commercial markets. While effect of donor-based interventions are not always maintained by smallholders (Holzapfel & Wollni, 2014), we are not able to test long-term effects of market linkage-related projects. Studies in the future may address this question by further developing longitudinal data which include information after the duration of projects.

4. Intensive and Extensive Margins of NGO Interventions[13]

4.1. Introduction

The empirical literature to date shows that product commercialization by poor producers is a necessary step in order to alleviate rural poverty in the developing world (Barrett et al., 2010; Collier & Dercon, 2014; Dethier & Effenberger, 2012). Particularly in the recent years, the potential of modern market channels has received considerable attention as a catalyst against poverty. While retail companies select individuals with specific endowments (Boselie et al., 2003; Dolan & Humphrey, 2000; Farina & Reardon, 2000; Michelson et al., 2012; Reardon et al., 2003), participation in integrated supply chains can be beneficial for small agricultural producers (Gulati et al., 2007; Markelova et al., 2009; Michelson, 2013; Minten et al., 2009; Nagaraj et al., 2008; Vieira, 2008).

However, commercialization by small agricultural producers is often hindered by a number of factors that increase transaction costs. In many of the developing economies, poor producers lack appropriate infrastructure that enables participation in commercial markets. When marketing transaction cost is high, farming households do not gain from product specialization or trade (de Janvry et al., 1991; Omamo, 1998a). As a result, only a small fraction of farmers in rural areas manage to participate in commercialization while others remain in the semi-subsistence system (Barrett et al., 2012). Generally speaking, such semi-subsistence production system is characterized with low productivity, and little to no update of production technology (Balat et al., 2009; Barrett et al., 2012; Bellemare & Barrett, 2006; Fay & Morrison, 2007; Goetz, 1992). As a result, the majority of small producers in developing countries are kept in the poverty trap (Barrett & Swallow, 2006).

Heterogeneity among agricultural producers is considered as key to understanding the commercialization mechanisms. The ability to adopt improved production and processing technology is one of the most important factors that enable small agricultural producers to participate in integrated markets (Gulati et al., 2007; Narayanan & Gulati, 2002). Another important factor is access to irrigation where farmers participating in supermarket supply chains are found to be equipped with irrigation more than non-participants (Berdegué et al., 2005; Hernández et al., 2007; Michelson, 2013; Neven et al., 2009). Geographic location and access to improved transportation infrastructure also enable small farmers to be integrated in global supply chains (Michelson, 2013; Neven et al., 2009). Examples of vertically integrated supply chains show that such production and marketing assets are provided to suppliers by retail companies (Reardon et al., 2009; Swinnen, 2007), implying the importance of these assets. As effort to link smallholders to commercial markets involves multiple levels of policy interventions (Barrett, 2008; Barrett &

[13] This essay is a joint work with Manuel Hernandez at the International Food Policy Research Institute (IFPRI) in Washington, D.C.

Swallow, 2006), leaving the decisions solely in private companies' hands may result in further marginalization of the poor (Jaffee et al., 2011; Whitfield, 2012).

In this context, interventions through development organizations are considered as an effective tool for policy makers to assist smallholder market participation. Development agencies- and NGO-based interventions can benefit small agricultural producers by providing services necessary for commercialization (e.g. production technology upgrade, stakeholder communication, provision of inputs and credit, access to market information, and value chain development) (Humphrey, 2009; Carletto et al., 2011; Dethier & Effenberger, 2012; Whitfield, 2012; Kersting & Wollni, 2012). In fact, a number of donor agencies (e.g. USAID, DFID, GIZ, FAO, and IFAD) have launched projects to develop integrated supply chains that include smallholder farmers (Bignebat & Vagneron, 2011; FAO, n.d.; Humphrey, 2009; IFAD, 2012; Stoian et al., 2012). However, the attempt to link smallholders to commercial markets undertaken by development projects is relatively new (Jaffee et al., 2011), thereby lacking empirical evidences on their effectiveness and success (Barrett, 2008; Humphrey & Navas-Alemán, 2010; Mithofer, 2011; Stoian et al., 2012).

While the previous chapter of the thesis addresses this shortcoming explicitly, this chapter extends the analysis to shed light on heterogeneity among small producers when reflecting NGO-based intervention activities onto commercial marketing. The literature shows that differences in terms of individual and production characteristics are crucial in commercial marketing. Thus, we investigate whether NGO-based capacity building activities affect producers who entered commercial markets after the interventions differently than those who had already participated in such markets prior to the interventions.

More specifically, our paper tests two hypotheses: 1. external support has positive effect on commercialization at the extensive and intensive margins and 2. the effect is different for entrant farmers than those already in commercial markets prior to the NGO interventions.

We apply the identical data set of staple bean farmers in Nicaragua as in the previous chapters of the thesis. Staple grains provide less inventive for smallholder farmers to commercialize than high-value fresh vegetables and fruits. This is because there is little product differentiation that fetches increased producer prices (Berdegué, 2002; Hellin et al., 2009). However, staple grain commercialization is necessary in order to facilitate shifts away from semi-subsistence system to more market-based production of high value commodities (Barrett, 2008). Therefore, our analysis continues to focus on staple bean producers.

The rest of the chapter is organized as follows. Section 4.2 explains the empirical estimation strategy by presenting the conceptual framework, data, and the econometric model. In Section 4.3, we show the econometric results at the intensive and extensive margins. Section 4.4 discusses the empirical findings in the context of policy implementation. Finally, Section 4.5 summarizes and concludes.

4.2. Empirical estimation strategy

4.2.1. Conceptual framework

This section outlines the theoretical foundation in estimating effects of individual activity participation on commercialization in linked markets at the intensive and extensive margins. Linked markets in our study refer to all but local wholesale markets. This is because we focus on commercialization outside wet markets or traditional markets. In the context of Nicaraguan bean sales, only local markets are characterized with little to no quality requirements, immediate payment, and little long-term seller-buyer relationship. Therefore, we classify all but local wholesale markets in our data set as "linked market".

We borrow the concept of intensive and extensive margins from the trade literature. In the context of international trade, intensive margins refer to the change in the size of exchange (e.g. quantity of commodities exchanged) while extensive margins refer to participation in the international market itself (e.g. market entry or exit) (Besedeš & Prusa, 2011; Chaney, 2008; Felbermayr & Kohler, 2006; Li et al., 2012). Building up on the margins discussed in the trade literature, we assess whether undertaking NGO activities had distinct effects at the intensive and extensive margins.

In our context, the identification of extensive margin is expressed as follows:

$$P(S_{it} = 1 | S_{it-1} = 1) = f(X, \varepsilon) \quad (4.1)$$

$$P(S_{it} = 1 | S_{it-1} = 0) = f(X, \varepsilon) \quad (4.2)$$

where P is the probability, S_{it} denotes sales in linked markets by producer i in year t, X is a vector of covariates that explain the probability of linked market commercialization, and ε is the error term. Equation (4.1) shows the case where producer i had commercialized in linked markets in the previous year continued sales in these markets. On the contrary, Equation (4.2) explains the probability of producers entering the linked markets given that they did not sell in linked markets in the previous year.

For the identification of influence of NGO program participation at the intensive margin, the general specification is:

$$Y_{it} = g(Z, u) \quad (4.3)$$

where Y_{it} is the volume of beans sold in linked markets by producer i at time t, Z is a vector of covariates that explains Y_{it} and u is the error term. X and Z are not necessarily identical.

In order to identify the effect of the market linkage program, first we divide the bean producers in our sample in two groups: those who sold beans outside local markets and those who did not in 2006 and/or 2007. Interviews with CRS staffs reveal that the interventions at the household level commenced only in late 2007 or early 2008. Therefore, we categorize those who had already commercialized beans in linked markets prior to 2008 as "early linkage producers" and the rest as "late linkage producers". In the following sections, we refer to the former as Group 1 and the latter as Group 2.

The descriptive statistics in Table 4.1 show that the two groups of producers differ statistically significantly in basic, marketing and production characteristics. Among those who commercialized outside local market in 2006 and/or 2007, there are less female farmers compared with the group that did not. 46% of farmers who did not sell outside traditional markets are household heads while only 26% of those who did are. There is no statistically significant difference regarding cooperative membership. 39% of those who did not sell to non-local markets during the first two years are in leading positions of a cooperative contrary to the other group where no farmer is in leading positions.

Table 4.1. Comparison between market linkage program participants and non-participants

	Sold in '06-07 (Group 1)	Not sold in '06-07 (Group 2)	Differences (Group 2 – Group 1)
Characteristics variables			
Sex (= 1, if female)	0.04	0.20	0.15**
Household head (= 1, if household head)	0.26	0.46	0.20**
Cooperative membership (= 1, if member)	0.87	0.88	0.01
Leadership (=1, if in a leadership position)	0.00	0.39	0.39***
Marketing and production variables			
Commercial diversification (=1, if sell other crops besides beans)	0.24	0.19	-0.06*
Area (Ha)	1.12	1.24	0.12
Total production cost (USD)	46.29	45.07	-1.22
Total quantity of beans sold (qq)	31.8	28.76	-3.03
Bean yield (qq/Ha)	42.56	29.01	-13.55***
Observations	233	9,960	
Participated in the Market Linkage program	35(15%)	1,162(12%)	
Entrepreneurial practices	16(7%)	597(6%)	
Municipality engagement	20(9%)	615(6%)	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculation

In terms of marketing- and production-related variables, two groups demonstrate statistically significant differences solely in terms of commercial diversification and bean yield. Producers in Group 2 on average sell other commodities besides beans less often than those in Group 1. Moreover, bean yield of producers in Group 1 is statistically significantly higher than those in Group 2. The difference is large (14qq/ha), considering that the national average of bean yield was approximately 15qq/ha between 2006 and 2012 (FAO, n.d.-a). While farmers in both groups are productive, these observations suggest that farmers in Group 2 show disadvantages regarding production of beans. This also indicates that project participants demonstrate higher productivity than the national average.

In total, we have 9,960 observations of those who were initially not linked to non-local markets and 233 observations for those who were. For Group 1 and Group 2, 35 out of 233 and 1,162 out of 9,960 observations are treated with activities in the market linkage program, respectively. These figures are approximately 15% and 12% of the total number of producers in both groups. In terms of individual activities, 7% and 6% of the observations in Group 1 and Group 2 received activities regarding entrepreneurial practices, respectively. Similarly, municipality engagement activities were undertaken in 9% and 6% of the total observations in Group 1 and Group 2, respectively. We test whether participation in the market linkage program assisted those in Group 2 when initiating commercialization in linked markets more than those in Group 1.

4.2.2. Data

We utilize the same data set as in the previous chapter, which contains a total of 5,054 bean farmers and 10,193 observations on bean sales. CRS field extension staffs recorded all information throughout the project intervention period. The maximum recall period of sales information is three months, approximately one production cycle of beans. Regardless of participation in capacity building activities, CRS recorded all information. Records for all producers in the project are available as no sampling strategy was applied. We exploit the full unbalanced panel data set.

At the intensive margin, the outcome variable is defined as quantity of beans sold in linked markets (i.e. cooperatives, intermediaries, and private companies). At the extensive margin, we replace the outcome variable with a dummy variable with 1 if individuals sold beans to linked markets and 0 otherwise.

Variables related to individual characteristics are gender, head of household, and leadership positions in a cooperative. The production-related variables are total annual production area of beans and total annual production cost of beans. Instead of using the production variables in levels, we replace with the same variables observed in the previous sales activity. Lagged variables are used since production variables may generate reverse causality. While larger production area may mean that producers have surplus to sell to linked markets, producers may utilize a large piece of land as a result of commercialization. Therefore, we avoid the endogeneity problem by replacing production variables with their lagged values in all estimations.

We have information regarding who received what intervention activities throughout the five years. We generate cumulative dummy variables to control for participation in eight activity categories: 1. agricultural practices and 2. agricultural production (production program), 3. water and 4. environmental management (environmental program), 5. gender (gender program), 6. post-harvest management (post-harvest program), 7. entrepreneurial practices and 8. municipality engagement (market linkage program). Our main interest lies in dummy variables seven and eight, the market linkage program. As in Chapter 3, individuals are noted as “1” once they received interventions and “0” in the years before. In other words, individuals are considered as “treated” even if they did not

receive the particular interventions in a specific given year. This is because capacity buildings are concerned with disseminating knowledge and experiences, thus having long-term effect than short-time effect.

In addition to the dummy variables, we apply variables capturing how many days of capacity buildings individuals participated and how much producers incurred to receive activities in a given year. The first variable intends to assess whether receiving many activities has positive influence on the outcome while the second is a proxy for willingness to participate in individual activities.

4.2.3. Econometric model

This section discusses the identification strategy of the effect of the market linkage program participation at the intensive and extensive margins. In doing so, we deal with two specification problems: endogeneity in explanatory variables concerning participation in NGO programs, and unobserved effect, c_i. In general, it is argued that strict exogeneity assumption such that:

$$c_i|x_i \sim \text{Normal}(0, \sigma_c^2) \quad (4.4)$$

is rarely achieved (Wooldridge, 2010). For our data set, both Hausman test (Wooldridge, 2010) and Smith-Blundell test (Smith & Blundell, 1986) fail to reject that participation is endogenous. To overcome such problems in assessing the effect of project interventions at both intensive and extensive margins, we apply various econometric methods to cope with the problems in the data set.

For the extensive margin, we employ three specification models. First is a panel probit model expressed as:

$$P(S_{it} = 1) = \phi(\alpha_1 P_{it} + \alpha_2 I_{it} + \sum_{j=1}^{7} t_j + \varepsilon_{it}) \quad (4.5)$$

$$P(S_{it} = 1 | S_{it=2006,2007} = 1) = \phi(\alpha_1 P_{it} + \alpha_2 I_{it} + \sum_{j=1}^{7} t_j + \varepsilon_{it}) \text{ for Group 1} \quad (4.6)$$

$$P(S_{it} = 1 | S_{it=2006,2007} = 0) = \phi(\alpha_1 P_{it} + \alpha_2 I_{it} + \sum_{j=1}^{7} t_j + \varepsilon_{it}) \text{ for Group 2} \quad (4.7)$$

where P_{it} are lagged production variables (production area and cost) of producer i at time t, I_{it} are eight binary variables that capture participation in NGO activities, total number of activities days participated by each producer in a given year, and cost of activities that producers incurred in a given year and t_j's are time dummies for 2006 through 2012. ϕ denotes cumulative distribution functions. Equation (4.5) measures the probability of existing in non-local markets. Equation (4.6) applies for farmers in Group 1, thus probability of continuing to supply in linked markets. Equation (4.7) is for producers in Group 2, or probability to enter linked markets.

The probit estimation method for panel data set does not allow us to control for unobserved heterogeneity (Wooldridge, 2010). However, the likelihood ratio test indicates that the panel probit estimators may be biased due to individual-specific effects. Therefore, we employ the linear probability model (LPM) while using within transformation and first differencing. While LPM estimators can pose problems (e.g. estimated probability can be larger than one or smaller than zero), they can be used to check the credibility of coefficients estimated by nonlinear binary

outcome models (Wooldridge, 2010). In summary, we apply 1. panel probit model, 2. LPM with within-transformation, and 3. LPM with first differences.

For intensive margins, we estimate the following difference-in-differences (DID) model:

$$\Delta y_{it} = \xi_t + \beta_1 \Delta P_{it} + \beta_2 I_{it} + \Delta u_{it} \quad (4.8)$$

where ξ_t are time period intercepts to control for macro-level shocks specific to a given year and Δ denotes a change in indicated variables. As DID estimators assume parallel trend for all individuals, we can elicit average treatment effects on treated (ATT).

The DID estimators are criticized to be biased due to serial autocorrelation, which results in upward bias (Bertrand et al., 2004). We applied a diagnostic test suggested by Wooldridge (2010) and find that serial autocorrelation indeed exists in our data. Therefore, we report the corrected DID estimators, following Bertrand et al. (2004) and Michelson (2013).

The correction procedure involves two steps. First, the outcome variable is regressed on time fixed effect, village fixed effect, individual characteristics (gender, household head, cooperative leadership) and production variables (lagged area and cost of production). Then, we calculate the residuals from the first stage and further divide it into observations before and after individuals participated in NGO programs. For more details of the correction procedures, see Bertrand et al. (2004) and Michelson (2013).

4.3. Estimation results

First, we present the regression results at the extensive margin in Table 4.2. All presented results are marginal effects. The two LPMs and panel probit model yield different results in terms of magnitude of marginal effects, statistical significance and/or signs of estimated coefficients. This may indicate that taking individual heterogeneity into account is important for the analysis. Therefore, we interpret mainly the results of the two LPMs.

The activities in entrepreneurial practices are positively and statistically significantly correlated with the outcome variable for all producers and those in Group 2 but not Group 1. Both LPM results show that individuals in Group 2 who participated in entrepreneurial practices activities are 2-3 percentage points more likely to sell in non-local markets (columns 6 and 9) while the magnitude of the effect goes up to 39 and 34 percentage points for all and Group 2 producers in the panel probit estimation (Column 1 and 3), respectively. All estimation models indicate that the intervention had positive effects only on those who did not participate in commercial marketing outside local markets prior to the intervention phase. This is ideal since the objective of the program was to link those who were not part of commercialization in linked markets prior to project implementation. Municipality engagement activities, the other activity category of the market linkage program, do not have any statistically significant effect in all estimation models.

Table 4.2. Regression results: extensive margin (t-values in brackets)

	Panel probit			Fixed effect LPM			LPM with first-differences		
	Total	Group 1	Group 2	Total	Group 1	Group 2	Total	Group 1	Group 2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Entrepreneurial	0.39	1.71	0.34	0.03	0.12	0.03	0.02	0.04	0.02
practices	(2.83)***	(0.56)	(2.28)**	(1.99)**	(1.09)	(2.01)**	(2.93)***	(0.47)	(2.24)**
Municipality	-0.06	-2.71	-0.06	-0.02	-0.06	-0.02	-0.01	-0.14	-0.01
engagement	(0.39)	(0.71)	(0.41)	(1.06)	(0.47)	(1.05)	(1.01)	(1.92)*	(0.81)
Agricultural	-4.73		-4.57	-0.08	-0.60	-0.06	-0.02	-0.70	-0.01
practices	(0.00)		(0.00)	(1.97)**	(3.20)***	(1.54)	(0.80)	(2.83)***	(0.56)
Agricultural	-0.22	5.08	-0.29	0.00	0.15	0.00	0.00	0.07	-0.00
production	(1.96)*	(1.49)	(2.39)**	(0.25)	(0.77)	(0.01)	(0.33)	(0.87)	(0.01)
Gender	-0.21		-0.16	-0.02	-0.24	-0.01	0.01	-0.01	0.01
	(0.58)		(0.43)	(0.63)	(1.81)*	(0.19)	(0.50)	(0.06)	(1.06)
Post-harvest	0.18	4.45	-0.04	0.01	0.22	0.00	-0.00	0.22	-0.01
management	(0.49)	(0.14)	(0.08)	(0.66)	(1.36)	(0.07)	(0.03)	(1.34)	(0.61)
Water	0.06	-8.02	0.13	-0.01	0.06	-0.01	-0.00	0.09	-0.00
	(0.35)	(0.24)	(0.76)	(0.35)	(0.43)	(0.49)	(0.52)	(0.63)	(0.20)
Environ.	0.23	4.96	-0.00	0.03	0.44	0.02	0.01	0.48	0.00
management	(0.61)	(0.85)	(0.01)	(1.36)	(1.59)	(0.78)	(0.77)	(2.74)***	(0.24)
Days	0.14	4.60	0.17	0.01	0.00	0.01	0.00	-0.02	0.00
participated	(1.87)*	(1.84)*	(1.97)**	(0.68)	(0.03)	(0.98)	(0.76)	(1.04)	(1.49)
Cost of	-0.02	-0.90	-0.02	-0.00	0.00	-0.00	-0.00	0.00	-0.00
intervention	(2.10)**	(1.19)	(1.75)*	(2.01)**	(0.19)	(2.02)**	(0.28)	(1.14)	(0.71)
Production area	0.10	0.97	0.09	0.01	0.01	0.01	0.01	-0.02	0.01
	(1.92)*	(0.28)	(1.75)*	(2.39)**	(0.30)	(2.42)**	(3.22)***	(0.90)	(3.89)***
Production cost	-0.00	-0.17	-0.00	-0.00	-0.00	-0.00	-0.00	0.00	-0.00
	(1.25)	(2.00)**	(0.78)	(1.37)	(0.30)	(1.25)	(2.43)**	(0.70)	(2.53)**
Pseudo- R^2	0.82	0.70	0.84						
R^2(within)				0.07	0.35	0.08	0.06	0.36	0.06
N	4,755	168	4,587	4,755	168	4,587	2,409	108	2,301

* p<0.1; ** p<0.05; *** p<0.01

Source: Authors' calculation

Regarding the number of total capacity building days participated by individual producers, we are unable to confirm its effect. The results show positive and statistically significant coefficients for all groups when estimated using the panel probit method. However, the effect does not show up when using both of the LPMs. As discussed earlier, applying LPM is argued more appropriate than non-linear models when there is individual heterogeneity (Wooldridge, 2010). Therefore, we are unable to conclude the effect of overall participation in intervention activities on commercialization in linked markets.

Besides the project intervention variables, production area is positively and statistically significantly correlated with commercialization of beans. All estimation models show that Group 2 farmers show the same trend while Group 1 farmers do not. For instance, the panel probit model suggests that an increase in production area by one ha is associated with an increase in the probability of market participation by 10 and 9 percentage points for all and Group 2 farmers, respectively. Similarly, the LPMs show that the probability increases by 1 percentage point for both all and Group 1 producers when production area increases by one ha. This suggests the importance of land size in initiating commercialization, which is consistent with findings in the empirical literature. However, once producers enter commercial markets, the area size increase no longer matters.

Second, Table 4.3 presents the regression results at the intensive margins. All presented results are corrected for serial autocorrelation. Columns 4 through 6 show the results of the models with village fixed effects while models in Columns 7 through 9 are estimated with village and cooperative fixed effects. All models show that the entrepreneurial practices activities show positive and statistically significant relationship to the outcome variable, quantity of beans sold in linked markets, for all farmers and those in Group 2. In the case of Group 2 farmers, individuals who received trainings in entrepreneurial practices on average sell 3.90qq more beans to linked markets than those who did not receive trainings when estimated in a serial autocorrelation-corrected DID model (Column 3). When village and cooperative fixed effects are taken into account, the effect becomes 3.46qq and 2.44qq (Column 6 and 9, respectively). The statistical significance of these estimated coefficients remain significant. Therefore, we confirm the positive influence of the entrepreneurial practices activities on bean sales in non-local markets particularly for those who had not been linked to non-local markets prior to the program intervention.

The standard DID model and DID with village fixed effect results indicate that only observations of those in Group 1 are positively and statistically significantly correlated with activities in environmental management. It is possible that those in Group 1 were able to benefit from environmental sustainability program since their production system had been relatively advanced prior to the interventions. Its marginal effects estimated in both models are also large. Receiving the environmental management interventions is associated with an increase in the quantity sold in linked markets by 4.66qq and 4.01qq in the standard DID model and model with village fixed effect, respectively. As our estimation method only allows us to elicit ATT, however, we are unable to identify whether this indicates reverse causality or not.

Table 4.3. Regression results: intensive margin (t-values in brackets)

	Serial autocorrelation-corrected DID			w/ village fixed effect			w/ village and cooperative fixed effect		
	All	Group 1	Group 2	All	Group 1	Group 2	All	Group 1	Group 2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Entrepreneurial practices	3.73 (3.41)***	0.62 (0.32)	3.90 (3.44)***	3.30 (3.33)***	-0.25 (0.16)	3.46 (3.36)***	2.30 (2.74)***	-0.74 (0.49)	2.44 (2.79)***
Municipality engagement	-3.48 (5.46)***	-1.85 (0.95)	-3.47 (5.30)***	-2.19 (3.70)***	-2.08 (1.32)	-2.15 (3.55)***	-1.76 (3.12)***	-1.69 (1.07)	-1.79 (3.07)***
Agricultural practices	-1.42 (1.55)	-0.51 (0.15)	-1.45 (1.59)	1.79 (1.83)*	-3.32 (1.17)	1.84 (1.87)*	0.86 (1.03)	-5.82 (1.70)*	0.89 (1.07)
Agricultural production	-2.88 (5.39)***	-4.08 (2.10)**	-2.85 (5.25)***	-0.42 (0.86)	-2.28 (1.52)	-0.37 (0.74)	-0.19 (0.43)	-1.64 (1.10)	-0.17 (0.37)
Gender	-5.15 (4.02)***	-0.33 (0.19)	-5.22 (4.09)***	-4.93 (3.61)***	0.90 (0.56)	-4.99 (3.64)***	-4.09 (2.83)***	0.94 (0.67)	-4.20 (2.85)***
Post-harvest management	0.39 (0.45)	3.62 (2.07)**	0.42 (0.48)	-1.89 (1.88)*	1.38 (0.92)	-1.87 (1.84)*	-2.64 (2.00)**	0.08 (0.03)	-2.65 (1.96)**
Water	0.92 (1.13)	-3.31 (1.05)	0.92 (1.11)	-0.10 (0.12)	0.09 (0.04)	-0.10 (0.13)	-0.18 (0.25)	3.46 (1.15)	-0.17 (0.22)
Environ. management	0.77 (1.14)	4.66 (3.39)***	0.69 (0.99)	-0.54 (0.69)	4.01 (2.56)**	-0.65 (0.80)	0.35 (0.58)	2.00 (0.92)	0.32 (0.52)
Days participated	0.78 (2.27)**	-0.44 (0.47)	0.89 (2.41)**	0.15 (0.45)	-0.70 (0.80)	0.24 (0.67)	0.38 (1.10)	-0.43 (0.49)	0.48 (1.28)
Cost of intervention	-0.05 (1.80)*	0.20 (1.49)	-0.07 (2.31)**	-0.06 (2.27)**	0.19 (1.67)*	-0.08 (2.66)***	-0.07 (2.15)**	0.16 (1.33)	-0.08 (2.48)**
Constant	1.12 (2.79)***	0.90 (0.75)	1.10 (2.68)***	0.40 (1.12)	2.12 (2.03)**	0.34 (0.94)	0.29 (0.91)	1.77 (1.68)*	0.24 (0.74)
R^2(within)	0.02	0.11	0.02	0.01	0.10	0.02	0.02	0.09	0.02
N	4,755	168	4,587	4,755	168	4,587	4,755	168	4,587

* p<0.1; ** p<0.05; *** p<0.01

Source: Authors' calculation

4.4. Discussion

The econometric results at the intensive and extensive margins suggest that the entrepreneurial practices activities demonstrate positive and statistically significant correlation with the measures of market linkage in general. All results at both margins confirm that particularly those who had not been part of the commercialization in non-local market prior to the program intervention benefitted more than those who had sold beans in such dynamic markets. We also find that area size matters for entrant farmers when beginning to commercialize but not for those who had already supplied to linked markets before the interventions. This is consistent with the empirical literature arguing that staple commodity marketing requires relatively large land area and wealth to produce enough quantity to supply the family and have surplus to sell outside the household (Barrett, 2008).

The municipality engagement activities were not found effective. They were mainly designed to provoke changes at the regional-, or meso-, level by working closely with local governments. The literature argues that, at the meso-level, marketing transaction costs should be lowered through improving infrastructure, establishing mechanisms to comply with contracts and agreements, and encouraging spatial price transmission and competition among buyers (Barrett, 2008). However, it is a complex task that is likely to require time and thorough change at all levels. Therefore, the effect may not have been as visible as in the case of entrepreneurial practices activities due to the lack of time after the intervention took place as well as the complexity of required support at all levels.

Regarding entrepreneurial practices, our findings suggest substantial heterogeneity among producers when realizing their benefits. As shown in the descriptive statistics, farmers who had not supplied in linked markets in 2006 and 2007 demonstrate lower production yield and less marketing diversification than those in Group 1. Therefore, the interventions were successful in linking those who had been outside linked markets. In other words, the program fulfilled its major objective.

Our result not only indicates the positive correlation between program participation and commercialization of beans but also suggests that training those already commercializing may not be necessary. There are a total of 613 activities were undertaken in the entrepreneurial practices category, 16 of which were allocated to those in Group 1. For future implementation of similar programs, development agencies may choose to focus solely on those who had not commercialized prior to interventions, thereby maximizing the outreach of activities to those who benefit the most.

Caution must be taken, however, to draw conclusions as to how effective the market linkage program was and will be. Smallholder commercialization must be facilitated at multiple policy levels (Barrett, 2008; Barrett & Swallow, 2006; Stoian et al., 2012). Producers who do not have production and institutional capacity to participate in commercialization are unlikely to benefit from interventions before obstacles are overcome (Stoian et al., 2012). Moreover, the semi-subsistence farming with crop diversification is a result of strategic thinking to secure income

and food sources (Omamo, 1998a). Therefore, future development projects must assess ex-ante empirical contexts in order to maximize their outcome and allocate implementation resources efficiently.

We acknowledge the limitations of our study. We are unable to control for selection bias into receiving NGO-based activities among producers in the sample given our data set. To overcome this problem, future research must obtain information on producers outside the NGO project participants in order to derive average treatment effect (ATE) rather than ATT as in our study. Moreover, we lack a number of variables regarding individual and household characteristics such as education level, age of producers, household assets, and conditions of transportation infrastructure to name a few. These variables may enable more comprehensive econometric approaches (e.g. application of instrumental variables).

In addition, lack of observations outside project participants prevents us from investigating how those whose productivity is below the national average would respond to treatments. From Table 4.1, we know that beneficiaries of the project demonstrate higher productivity than the rest of the country. In order to target those with enough capacity, future studies may address characteristics of producers who benefit from interventions most. This is beyond the scope of our research.

4.5. Conclusions

Evidences suggest that heterogeneity among small producers in developing countries is a key to understanding how donor-funded projects can facilitate commercialization by small farmers, and therefore poverty reduction, in rural areas. In this notion, we extend the findings from the previous chapter to assess whether NGO-based effort to enable commercialization was received differently by farmers who had been linked to non-local markets and those who had not before the intervention was undertaken. Borrowing the concept of intensive and extensive margins from the trade literature, we study the probability and magnitude of commercialization. The analysis is conducted, using an unbalanced panel data of more than 5,000 farmers who produced staple beans between 2006 and 2012 in rural Nicaragua.

We find that farmers who had sold in linked markets prior to program interventions demonstrate higher productivity and more diversification in commercial activities than those who did not. Less producers who had commercialized before the interventions are female and/or household heads. There was no farmer in a leading position of a cooperative among those who sold in linked markets in 2006 and 2007. For both groups of producers, approximately 12-15% received the interventions.

The activities in “entrepreneurial practices” category are positively and statistically significantly correlated with both the probability and magnitude of commercialization. Entrant farmers benefitted from the interventions at both margins while those who had been linked to non-local markets before did not show any effect. Given that entrants are less productive and engaged in commercialization of multiple crops, the program was successful in linking those who had faced obstacles prior to the interventions.

While our results indicate that donor-funded projects may prioritize entrant farmers over those already in linked markets, care is needed in coming to such conclusion. Enabling small farmers to commercialize poses a number of challenges at the micro-, meso- and macro-levels. When most, if not all, enabling conditions are not met, project interventions are likely to bring little positive effect on participants. Thus, development projects must analyze empirical obstacles prior to implementation and identify effective pathways to assist commercialization in rural areas.

We acknowledge the limitation in our study. We are unable to obtain information on producers outside the project participants. Therefore, it is only possible to obtain ATT with the available data. Moreover, we lack a number of variables that may allow more complex and comprehensive analyses such as application of instrumental variables. Future research is encouraged to overcome such challenges.

5. Conclusions

As outlined in the introduction, agricultural development and commercialization is crucial in order to achieve poverty reduction and economic development. In this context, this thesis motivates providing policy makers with clear guidance as to what intervention activities are most effective in promoting smallholder commercialization by how much. The present work approaches this question from two distinct aspects that have not received adequate attention. All analyses were conducted, using an unbalanced panel data of a total of approximately 5,000 small-scale bean producers in rural Nicaragua.

The first shortcoming addressed is quantification of benefits realized from rural road infrastructure development at the household level as pointed out in Jacoby & Minten (2009) and Jacoby (2000). Investigating bean producer prices, Chapter 2 quantifies benefit gained by smallholder farmers through reducing transportation costs measured in time and distance traveled. The result indicates that decreasing travel time by 25% would increase bean producer prices by between 3% and 12%. In absolute terms, this translates to an increase in bean sales income of between $24 and $110 per year per household. As this figure ignores effects reaching producers outside the sample, all crops but staple beans and other industries, the actual monetary benefits is expected to be higher than derived in our study. Thus, we challenge the view expressed by studies solely based on transportation costs (e.g. Jacoby & Minten (2009), Jacoby (2000)) that benefits from rural road development are small at the household-level.

Further, we shed light on estimating effectiveness of donor-funded development projects, another overlooked aspect of smallholder commercialization in the literature. Using detailed records of NGO-based activities, Chapter 3 differentiates intervention activities with distinct objectives. We test if activities related to marketing practices had positive influence on market linkage. Market linkage is measured with the volume of beans sold in linked markets. Using difference-in-differences approach corrected for serial autocorrelation, we find that the marketing-related activities show positive effect on market linkage. Participating in entrepreneurial training increases bean sales volume to dynamic markets by between 0.2 and 0.5 percentage points. Furthermore, our analysis indicates that the larger the proportion of beans sold in dynamic markets is, the higher annual bean income becomes. Therefore, the effect of marketing-related activities participation extends to welfare increase.

Chapter 4 builds up on the findings from Chapter 3 and investigates heterogeneity among producers in taking advantage of intervention activities. We divide all bean producers into two groups: those who had commercialized in dynamic markets prior to project interventions and those who had not. Referring to the trade literature, we test whether marketing-related activities show positive influence on commercialization at the intensive and extensive margins. The result suggests a positive linkage between intervention activities and commercialization only for those who had not participated before, confirming heterogeneous responses to treatment.

In summary, this thesis provides 1. quantification of benefit from road infrastructure development from the farm-gate price aspect, and 2. guidance as to what intervention has positive effect on smallholder commercialization. As any institution is constrained with limited

budget, our findings can lead policy makers to strategically place intervention resources to where assistance is most needed and effective.

We acknowledge the limitations of our studies. Information on non-participants of the project is not available. This is a shortcoming that future research should address with sampling strategy prior to project interventions. While NGOs and donor-funded projects often possess bulky information that can be used for academic research, they tend to allocate only a small fraction of total budget on monitoring and evaluation (Humphrey & Navas-Alemán, 2010). Therefore, (longitudinal) data collection must be an initiative from research-oriented institutions. Moreover, selection of beneficiaries is seldom, if not never, random (Barrett, 2008). Thus, utilization of such data must address selection bias early on so that appropriate estimation strategy can be applied through instrumental variables approach and/or matching techniques. Future research may overcome such problems by establishing a long-term partnership between research-based organizations and grassroots institutions that implement interventions.

Another suggestion for future research is careful identification of potential "survivors" as agricultural producers. As pointed out in the introductory chapter, shrinking the share of the agricultural sector as source of both income and employment is central to achieving agricultural development and commercialization (Timmer, 1988). In other words, the majority of smallholder farmers must be encouraged to exit agriculture in the long-run in order to reduce poverty (Barrett, 2008). This is demonstrated with the emergence of vertical integration and increased trade. Exiting agricultural production yet participating as labor is found to have positive effect on poverty reduction (Maertens & Swinnen, 2009). In this context, the empirical challenge is to identify who are potential surviving producers. With the existing data set, however, we are unable to draw link between specific characteristics and capacities of survival as agricultural producers. Thus, future research may identify characteristics of current smallholders who remain and exit agricultural production or agricultural sector completely in order to achieve alleviation of poverty.

6. Annex

6.1. Description of the project ACORDAR: 2007-2012

This dissertation utilizes data collected by CRS as a part of monitoring and evaluation for a project called Alliance to Create Rural Business Opportunities through Agro-Enterprise Relationships (ACORDAR). This section provides details of the project.

6.1.1. General background

ACORDAR was funded by the United States Agency for International Development (USAID) and a few other international NGOs. The entire project lasted for five years between September 2007 and October 2012, with two 30-month-long project phases. The official project report says that there were a total of 7,000 participants over the 5 years. The first phase targeted 5,400 producers, which was extended to include another 1,600 farmers for the second phase. In reality, the project worked with approximately 10,000 farmers. This was because some farmers dropped out of the project due to emigration, death, unwillingness to continue participating, terminating agricultural production, and so on. Since the project needed to maintain the number of farmers they are working with at a time, the NGO recruited new participants to replace the dropouts.

Figure 6.1. Map of Nicaragua with departments

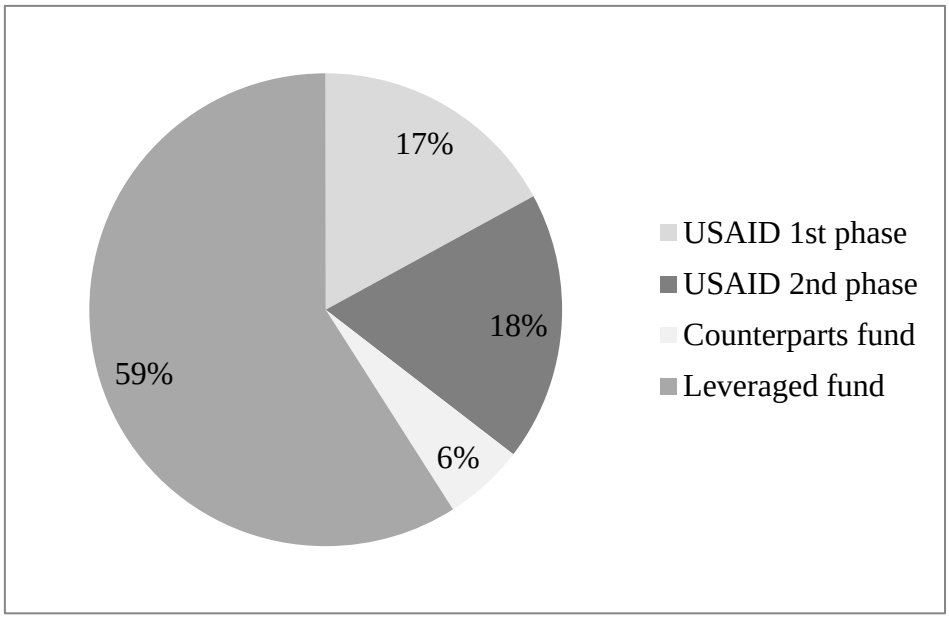
Source: http://www.mapsopensource.com/nicaragua-map.html

Participating producers are located throughout Nicaragua. At the departmental level, the project worked in the capital region (Managua), the northern highlands (Estelí, Jinotega, Madriz, Matagalpa, Nueva Segovia), the Rio San Juan region (Boaco), the southern pacific coast (Rivas) and the Caribbean regions (Región Autónoma del Atlántico Norte (RAAN), Región Autónoma del Atlántico Sur (RAAS)). The majority of producers are located in the departments of Estelí, Jinotega and Matagalpa. The project targeted producers of cacao, coffee, beans, vegetables, fruits, and roots and tubers. Vegetables included tomatoes, onions, cabbage and cucumbers while fruits can be papaya, pineapple, orange and so on. Roots and tubers are mainly potatoes, cassava, malanga, and carrots amongst others.

Nicaragua's national statistics show that the project targeted commodities of importance in agriculture-based regions. Table 6.1 shows the results of the national census conducted in 2011. Jinotega, Matagalpa, RAAN and RAAS are amongst the largest departments in terms of total agricultural land area. We can also see that large amount of land are used for production of maize, beans, coffee, cacao, cassava, malanga and vegetable crops.

Figure 6.2 shows the composition of project funding based on its sources. USAID granted the project with a total of US$9,530,391 for the first phase (from September 2007 to March 2010). For the second phase (from April 2010 to October 2012), the fund from the USAID was US$9,256,821, which gives a total of US$18,787,212 from USAID for ACORDAR. On top of the donation from USAID, the project has received additional US$2,925,713 from CRS counterparts as well as US$31,282,955 of leveraged funds. Therefore, over the course of entire project implementation, CRS has received a total of US$52,995,880.

Figure 6.2. Project funding distribution: September 2007-October 2012



Source: Escoto et al. (2012)

Table 6.1. Agricultural area (Ha) reported in the national statistics: 2011 census

Department	Total agricultural land*	Basic grains			Permanent/semi-permanent crops			Others				
		Total	Maize	Bean	Total	Coffee	Cacao	Total	Cassava	Malanga	Tomato	Zucchini
Nueva Segovia	12,488	9,163	8,652	8,463	19,691	17,632	64	1,021	179	73	198	18
Jinotega	21,352	15,401	14,717	14,093	52,880	43,866	1,017	3,249	945	670	432	15
Madriz	9,676	7,034	6,700	6,182	10,934	10,000	49	568	64	15	126	40
Estelí	7,710	6,248	5,843	5,296	3,359	2,517	2	1,129	13	16	372	96
Chinandega	10,819	7,531	7,064	1,781	50,218	363	21	1,501	301	5	65	330
León	12,865	7,937	7,401	2,528	5,178	118	3	1,567	1,155	14	56	286
Matagalpa	20,445	16,246	15,246	14,163	40,109	32,085	2,898	3,734	1,124	391	358	188
Boaco	8,791	6,241	5,947	4,951	7,493	3,997	24	1,312	411	288	105	40
Managua	9,244	5,671	5,124	2,585	11,026	4,858	18	1,485	438	4	262	358
Masaya	10,493	3,201	2,518	2,324	8,648	2,274	36	1,585	736	4	159	367
Chontales	5,890	3,569	3,352	2,728	2,297	34	29	1,193	511	110	50	32
Granada	3,954	1,926	1,454	1,450	6,538	1,411	38	503	208	2	71	109
Carazo	5,603	3,412	2,812	2,620	8,226	4,695	17	576	144	0	47	35
Rivas	8,618	4,803	3,556	3,497	14,802	92	10	687	160	4	53	108
Río San Juan	6,433	4,808	4,439	4,204	10,625	47	984	1,548	831	95	8	9
RAAN	14,461	12,507	11,280	10,644	17,568	2,646	4,408	6,998	5,248	829	55	10
RAAS	15,991	11,758	11,158	9,558	23,955	239	1,473	8,957	9,628	1,256	59	27

*The sum of all land use exceeds the total agricultural land because intercropped areas are double-counted.

Source: INIDE (2011)

The project's objectives were:

- To increase net income of 75% of a total of 7,000 small producers by 20% compared to the baseline;
- To create permanent employment opportunities in the participating communities;
- To strengthen commercial capacity of producers;
- To develop value chains by training 6,328 producers on topics related to value chains;
- To produce 9,094 hectares of production area with improved management practice technologies.

6.1.2. Selection process of beneficiaries

Reports submitted by CRS to USDA over the five years provide useful information regarding the selection process of project participants. Beneficiaries of the project were selected, following four steps. The project was designed to be implemented through consortium members (so-called "socios"), sub-consortium members ("sub-socios"), and farmer cooperatives. Therefore, the project first selected consortium members, which then selected several sub-consortium members. The chosen sub-consortium members selected local farmer cooperatives, which nominated individual farmers to be participants. Despite the selection process based on cooperatives, beneficiaries include a small fraction of individuals who do not belong to cooperatives Table 6.2 shows that about 90% of beneficiaries were members of a cooperative. Producers are not able to belong to more than one cooperative. Therefore, there is no duplication in counting cooperative members.

Table 6.2. Number and percentage of the project participants who belong to a cooperative

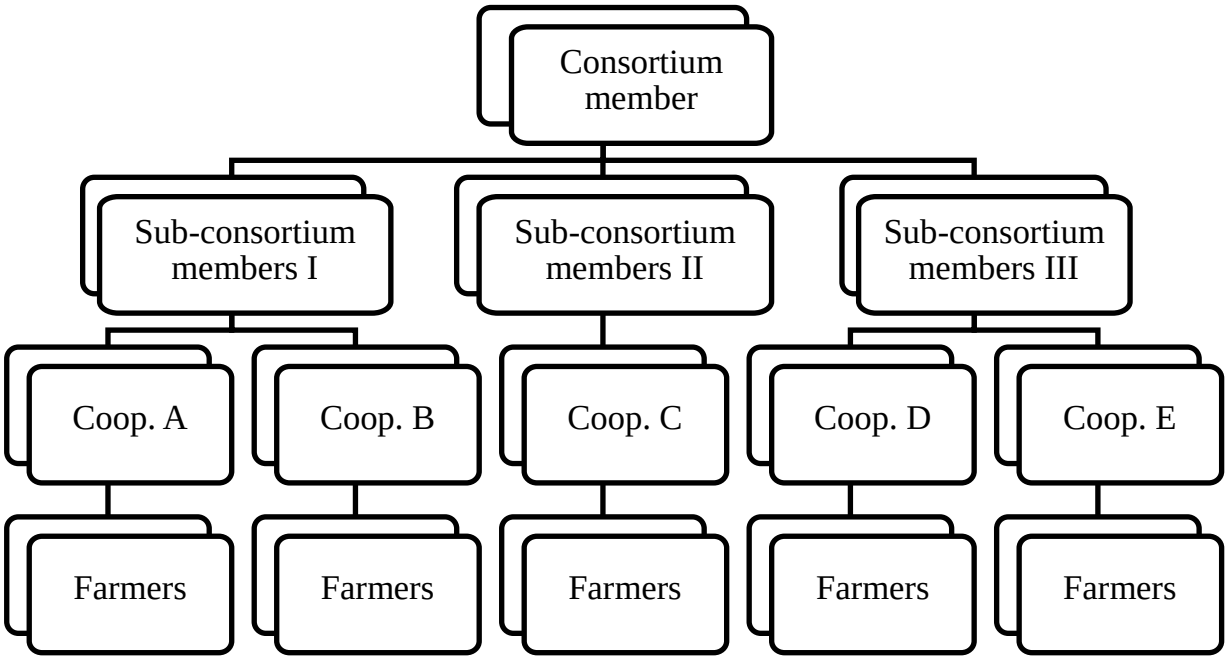
Year/Coop	2006	2007	2008	2009	2010	2011	2012	Total
Coop	423	2,257	5,413	3,782	3,132	3,695	3,495	22,197
Total	505	2,508	5,639	4,276	3,551	4,255	3,743	24,477
% coop	83.8	90.0	96.0	88.5	88.2	86.8	93.4	90.7

Source: CRS data base modified by authors

Figure 6.3 visualizes the selection process. The project worked with a total of three consortium members, 14 sub-consortium members, and 178 cooperatives. The criteria that the project imposed on producer characteristics to be participants for the first phase are as follows.

1. Producers must possess less than 10 hectares of land in an ecologically vulnerable area of the project's targeted areas;
2. Producers must be engaged in the production of one or more of the targeted commodities;
3. Producers must be facing technical difficulties such as low production yields and lack of access to appropriate inputs. In addition, they must be applying low technology for agricultural production as well as processing of commodities;
4. Producers must have limited ability to compete in commercial markets due to poor infrastructure for post-harvest management, lack of information about markets, poor organizational structure, and lack of physical as well as financial capitals.

Figure 6.3. Selection process of project participants



Source: Escoto et al. (2012) depicted by authors

Through the selection process, local cooperatives have identified producers who fulfill these criteria.

Since the project was first granted with funding for 30 months, the project first worked with 5,400 producers. After the 30 months, a new set of participants was selected, which gave a total of 7,000 participants. The selection for the second phase was not identical to that of the first phase, which needs some attention. Besides the aforementioned criteria used during the first phase, additional conditions were imposed on the new participants starting in the second phase. Namely, new-coming cooperatives must:

1. have the potential to achieve financial and institutional development in the time remaining until the end of the project;
2. be capable of identifying market opportunities and developing linkages to expand their commercial activities;
3. have the capacity and willingness to work with other cooperatives to enforce marketing channels by sharing infrastructure (e.g. post-harvest processing centers) as well as market contacts;
4. be able to expand organizational size by integrating producers who possess economic potentials[14].

The selection of ACORDAR beneficiaries was done from two different aspects (Escoto et al., 2012). The first is to reach poor farmers who face unfavorable production, processing and marketing conditions. The second is to develop producer organizations as successful business

[14] This criterion was applied particularly for the cacao value chain as it was not included as one of the targeted value chains to be developed during the first phase.

enterprises. As mentioned above, the project was granted two 30-month-long project funding. However, CRS was not certain whether the funding would be renewed after the first phase. As a result, the selection of beneficiaries included those who are struggling to participate in markets and those who already had experiences and resources in establishing as well as maintaining business relationships with buyers. For the second phase, preference towards already-established individuals was even stronger. As the project intervention team knew that there was no second extension and therefore the project has to come to an end after two and half years, individuals and cooperatives with more potential were selected compared with the first phase. The next section will go into details of producer characteristics in order to understand potential selection biases that were applied to the project participants.

6.1.3. Project beneficiaries

As mentioned above, project beneficiaries were located throughout the country, yet the majority is found in the departments of Estelí, Jinotega and Matagalpa (Table 6.3).

Table 6.3. Number of the project participants by department: 2006-2012

Year/Dep.	2006	2007	2008	2009	2010	2011	2012
Boaco	-	-	-	-	82	87	54
Estelí	287	610	791	974	677	928	517
Jinotega	38	541	1,168	1,031	1,012	1,098	855
Madriz	-	63	209	260	199	156	129
Managua	-	2	3	2	-	-	-
Matagalpa	180	854	2,613	1,392	1,139	1,124	1,171
N. Segovia	-	231	219	172	145	368	364
RAAN	-	60	473	313	47	74	241
RAAS	-	46	73	35	79	80	51
Rivas	-	101	90	97	171	151	137
Rio S.Juan	-	-	-	-	-	188	224
Total	505	2,508	5,639	4,276	3,551	4,254	3,743

Source: CRS data base modified by authors

Some individuals were already registered in 2006 before the project intervention started. This is why there are some records from the earlier years in the data collected by CRS.

Table 6.4. Number of project participants by commodity: 2006-2012

Year/Crop	2006	2007	2008	2009	2010	2011	2012
Cacao	0	20	200	334	33	330	356
Coffee	10	357	1,398	1,520	1,401	1,659	1,522
Beans	357	1,155	3,213	1,556	1,086	1,572	1,366
Vegetables	130	567	589	736	721	743	474
Fruits	32	82	57	94	142	130	81
R&T	35	577	730	468	431	375	180
Total[15]	564	2,758	6,187	4,708	3,814	4,809	3,979

Source: CRS data base modified by authors

[15] Due to the duplication in counting, the total number of participants in Table 6.3 and Table 6.4 differ.

The project worked with producers of cacao, coffee, beans, vegetables, fruits, and roots and tubers. Table 6.4 shows that many of them were engaged in production and sales of coffee and beans.

Among the producers, approximately 10% sold more than one commodity in a given year (Table 6.5). For instance, in 2007, 309 farmers out of 2,508 producers harvested and sold more than one commodity. The available data provide information solely about sales. Therefore, we are not able to assess how many farmers have diversified production system but sold only one crop.

Table 6.5. Number of project participants who sold more than one crop: 2006-2012

Year	# of farmers who sold more than one crop	Total # of participants	% of farmers who sold more than one crop
2006	62	505	12.3
2007	309	2,508	12.3
2008	553	5,639	9.8
2009	419	4,276	9.8
2010	339	3,551	9.5
2011	498	4,254	11.7
2012	317	3,743	8.5

Source: CRS data base modified by authors

In addition, Table 6.6 shows how many farmers in each commodity chain sold how many crops in total. For example, out of 1,269 farmers who sold cacao in the five-year period, 1,126 sold only cacao, 139 sold cacao and one other crop, 3 sold cacao in addition to two other crops, and so on. From the table, we can see that bean, vegetables, and roots & tubers farmers sold multiple crops yet most farmers sold only one other crop.

Table 6.6. Number of the project participants by the number of crops they produced

# of crops	Cacao	Coffee	Beans	Veg	Fruits	R & T
1	1,126	7,160	8,287	2,327	282	1,841
2	139	579	1,709	1,214	198	741
3	3	52	186	163	70	111
4	1	11	12	11	4	9
Total	1,269	7,802	10,194	3,715	554	2,702

Source: CRS data base modified by authors

In order to show the size distribution, we divide all producers in four categories. Farmers belong to the Size 1, 2, 3, and 4 groups if they possess less than 0.5ha, between 0.5ha and 1ha, between 1ha and 2ha, and more than 2ha of land, respectively. Landholdings are calculated based on the area that producers utilized for the production of goods sold in a given year. In other words, we only count areas that were put into production and therefore, we do not know the total land area that is owned by each producer. The details of the data set will be explained in Section 6.1.6. Table 6.7 shows how many farmers belong to which size categories in a given year. We also

present mean, standard deviation, minimum and maximum values. As seen in the maximum values in the table, there are some producers with relatively large land areas. Those tend to possess orchards to produce fruits, which generally take up a larger space. On average, approximately 64% of the farmers in the sample own less than 1ha of land under production.

Table 6.7. Producers divided by size categories (ha): 2006-2012

Year	Size	n	Mean	s.d.	Min	Max
2006	Size1	234	0.18	0.12	0.00	0.38
	Size2	168	0.63	0.14	0.39	0.99
	Size3	64	1.26	0.24	1.01	1.85
	Size4	39	3.45	2.14	2.01	11.97
2007	Size1	936	0.15	0.13	0.00	0.38
	Size2	794	0.67	0.14	0.39	0.99
	Size3	505	1.36	0.23	1.00	1.97
	Size4	273	3.49	2.52	2.00	24.64
2008	Size1	1,370	0.18	0.13	0.00	0.38
	Size2	2,012	0.69	0.12	0.38	1.00
	Size3	1,402	1.38	0.23	1.00	1.98
	Size4	855	3.50	2.59	2.01	35.20
2009	Size1	1,038	0.21	0.12	0.00	0.38
	Size2	1,437	0.68	0.13	0.39	1.00
	Size3	1,083	1.36	0.24	1.00	1.98
	Size4	718	3.62	2.59	2.01	36.61
2010	Size1	1,236	0.21	0.12	0.00	0.38
	Size2	1,048	0.66	0.14	0.39	1.00
	Size3	757	1.34	0.25	1.01	1.98
	Size4	510	3.45	2.25	2.01	21.30
2011	Size1	1,196	0.21	0.11	0.00	0.38
	Size2	1,437	0.67	0.13	0.39	1.00
	Size3	967	1.37	0.24	1.00	2.00
	Size4	654	3.26	1.84	2.01	17.60
2012	Size1	987	0.21	0.12	0.00	0.38
	Size2	1,106	0.68	0.11	0.39	1.00
	Size3	1,006	1.36	0.24	1.01	2.00
	Size4	644	3.09	1.58	2.01	21.12

Size 1: less than 0.5ha
Size 2: between 0.5ha and 1ha
Size 3: between 1ha and 2ha
Size 4: more than 2ha
Source: CRS data base modified by authors

FAO and National Institute of Development Information (INIDE, Spanish acronym) indicate that approximately 33% of all Nicaraguan farmers possess less than 1.8ha of cultivated land at the national level (Table 6.8). This observation shows that the project worked predominantly with those who possess small land area for agricultural production.

Table 6.8. Landholdings in Nicaragua: 2010

Area size (ha)	Number	%	Area
<0.4	31,758	12.15	5,131.63
0.4-0.7	16,660	6.38	10,358.98
0.7-1.8	38,149	14.60	47,694.81
1.8-3.5	35,580	13.62	94,591.07
3.5-7	33,591	12.85	178,225.78
7-14	29,775	11.39	313,725.32
14-35	37,246	14.25	891,076.89
35-70	21,074	8.06	1,085,292.86
70-140	10,768	4.12	1,091,202.35
140-350	5,318	2.04	1,170,229.34
350<	1,402	0.54	1,158,751.67
Total	261,321		6,046,280.70

Source: (INIDE, 2011)

6.1.4. The interventions

The intervention took place through farmer cooperatives in local communities, and the NGO provided participants with technical assistance, physical assets, and capacity building in establishing business relationships with buyers of the agricultural commodities.

Table 6.9. Number of the project participants by capacity building activity: 2006-2012

Year/Activity	2007	2008	2009	2010	2011	2012	Total
Production-related							
Agricultural Practices	0	2	8	175	257	117	559
Agricultural Production	562	1,941	823	1,169	492	267	5,254
Environment-related							
Water	0	0	1529	574	573	47	2,723
Environmental Manag.	0	21	0	227	398	22	668
Gender	0	140	11	365	227	128	871
Processing-related							
Manufact. Practices	0	0	3	6	0	0	9
Post-Harvest	0	0	0	241	360	326	927
Market linkage-related							
Entrepren. Practices	247	633	497	451	543	236	2,607
Municipality Engag.	0	288	133	222	286	381	1,310
Total	1,056	3,967	5,166	5,151	5,296	2,536	

Source: CRS data base modified by authors

Based on the content, we divided all intervention activities in five categories: production-, environment-, gender-, processing-, and market linkage-related activities. Table 6.9 shows the number of producers who received each capacity building in a given year. Since the intervention was initiated in September of 2007, there was no activity conducted in 2006. From the

observations, we can see that the project focused particularly on production-related field and market linkage program. Improvement of access to safe water sources was also given a higher weight than other activities.

The content of the interventions covered a wide range of topics. The intervention team trained individual producers to participate in the Good Agricultural Practices (GAP) and other certification programs. At the same time, investments were made to improve access to water supply for agricultural usage such as irrigation as well as domestic needs (e.g. drinking water). Individual cooperatives were also given opportunities to receive training on how to maintain successful business practices as rural enterprises. Project staffs have worked closely with cooperatives to establish business relationships with buyers and exporters to market products. Issues concerning gender equality were also integrated in intervention policies and objectives by actively encouraging women's participation in the organizational structure.

Capacity buildings were implemented as workshops, field days, excursions, and lectures. For information exchange, some activities were conducted through participating in national as well as international trade and business fairs and conferences. A complete list of activities is found in Section 6.2.

The project is unique in that it intended to train farmer cooperatives as business enterprises. Reflecting this policy, the project offered opportunities for farmers and their organizations to learn about successful organizational structure that enables expansion of the institutions as economic entities. We can observe this through market linkage-related activities such as workshops on organizational structure, adequate accounting, establishing and sustaining partnerships in commercialization, and development of groups based on cooperative identity. In addition, the project initiated communication between farmer enterprises and local governments so that local governments can assist development of value chains. This can be done through negotiating the spending of municipality budget on building roads and improving other infrastructure.

The determination of what interventions are to be undertaken in which communities and/or cooperatives was done both according to the centralized project's planning and individual consortium member's wishes. Activities were first roughly designed by the operating NGO. After that, consortium members nominated particular activities to be implemented based on evaluation at the community level (Herrera Mora, 2014).

6.1.5. Market linkage and its structure

After harvesting crops, the project's participants sold products to a number of buyers. There were 149 different buyers and markets recorded in the data set. We categorized them in five groups: farmer organization, intermediary, local market, private company, private-export company. Out of the 149 buyers and markets, 58 are local, mostly wholesales, markets, 40 are farmer organizations, 28 are private-export companies, 13 are private companies, and the remaining 10 are intermediaries (Table 6.10). We classify small local supermarkets as local markets since it offers identical economic transactions to spot markets such as local wholesales

markets. Private companies, both non-export and export, include some large international retail companies such as Walmart and Ritter Sport.

Table 6.10. Type of buyers

Buyer type	N
Farmer organization	40
Intermediary	10
Local market	58
Private company	13
Private-export company	28

Source: CRS data base modified by authors

Table 6.11 shows the number of observations where farmers sold their products to specific buyers in a given year. The choice of product destination largely differs across commodities. Generally speaking, export-oriented crops such as coffee, cacao and roots and tubers are sold directly to private companies more often than beans, vegetables, and fruits.

According to the information given by CRS (Palma Munguia, 2014), some buyers had agreements with cooperatives in order to secure product supply. In some cases, companies provided financial support to cooperatives by helping storage of the final products, indicating a closer relationship between the two parties than spot-market transactions. On the contrary, the majority of beans, vegetables and fruits, and roots and tubers were sold at local markets. CRS indicates that, in the case of beans and roots and tubers, products sold to intermediaries are further transferred to companies that export these products. However, in most cases, individual farmers and even farmer organizations were not able to establish direct contracts with retail companies. It was because the production was done at a relatively smaller scale and retail companies were not willing to work with small individual producers and their organizations. In addition, cooperatives were not able to facilitate access to credits in order for producers to make investment and increase production volumes.

6.1.6. Recorded information

Descriptive statistics presented so far are based on the record tracked by the NGO for the five years. All data are divided into three parts: basic beneficiary information, capacity building records, and sales activities.

Beneficiary information includes the following: gender, education level, cooperative they belong to, status of being a household head, leadership status in cooperatives, status of participating in the project in the final stage, location (department, municipality, and village), consortium they belong to, and sub-consortium they belong to.

Capacity building activities are recorded through the following variables: date of capacity building, content of capacity building, details of capacity building, type of capacity building (e.g. workshop, field trials), duration, total cost, cost covered by the USAID, cost covered by consortiums, cost covered by producers, location of the activities, and facilitating organization.

If a producer received more than one activity in a given year, s/he has the corresponding number of observations for the particular year.

Table 6.11. Product destination by commodities: 2006-2012

Year	2006	2007	2008	2009	2010	2011	2012
Cacao							
Farmer organization							
Intermediary							
Local market			142	182	36	271	143
Private company							
Private-export company		20	163	371	70	274	226
Coffee							
Farmer organization		50	52	187	69	531	1,115
Intermediary							
Local market	10	177	944	747	854	1,272	1,279
Private company				2			75
Private-export company		157	1,194	1,504	1,326	1,379	1,003
Beans							
Farmer organization			34				
Intermediary			590				
Local market	518	2,144	2,827	1,695	1,862	2,121	1,415
Private company			462	11			
Private-export company	10	53		21	181	19	
Vegetables and fruits							
Farmer organization		1				36	
Intermediary	1	10			2		
Local market	207	1,573	3,096	4,198	4,735	4,860	2,757
Private company	47	231	321	59	32	47	7
Private-export company		22	149	100	28	47	11
Roots and tubers							
Farmer organization		2	210	116		13	
Intermediary			3				
Local market	48	518	828	1,948	1,012	886	449
Private company	8	22		4	1		
Private-export company		341	2,157	1,296	819	114	1,024

Source: CRS data base modified by authors

Finally, sales activities are reported by: date of sales, type of crops sold, type of crop category sold, product quality, type of production practices used (e.g. organic, certified organic), type of production technology (e.g. traditional, advanced), area in Mz that corresponds to the quantity of products being sold, quantity, unit, price sold in Nicaraguan Córdobas, type of market (e.g. national, international, regional), type of buyers, country of product destination, labor cost measured in days, total production cost, and exchange rate between US dollars and Nicaraguan Córdobas.

Table 6.12 shows an example of the original data set. First, land area owned and used by each producer was recorded based on the area corresponding to each sales volume. For instance, Producer A sold 12qq of Product 1 in March of 2008. It was produced in a one-Mz area and cost

25USD. Producer A received 40USD per unit of sales. The production cost and area reported correspond only to this specific economic transaction. As a result, the second transaction of the year 2008, even though Producer A produced and sold the same product, Product 1, shows different figures. Based on the two observations, we calculate annual cost, annual area, and annual price (Columns (h), (i), and (j)). These three values are for the particular product that we are concerned with at a moment. Therefore, we apply the same procedure separately for Product 1 and Product 2. Annual cost is a simple sum of both production costs from Column (d) while annual area and price are the sum of observations from Columns (e) and (g) divided by the number of observations (in this case, two). The same procedure is applied for Product 2 in the year 2008. At the end, we obtain total cost and total area (Columns (k) and (l)) for Farmer A in the year 2008.

Table 6.12. Example of available data

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
ID	Date sold	Crop	Production cost (USD/Mz)	Area (Mz)	Quantity (qq) produced	Price received (USD)	Cost/ year	Area/ year	Price/ year	Total cost	Total area
A	Mar-08	1	25	1	12	40	75	1.5	40	215	2.5
A	Sep-08	1	50	2	25	40	75	1.5	40	215	2.5
A	Oct-08	2	140	1	700	11	140	1	11	215	2.5
A	May-09	2	130	0.8	500	13	130	0.8	13	205	2.8
A	May-09	1	75	2	40	30	75	2	30	205	2.8
B	Apr-07	1	12	1	20	18	12	1	18	77	4
B	Apr-07	3	65	3	5	350	65	3	350	77	4
B	May-08	1	12	1	5	22	12	1	22	12	1
B	Mar-10	3	60	3	5	520	145	3	535	342	10
B	May-10	1	13	2	7	20	26	2	25	342	10
B	Sep-10	1	13	2	7	30	26	2	25	342	10
B	Oct-10	3	85	3	10	550	145	3	535	342	10

Source: Authors

Second, some participants were involved in sales of multiple crops. Therefore, we find same individuals across different commodity chains in a year. For instance, Producer B sold Product 1 and 3 in the year 2007. S/he sold only Product 1 in 2008 but both products in 2010. In other words, we do not observe the same producers in the same commodity chains every year.

Third, when producers did not sell any products in a given year, they appear as missing observations in terms of all production variables in the data set. For example, Producer B did not sell any products in 2009. Therefore, the information is missing for this particular year. In addition, s/he was less active during 2008. As a result, it seems that Producer B significantly reduced his/her land area, which is not necessarily true in reality.

These observations highlight that our data set is directly linked to sales activities. In other words, we are not able to understand how much total land each farmer owns or possesses. Put it in another perspective, we have the access to information in much detail, such as quality, quantity, prices and buyers of products for a specific economic transaction.

6.2. Detailed list of intervention activities

6.2.1. Market Linkage Program

Entrepreneurial practices

SISTEMAS CONTABLES
TALLER DEL PLAN DE DESARROLLO
21 FERIA ANUAL SCAA 2009
ACTIVIDAD DE MERCADEO
ACTUALIZACIÓN DE LOS REGISTROS CONTABLES Y DE CARTERA.
ADMINISTRACIÓN
ADMINISTRACION DE NEGOCIOS
ADMINISTRACIÓN DE EMPRESAS ASOCIATIVAS RURALES
ADMINISTRACIÓN DE EMPRESAS ASOCIATIVAS RURALES.
ADMINISTRACIÓN DE FONDOS REVOLVENTES
ADMINISTRACIÓN DE NEGOCIOS: GRUPO COMIDER
ADMINISTRACIÓN DE NEGOCIOS: GRUPO COMIDER
ADMINISTRACIÓN DE PEQUENOS NEGOCIOS
ADMINISTRACIÓN Y CONTROLES BÁSICOS CONTABLES
ADMON DE CREDITO
AGRO- NEGOCIO
AGROPROCESAMIENTO DE PRODUCTOS
ALIANZA DE APRENDIZAJE
ALIANZA DE APRENDIZAJE (ADA)
ALIANZAS DE APRENDIZAJE
ALIANZAS DE APRENDIZAJE CON ENFOQUE DE CADENAS DE VALOR
ALIANZAS PARA EL APRENDIZAJE
ANÁLISIS DE ESTADOS FINANCIEROS
ANÁLISIS DE RAZONES Y RENTABILIDAD FINANCIERA
ANÁLISIS DEL MODELO DE NEGOCIO DE COOPERATIVA APODER.
ANÁLISIS FINANCIERO
ANALISIS FINANCIERO DE LAS EMPRESAS ASOCIATIVAS RURALES
ANIVERSARIO DEL TLC CAFTA CON PROFCAFTA.
APLICACIÓN DE HERRAMIENTA ADA Y PRESENTACIÓN DE PLAN ESTRATEGICO
APLICACIÓN DE LAS RAZONES FINANCIERAS A LOS ESTADOS FINANCIEROS
APROBACION DEL REGLAMENTO DEL ESTATUTO DE CECOSEMAC
ASAMBLEA DE DELEGADO
ASAMBLEA GENERAL EXTRAORDINARIA
ASESORIA CONTABLE
ASESORIA LEGAL PARA FONDOS REVOLTES
ASESORIA PARA MANEJO DE FONDOS REVOLVENTES
ASPECTO DE COMERCIALIZACIÓN DE RAÍCES Y TUBÉRCULOS CON EMPRESA DAISA
AUTO EVALUACIÓN ADA
AUTO EVALUACIÓN FACILITADA
AUTOEVALUACIÓN CON HERRAMIENTA ADA
AUTOEVALUACIÓN CON HERRAMIENTA ADA EVALUACION INTERMEDIA
AUTOEVALUACIÓN DE COMULSAN CON HERRAMIENTA ADA
AUTO-EVALUACIÓN DEL PROCESO DE CERTIFICACIÓN CON RAINFOREST ALLIANCE
AUTOEVALUACION FACILITADA ADA
AUTOEVALUACIÓN PARA LA GESTIÓN DE EMPRESA
B.P.A
BASE LEGAL DE COOPERATIVA
BASE LEGAL DE LA COOPERATIVA (ÓRGANOS DE DIRECCIÓN)
BASE LEGAL DE LAS COOPERATIVAS BASADA EN LA LEY # 499 (ORGANOS DE DIRECCIÓN)
BENEFICIADO HUMEDO
BENEFICIADO HUMEDO ECOLOGICO
BUENAS PRACTICAS EMPRESARIALES A EMPRESAS RURALES EN FINANZAS Y ADMON
CADENA DE VALOR R&T
CADENAS DE VALOR
CAPACITACION COOPERATIVISMO
CAPACITACION DE GRUPOS GIAR
CAPACITACION EN LEY DE COOPERATIVISMO
CAPACITACION GIAR
CAPACITACIÓN PARA PREPARACION PARA LA TAZA DE LA EXCELENCIA
CAPACITACIÓN SOBRE CONTABILIDAD; METODOLOGÍA LAS LAVES PARA EL ÉXITO FINANCIERO
CAPACITACIÓN SOBRE COOPERATIVISMO A 36 SOCIOS COOPANG.
CATACION DE CAFÉ
CHARLA SOBRE ELABORACIÓN DE PRESUPUESTOS
CIERRE DE OPERACIONES

COMISION TERRITORIAL DE CACAO
COMO REALIZAR ASAMBLEA GENERAL DE SOCIOS Y PROCEDIMIENTOS PARA ELEGIR NUEVOS DIRECTIVOS
CONCEPTOS BÁSICOS DE ADMINISTRACIÓN DE EMPRESAS ASOCIATIVAS.
CONCEPTOS BASICOS DE MERCADEO
CONCEPTOS BÁSICOS SOBRE ADMINISTRACIÓN DE EMPRESAS ASOCIATIVAS RURALES
CONCEPTOS BÁSICOS SOBRE CONTABILIDAD.
CONCEPTOS SOBRE CRÉDITO RURAL
CONCEPTOS SOBRE CRÉDITO Y ADMINISTRACIÓN DE EMPRESAS ASOCIATIVAS RURALES
CONDUCCIÓN DE REUNIONES Y PREASAMBLEAS DEL COMITÉ ALDEA
CONFERENCIA FERIA SCAA VIDA VERDE
CONGRESO CA DE CIENCIA Y TECNOLOGIA Y ALIMENTO
CONSTITUCION CENTRAL DE COOPERATIVAS
CONTABILIDAD
CONTABILIDAD BASICA
CONTABILIDAD BÁSICA
CONTABILIDAD DE CRÉDITO
CONTABILIDAD Y CARTERA
CONTABILIDAD Y CARTERA CON DIRECTIVOS DE ORGANOS DE GESTIÓN
CONTROL DE PLAGAS EN FRUTALES
CONTROL DE PLAGAS EN PLATANO
CONTROL DEL FONDO DE EFECTIVO
CONTROL INTERNO INFORME COSO
CONTROL Y MANEJO BODEGA
CONTROL Y MANEJO DE CRÉDITOS
COOPERARTIVISMO 40 HORAS
COOPERATIVISMO
COOPERATIVISMO Y GÉNERO
COOPERATIVISMO/CERTIFICACION/COSTOS DE PRODUCCION
CURSO INTERNACIONAL "FORMACIÓN DE CATADORES DE CACAO".
CURSO WORKSHOP INTERNACIONAL DE CATACIÓN DE CACAO Y CHOCOLATE
DEFINICIÓN DEL MODELO DE NEGOCIO DE COOPERATIVA APODER.
DESARROLLO DE CAPACIDADES EN LA FIJACION DE PRECIOS, NEGOCIACION DE CONTRATOS COMERCIALES
DESARROLLO DE MODULO 3 ADA
DESARROLLO EMPRESARIAL
DESARROLLO EMPRESARIAL
DESARROLLO EMPRESARIAL / COMERCIALIZACIÓN
DESARROLLO EMPRESARIAL A APROBACION DE POLITICA DE ACOPIO DE CECOSEMAC
DESARROLLO EMPRESARIAL Y GENERO A MUJERES
DESARROLLO ORGANIZACIONAL
DESARROLLO Y ADMISTRACIÓN EMPRESARIAL
DESARROLLO Y ADMON EMPRESARIAL
DEVOLUCIÓN DE RESULTADOS DE CATACIÓN
DIAGNOSTICO COOSMPROJIN R.L - INDE - PROSEDE
DIAGNOSTICO DE HERRAMIENTA ADA, EVALUACIÓN INTERMEDIA PARA COOPANG
DIAGNOSTICO DE HERRAMIENTA ADA, EVALUACIÓN INTERMEDIA PARA COOPEMET
DIAGNOSTICO DE LA COOPERATIVA
DIAGNÓSTICO EVALUACIÓN INTERMEDIA ALIANZA PARA APRENDIZAJE (ADA)
DIÁLOGO CON EL SECTOR CACAO PARA EL DASARROLLO SOSTENIBLE DE LA PRODUCCIÓN DE CACAO FINO.
DISEÑO Y ELABORACIÓN DEL PLAN DE AUTOSUFICIENCIA
DISEÑO Y PREPARACIÓN DE UN PLAN PARA COOPERATIVAS PARA LOGRAR LA AUTO SOSTENIBILIDAD.
DIVERSIFACIÓN, VISIÓN EMPRESARIAL Y MICRO EMPRESA
DIVULGACION DE MATERIAL PARA ACCESO A SERVICIOS FINANCIEROS Y BANACARIOS DIRIGIDO A COOPERATIVAS
EDUCACIÓN COOPERATIVISMO
ELABORACIÓN DE PLAN DE ACCIÓN
ELABORACIÓN DE PLAN DE AUTOSUFICIENCIA CON COOPERATIVA APODER.
ELABORACION DE PLAN DE AUTOSUFICIENCIA COOPERATIVA EL CHIMBORAZO
ELABORACIÓN DE PLAN DE AUTOSUFICIENCIA DE COOPERATIVA ECOLÓGICA 15 DE MAYO.
ELABORACIÓN DE PLAN DE AUTOSUFICIENCIA DE COOPERATIVA NUEVO AMANECER.
ELABORACIÓN DE PLAN DE AUTOSUFICIENCIA DE COOPERTATIVA CON SOCIOS Y DIRECTIVOS DE COOPERATIVA APODER.
ELABORACION DE PLAN DE NEGOCIOS DE LA COOPERATIVA
ELABORACIÓN DE PLAN ESTRATÉGICO
ELABORACIÓN DE PLANES DE NEGOCIO DEL COLECTIVO DE MUJERES DE LA COOPERATIVA APODER
ELABORACION DE PLANES DE NEGOCIOS
ELABORACIÓN DE PLANES DE NEGOCIOS
ELABORACION DE PLANES DE NEGOCIOS PARA COOPERATIVAS
ELABORACION DE PLANES PARA MEJORAMIENTO DE CARTERA Y CARTERA Y RECEPCION DE CREDITOS
ELABORACION DE POAS DE COOPERATIVAS
ELABORACIÓN DE UN PLAN DE ACCIÓN DE LAS COOPERATIVAS
ELABORACIÓN PLAN AUTOSUFICIENCIA COOPERATIVA NUEVO AMANECER

ELABORACIÓN PLAN DE AUTOSUFICIENCIA COOPERATIVA ECOLÓGICA 15 DE MAYO.
ELABORACIÓN PLAN DE AUTOSUFICIENCIA DE COOPERATIVA APODER.
ELABORACIÓN PLAN DE AUTOSUFICIENCIA DE COOPERATIVA ECOLÓGICA 15 DE MAYO
ELABORACIÓN PLAN DE DESARROLLO
EMPRESAS ASOCIATIVAS
ENTRENAMIENTO ESTRUCTURA COOPERATIVA
ESTRATEGIA DE MERCADOS LOCALES
ESTRATEGIAS DE COMERCIALIZACIÓN
ESTRATEGIAS DE COMERCIALIZACIÓN COLECTIVA
ESTRATEGIAS DE COMERCIALIZACIÓN DE FRIJOL
ESTRATEGIAS DE COMERCIALIZACIÓN MALANGA
ESTRETAGIAS EMPRESARIAL CON CONSEJO Y GERENCIA DE LAS COOP.
ESTRUCTURA Y FUNCIONAMIENTO C. CRÉDITO
ESTUDIO DE ESTATUTOS CECOOPSEMEIN
ESTUDIO DE MANUALES,FUNCIONES ADMINISTRATIVAS Y CONTROL INTERNO
ESTUDIO DE POLITICAS Y PROCEDIMIENTOS DE CREDITO
EVALUACION INTERMEDIA DE ADA
EVALUACION Y PLANIFICACION DE TRAZABILIDAD DEL RUBRO CAFÉ
EVALUACIÓN Y SEGUIMIENTO AL POA COOP DALIA Y ECOLÓGICA
EXPO FERIA TECNOLOGICA IMNOVADORA MATERIAL GENETICO Y ALIMENTOS TRADICIONALES
EXPO FERIA TECNOLOGICA INNOVADORA MATERIAL GENETICO Y ALIMENTOS TRADICIONALES
EXPOAPEN
EXPOSICIÓN DE APENN
FACILITACION DE EVENTOS EDUCATIVOS
FACILITACION MODULO NO 2 "FORTALECIMIENTO DE PROCESOS ORGANIZATIVOS", PARTE 1
FACILITACION MODULO NO 2 "FORTALECIMIENTO DE PROCESOS ORGANIZATIVOS", PARTE 2
FERIA ANUAL SCAA EN PORTLAND-OREGON - USA
FERIA DE SEGURIDAD ALIMENTARIA "FAO"
FERIA DEL APRENDIZAJE DE LA ADA
FERIA DEL V ANIVERSARIO DEL CAFTA
FERIA EXPO APEN
FERIA EXPO APEN
FERIA EXPOAPEN
FERIA FAO
FERIA PROCAFTA
FERIA SCAA
FERIA TECNOLOGICA DE MAIZ Y FRIJOL
FILOSOFIA ADMINISTRATIVA Y LEGISLACION COOPERATIVA A NUEVOS ASOCIADOS DE ECOVEGETALES
FILOSOFIA DE COOPERATIVISMO
FILOSOFIA DEL COOPERATIVISMO
FILOSOFIA DEL COOPERATIVISMO Y PROCEDIMIENTOS PRACTICOS
FILOSOFIA Y NOCIONES BASICAS DE COOPERATIVISMO
FILOSOFIA, ADMINISTRACION Y PRINCIPIOS COOPERATIVOS A NUEVOS SOCIOS
FILOSOFÍA, GESTIÓN Y LEGISLACIÓN COOPERATIVA
FINANCIAMIENTO DE PLAN DE NEGOCIO DEL CHIMBORAZO
FOLOSOFIA COOPERATIVISMO
FORMULACIÓN DE ESTRATEGIA DE LAS COOPERATIVAS A TRAVÉS DEL ANALISIS FODA.
FORO DE LA CADENA DE FRIJOL
FORTALECER CAPACIDADES EN LA POLITICA DE ACOPIO DE CECOSEMAC
FORTALECER CAPACIDADES GERENCIALES
FORTALECIMEINTO ORGANIZATIVO DEL SECTOR CACAO DE NICARAGUA
FORTALECIMIENTO A ESTRUCTURA
FORTALECIMIENTO AL PROCESO DE GRADUACIÓN DE COOPERATIVAS A.C SANDINO Y LA ESPERANZA DE CECOCAFEN
FORTALECIMIENTO COOPERATIVA
FORTALECIMIENTO COOPERATIVO
FORTALECIMIENTO COOPERATIVO
FORTALECIMIENTO COOPERATIVO, ASAMBLEA CONSTITUTIVA Y ESTATUTOS
FORTALECIMIENTO DE CAPACIDADES COMERCIALES Y GERENCIALES
FORTALECIMIENTO DE CAPACIDADES GERENCIALES
FORTALECIMIENTO DE CAPACIDADES GERENCIALES Y ADMON
FORTALECIMIENTO DE CAPACIDADES GERENCIALES Y COMERCIALES POLITCA ACOPIO ACOPIO CECOSEMAC
FORTALECIMIENTO DE CAPACIDADES Y ADMINISTRACION DE LAS COOPERATIVAS
FORTALECIMIENTO DE LAS EXPORTACIONES DE FRIJOL CAFTA DR
FORTALECIMIENTO DE PROCESOS ORGANIZATIVOS QUE SUSTENTAN LA GESTION DE LAS EMPRESAS ASOCIATIVAS RURALES
FORTALECIMIENTO EMPRESARIAL
FORTALECIMIENTO EMPRESARIAL - CERTIFCADO FLO CERT
FORTALECIMIENTO INSTITUCIONAL
FUNCION DE ORGANOS DE GESTION

FUNCION DE ORGANOS DE GESTION EN COOPERATIVA COOSEMES
FUNCION DE ORGANOS DE GESTION EN COOPERATIVA COOSENSAN
FUNCIONAMIENTO COOPERATIVO
FUNCIONES DE JUNTA DIECTIVA.
FUNCIONES DE LAS JUNTAS DIRECTIVAS
FUNCIONES DEL CONSEJO DE ADMINISTRACIÓN Y PLAN DE NEGOCIOS
FUNCIONES Y ROLES DEL AGROSERVICIO DE COOPERATIVA ECOLÓGICA 15 DE MAYO.
FUNDAMENTOS CONTABLES
GESTION COOPERATIVA EMPRESARIAL
GESTION COOPERATIVA Y GENERO
GESTIÓN ORGANIZATIVA
GESTION Y ADM COOPERATIVA
GESTION Y ADMON COOPERATIVA
GESTORES DE INNOVACIÓN DE AGROINDUSTRIA RURAL (GIAR)
GESTORES DE INNOVACIÓN DE AGROINDUSTRIA RURAL: MAPEO CADENA DE FRIJOL.
GIRA DE COMERCIALIZACIÓN A EMPRESA DAISA
GIRA DE COMERCIALIZACIÓN DE CACAO
GIRA DE INTERCAMBIO EN COMERCIALIZACION EN HORTIFRUTI
GIRA DE INTERCAMBIO EN EL AREA DE COMERCIALIZACION
GIRA DE NEGOCIOS BUSQUEDA DE MERCADOS PARA MALANGA
GIRA INTERNA A FINCA SANTA CLARA - AGROINDUSTRIA
HERRAMIENTA DE DIAGNOSTICO ADEA
HERRAMIENTA DIAGNÓSTICO DE LA COOPERATIVA
IBI IMPUESTO DE BIENES INMUEMBLES Y REGISTRO MUNICIPAL
IDENTIFICACIÓN DE LAS COOPERATIVAS Y ELABORACIÓN DEL MAPA ESTRATEGICO DE LAS COOPERATIVAS.
IDENTIFICACION DE OPORTUNIDADES DE MERCADO
II TALLER DE FORTALECIMIENTO AL PROCESO DE GRADUACIÓN DE COOPERATIVAS A.C SANDINO Y LA ESPERANZA DE CECOCAFEN
IMPLEMENTACIÓN DE HERRAMIENTA ADA - MÓDULO # 2: "FORTALECIMIENTO DE LOS PROCESOS SOCIO-ORGANIZATIVOS QUE SUSTENTAN LA GESTIÓN DE LAS EMPRESAS ASOCIATIVAS RURALES"
INDICADORES DE GESTIÓN DE LA CARTERA DE CRÉDITO
INFORMACIÓN SOBRE PUESTO DE BOLSA DE LA FISE.
INFORME DE EJECUCION PRESUPUESTARIA
INTERCAMBIO CONTROL INTERNO
INTERCAMBIO DE EXPERIENCIA CON MUJERES DE UNA COOPERATIVA DE YALI
INTERCAMBIO DE EXPERIENCIA EN EL USO Y MANEJO DE BIODIGESTORES
INTERCAMBIO DE EXPERIENCIA ENTRE LAS COOPERATIVAS COOPANG, COOPEMET Y GTG.
INTERCAMBIO DE EXPERIENCIA ENTRE MUJERES PROMOTORAS
INTERCAMBIO DE EXPERIENCIA PARA CONOCER EL FUNCIOMIENTO ORGANIZATIVO DE LA COOPERATIVA RIOS DE AGUA VIVA.
INTERCAMBIO DE EXPERIENCIAS AGROSERVICIOS
INTERCAMBIO DE EXPERIENCIAS MODELOS DE COOPERATIVISMO
INUGURACIÓN DE PLATAFORAMA AGROINDUSTRIAL
IV FERIA CAMPESINA
LET´S COFFEE
LEY DE COOPERATIVISMO
LEY TRIBUTARIA Y CATASTRO
LIDERAZGO
LIDERAZGO EMPRESARIAL
LIDERAZGO EMPRESARIAL A LOS MIEMBROS DE LA ASAMBLEA DE CECOOPSEMEIN
LIDERAZGO ORGANIZACIONAL
LIDERAZGO-DESARROLLO EMPRESARIAL
LINEAMIENTOS EMPRESARIALES PARA LA CENTRAL DE COOPERATIVAS
LLAVES DEL EXITO FINANCIERO I
LLENADO LIBROS DE REGISTROS PARA CERTIFICACIÓN
MANEJO DE CAFÉ
MANEJO DE CRÉDITO
MANEJO DE FONDOS REVOLVENTES.
MANEJO DE LOS RECURSOS CONTABLES
MANEJO DE SOFWARE CONTABLE CONTAPYME
MANEJO Y USO DE CREDITO.
MANEJO Y USO DE MANUAL DE SERVICIOS FINANCIEROS
MANUAL DE PROCEDIMIENTO DE CREDITO
MECANISMO PARA LA COMERCIALIZACIÓN DE LA CANELA.
MECANISMOS DE COMERCIALIZACION DE FRIJOL NEGRO
MERCADEO Y CAFÉ ORGANICO FLO
MESA DEL FRIJOL
MESA NACIONAL DE CACAO, FORTALECIMEINTO ORGANIZATIVO DEL SECTOR CACAO DE NICARAGUA DENTRO DEL MARCO ESTRATEGICO DEL PLAN DE AGROINDUSTRIA RURAL.
METEDOLOGIA PARA CAPACITACION

METODOLOGÍA DE ELABORACIÓN DE PLANES DE ACCIÓN.
METODOLOGÍA PARA LA ELABORACIÓN DE PLANES DE ACCIÓN.
METODOLOGÍA PARA EL DISEÑO Y
FACILITACIÓN DE EVENTOS EDUCATIVOS
METODOLOGÍA PARA ELABORACIÓN DE PLANES DE ACCIÓN.
METODOLOGIAS DE PROMOTORIA
MÓDULO 3, I PARTE: ORIENTACIÓN ESTRATÉGICA CON ENFOQUE DE CADENA DE VALOR PARA EMPRESAS ASOCIATIVAS RURALES
MODULO AGROINDUSTRIA
MODULO III DESARROLLO EMPRESARIAL PROMOTORAS DE GENERO
MÓDULO IV DE ALIANZA DE APRENDIZAJE: PLANES DE NEGOCIOS.
MONTAJE DEL SISTEMA DE CARTERA DE LAS COOPERATIVAS NUEVO AMANECER Y ECOLÒGICA 15 DE MAYO.
MOTIVACION Y CONCIENTIZACION COOPERATIVA
NEGOCIACIONES CON PROVEEDORES TECNOLOGIAS Y LAS COOPERATIVAS.
OBLIGACIONES LEGALES DE LA COOPERATIVA
OBLIGACIONES LEGALES DE LA COOPERATIVAS CON LA D.G.I CONFORME LEY DEL I.R.
ORGANIZACIÓN COOPERATIVISMO(FUNCIONES JUNTA DE VIGILANCIA Y COMITÉS DE EDUCACIÓN)
ORGANIZACIÓN DE GRUPO DE MUJERES.
ORGANIZACIÓN Y CONDUCCIÓN DE REUNIONES Y ASAMBLEAS
ORGANIZACION Y LIDERAZGO
ORIENTACION ESTRATEGICA CON ENFOQUE DE CADENA DE VALOR PARA LA GESTION DE EMPRESAS RURALES, SESION 1
ORIENTACION ESTRATEGICA CON ENFOQUE DE CADENA DE VALOR PARA LA GESTION DE EMPRESAS RURALES, SESION 2
ORIENTACION ESTRATEGICA CON ENFOQUE DE CADENA DE VALOR PARA LA GESTION DE EMPRESAS RURALES, SESION 3
PANEL DE CATACIÓN DE CACAO NICARAGÜENSE
PARTICIPACION EN EVENTO TAZA DE LA EXCELENCIA
PARTICIPACION EN FERIA
PARTICIPACION EN FERIA DE CAFESES ESPECIALES SCAA
PARTICIPACION EN FERIA GROPECUARIA FENACOOP
PARTICIPACION EN FERIA PROCAFTA
PARTICIPACIÓN EN FERIA SOBRE SEGURIDAD ALIMENTARIA Y NUTRICIONAL ORGANIZADA POR LA FAO
PASOS PARA EL MONITOREO DE LOS SISTEMAS DE CONTROL INTERNO
PLAN DE ACCION DE LA COOPERATIVA
PLAN DE ACCIÓN DE LA COOPERATIVA
PLAN DE AUTOSUFICIENCIA DE COOPERATIVA ECOLÓGICA 15 DE MAYO.
PLAN DE COMPETITIVIDAD DE CADENA DE VALOR DE FRIJOL
PLAN DE DESARROLLO
PLAN DE DESARROLLO COSAPUR
PLAN DE NEGOCIOS
PLAN DE NEGOCIOS ECOVEGETALES
PLAN ESTRATÉGICO
PLAN ESTRATEGICO CON JUNTA DIRECTVA DE COOPANG
PLANEACION ESTRATEGICA MISION Y VISION
PLANEACIÓN ESTRATÉGICA, DER
PLANES DE ACCIÓN COMUNITARIA
PLANES DE NEGOCIO
PLANES DE NEGOCIO ALIANZA DE APRENDIZAJE ADA NICARAGUA.
PLANES DE NEGOCIO COOPERATIVISMO
PLANES DE NEGOCIO PARA GESTION DE EMPRESAS ASOCIATIVAS RURALES
PLANES DE NEGOCIOS
PLANIFICACIÓN DEL ASESORAMIENTO DE ACTIVIDADES PRODUCTIVAS EN SAF CON LA RED DE PROMOTORES.
PLANIFICACIÓN DEL ASORAMIENTO DE ACTIVIDADES PRODUCTIVAS EN SAF CON LA RED DE PROMOTORES.
PLANIFICACIÓN ESTRATEGICA COMISIÓN TERRIOTORIAL DE CACAO
PLANIFICACIÓN ESTRATEGICA PARTICIPATIVA CON COOPERATIVAS
PLANIFICACION ESTRATEGICA Y EMPRESARIAL DE LAS ORGANIZACIONES
PLANIFICACIÓN ESTRATEGICO
PLANIFICACIÓN ORGANÍCA DE FINCAS DE LA COOPERATIVA COODEPROSA
PLANIFICACIÓN PARA LA ELABORACIÓN DE PRODUCTOS DE CHOCOLATE Y PIMIENTA FERIA EXPO APEN
PLANIFICACIÓN PARA MONTAJE DE SISTEMAS CONTABLES.
PLANIFICACION PARA PROCESO DE CERTIFICACION DE MERCADO JUSTO EN FRIOL FLO
PLANIFICACION Y EJECUCION DEL SISTEMA DE CONTROL INTERNO PARA CAFÉ ORGANICO Y COMERCIO JUSTO
PLATANOS EN EL MARCO DEL CAFTA DR
POLITICAS DE CREDITO
POLITICAS DE CREDITO ECOVEGETALES
POLITICAS DE SERVICIO DE LAS COOPERATIVA
POLITICAS DE SERVICIOS DE DESARROLLO EMPRESARIAL

POLITICAS DE SERVIVIOS DE LA COOPERATIVA COOSEMTRI
PRECENTACION DE CACAO FINO
PRECIOS DE EXPORTACIÒN DE CAFÈ
PRE-COOPERATIVISMO
PRESENTACIÓN :PROYECTO FONDO DE INNOVACIÓN DE APODER
PRESENTACIÓN :PROYECTO FONDO DE INNOVACIÓN DE CECOOP
PRESENTACIÓN :PROYECTO FONDO DE INNOVACIÓN DE PROCONTSA
PRESENTACIÓN :PROYECTO FONDO DE INNOVACIÓN DE VINICUQ
PRESENTACIÓN DE MANUALES DE CONTROL INTERNO, CRÉDITO Y FUNCIONES
PRESENTACIÓN DE PLAN ESTRATÉGICO
PRESENTACION DE PROPUESTA DE POA 2010-2011
PRESENTACION DE REVICION DE MANUALES DE FUNCIONES DE CECOOPSEMEIN A DIRECTIVOS
PRESENTACION PILOTAJE CRS WALMART, A PRODUCTORES SOCIOS DE COOSMPROJIN
PRESENTACION PLAN DE DESARROLLO COOPERATIVA COOPANG R.L
PRESENTACION PLAN DE DESARROLLO COOPERATIVA COOPEMET R.L
PRESENTACION PLAN DE DESARROLLO COOPERATIVA GTG.
PRESENTACIÓN Y REVISIÓN DE PROPUESTA DE MANUALES DE CONTROL INTERNO, CRÉDITO Y FUNCIONES
PRIMER FERIA AGROPECUARIA DE OCCIDENTE PROMOVIDA POR UPANIC
PRINCIPIOS DE ADMINISTRACION
PRINCIPIOS DE LIDERAZGO
PRINCIPIOS Y VALORES DEL COOPERATIVISMO
PROCAFTA DE VEGETALES Y MINIVEGETALES
PROCESO DE EXPORTACIÓN DE CAFÉ
PROMOCIÓN DE LA RSE
PROMOCION DE VENTA DE PLANTULAS DE RAICES Y TUBERCULOS
PROMOTORIA /TALLER CON GRUPOS FOCALES CON JÓVENES PONTENCIALES PROMOTORES
PROMOVER LA INTEGRACIÓN DE LA COMISIÓN DE HORTALIZAS
PROYECTO FONDOS DE INNOVACIÓN DE INNOVACIÓN
RAZONES FINANCIERAS Y CONTROL DE BODEGA
REFLEXION ORGANIZATIVA
REFORMA DE ESTATUTOS DE COOSMESA
REGIMEN PRESUPUESTARIO
REGISTRO Y ORGANIZACIÓN DE OPERACIONES DIARIAS
REPLICA ADA (ALIANZA DE APRENDIZAJE)
REPLICA ADA MÓDULO IV "PLANES DE NEGOCIOS"
REPLICA M II COOPERATIVISMO POR PARTE DE LAS PROMOTORAS DE GENERO
REPLICA M-III DESARROLLO EMPRESARIAL POR PARTE DE LAS PROMOTORAS DE GENERO
REPLICA MODULO CUATRO ADA PLANES DE NEGOCIO
REPLICA MÓDULO II COOPERATIVISMO DE LAS PROMOTORAS
REPLICA MÓDULO III: ORIENTACIÓN ESTRATÉGICA CON ENFOQUE DE CADENA DE VALOR. ADA NICARAGUA.
REUNIÓN CON CONSEJOS DE ADMINISTRACION DE LAS COOPERATIVAS
REUNIÓN COOPROCAFUC, COODEPROSA, ECOM-ATLANTIC
REUNIÓN DE JUNTAS DIRECTIVAS CON COMERCIALIZADORA DE FRIJOL
REUNIÓN DE SOSTENIBILIDAD DEL SCAA
REUNIÓN DE TRABAJO COMISIÓN TERRITORIAL DE CACAO
REUNIÓN DEL SECRETARIADO EJECUTIVO DE LA MESA NACIONAL DE CACAO.
REVISAR POLITICAS DE MANEJO DE TIENDAS DE INSUMOS
REVISION DEL REGLAMENTO INTERNO Y MANUAL DE CREDITO.
RONDA DE NEGOCIOS
RONDA DE NEGOCIOS ENTRE PROVEEDORES DE TECNOLOGÍAS Y ORGANIZACIONES DE PRODUCTORES/AS
RONDA DE NEGOCIOS: PRODUCTOS ALTERNATIVOS PARA LA PRODUCCIÓN DE GRANOS BÁSICOS Y HORTALIZAS.
RUEDA DE NEGOCIO
RUEDA DE NEGOCIO CON PROVEEDORES DE SERVICIO E INSUMOS
RUEDA DE NEGOCIO EN COMPRA Y VENTA DE PRODUCTOS AGROPECUARIOS
RUEDA DE NEGOCIOS
SENSIBILIZACION DEL ADA
SESION DE EVALUACION DE AVANCES DE EJECUCION DEL FONDO DE INNOVACION CARLOS ILABACA
SESION DE EVALUACION DE AVANCES DE EJECUCION DEL PROYECTO FONDO DE INNOVACION CON BURKE AGRO CARLOS ILABACA
SESION DE EVALUACION DEL FONDO DE INNOVACION
SISTEMA DE PLANIFICACIÓN MUNICIPAL
SISTEMA ORGANIZACIONAL DE ALDEA GLOBAL
SISTEMAS DE TRAZABILIDAD (CUADERNO DE REGISTRO DE FINCA)
SISTEMATIZACION DE MODULO 2 DE LA ALIANZA DE APRENDIZAJE / RECOMENDACIONES Y SUGERENCIAS PARA NUEVA VERSION DE MODULO 2 DE LA ADA
TALLER "LLAVES PARA EL ÉXITO FINANCIERO II" PRESUPUESTO
TALLER "LLAVES PARA EL ÉXITO FINANCIERO"
TALLER ADA
TALLER ALIANZA DE APRENDIZAJE MODULO AUTOEVALUACIÓN
TALLER ALIANZA DE APRENDIZAJE MODULO I AUTOEVALUACIÓN

TALLER ALIANZA DE APRENDIZAJE (ADA)
TALLER ALIANZA DE APRENDIZAJE MODULO II FORTALECIMIENTO DE LOS PROCESOS SOCIO-ORGANIZATIVOS
TALLER CADENAS DE VALOR
TALLER DE CONSOLIDACIÓN DE FONDOS REVOLVENTES
TALLER DE CONTABILIDAD, DESARROLLANDO CAPACIDADES FINANCIERAS
TALLER DE DESARROLLO EMPRESARIAL PARA COOSEMTRI
TALLER DE FORTALECIMIENTO AL PROCESO DE GRADUACIÓN DE COOPERATIVAS A.C SANDINO Y LA ESPERANZA DE CECOCAFEN
TALLER DE FORTALECIMIENTO PARA COMITÉ DE VIGILANCIA Y COMISIÓN DE EDUCACIÓN COOPERATIVO
TALLER DE GRUPO GIAR CAFÉ CECOSEMAC
TALLER DE LA MESA NACIONAL DE CACAO
TALLER DE MARCO JURIDICO
TALLER DE PRESUPUESTO
TALLER DE VALOR AGREGADO DE PRODUCTOS AGRICOLAS
TALLER DOMINADO CHOCOLATERÍA EN PRIMERA ESCALA
TALLER EN MANEJO DE LA CALIDAD EN EL PROCESO DE ACOPIO DE CACAO EN BABA
TALLER FORTALECIMIENTO COOPERATIVO
TALLER GESTION COOPERATIVA Y LIDERAZGO
TALLER INCIDENCIA
TALLER INTRODUCTORIO SOBRE EL MANEJO DE SISTEMAS CONTABLES
TALLER PARA LA ELABORACION DE PLAN DE ACCION PARA EL FORTALECIMIENTO ORGANIZATIVO
TALLER PARA LA ELABORACION DEL PLAN DE ACCION PARA EL FORTALECIMIENTO ORGANIZATIVO
TALLER PARA LA PLANIFICACION ESTRATEGICA DE LA COOPERATIVA DE SERVICIOS MULTIPLES LA TRINIDAD(COOSEMTRI)
TALLER PARTICIPATIVO PARA ELABORAR PLAN DE DESARROLLO DE COMULSAN
TALLER PARTICIPATIVO PARA ELABORAR PLAN DE DESARROLLO DE WISCOYOL
TALLER PROCAFTA FORTALECIMIENTO DE LAS EXPORTACIONES DE FRIJOLES
TALLER SOBRE CATACIÓN DE CACAO PARA DETERMINAR LA CALIDAD
TALLER SOBRE CONTABILIDAD Y CARTERA DIRIGIDO A ORGANIZACIONES DE PRODUCTORES EN PROCESO DE GRADUACIÓN DE ACORDAR
TALLER SOBRE COOPERATIVISMO
TALLER SOBRE EL MANEJO DE CENTROS DE ACOPIO DE CACAO PARA LOGRAR OBTENER UN PRODUCTO DE CALIDAD.
TALLER SOBRE LEGISLACIÓN COOPERATIVA LEY 499 LEY GENERAL DE COOPERATIVAS Y SU REGLAMENTO.
TALLER SOBRE LEGISLACIÓN COOPERATIVA LEY 499, LEY GENERAL DE COOPERATIVAS Y SU REGLAMENTO
TALLER SOBRE MECANISMO PARA LA COMERCIALIZACIÓN DE CANELA.
TALLER SOBRE PARAMETROS DE COSECHA
TALLER SOBRE PLANEACIÓN ESTRATEGICA DE LAS COOPERATIVAS
TALLER SOBRE PLANEACIÓN ESTRATEGICA DE LAS COOPERATIVAS.
TALLER SOBRE PLANIFICACIÓN COMISIÓN TERRITORIAL DE CACAO R.S.J.
TALLER SOBRE PLANIFICACIÓN ESTRATEGICA DE LA COOPERATIVA COODEPROSA R,L COMO FORTALECIMIENTO A LA CADENA DE VALOR DE CACAO.
TALLER SOBRE REGLAMENTO INTERNO APROBACIÓN
TALLER SOBRE REGLAMENTO INTERNO.III
TALLER: ANÁLISIS Y ESTUDIO DE POLÍTICAS NICARAGUENSES DE FRIJOL.
TALLER: CAPACITACIÓN Y CONFORMACIÓN DE LOS GESTORS DE INNOVACIÓN DE AGROINDUSTRIA RURAL (GIAR).
TALLER: SEGUIMIENTO A GRADUACIÓN DE COOPERTIVAS, APODER Y CECOOP
TALLES SOBRE PLANIFICACIÓN ESTRATEGICA DE LAS COOPERATIVAS.
TÉCNICAS DE APRENDIZAJE PARA DESARROLLAR CAPACITACIONES A TRAVÉS DE LA METODOLOGÍA DE INVESTIGACIÓN POPULAR
TECNICAS DE VENTAS
TERCERA FERIAS AGROINDUSTRIAL DESARROLLO WALMART-HORTIFRUTI
TRAMITES DE EXPORTACION
TRANSFORMACION DE PRODUCTOS
TRAZABILIDAD
TRAZABILIDAD (CUADERNO DE REGISTRO)
TRAZABILIDAD DEL CACAO
TRAZABILIDAD E INOCUIDAD DE ALIMENTOS
TRAZABILIDAD EN CACAO
TRAZABILIDAD EN FINCAS DE CAFÉ
USO Y MANEJO DE LIBRO CONTABLE
USO DE LIBRO AUXILIAR Y MAYOR
USO DE LIBROS CONTABLES DIARIO
USO Y MANEJO DE SERVICIOS FINANCIEROS Y NO FINANCIEROS
USO Y MANEJO DE CRÉDITO
USO Y MANEJO DE CRÉDITO.
USO Y MANEJO DE LIBROS EN COOPERATIVAS
USO Y MANEJO DE TECNICAS DE CREDITO
USO Y MANEJO DE TÉCNICAS DE CRÉDITO

VALIDEZ Y EVALUACION DE LAS INSPECCIONES INTERNAS DE CERTITIFICACION ORGANICA
VISIÓN EMPRESARIAL Y CADENAS DE VALOR DE CAFÉ
PROMOCIÓN CONGLOMERADO DE CAFÉ
ROL ADMINISTRATIVO
SISTEMA DE CONTROL INTERNO

Municipality engagement

ACOMPAÑAMIENTO TÉCNICO PARA LA ELABORACIÓN DE PLANES DE ACCIÓN
ANALISIS Y EVALUACIÓN DE LA LEY AMBIENTAL Y DE AGUA CON CAP´S
APOYO A CABILDO MUNICIPAL DE RANCHO GRANDE
ASAMBLEA COMUNITARIA
ASAMBLEA COMUNITARIA SOBRE MUNICIPALISMO
ASAMBLEA CON AUT. MUNIC Y PROD. P ENTREGAR PROP DE DEMANDA
ASAMBLEA CON AUT. MUNIC. Y PROD. P ENTREGAR PROP DE DEMANDA
ASAMBLEA CON LIDERES COMUNITARIOS
ASAMBLEA PARA PRESENTAR DEMANDA ANTE ACTORES CLAVES Y PRODUCTORES/AS
CABILDO CON AUTORIDADES MUNICIPALES
CABILDO DE SAN NICOLAS
CABILDO INFORMATIVO CON AUTORIDADES MUNICIPALES
CABILDO MUNICIPAL
CABILDO MUNICIPAL
CABILDO MUNICIPAL CONSULTIVO 2010
CABILDO MUNICIPAL DE PRESUPUESTO SAN RAMON
CABILDO MUNICIPALES PARA PRESUPUESTO 2012
CAPACITACIÓN A LOS CAP´S EN LEY NACIONAL DE AGUA 620 Y LEY 722
CONSULTA AL PRESUPUESTO MUNICIPAL
CONSULTA ANTE EL CONSEJO MUNICIPAL
CONTEXTO PARTICIPACION CIUDADANA Y ELABORACION DE PRESUPUESTO MUNISIPAL
DELITO AMBIENTAL
DISCUSION ORDENANZA MUNICIPAL AMBIENTAL ALCALDIA ESQUIPULAS
ELABORACION DE PLANES DE ACCIÓN PARA LA INCIDENCIA EN LA MUNICIPALIDAD
ELABORACIÓN DE PLANES DE ACCION PARA LA INCIDENCIA.
ELABORACION DE PLANES DE ACCION Y MODIFICAR PRESUPUESTOS DE DEMANDA
ELABORACION DE PROPUESTA DE NECESIDADES DE LAS COOP. DEL MUNICIPIO DE MATAGALPA
ELABORACION DE PROPUESTAS Y PRESUPUESTOS MUNICIPALES
EVALUACIÓN Y PLANIFICACIÓN DEL PLAN DE ACCIÓN DE MUNICIPALISMO
FORMACIÓN DE COORDINADORES DE COMUNIDADES SOBRE EL PROCESO DE CONSULTA MUNICIPAL.
FORTALECIMIENTO ORGANIZATIVO DE CAP´S
FUNCIONES DE FUNCIONARIOS DE LA ALCALDÍA
FUNCIONES DE LAS INSTUTUCIONES DE GOBIERNO PRESENTES EN EL MUNICIPIO Y FUNCIONARIOS DE LA ALCALDÍA.
GESTIÓN DE RIESGO Y PLANIFICACIÓN MUNICIPAL
GOBERNABILIDAD Y PARTICIPACIÓN CIUDADANA
I CABILDO ORDINARIO 2012
INCIDENCIA
INCIDENCIA MUNICIPAL
INCIDENCIA POLTICA
LANZAMIENTO DEL PROCESO DE CONSULTA
LEVANTAR DEMANDAS DE NECESIDADES DE LAS COMUNIDADES
LEY 620 Y 217
LEY DE AGRICULTURA ORGÁNICA
LEY DE AGUA Y ANA
LEY DE CATASTRO MUNICIPAL
LEY DE DELITO AMBIENTAL
LEY DE FOMENTO A LA AGRICULTURA ORGANICA
LEY DE MEDIO AMBIENTE
LEY DE MUNICIPIO
LEY DE MUNICIPIO
LEY DE PARTICIPACIÓN CIUDADANA
LEY DE PARTICIPACION CIUDANA
LEY DE PARTICIPACIÓN CUIDADANA
LEY DE SOBERANIA Y SEGURIDAD ALIMENTARIA
LEY GENERAL DE MUNICIPIO
LEY GENERAL DE MUNICIPIO LEY 40
LEY IBIS
LEY SEGURIDAD ALIMENTARIA
LEYES AMBIENTALES Y PARTICIPACIÓN CIUDADANA
LEYES SOBRE LA PROTECCIÓN DEL MEDIO AMBIENTE
MANEJO DE PRESUPUESTO MUNICIPAL
MARCO JURIDICO

MARCO JURIDICO
MARCO JURIDICO (PRESUPUESTO MUNICIPAL)
MARCO JURIDICO MUNICIPAL
MARCO JURIDICO Y PRESUPUESTO MUNICIPAL
MUNICIPALISMO
MUNICIPALISMO Y PARTICIPACION CIUDADANA
MUNICIPALISMO, TRIBUTACIÓN, CATASTRO.
MUNICIPALISMO: BARRIDO CATASTRAL Y RECUADACIÓN
MUNICIPALISMO: LEY DE IMPUESTOS DE BIENES INMUEBLES (IBI)
MUNICIPALISO:FORO DE NEGOCIACION DE LAS INVERSIONES PARA EL DESARROLLO SOSTENIBLE
ORDENANZAS MUNICIPALES SOBRE MEDIO AMBIENTE Y RECURSOS NATURALES.
ORDENANZAS MUNICIPALES, MEDIO AMBIENTE Y RECURSOS NATURALES
ORGANIZACIÓN Y LEGISLACIÓN DE CAP´S
PARTICIPACION CIUDADANA
PARTICIPACIÓN CIUDADANA
PARTICIPACION DE LA POBLACIÓN EN CONSULTA PRESUPUESTARIA
PARTICIPACION EN CABILDO MUNICIPAL PRESUPUESTO 2011
PLAN ARBITRIO
PLAN ARBITRIO
PLAN DE INCIDENCIA MUNICIPAL
PLAN DE INSIDENCIA
PLANES DE ACCCION
PLANES DE ACCIÓN PARA LA INCIDENCIA MUNICIPAL
PLANES DE INCIDENCIA
PLANES DE INCIDENCIA EN MUNICIPIO DE TERRABINA
PLANES DE INCIDENCIA MUNICIPAL
PLANES DE INSIDENCIA DEL MUNICIPIO DE JINOTEGA
POLÍTICAS PÚBLICAS EN EL MARCO DEL SISTEMA DE PLANIFICACION MUNICIPAL
PRESENTACION DAMANDAS ALCALDIA MUNICIPAL SRN
PRESENTACION DE ORDENANZA MUNICIPAL
PRESENTACIÓN DE PLANES DE INCIDENCIA
PRESENTACION DEL PLAN MUNICIPAL ALCALDIA SAN NICOLAS
PRESENTACION DEL PROYECTO AL CONSEJO MUNICIPAL
PRESENTACION DEL PROYECTO AL NUEVO CONSEJO MUNICIPAL
PRESUPUESTO MANICIPAL
PRESUPUESTO MUNICIPAL
PRIMER CABILDO INFORMATIVO
PROCESO DE ELABORACION DE PROPUESTA Y PRIORIZACION DE PROYECTOS MUCNICIPALES
REGIMEN PRESUPUESTARIO MUNICIPAL.
REUNIÓN /PRESENTACIÓN DE RESULTADOS DE INVERSIÓN EN EL MUNICIPIO POR ACORDAR.
REUNION LIDERES COMUNALES "DEMANDAS ALCALDIA"
REVISIÓN DE ORDENANZAS
REVISION DE ORDENANZAS AMBIENTALES
REVISION, ELABORACION DE PLANES DE ACCION Y PROPUESTAS DE DEMANDA
SEGUIMIENTO A PLANES DE ACCIÓN
SEGUNDO CABILDO ORDINARIO
SESION PLANIFICACION ESTRATEGICA DIRECTIVOS DE JUNTA DE VIGILANCIA
SESION PLANIFICACION ESTRATEGICA DIRECTIVOS DE JUNTA DE VIGILANCIA Y ORGANOS DE GESTION
SISTEMA DE PALNIFICACION MUNICIPAL
SISTEMA DE PLANIFICACION MUNICIPAL
SISTEMA DE PLANIFICACIÓN MUNICIPAL Y GÉNERO
SISTEMA DE PLANIFICAION MUNICIPAL
TALLER A LOS CAP´S EN AGUA Y SANEAMIENTO
TALLER DE ELABORACIÓN DE PLANES DE ACCIÓN
TALLER DE EVALUACIÓN Y PLANIFICACIÓN DE ACCIONES EN MUNICIPALISMO
TALLER DE GOBERNABILIDAD
TALLER DE REGULACIONES LOC ALES (LEY DE RECAUDACION TRIBUTARIA Y LEY 431 TRANSPORTE)
TALLER DIVULGACIÓN DE ORDENANZAS
TALLER PARA DAR A CONOCER LOS PROCESOS DE CONSULTA
TALLER PUBLICA EN EL PROCESO DE PLANIFICACION MUNICIPAL
TALLER REGULACIONES LOCALES - PLANIFICACION TERRITORIAL Y CONTROL URBANO
TALLER REGULACIONES LOCALES-LEY DEIBI
TALLER SOBRE LEY DE PARTICIPACIÓN CIUDADANA
TALLER SOBRE PLANES DE ACCION
TALLER SOBRE REGIMEN PRESUPUESTARIO MUNICIPAL
TALLER: DESARROLLO DEL PROCESO DE CONSULTA COMUNITARIA
TALLER: PLANES DE ACCIÓN COMUNITARIA
VINCULACION DEL PLAN AMBIENTAL MUNICIPAL, RECUPERACION DE LA CUENCA DE RIO VIEJO

6.2.2. Production Program

Agricultural practices

BPA
BPA CALIDAD E INOCUIDAD DE PRODUCTOS AGRICOLAS MOTSA
BPA CALIDAD E INOCUIDAD EN MOTSA
BPA EN COSECHA DE OKRA Y SALUD E HIGIENE DEL PERSONAL A 70 TRABAJADORES
BPA SOBRE MANEJO DE PLAGUICIDAS
BPA/OKRA Y SALUD E HIGIENE DEL PERSONAL
BUENAS PRACTICAS AGRICOLAS
BUENAS PRÁCTICAS AGRICOLAS
BUENAS PRÁCTICAS AGRICOLAS
BUENAS PRÁCTICAS AGRÍCOLAS
BUENAS PRACTICAS AGRICOLAS (B.P.A)
BUENAS PRACTICAS AGRICOLAS (BPA)
BUENAS PRÁCTICAS AGRÍCOLAS (BPA).
BUENAS PRACTICAS AGRICÓLAS BPM
BUENAS PRACTICAS AGRICOLAS EN CAFÉ
CAPACITACIÓN SOBRE PRINCIPIOS DE BPA
CERTIFICACIÓN ORGÁNICA
CERTIFICACIONES EN BPA,BPM,HACCP Y GLOBAL GAP
COMPORTAMIENTO SANITARIO DEL PERSONAL DE LA PLANTA DE ACOPIO
ECA - WISCOYOL, TRAZADO DE BARRERAS MUERTAS A NIVEL.
ENTRENAMIENTO EN BPA
ESPECIFICACIONES SOBRE CERTIFICACIÓN DE FINCAS CON BPA.
GENERALIDADES DE LAS BPA
GIRA DE INTERCAMBIO DE EXPERIENCIA PAR CONOCER COMO DEBE ESTAR EQUIPADA UNA FINCA CON BPA (CHARLA DEL MAGFOR SOBRE FINCAS BPA)
IMPLEMENTACION EN BPA EN FINCAS MOTSA
INOCUIDAD Y BUENAS PRACTICAS AGRICOLAS
INTERCAMBIO EN FINCA CON ENFOQUE EN BUENAS PRACTICAS AGRICOLAS (BPA)
INTRODUCCION A BPA, CALIDAD E INOCUIDAD DE ALIMENTOS Y ENFERMEDADES TRASMITIDAS X LOS ALIMENTOS
LANZAMIENTO DE CERTIFICACION BPA
LANZAMIENTO DE CERTIFICACIÓN DE FINCAS BPA
LINEAMIENTOS PARA CERTIFICACIÓN DE FINCAS EN BUENAS PRACTICAS AGRICOLAS (BPA)
LLENADO DE REGISTRO BPA
MANEJO DE FINCAS EN PROCESO DE BUENAS PRACTICAS AGRICOLA (BPA)
MANEJO INTEGRADO DE PLAGAS BPA PARA AGRICULTURA FAMILIAR
MANEJO INTEGRADO DE PLAGAS EN CANELA
NORMAS DE INOCUIDAD
PRESENTACIÓN DE TECNOLOGÍAS ALTERNATIVAS: BIODINSUL, HONGO MIRABIOL,AMIGOS DE LA MONTAÑA,MICRORIEGO POR GOTEO,HORNOS MEJORADOS Y BIODIGESTORES.
REVISIÓN DE OBRAS Y CHECK LIST EXIGIDAS POR MAGFOR PARA CERTIFICACIÓN DE BPA.
SEMINARIO BASICO DE PRIMEROS AUXILIOS Y USO DE EXTINTORES
TALLER BPA Y MANEJO INTEGRADO DE PLAGAS.
TALLER DE BUENAS PRÁCTICAS PARA EL MANEJO DE AGUA DE CONSUMO
TALLER DE EVALUACIÓN Y PLANIFICACIÓN DE PLAN DE ACCIÓN DE LAS COOPERATIVAS
TALLER DE FINCAS BPA Y DEMOSTRACIÓN PRACTICA DEL PRODUCTO ZAPICOL 53.
TRAZABILIDAD EN LA PRODUCCIÓN DE ALIMENTOS.
VIAJE DE INTERCAMBIO DE EXPERICIAS EN FINCAS BPA

Agricultural production

PRODUCCIÓN DE SEMILLA DE FRÍJOL
ABONOS ORGANICOS
ACTUALIZACIÓN DE CÓSTOS DE PRODUCCIÓN DE HORTALIZAS Y USO DEL PERSUAP
ACTUALIZACIÓN DE COSTOS DE PRODUCCIÓN DEL CULTIVO DE LA MALANGA
ACTUALIZACION DE CÓSTOS DE PRODUCCIÓN DEL FRIJOL Y TOMATE
ACTUALIZACIÓN DE CÓSTOS DE PRODUCCIÓN Y PERSUAP
ADECUADO ESTABLECIMIENTO Y MANEJO DE SEMILLEROS Y VIVEROS DE CAFÉ
AGICULTURA PROTEGIDA EN PAPA
AGROFORESTERIA EN CACAO
ALTERNATIVAS PARA MEJORAR LA PRODUCTIVIDAD DE HORTALIZAS EN AMBIENTE DE ALTA PLUVIOCIDAD
ANALISIS DE COSTOS DE PRODUCCION
ANALISIS DE COSTOS SEGÚN CUADERNO DE REGISTRO
ANALISIS DE SUELO
ANALISIS DE UN AGRO ECOSISTEMA
ANALISIS E INTERPRETACION DE RESULTADOS DE CATACION DE CAFÉ

ANÁLISIS SOBRE PRÁCTICAS PREVENTIVAS DE LA ECA
APLICACIÓN DE FERTILIZANTES HIDROSOLUBLES
ARBOLES SUPERIORES Y BIOLOGIA REPRODUCTIVA DE CACAO
ASAMBLEA GENERAL ORDINARIA
ASAMBLEA INFORMATIVA CON SOCIOS DE LAS COOPERATIVA SABANA GRANDE.
ASPECTO PRODUCTIVOS EN FRIJOL
ASPECTOS PRODUCTIVOS DE CACAO
ASPECTOS PRODUCTIVOS EN FRIJOL
BALANCE NUTRICIONAL PARA CAFÉ
BENEFICIADO DE LA SEMILLA DE FRIJOL
BENEFICIADO HÚMEDO DE CAFÉ Y SU GESTIÓN AMBIENTAL.
BENEFICIADO HUMEDO DEL CAFÉ
BENEFICIADO HÚMEDO DEL CAFÉ
BENEFICIADO Y CALIDAD DEL CAFÉ
BENEFICIO HUMEDO
BENEFICIO HÚMEDO CAFÉ
BENEFICIO HÚMEDO DEL CAFÉ
BUENAS PRACTICAS AGRICOLAS
BUENAS PRACTICAS AGRÍCOLAS
BUENAS PRÁCTICAS AGRICOLAS
BUENAS PRÁCTICAS AGRÍCOLAS / USO DE PERSUAP/HORTALIZAS
BUENAS PRACTICAS AGRICOLAS EN CAFÉ (BPA)
BUENAS PRACTICAS AGRICOLAS EN CAFÉ (BPA)
BUENAS PRACTICAS AGRICOLAS EN RAÍCES Y TUBERCULOS
BUENAS PRACTICAS AGRÍCOLAS/RAÍCES Y TUBÉRCULOS
BUENAS PRACTICAS DE MANUFACTURA
BUENAS PRÁCTICAS DE MANUFACTURA
BUENAS PRACTICAS DE MANUFACTURA (POSTCOSECHA)
BUENOS PRACTICAS AGRICOLAS
CALIBRACION DE BOMBAS DE MOCHILAS Y PREPARACION DE BIOFERTILIZANTES
CALIBRACION DE EQUIPOS
CALIBRACIÓN DE EQUIPOS Y DOSIFICACIÓN DE PRODUCTOS
CALIBRACIÓN DE EQUIPOS, DOSIFICACIÓN DE PLAGUICIDAS Y MIP
CALIBRACIÓN DE MÁQUINAS DESPULPADORAS
CALIBRACION Y AJUSTES DE MOCHILAS EN PRODUCTOS QUIMICOS
CALIDAD CORTE Y BENEFICIADO
CALIDAD DE APLICACIÓN CON BOMBA DE MOCHILA
CALIDAD DE LA SEMILLA DE FRIJOL
CALIDAD DEL BENEFICIADO HUMEDO DEL CAFÉ
CALIDAD DEL CAFÉ
CALIDAD DEL CAFÉ
CALIDAD Y PROCESOS DE EXPORTACIÒN DE CAFÈ
CALIDAD Y PRODUCTIVIDAD
CAPACIT EN PLAGAS Y ENFERMEDADES DE HORTALIZAS
CAPACITACION A PROMOTORES EN AGROFORESTERIA
CAPACITACION A PROMOTORES EN BENEFICIADO HUMEDO
CAPACITACION A PROMOTORES EN ESTIMADO DE COSECHA EN CAFÉ
CAPACITACION A PROMOTORES EN MANEJO DE PLAGAS EN CAFÉ
CAPACITACION A PROMOTORES EN MANEJO DE PLAGAS Y ENFERMEDADES EN CAFÉ
CAPACITACION A PROMOTORES EN MANEJO DE VIVERO Y SEMILLERO
CAPACITACION A PROMOTORES SOBRE ESTIMADO DE COSECHA
CAPACITACION A PROMOTORES SOBRE MANEJO DE SEMILLERO Y VIVERO EN CAFÉ
CAPACITACION DE SISTEMA FORESTALES
CAPACITACION DIRECTIVOS: POLITICAS Y ESTRATEGIAS DE GENERO DEL PROYECTO ACORDAR
CAPACITACION EN MANEJO DE VIVERO EN CAFÉ
CAPACITACIÓN EN ASPECTOS PRODUCTIVOS EN FRIJOL
CAPACITACIÓN EN BPA, DIAGNOSTICO SOBRE LA PROBLEMÁTICA DE COMERCIALIZACIÓN EN RAÍCES Y TUBÉRCULOS.
CAPACITACION EN ESTIMADO DE COSECHA Y FERTILIZACION EN CAFÉ
CAPACITACION EN INJERTO DE CACAO E IDENTIFICACION
DE ARBOLES SUPERIORES DE CACAO
CAPACITACION EN MANEJO DE SEMILLERO Y VIVERO, Y FERTILIZACION DE CAFÉ
CAPACITACION EN MANEJO DE TEJIDOS EN CAFÉ
CAPACITACION EN MANEJO DE TEJIDOS EN CAFÉ
CAPACITACION EN MANEJO DE TEJIDOS Y BENEFICIADO HUMEDO
CAPACITACION EN PODA O MANEJO DE TEJIDO EN CAFÉ
CAPACITACIÓN EN PRODUCCIÓN DE FRIJOL CON NUEVAS TÉCNICAS
CAPACITACIÓN EN PRODUCCIÓN DE FRIJOL, PROGRAMA FRIJOL NICA DE RAMAC
CAPACITACION EN SISTEMAS AGROFORESTALES
CAPACITACION SISTEMA AGROFORESTALES
CAPACITACION SOBRE AGROFORESTERIA

CAPACITACION SOBRE FERTILIDAD DE CAFÉ
CAPACITACION SOBRE FERTILIZACION DE CAFÉ Y BENEFICIADO HUMEDO
CAPACITACION SOBRE IDENTIFICACION DE DEFICIENCIA Y FERTILIZACION EN CAFÉ
CAPACITACION SOBRE MANEJO DE BIODIGESTORES.
CAPACITACION SOBRE MANEJO DE TEJIDOS EN CAFÉ
CAPACITACION SOBRE MANEJO DE TEJIDOS EN EL CAFÉ
CARACTERISTICAS AGRONOMICAS DE INTA CARDENAS Y FITOPROTECCION DUWEST EN CULTIVO DE FRIJOL
CARBONIZANDO CASCARILLA DE ARROZ PARA USO COMO SUSTRATO EN PRODUCTORES DE PLANTULAS
CERFICACION DE FINCAS ECOLGOICAS
CERFICACION DE FINCAS ECOLGOICAS
CERTIFICACIÓN
CERTIFICACIÓN DE CACAO
CERTIFICACION DE FINCAS
CERTIFICACIÓN DE FINCAS
CERTIFICACIÓN DE FRUTALES Y VEGETALES
CERTIFICACIÓN DEL CAFÉ
CERTIFICACION ORGANICA DE CAFÉ
CHARLA PRACTICA EN ELABORACIÓN DE BIOFERTILIZANTES.
CHILE PICANTE
COMERCIALIZACION DE FRIJOL
COMO HACER INSTALACION DE SISTEMA DE RIEGO POR ASPERSION Y SUS BENEFICIOS
COMO PREPARAR EL TERRENO Y SIEMBRA DE SEMILLA DE ZANAHORIA
COMPOSICIÓN DE ABONOS ORGANICOS
CONCEPTOS PRACTCOS SOBRE EL CULTIVO DE MELÓN
CONGRESI INTERNACIONAL MIP
CONOCIENDO LOS PLAGUICIDAS, INGREDIENTES ACTIVOS.
CONSIDERACIONES PARA UN ADECUADO ESTABLECIMIENTO DE SEMILLEROS Y VIVEROS CAFÉ
CONSIDERACIÓNES PARA UN ADECUADO ESTABLECIMIENTO DE SEMILLEROS Y VIVEROS DE CAFÉ
CONTAMINANTES ORGANICOS
CONTOL DE MALEZAS Y FERTILIZACION EN MUSACEAS
CONTROL BIOLOGICO DE LA BROCA
CONTROL DE BACTERIAS EN TOMATE.
CONTROL DE CALIDAD EN BENEFICIADO SECO
CONTROL DE CALIDAD EN RAICES Y TUBERCULOS
CONTROL DE CALIDAD Y CAMBIO CLIMATICO
CONTROL DE ENFERMEDADES FUNGOSAS
CONTROL DE ERWINIA Y PSEUDOMONAS EN MUSACEAS
CONTROL DE PLAGAS Y ENFEMEDADES EN FRUTALES Y MUSACEAS
CONTROL DE PLAGAS Y ENFERMEDADES EN FRUTALES
CONTROL DE PLAGAS Y ENFERMEDADES EN GRANADILLA
CONTROL DE SIGATOCA Y PUNTA NEGRA
CONTROLADOR BIOLOGICO DE ENFERMEDADES FUNGICAS CON TRICHODERMA HARZIANUM
CORTE, DESPULPADO Y GRADO DE FERMENTACION DEL CAFE
COSECHA Y BENEFIADO HÚMEDO DE CAFÉ ORGÁNICO
COSECHA Y POST COSECHA DE R&T
COSECHA Y TRANSPORTE DE TOMATE CON MANEJO BPA
COSTO DE PRODUCCION CAFÉ
COSTO DE PRODUCCIÓN DEL CULTIVO DE CACAO
COSTOS DE PROD. FRIJOL Y CAFÉ
COSTOS DE PRODUCCION
COSTOS DE PRODUCCIÓN DE RAICES Y TUBERCULOS
COSTOS DE PRODUCCION FRIJOL
COSTOS DE PRODUCCION FRIJOL/TOMATE/CHILTOMA
COSTOS DE PRODUCCION MALANGA LILA
COSTOS DE PRODUCCION PLATANO
COSTOS DE PRODUCCION PLATANO Y MALANGA LILA
COSTOS DE PRODUCCION REPOLLO Y PAPA
COSTOS DE PRODUCCION TOMATE
COSTOS Y MARGENES DE PRODUCCIÓN Y COMERCIALIZACIÓN.
CROMATOLOGIA Y FERTILIDAD SUELOS
CUIDO Y MANEJO DE LA LOMBRICULTURA
CULTIVO DE CACAO
CULTIVO DE FRIJOL
CULTIVO DE RAICES Y TUBERCULOS
CULTIVO DEL CACAO
CURSO EN PRODUCCIÓN DE HONGOS ENTOMOPATOGENOS: TRICHODERMA HARSIANUM Y BEAUVERIA BASSIANA.
DEFICIENCIAS NUTRICIONALES EN HORTALIZAS.
DEMOSTRACIÓN DE PRÁCTICAS BPA Y EVALUACIÓN DE TECNOLOGÍAS EN LAS ECAS.
DEMOSTRACION DE TRABAJO EN ECA
DEMOSTRACIÓN PRÁCTICA DE ZAPICOL 53 EN TOMATE Y FRIJOL.

DESINFECCIONY PREPARACION DE SUELO.
DIA DE CAMPO
DIA DE CAMPO A TOMATOYA
DÍA DE CAMPO CARRETA QUEBRADA CULTIVO DE TOMATE
DIA DE CAMPO COSTOS DE PRODUCCION Y USO DE PESTICIDAS
DIA DE CAMPO DE FRIJOL NEGRO
DÍA DE CAMPO ECA TOMATE, EL COYOL
DIA DE CAMPO EN CACAO
DIA DE CAMPO EN EL CULTIVO DE CACAO
DIA DE CAMPO EN EL CULTIVO DE FRIJOL
DIA DE CAMPO EN FRIJOL
DÍA DE CAMPO EN HORTALIZAS PARA EVALUAR DOS HIBRIDOS DE TOMATE(PONYS Y HALYANA) EN TOMATOYA - JINOTEGA
DIA DE CAMPO INSTALACIÓN DE SISTEMA DE RIEGO POR GOTEO
DIA DE CAMPO PARA ESTABLECIMIENTO DE PARCELAS DE VALIDACIÓN EN FRIJOL
DIA DE CAMPO SOBRE EL CULTIVO DE REPOLLO
DIA DE CAMPO, REPRODUCCIÓN DE PLANTULAS
DÍA DE CAMPO: HORTALIZAS E INTERCAMBIO DE EXPERIENCIA
DIAGNÓSTICO CAFÉ ORGÁNICO
DIAGNOSTICO FITOSANITARIO COMO BASE DEL MANEJO INTEGRADO DE DE PLAGAS EN CACAO
DIAGNOSTICO FITOSANITARIO COMO BASE DEL MANEJO INTEGRADO DE PLAGAS
DIAGNOSTICO FITOSANITARIO COMO BASE DEL MANEJO INTEGRADO DE PLAGAS
DIAGNÓSTICO FITOSANITARIO COMO BASE DEL MANEJO INTEGRADO DE PLAGAS
DIAGNÓSTICO FITOSANITARIO COMO BASE DEL MANEJO INTEGRADO DE PLAGAS EN CACAO
DIAGNOSTICO PRODUCTIVO DE CAFÉ Y ELABORACIÓN DE TRAMPAS MANEJO DE BROCA
DIAGNOSTICO PRODUCTIVO Y RECUENTO DE PLAGAS Y ENFERMEDADES
DIAGNOSTICO Y PLANIFICACION DE FINCA
DIÁNOSTICO PRODUCTIVO DE CAFETALES PARCELAS VALIDACIÓN
DIFERENCIAS DE RESISTENCIA A
VIROSIS DE SHANTY, XAMAN Y NATIVO
DISEÑO DE SISTEMAS AGROFORESTALES
DISEÑO Y ESTABLECIMIENTO DE CACAO EN SISTEMAS AGROFERESTALES
DISEÑO Y ESTABLECIMIENTO DE SISTEMAS AGROFORESTALES
DIVERSIFICACIÓN DE LA PRODUCCIÓN
DIVERSIFICACIÓN PRODUCTIVA
ECA - WISCOYOL; IDENTIFICAR TOXICIDAD DE PLAGUICIDAS
ECA - WISCOYOL; RECUENTO DE COSECHA.
ECA FRIJOL NEGRO; VALIDACIÓN DE PROGRAMA FRIJOL NICA
ECA FRIJOL; CALIBRACIÓN DE EQUIPOS DE FUMIGACIÓN
ECA FRIJOL; CONTROL DE MALEZAS DE FRIJOL
ECA FRIJOL; CONTROL DE MALEZAS, PREPARACIÓN DEL TERRENO
ECA FRIJOL; CONTROL DE PLAGAS Y ENFERMEDADES DE FRIJOL.
ECA FRIJOL; GERMINACIÓN Y CÁLCULO DE DENSIDAD POBLACIONAL DE ÁREA DE FRIJOL
ECA FRIJOL; IMPORTANCIA DE LOS REGISTROS DE PRODUCCIÓN.
ECA FRIJOL; MANEJO INTEGRADO DE PLAGAS
ECA FRIJOL; MUESTREO DE PLAGAS Y ENFERMEDADES
ECA FRIJOL; SIEMBRA Y FERTILIZACIÓN DE FRIJOL
ECA, CONTROL DE ENFERMEDADES Y ESTAQUILLADO
ECA, ELABORACIÓN DE CALDO SULFOCÁLSICO Y BIOFERTILIZANTES
ECA, INSTALACIÓN DE SISTEMA DE RIEGO
ECA, PRUEBA DE GERMINACIÓN Y PREPARACIÓN DE TERRENO
ECA, PRUEBA DE GERMINACIÓN Y PREPARACIÓN DE TERRENO II PARTE
ECA, TRASPLANTE DE TOMATE
ECA, TUTOREO DE TOMATE
ECA, TUTOREO DE TOMATE Y CONTROL DE MALEZAS
ECA/IDENTIFICACIÓN DE ENFERMEDADES
ECA; ACUERDOS DE RESULTADOS DE LA COSECHA DE TOMATE
ECA; ARRANCA (COSECHA Y POST COSECHA) DE FRIJOL
ECA; CONCLUSIONES Y RECOMENDACIONES DE POST COSECHA CULTIVO DE TOMATE
ECA; CONTROL DE MALEZAS
ECA; COSECHA DE TOMATE
ECA; ESTIMADO DE COSECHA DE FRIJOL
ECA; LEVANTAMIENTO DE RASTROJOS DE TOMATES
ECA; PRÁCTICAS DE ENTUTORADO
ECA; USO Y UBICACIÓN DE TRAMPAS OLOROSAS
ECA-CACAO
EL PROCESO DE INSPECCIÓN INTERNA EN FINCAS ORGÁNICAS DE LAS FAMILIAS DE COOPROCAFUC
ELABORACION DE BIOFERTILIZANTES
ELABORACION DE BIOFERTILZANTES, CALDOS E IMPORTANCIA DEL TRIPLE LAVADO
ELABORACIÓN DE CALDOS BORDELES Y SULFOCÁLCICOS PARA EL CONTROL DE PLAGAS Y ENFERMEDADES
ELABORACIÓN DE PLANES DE FINCA

ELABORACIÓN DE PRODUCTOS AGROECOLOGICO PARA EL CONTROL DE PLAGAS DE CACAO.
ELABORACION DE PRODUCTOS AGROECOLOGICOS PARA EL CONTROL DE PLAGAS EN CACAO
ELABORACIÓN DE PRODUCTOS AGROECOLOGICOS PARA EL CONTROL DE PLAGAS EN CACAO.
ELABORACIÓN DE PRODUCTOS AGROECOLÓGICOS PARA EL CONTROL DE PLAGAS Y ENFERMEDADES EN CACAO
ELABORACION DE PRODUCTOS ORGANICOS PARA DE AGRICOLA, SULFOCALCIO Y BIOFERMENTADOS
ELEMENTOS ESENCIALES EN LA METODOLOGIA DE CAMAPESINO A CAMPESINO.
ENCUETRO LATINOAMERICANO DE AGRICULTURA ECOLOGICA
ENFERMEDADES DE LA CHILTOMA.
ENFERMEDADES DEL CACAO
ENMIENDAS DE SUELO Y MANEJO NUTRICIONAL PARA EL CULTIVO DE PIÑA MD- 2
ENMIENDAS EDAFICAS, MANEJO DE NUTRINTES Y MANEJO DE CUCURBITACEAS
ENMIENDAS MINERALES Y ORGÁNICAS
ESCUELA DE CAMPO EN EL CULTIVO DE LECHUGA 3RA EDICION
ESCUELA DE CAMPO EN EL CULTIVO DE LECHUGA-SEGUNDA EDICION
ESCUELA DE CAMPO EN EL CULTIVO DE REPOLLO
ESCUELA DE CAMPO, IMPORTANCIA, IDENTIFICACION DE LOS PRINCIPALES PROBLEMAS DEL CULTIVO DE CACAO.
ESCUELA DE CAMPO, IMPORTANCIA, IDENTIFICACIÓN DE LOS PRINCIPALES PROBLEMAS DEL CULTIVO DE CACAO.
ESCUELA DE CAMPO/DIAGNOSTICO FITOSANITARIO COMO BASE DEL MANEJO INTEGRADO DE PLAGAS
ESCUELA DE CAMPO/MANEJO DE ENFERMEDADES
ESCUELA DE CAMPO: CULTIVO DE LECHUGA / PRIMERA EDICION
ESCUELAS DE CAMPO/ DIAGNOSTICO FITOSANITARIO COMO BASE DEL MANEJO INTEGRADO DE DE PLAGAS EN CACAO
ESCUELAS DE CAMPO/DIAGNOSTICO FITOSANITARIO COMO BASE DEL MANEJO INTEGRADO DE DE PLAGAS EN CACAO
ESTABLECIMIENTO DE CACAO EN SAF
ESTABLECIMIENTO DE CACAO EN SISTEMAS AGROFORESTALES
ESTABLECIMIENTO DE CULTIVO DE CHILE
ESTABLECIMIENTO DE ESCUELA DE CAMPO (ECA)
ESTABLECIMIENTO DE PLANTULAS DE REPOLLO
ESTABLECIMIENTO DE SEMILLEROS Y MANEJO DE VIVEROS DE CAFÉ
ESTABLECIMIENTO DE SEMILLEROS Y VIVEROS
ESTABLECIMIENTO DE TRAMPAS PARA INSECTOS
ESTABLECIMIENTO DE VIVEROS DE CACAO
ESTABLECIMIENTO SISTEMAS AGROFORESTALES
ESTABLECIMIENTO Y MANEJO DE VIVEROS DE CACAO
ESTABLECIMIENTOS DE VIVEROS EN CACAO
ESTANDARES DE CALIDAD EN R&T
ESTIMADO DE COSECHA EN PAPA
ESTRATEGIAS DE MANEJO DE PARATRIOZA
EVALUACIÓN DE ANALISIS DE SUELO
EVALUACIÓN DE DISEÑOS DE SIEMBRA
EVALUACIÓN DEL PROCESOS DE INSPECCIÓN INTERNA EN NUEVA QUEZADA
EVALUACIÓN SOBRE SIEMBRA DE FRÍJOLES
EXPERIENCIAS CON PRODUCTORES QUE CULTIVAN CHILE JALAPEÑO
FABRICACION DE BIOFERTILIZANTE Y ABONO TIPO BOCASHI.
FERIA AGRICOLA NAVIDEÑA
FERIA AGROALIMENTARIA FAO
FERIA AGROPECUARIA
FERIA AMBIENTAL
FERIA CAMPESINA
FERIA CAMPESINA
FERIA CAMPESINA DE PRODUCTOS ECOLOGICOS
FERIA DE CONOCIMIENTO
FERIA DE EXPO APEN
FERIA DE LA PAPA Y EL MAÍZ
FERIA DE MAIZ
FERIA DE SEGURIDAD ALIMENTARIA
FERIA E INAUGURACIÓN " CENTRO DE ACOPIO Y EMPAQUE DE RAÍCES TROPICALES".
FERIA EXPICA
FERIA HORTICOLA
FERIA HORTICULA
FERIA LATINOAMERICANO DE PRODUCTOS ECOLOGICOS
FERIA MICRO REGIONAL DEL MAIZ
FERIA NACIONAL DE LA PAPA
FERIA REGIONAL ECOLOGICA
FERIA SEGURIDAD ALIMENTARIA
FERTILIDAD DE LOS SUELOS
FERTILIDAD DE SUELO

FERTILIDAD INOCUIDAD Y MANEJO DE SUELOS
FERTILIZACION
FERTILIZACION CACAO
FERTILIZACIÓN DE CACAO
FERTILIZACION DEL CULTIVO DEL CAFÉ
FERTILIZACIÓN DEL CULTIVO DEL CAFÉ
FERTILIZACIÓN EN CACAO
FERTILIZACION FOLIAR
FERTILIZACIÓN FOLIAR Y USO DE MOTOBOMBAS
FERTILIZACION SOLUBLE PARA HORTALIZAS
FERTILIZACIÓN Y MANEJO DE TEJIDO
FERTILIZANTES FOLIARES
FERTILIZANTES FOLIARES EN HORTALIZAS
FERTIRRIGACIÓN
FICHA AGRICOLA DE HORTALIZAS
FISIOLIGIA Y NECESIDADES NUTRICIONALES DEL CULTIVO DE CAFÉ
FISIOLOGÍA DEL CAFÉ
FISIOLOGÍA DEL CULTIVO DE CAFÉ
FISIOLOGÍA VEGETAL Y NECESIDADES NUTRICIONALES DEL CAFÉ
FORO DE RAICES Y TUBERCULOS
FORO PRODUCCION DIVERSIFICADA Y PROVISION DE SERVICIOS AMBIENTALES EN EL SECTOR CACAOTERO
FORTALECIMIENTO DE LAS CAPACIDADES TECNICAS EN CERTIFICACIÓN ORGANICA Y SIC.
FORTALECIMIENTO ORGANIZATIVO Y SISTEMA DE RIEGO POR GOTEO
FRIJOL DE RIEGO (PRODUCCION DE SEMILLA)
FUNCION DEL INOCULANTE NITRONAT EN FRIJOL
FUNCIONAMIENTO AGROECOLOGICO DE LOS SISTEMAS AGROFORESTALES
GENERALIDADES DE BPA Y MIP
GIRA "MANEJO AGRONOMICO Y RENTABILIDAD DE LA BERENJENA"
GIRA A GATEMALA " PRODUCCION DE PLANTULAS BAJO INVERNADERO"
GIRA A GUATEMALA " PRODUCCION DE PLANTULAS BAJO INVERNADERO"
GIRA A PUEBLO PARA OBSERVAR EL COMPORTAMIENTO DE VARIEDADES DE TOMATE Y SISTEMAS DE RIEGO
GIRA DE CAMPO " PRESENTACION DE HIBRIDO REPOLLO BRAVO F1 ETAPA DE RIEGO Y EN DIFERENTES ETAPAS FEMOLOGICAS"
GIRA DE CAMPO A PLANTACIÓN DE PIÑA MD-2 DEL PRODUCTOR RONAL CASCO
GIRA DE CAMPO EN EL CULTIVO DE CEBOLLA AMARILLA
GIRA DE CAMPO EN PLANTACIONES DE PIÑA.
GIRA DE CAMPO EN RAICES Y TUBERCULOS
GIRA DE CAMPO, A PLANTACIONES DE PIÑA MD - 2 EN DESARROLLO Y PRODUCCION
DONDE EL PRODUCTOR RONALD CASCO VILLALOBO EN EL CHASMOLAR Y BERNAL MIRANDA EN LA ESPERANCITA.
GIRA DE COMERCIALIZACION DE HORTALIZAS Y PAPAYA
GIRA DE COMERCIALIZACION DE PRODUCTOS HORTICULAS
GIRA DE EXPERIENCIA SOBRE PIÑA MD- 2 A PITAL DE SAN CARLOS COSTA RICA
GIRA DE INTERCAMBIO PARA ANALIZAR EL RIEGO POR GOTEO CON BOMBAS DE PEDAL.
GIRA DE INTERCAMBIO A COPRAHOR
GIRA DE INTERCAMBIO A LA FHIA -HONDURAS EN EL RUBRO CACAO
GIRA DE INTERCAMBIO A PROPICA Y DEL ORO
GIRA DE INTERCAMBIO DE EXPERIENCIA CON PRDOCUTORES DE PLÁTANO DE QUILALI Y PRODUCTORES DE PLÁTANO DE LA COOPERATIVA COPLOX DE TONALÁ CHINANDEGA
GIRA DE INTERCAMBIO DE EXPERIENCIA SOBRE BERENJENA
GIRA DE INTERCAMBIO DE EXPERIENCIA SOBRE PRODUCCIÓN DE PLÁNTULAS DE INVERNADERO.
GIRA DE INTERCAMBIO DE EXPERIENCIAS
GIRA DE INTERCAMBIO DE EXPERIENCIAS A JALAPA PARA SELECCIÓN DE SITIO PROPUESTO PARA CONSTRUCCION DE LAGUNETAS
GIRA DE INTERCAMBIO DE EXPERIENCIAS ENTRE PRODUCTORES DE FRIJOL
GIRA DE INTERCAMBIO DE EXPERIENCIAS PARA CONOCER MANEJO AGRONOMICO DE PLATANO
GIRA DE INTERCAMBIO DE EXPERIENCIAS, EN MANEJO DE PLÁNTULAS EN TUNELES, SUSTRATOS, SISTEMAS DE RIEGO, MANEJO POSTCOSECHA. POR SEBACO Y JINOTEGA.
GIRA DE INTERCAMBIO EN RIVAS EN COOPERATIVA COOSAPUR
GIRA DE INTERCAMBIO PARA CONOCER EL MANEJO Y PROCESO DEL CULTIVO DE CACAO EN LA ZONA DE RIO SAN JUAN Y EL DISEÑO DE CONSTRUCCIÓN DE SUS ÁREAS DE PROCESO.
GIRA EN PARCELA DEMOSTRATIVA DE QUEQUISQUE LILA EN COMARCA GUINEA VIEJA
GIRA EXTERNA CULTIVO DE CACAO
GIRA EXTERNA PARA CONOCER EXPERIENCIA ORGANIZATIVA
GIRA INTERCAMBIO BENEFICIADO SECO Y CATACION DE CAFÉ
GIRA INTERCAMBIO BENEFICIADO Y CALIDAD DEL CAFÉ
GIRA INTERCAMBIO SOBRE MANEJO DE CULTIVO DE CACAO
GIRA MANEJO FITOSANITARIO DE VEGETALES CHINOS
GIRA PARA COMPARTIR CONOCIMIENTOS EN LA PRODUCCION DE LOMBRIHUMUS
GIRA SISTEMAS AGROFORESTALES

GIRAS DE CAMPO, CULTIVO DE PAPA
GRANOS BASICOS
GRANOS BÁSICOS
HORTALIZA CON RIEGO POR GOTEO
IDENTIFICACIÓN DE PLAGAS DE FOLLAJE
IDENTIFICACIÓN DE PLAGAS DE SUELO
IDENTIFICACION DE PLAGAS Y
ENFERMEDADDES DEL TOMATE
IDENTIFICACIÓN DE PLAGAS Y ENFERMEDADES.
IDENTIFICACION Y MANEJO DE PLAGAS DEL CAFÉ
III FORO GESTIÓN DEL CONOCIMIENTO EN EL SECTOR CACAOTERO MUNDIAL: CONCEPTO Y EXPERIENCIA
III FORO GESTIÓN DEL CONOCIMIENTO EN EL SECTOR CACAOTERO MUNDIAL: CONCEPTO Y EXPERIENCIA
IMP.ABONOS ORGANICOS
IMPORTANCIA DE LA CERTIFICACIÓN ORGANICA, NORMAS Y PROCEDIMIENTO
IMPORTANCIA DE SEMILLA MEJORADA Y NUTRICION EN CULTIVO DE FRIJOL
IMPORTANCIA DEL CULTIVO DE RAICES
IMPORTANCIA LOS REGISTROS DE BPA DE INTERPRETACION DE ANALISIS AGUA SEGÚN SEGÚN NTON 05-007-08
IMPORTANCIA SOBRE MICROORGANISMOS DEL SUELO
IMPORTANCIA USO DE SEMILLA MEJORADA Y PRACTICAS MIP EN CULTIVON DE FRIJOL
INAUGURACIÓN DE CENTRO AGROINDUSTRIAL DEL NORTE DE CECOPSEMEIN
INDICADORES DE FERTILIDAD DE SUELO Y ESTUDIO ECONOMICO DEL PEPINO
INICIO ECA - WISCOYOL PREPARACIÓN DE TERRENO
INJERTACIÓN DE CAFÉ
INSTALACION DE PRE-SECADORES SOLARES
INSTALACION DE SISTEMA DE RIEGO POR GOTEO
INTERCAMBIO DE EXPERIENCIA
INTERCAMBIO DE EXPERIENCIA CON COMPRADORES DE CAFÉ
INTERCAMBIO DE EXPERIENCIA CON COMPRADORES DE CAFÉ
INTERCAMBIO DE EXPERIENCIA CON PERSONAS DE ACDI
INTERCAMBIO DE EXPERIENCIA EN CACAO
INTERCAMBIO DE EXPERIENCIA EN CACAO
INTERCAMBIO DE EXPERIENCIA ENTRE ESCUELAS DE CAMPO
INTERCAMBIO DE EXPERIENCIA: PRODUCCIÓN DE SEMILLA Y ALMACENAMIENTO DE PAPA.
INTERCAMBIO DE EXPERIENCIAS CON PRODUCTORES
INTERCAMBIO DE EXPERIENCIAS:MANEJO DE PLANTULAS BAJO TECHO (INVERNADEROS)
INTERCAMBIO DE PRODUCTORES ORGANICOS
INTERCAMBIO MANEJO FITOSANITARIO DEL CULTIVO REPOLLO
INTERCAMBIO SOBRE BENEFICIADO HÚMEDO Y CALIDAD DEL CAFÉ
INTERCAMBIO SOBRE BENEFICIADO SECO DE CAFÈ
INTERCAMBIO TECNICO EN MANEJO DE TEJIDO
INTERCAMBIO/EXPERIENCIA/CONSTRUCCION/BENEFICIOS HUMEDOS
INTERCAMBIO/EXPERIENCIAS/SISTEMAS/PRODUCCIÒN DEL CAFÈ
INTERECAMBIO DE EXPERIENCIA EN MANEJO DE PLANTULAS DE HORTALIZAS Y DEMOSTRACIÓN PRACTICA DEL PRODUCTO BIOLÓGICO ZAPICOL 53.
INTERPRETACION ANALISI FOLIARES
INTERPRETACION ANALISIS ABONOS ORGANICOS
INTERPRETACIÓN DE ANÁLISIS DE CATACIÓN
LA VIDA EN EL SUELO, Y ELABORACION DE BIOFERTILIZANTE FERMENTADO
LLENADO DE CUADERNO DE REGISTRO DE PRODUCCION
LLENADO DE FICHAS DE REGISTRO DE FINCAS BPA
LLENADO DE FORMATOS PARA CERTIFICACIÓN ORGANICA
LOMBRICULTURA
MANEJO INTEGRADO DE PLAGAS
MANEJO AGROFORESTAL EN FINCAS DE CACAO
MANEJO AGRONOMICO DE BERENJENA
MANEJO AGRONOMICO DE CHILTOMA.
MANEJO AGRONOMICO DE CULTIVO DE FRIJOL
MANEJO AGRONOMICO DE FRIJOL NEGRO PARA SEMILLA CERTIFICADA
MANEJO AGRONOMICO DE LA MALANGA
MANEJO AGRONÓMICO DE LA PAPA
MANEJO AGRONOMICO DE LA PAPAYA
MANEJO AGRONOMICO DE VEGETALES ASIATICOS
MANEJO AGRONOMICO DEL CACAO
MANEJO AGRONOMICO DEL CULTIVO DE FRIJOL
MANEJO AGRONOMICO DEL CULTIVO DE MAIZ
MANEJO AGRONÓMICO DEL CULTIVO DE YUCA.
MANEJO AGRONOMICO DEL CULTIVO DEL CACAO
MANEJO AGRONÓMICO DEL CULTIVO DEL CACAO
MANEJO AGRONÓMICO DEL CULTIVO DEL PLÁTANO
MANEJO AGRONOMICO DEL FRIJOL DE APANTE

MANEJO AGRONOMICO SEMILLA FRIJOL
MANEJO AGRONÓMICO Y PRODUCCIÓN DE SEMILLA DE FRIJOL
MANEJO DE CAFÉ ORGANICO
MANEJO DE AGUA MIELES
MANEJO DE CACAO
MANEJO DE CACAO EN SISTEMAS AGROFORESTALES
MANEJO DE CULTIVO DE TOMATE APLICACIÓN DEL PERSUAP
MANEJO DE CULTIVO DEL FRIJOL
MANEJO DE DESECHOS SÓLIDOS Y LÍQUIDOS DE LA PRODUCCIÓN DE CAFÉ
MANEJO DE DIAGNOSTICO PARATRIOZA EN SOLANACEOS
MANEJO DE ENFERMEDADES EN CAFÉ
MANEJO DE ENFERMENDADES Y PLAGAS DE FRUTALES Y MUSACEAS
MANEJO DE FERTILIZANTES EN CULTIVO DE FRIJOL
MANEJO DE FRIJOL
MANEJO DE HIJOS Y MANEJO DE SOMBRA EN CAFÉ
MANEJO DE HORTALIZAS Y EQUIPOS DE FUMIGACION.
MANEJO DE INVERNADERO
MANEJO DE LA CALIDAD Y PRODUCCION
MANEJO DE LA FERTILIDAD DEL SUELO EN LOS SISTEMAS AGROFORESTALES
MANEJO DE LA LOMBRICULTURA
MANEJO DE LOMBRICULTURA (ALIMENTACIÓN Y COSECHA)
MANEJO DE MINICENTRAL DE BENEFICIO HÚMEDO DE CAFÉ DE COOPLANFLORES
MANEJO DE PARATRIOZA
MANEJO DE PLAGA Y ENFERMEDADES EN EL CUTLIVO DE FRIJOL
MANEJO DE PLAGAS Y ENFERMEDADES CON TECNOLOGIA ORGÁNICA
MANEJO DE PLAGAS Y ENFERMEDADES DEL CULTIVO DE FRIJOL.
MANEJO DE PLAGAS Y ENFERMEDADES E IDENTIFICACION DE DEFICIENCIAS NUTRICIONALES
MANEJO DE PLAGAS Y ENFERMEDADES EN CULTIVO DE FRIJOL Y MAIZ
MANEJO DE PLAGAS Y ENFERMEDADES EN EL CAFÉ
MANEJO DE PLAGAS Y ENFERMEDADES EN EL CAFÉ CON TECNOLOGIA ORGANICA
MANEJO DE PLAGAS Y ENFERMEDADES EN EL CULTIVO DE FRIJOL
MANEJO DE PLAGAS Y ENFERMEDADES Y ESTIMADO DE COSECHA EN CAFÉ
MANEJO DE POST COSECHA DE R & T
MANEJO DE POST-COSECHA
MANEJO DE PRODUCTOS BIOLÓGICOS AGRITRADE
MANEJO DE PROGRAMA FRÍJOL NICA
MANEJO DE PROGRAMA FRÍJOL NICA
MANEJO DE SOMBRA,DESHIJA Y FERTILIZACIÓN DE CAFÉ
MANEJO DE SOMBRA,DESHIJA Y FERTILIZACIÓN DE CAFÉ
MANEJO DE SOMBRA,DESHIJA Y FERTILIZACIÓN DEL CAFÉ
MANEJO DE TEJIDO DE CACAO
MANEJO DE TEJIDO DEL CACAO
MANEJO DE TEJIDO EN CACAO
MANEJO DE TEJIDO EN CAFÉ
MANEJO DE TEJIDO EN CAFÉ
MANEJO DE TEJIDOS
MANEJO DE TEJIDOS CAFÉ
MANEJO DE TEJIDOS EN CACAO
MANEJO DE TEJIDOS EN CAFÉ
MANEJO DE TEJIDOS EN EL CULTIVO DE CAFÉ
MANEJO DE TEJIDOS EN EL RUBRO CAFÉ.
MANEJO DE VIRUS Y BACTERIAS FITOPATIGENAS Y USO DE FERTILIZANTES FOLIARES
MANEJO DE VIVEROS
MANEJO DE ZANJAS DE FERTILIDAD EN CULTIVO FRUTALES
MANEJO DEL BENEFICIADO HÚMEDO
MANEJO DEL CACAO
MANEJO DEL CICLO DE LA CHICHARRA O GALLINA CIEGA
MANEJO DEL CULTIVO CACAO
MANEJO DEL CULTIVO DE CHILE
MANEJO DEL CULTIVO DEL PLÁTANO,COSTOS DE PRODUCCIÓN Y USO DEL PERSUAP
MANEJO FITOPROTECCION EN CULTIVO DE CALALA
MANEJO FITOSANITARIO CULTIVO DE FRIJOL
MANEJO FITOSANITARIO DE CULTIVO DE FRIJOL
MANEJO FITOSANITARIO DE CULTIVO/MALANGA
MANEJO FITOSANITARIO DE CULTIVO/PAPAYA
MANEJO FITOSANITARIO DEL CULTIVO DE PAPA
MANEJO FITOSANITARIO DEL CULTIVO/PLÁTANO
MANEJO FITOSANITARIO EN CULTIVO DE PAPA Y REPOLLO
MANEJO FITOSANITARIO EN QUEQUISQUE
MANEJO FITOSANITARIO/ESTANDARES/CALIDAD EN R&T
MANEJO FRIJOL

MANEJO INTEGRADO DE CULTIVOS
MANEJO INTEGRADO DE PLAGAS
MANEJO INTEGRADO DE PLAGAS (AGROECOLOGIA DEL CULTIVO DEL CACAO)
MANEJO INTEGRADO DE PLAGAS (MIP)
MANEJO INTEGRADO DE PLAGAS EN CACAO
MANEJO INTEGRADO DE PLAGAS EN EL CULTIVO DE LA CANELA
MANEJO INTEGRADO DE PLAGAS EN EL CULTIVO DE LA CANELA.
MANEJO INTEGRADO DE PLAGAS USO DE REGISTROS
MANEJO INTEGRADO DE PLAGAS.
MANEJO INTEGRADO DE PLAGAS/CULTIVOS HORTICOLAS
MANEJO INTEGRADO DEL CULTIVO DE LA PAPA.
MANEJO INTEGRADO FITOSANITARIO PARA MANEJO DE MILDIO VELLOSA EN CULTIVO DE CHAYOTE
MANEJO INTEGRAL DE PLAGAS (MIP)
MANEJO INTELIGENTE DE AGROQUIMICOS
MANEJO INTELIGENTE DE AGROQUIMICOS.
MANEJO INTREGADO DE PLAGAS FUNCIONAMIENTO AGROECOLOGICO DE LOS SISTEMA AGROFORESTALES
MANEJO NUTRICIONAL DEL CULTIVO DE YUCA Y QUEQUISQUE.
MANEJO NUTRICIONAL EN QUEQUISQUE LILA.
MANEJO ORGÁNICO DE PLANTACIONES DE CACAO
MANEJO POSCOSECHA Y RESP/SOCIAL/EMPRESARIAL
MANEJO POST - COSECHA DE GRANOS ALMACENADOS
MANEJO PREVENTIVO EN MELÓN Y TOMATE.
MANEJO PREVENTIVO EN TOMATE
MANEJO TECNIFICADO DEL CULTIVO DE FRIJOL PRODUCCIÓN ARTESANAL DE SEMILLA
MANEJO Y CONTROL DE ENFERMEDADES EN EL CULTIVO DEL CACAO
MANEJO Y CONTROL DE MONILIASIS EN CACAO
MANEJO Y CONTROL DE PLAGAS
MANEJO Y COSECHA DE ABONOS ORGÁNICOS
MANEJO Y REPRODUCCIÓN DEL CULTIVO DE PIMIENTA NEGRA.
MANEJO, MANTENIMIENTO Y CALIBRACION DE DESPULPADORAS
MANEJO/DESECHOS/SOLIDOS Y LIQUIDOS/PRODUCCIÓN DE CAFÉ
MANEJO/INTEGRAL DEL CULTIVO DE FRIJOL
MANEJO/INTEGRAL/REPOLLO/LECHUGA
MANEJO/VIVERO/PLANIFICACION/REPOBLACION DE CAFÉ
MANTENIMIENTO Y CALIBRACIÓN DE EQUIPO
MARCO/CONCEPTUAL/METODOLOGIA/PLANES DE ACCION
MEDIO AMBIENTE
MEDIO AMBIENTE VIII
MEJORAMIENTO DE LA NUTRICION DE LAS PLANTACIONES DE CACAO
MEJORAMIENTO DE LA NUTRICIÓN DE LAS PLANTACIONES DE CACAO
MEJORAMIENTO DE LA NUTRICIÓN DE LAS PLANTACIONES DE CACAO EN SISTEMA AGROFORESTAL
MEJORAMIENTO DE LA NUTRICIÓN DE LAS PLANTACIONES DE CACAO.
MEJORAMIENTO GENETICO DE LAS PLANTACACIONES DE CACAO
MEJORAMIENTO GENETICO DE LAS PLANTACIONES DE CACAO
MEJORAMIENTO GENETICO DE LAS PLANTACIONES DE CACAO
MEJORAMIENTO GENETICO DE LAS PLANTACIONES DE CACAO.
MEJORAMIENTO GENETICO DE LAS PLANTACIONES DE CACO
MEJORAMIENTO GENETICO DE LAS PLANTACIONES DE DE CACAO
MEJORAMIENTO GENETICO DEL CACAO
MEJORAMIENTO GENETIO DE LAS PLANTACIONES DE CACAO
MEJORAMIENTO NUTRICIONAL EN HORTALIZAS
MENEJO DE VIRUS Y BACTERIAS FITOPATIGENAS Y USO DE FERTILIZANTES FOLIARES
MESA NACIONAL DE CACAO
MESA NACIONAL DE CACAO
METODO COSECHA CAFE EN PARCELAS VALIDACION
METODO COSECHA PARCELAS VALIDACION
METODOLOGIA DE PROMOTORIA RURAL
METODOLOGIA PROMOTORAS RURALES
METODOLOGIA VALIDACION EN PRE SECADORES
MICRORGANISMO EFICIENTES
MIP CULTIVO FRIJOL
MODELOS DE PRODUCCION DE CACAO
MONTAJE EXPERIMENTOS
MUESTREO DE PLAGAS DE SUELO Y PREPARACION DE CEBOS
MUSTREO DE PLAGAS Y USO DE TRAMPAS
NEGOCIO SEMILLA DE FRIJOL NEGRO Y PROGRAMA FRIJOL NICA
NEGOCIO SEMILLA DE FRIJOL ROJO Y PROGRAMA FRIJOL NICA
NUTRICIÓN DE CAFÉ
NUTRICIÓN DE CAFÉ CON ENFASIS EN REDUCCIÓN DE COSTOS
NUTRICIÓN DEL CULTIVO DE QUEQUISQUE Y EFECTO DE BIOCONTROLADORES EN EL CONTROL DE MAL SECO.

NUTRICION EN EL CULTIVO DE PIÑA MD-2
NUTRICION EN FRIJOL
NUTRICIÓN EN PLÁTANO Y PAPAYA CON PRODUCTOS HIDROSOLUBLES
NUTRICION FOLIAR BIOFERME
NUTRICION FOLIAR DEL CAFE
NUTRICION FOLIAR VEGETAL PROD. BIOFERME
NUTRICION FOLIAR Y NUEVOS PRODUCTOS
NUTRICION VEGETAL DE AGROBONAFIDE
NUTRICION VEGETAL EN CULTIVOS DE HORTALIZAS
NUTRICION VEGETAL EN MUSACEAS
NUTRICION VEGETAL EN TOMATE Y CEBOLLA AMARRILLA
OCRA TOXINA EN EL CAFÉ
PARTICIPACION EN ESPACIOS DE CONSULTAS CIUDADANA
PARTICIPACION EN FERIA DE APEN
PARTICIPACIÓN EN FERIA EN HONOR AL DÍA DE LOS HUMEDALES PARA PROMOVER PRODUCTOS AGROFORESTALES
PASANTILLA EN BENEFICIO SECO
PASOS PARA UN CULTIVO IDEAL
PLAGAS CUARENTENADAS Y PROBLEMAS CON BACTERIAS
PLAGAS Y ENFERMEDADES DEL QUEQUISQUE SU CONTROL CON EL USO DE BIOCONTROLADORES Y NUTRICION DEL MISMO.
PLAGAS Y ENFERMEDADES DEL QUEQUISQUE SU CONTROL CON EL USO DE BIOCONTROLADORES Y NUTRICIÓN DEL MISMO.
PLAGAS Y ENFERMEDADES DEL QUEQUISQUE, SU CONTROL CON EL USO DE BIOCONTROLADORES.
PLAGAS Y ENFERMEDADES DEL TOMATE
PLAGAS Y ENFERMEDADES EN QUEQUISQUE.
PLAGUICIDAS
PLAN ESTRATEGICO DE LA COOP LAS NUBES
PLAN ESTRATEGICO DE LA COOPERATIVA EL CHIMBORAZO
PLAN MANEJO TEJIDO DE CAFETOS PARCELAS VALIDACIÓN
PLANES DE FINCA
PLANES DE FINCA
PLANIFICACION DE ECA
PLANIFICACION DE FINCA
PLANIFICACION DE FINCAS
PLANIFICACIÓN TRABAJO VALIDACIÓN ENMIENDAS MINERALES
PODA DE CAFÉ Y ELABORACION DE ABONOS ORGANICOS
PODA EN CACAO
PODA EN EL TOMATE
PODA Y MANEJO DE CACAO
POLITICA DE CREDITO Y REQUISITOS FRIJOL PRIMERA
POST COSECHA EN CULTIVO DE MALANGA
PRACTICA DE INSPECCIÓN INTERNAS POR INSPECTORES EN FINCAS EN PROCESO ORGÁNICO
PRACTICAS DE MANEJO POSTCOSECHA EN PLATANO
PREPARACIÓN DE MATERIAL PARA DIA DE CAMPO.
PREPARACION DE MERMELADA DE PIÑA.
PREPARACIÓN DE SUELO PARA SEGUNDA ECA.
PREPARACION Y APLICACION CALDOS MINERALES PARA EL CULTIVO DEL CAFÉ
PREPARCION DE ABONOS ORGANICO
PRESENTACIÓN DE MANUAL BPA EN TOMATE
PRESENTACION DE PRODUCTOS QUIMICOS CON EPA PARA PROD DE GRANOS Y HORTALIZAS
PRESENTACION DE PROGRAMA DE SORGO ESCOBERO
PRESENTACIÓN DEL PROGRAMA FRIJOL NICA - COOPERATIVA ECOLÓGICA 15 DE MAYO.
PRESENTACIÓN LEY DE FOMENTO A LA PRODUCCIÓN AGROECOLOGICA Y ORGÁNICA DE NICARAGUA
PRESENTACIÓN PROGRAMA FRIJOL NICA
PRESENTACION RESULTADOS PRESECADORES SOLARES
PRINCIPIOS DE PRODUCCION
PROCEDIMIENTOS ADMINISTRATIVOS PARA LA CONSTRUCCION DE BENEFICIOS HUMEDOS Y LEY DEL AGUA
PROCESO DE INSPECCIÓN INTERNA EN FINCAS ORGÁNICAS DE LAS FAMILIAS DE COOPROCAFUC
PROCESO DE INSPECIÓN INTERNA Y EXTERNA A GRUPOS DE CAFÉ ORGANICO
PROCESO DE MAQUILA DE FRIJOL
PROCESOS DE CERTIFICACIÒN ORGÀNICA
PRODUCCION , USO DE ABONO ORGÁNICOS
PRODUCCIÓN AGRICOLA EN MANEJO Y ENFERMA EN CULTIVO DE FRIJOL
PRODUCCION ARTESANAL DE SEMILLA DE FRIJOL
PRODUCCIÓN ARTESANAL DE SEMILLA DE FRIJOL
PRODUCCIÓN ARTESANAL FRIJOL
PRODUCCION ARTESANAL SEMILLA FRIJOL RIEGO, SISTEMAS AGROFORESTALES (S.A.F)
PRODUCCION DE MALANGA
PRODUCCIÓN DE MARACUYÁ
PRODUCCION DE PLANTULAS (GRUPO DE MUJERES QUE TRABAJA EN INVERNADERO SAN NICOLAS)

PRODUCCION DE PLANTULAS BAJO INVERNADERO
PRODUCCIÓN DE PLÁTULAS EN BANDEJAS
PRODUCCIÓN FRIJOL EN RIEGO
PRODUCCION ORGANICA
PRODUCCIÓN SEMILLA DE MALANGA
PRODUCCIÓN Y COMERCIALIZACIÓN DE SEMILLA
PRODUCCIÓN Y USO DE ABONO ORGÁNICO
PRODUCCION/SEMILLA DE FRIJOL
PRODUCCIÓNDE MALANGA
PRODUCION DE PLANTULAS BAJO INVERNADEROS
PRODUCTOS ECOLOGICOS
PRODUCTOS ORGANICOS
PROGRAMA DE FRIJOL NICA
PROMOCIÓN DE RAICES Y TUBERCULOS
PROPUESTA BAYER DE SANIDAD Y FITOPROTECCION PARA EL CULTIVO DE PAPA
PRUEBAS PRACTICAS DE FERTILIDAD DE SUELO
RAICES ENFASIS EN PLAGAS Y ENFERMEDADES
RAICES Y TUBERCULOS
RAICES Y TUBERCULOS
RAÍCES Y TUBERCULOS
RECONOCIENDO INSECTOS EN HORTALIZAS.
RECONOCIMIENTO DE ENFERMEDADES
RECONOCIMIENTO DE ENFERMEDADES FUNGOSAS
RECUENTO DE PLAGAS
RECUENTO DE PLANTAS AFECTADAS POR HONGOS
REGULACION DE SOMBRA
REPLICA DE TALLER ADA
REPRODUCCIÓN DE PLÁNTULAS
REPRODUCCIÓN DEL CACAO
REQUISITOS Y REGISTROS BPA
RIEGO Y FERTILIZACION EN FRUTALES Y MUSACEAS
SELECCIÓN Y DESINFECCIÓN DE SEMILLA DE MALANGA
SIEMBRA DE FRIJOL Y DENSIDAD POBLACIONAL
SIEMBRA DEL CULTIVO TOMATE, ECA
SISTEMA DE SIEMBRA DE ZANAHORIA
SISTEMA INTERNO DE CONTROL PARA CERTIFICACION FINCAS CACAO CRIOLLO
SISTEMA INTERNO DE CONTROL/ CERTIFICACION ORGANICA
SISTEMA/RIEGO/GOTEO
SISTEMAS AGROFORESTALES (SAF)
SISTEMAS DE PRODUCCION EFICIENTE
SISTEMAS DE PRODUCCION EFICIENTE EN HORTALIZAS
SISTEMAS DE RIEGO POR GOTEO
TALLER "BUENAS PRACTICAS AGRICOLAS"
TALLER CON MODADLIDAD ESCUELA DE CAMPO SOBRE MEJORAMIENTO GENETICO DEL CACAO
TALLER CON MODALIAD ESCUELA DE CAMPO SOBRE MANEJO INTEGRADO DE PLAGAS EN LAS PLANTACIONES DE CACAO
TALLER CON MODALIAD ESCUELA DE CAMPO SOBRE MANEJO INTEGRADO DE PLAGAS EN LAS PLANTACIONES DE CACAO
TALLER CON MODALIAD ESCUELA DE CAMPO SOBRE MEJORAMIENTO DE LA NUTRICIÓN DE LAS PLANTACIONES DE CACAO
TALLER CON MODALIDA ESCUELA DE CAMPO SOBRE MEJORAMIENTO GENETICO DEL CACAO
TALLER CON MODALIDAD ECAS EN MANEJO INTEGRADO DE PLAGAS EN CACAO
TALLER CON MODALIDAD ESCUELA DE CAMPO MEJORAMIENTO GENETICO DEL CACAO
TALLER CON MODALIDAD ESCUELA DE CAMPO SOBRE MANEJO INTEGRADO DE PLAGAS EN CACAO
TALLER CON MODALIDAD ESCUELA DE CAMPO SOBRE MEJORAMIENTO GENETICO DEL CACAO
TALLER CON MODALIDAD ESCUELA DE CAMPO SOBRE EN MANEJO INTEGRADO DE PLAGAS
TALLER CON MODALIDAD ESCUELA DE CAMPO SOBRE ESTABLECIMIENTO Y MANEJO DE VIVEROS DE CACAO
TALLER CON MODALIDAD ESCUELA DE CAMPO SOBRE MANEJO INTEGRADO DE PLAGAS EN CACAO
TALLER CON MODALIDAD ESCUELA DE CAMPO SOBRE MEJORAMIENTO DE LA NUTRICIÓN DE LAS PLANTACIONES DE CACAO
TALLER CON MODALIDAD ESCUELA DE CAMPO SOBRE MEJORAMIENTO DE LA NUTRICIÓN DE LAS PLANTACIONES DE CACAO
TALLER CON MODALIDAD ESCUELA DE CAMPO SOBRE MEJORAMIENTO GENETICO DEL CACAO
TALLER CON MODALIDAD ESCUELA DE CAMPO SOBRE MEJORAMIENTO GÉNETICO DEL CACAO
TALLER CON MODALIDAD ESCUELA DE CAMPO SOBRE MEJORAMIENTO GÉNETICO DEL CACAO.
TALLER CON MODALIDAD ESCUELO DE CAMPO SOBRE MANEJO INTEGRADO DE PLAGAS EN CACAO
TALLER DE CERTIFICACIÓN ORGANICA SOBRE ACTUALIZACIÓN DE LAS NORMAS DE PRODUCCIÓN ORGANICA INTERNA DE COOPROCAFUC R,L
TALLER DE CERTIFICACIÓN ORGANICA SOBRE LA EVALUACION DEL PLAN DE PRODUCCION 2010 Y ACTUALIZACION DE DOCUMENTOS EN CERTIFICACION ORGANICA

TALLER DE CERTIFICACIÓN ORGANICA SOBRE LA PLANIFICACIÓN DEL PLA DE DE PRODUCCIÓN ORGANICA 2011.
TALLER DE CERTIFICACIÓN ORGANICA SOBRE NORMA PARA LA AGRICULTURA SOSTENIBLE.
TALLER DE CERTIFICACIÓN ORGANICA SOBRE PLANIFICACIÓN DEL PLAN DE PRODUCCIÓN ORGANICA 2011
TALLER DE GRUPOS FOCALES DE MUJERES EN TRANSFORMACION Y COMERCIALIZACION DE CACAO Y PIMIENTA
TALLER DE METODOLOGÍA PARA EL DISEÑO Y FACILITACIÓN DE EVENTOS EDUCATIVOS
TALLER DE PRODUCCION DE PLANTULAS
TALLER DE PRODUCCIÓN DE SEMILLA DE MALANGA CON CALIDAD
TALLER DE REVISION DE COSTOS DE PRODUCCION EN EL CULTIVO DE TOMATE
TALLER MANEJO DE PLAGAS Y ENFERMEDADES
TALLER METODOLOGÍA DE CAPACITACIÓN
TALLER METODOLOGÍA DE CAPACITACIÓN
TALLER MODALIDAD ESCUELA DE CAMPO / MEJORAMIENTO GENETIO DE LAS PLANTACIONES DE CACAO
TALLER MODALIDAD ESCUELA DE CAMPO / MEJORAMIENTO GENETICO DE LAS PLANTACACIONES DE CACAO
TALLER MODALIDAD ESCUELA DE CAMPO / MEJORAMIENTO GENETICO DE LAS PLANTACIONES DE CACAO
TALLER MODALIDAD ESCUELA DE CAMPO / MEJORAMIENTO GENETICO DE LAS PLANTACIONES DE CACO
TALLER MODALIDAD ESCUELA DE CAMPO / MEJORAMIENTO GENETICO DE LAS PLANTACIONES DE DE CACAO
TALLER POST COSECHA CULTIVO DE MALANGA
TALLER REGIONAL SOBRE ZEBRA CHIP Y SU VECTOR EN EL CULTIVO DE TOMATE
TALLER SISTEMAS DE RIEGO POR GOTEO
TALLER SOBRE COSECHA Y CONTROL DE CALIDAD DE CACAO
TALLER SOBRE CULTIVO DE RAICES
TALLER SOBRE DIAGNOSTICO FITOSANITARIIO
TALLER SOBRE DIAGNOSTICO FITOSANITARIO COMO BASE DEL MANEJO INTEGRADO DE PLAGAS
TALLER SOBRE DIAGNOSTICO FITOSANITARIO DE LAS PLANTACIONES DE CACAO.
TALLER SOBRE ELABORACIÓN DE ABONOS ORGANICOS.
TALLER SOBRE ESTABLECIMIENTO DE CACAO EN SISTEMAS AGROFORESTALES
TALLER SOBRE ESTABLECIMIENTO DE CACAO EN SISTEMAS AGROFORESTALES.
TALLER SOBRE ESTRUCTURA DE COSTO DE PRODUCCIÓN DEL CULTIVO DE CACAO.
TALLER SOBRE EVALUACIÓN DE CAMBIO MÁS SIGNIFICATIVOS LOGRADOS A TRAVÉS DEL PROYECTO EN LAS ESCUELAS DE CAMPO.
TALLER SOBRE FERTILIZACIÓN DE CACAO
TALLER SOBRE LA IMPORTANCIA DEL CULTIVO DE RAICES.
TALLER SOBRE LLENADO DE FORMATOS PARA CERTIFICACION ORGANICA
TALLER SOBRE MANEJO DE LA NUTRICIÓN EN LAS PLANTACIONES DE CACAO.
TALLER SOBRE MANEJO DE NITRONAT
TALLER SOBRE MANEJO DE RAÍCES CON ENFASIS EN FERTILIZACIÓN ORGÁNICA
TALLER SOBRE MANEJO INTEGRADO DE PLAGAS
TALLER SOBRE MEJORAMIENTO DE LA NUTRICION DE LAS PLANTACIOES DE CACAO
TALLER SOBRE MEJORAMIENTO DE LA NUTRICIÓN DE LAS PLANTACIONES DE CANELA.
TALLER SOBRE MEJORAMIENTO GENETICO DEL CACAO.
TALLER SOBRE PARATRIOZA
TALLER SOBRE PARATRIOZA II
TALLER SOBRE PLANIFICACION DE SIEMBRA Y PROYECCION DE COSECHA EN EL RUBRO FRIJOL HORTALIZAS
TALLER SOBRE PLANIFICACION DE SIEMBRA Y PROYECCION DE COSECHA EN EL RUBRO DE FRIJOL Y HORTALIZAS
TALLER SOBRE PLANIFICACIÓN DEL PLAN DE PRODUCCIÓN ORGANICA 2012
TALLER SOBRE PLANIFICACIÓN PLAN DE PRODUCCIÓN ORGANICA 2012.
TALLER SOBRE PRACTICAS DE MANEJO PARA MEJORAR LA PRODUCTIVIDAD DE LA CANELA.
TALLER SOBRE PRACTICAS DE MANEJO PARA MEJORAR LA PRODUCTIVIDAD EN EL CULTIVO DE CANELA
TALLER SOBRE PRÁCTICAS DE MANEJO PARA MEJORAR LA PRODUCTIVIDAD EN EL CULTIVO DE CANELA
TALLER SOBRE REPRODUCCIÓN DE LA PIMIENTA NEGRA.
TALLER SOBRE SUSTANCIAS TÓXICAS
TALLER USO DE INOCULANTES PARA FRIJOL (BACTERIA RHYZOBIUM)
TALLER/FISIOLOGÌA VEGETAL Y NECECIDAD VEGETATIVA/CAFÈ
TALLER: PILOTO DE FRÍJOL EN GESTIÓN DEL CONOCIMIENTO
TALLER: PILOTO DE FRÍJOL EN GESTION DEL CONOCIMIENTO EN LA EMPRESA APODER
TALLER: SEGUROS AGRÍCOLAS Y PRESENTACIÓN DE FLO-CERT
TÉCNICAS DE INJERTO EN VIVERO DE CACAO
TECNOLOGÍA DE PRODUCCIÓN DE FRIJOL PARA EXPORTACIÓN.
TECNOLOGÍAS DE NUTRICIÓN ESPECIALIZADAS PARA LA PRODUCTIVIDAD DE FRIJOL Y MAÍZ.
TIPO DE PDA Y MANEJO DE PLAGAS Y ENFERMEDADES
TRASPLANTE EN EL CULTIVO DE TOMATE.
TRATAMIENTO Y MANEJO DE AGUAS MIELES
TRIPLE LAVADO DE ENVASES QUIMICO
USO DE INSECTISIDAS Y PRACTICAS DE MANEJO/ NO QUEMA
USO DE BIOCONTROLADORES EN CULTIVOS DE QUEQUISQUE Y PIÑA.

USO DE CALDOS MINERALES PARA EL MANEJO INTEGRADO FITOSANITARIO PARA MILDIU, VELLOSO EN CULTIVO DE CHAYOTE
USO DE CALDOS, MINERALES Y BIOFERTILIZANTES
USO DE CONTROLADORES BIOLOGICOS
USO DE CUADERNO DE CAMPO
USO DE INOCULANTES EN SEMILLA DE FIJOL PARA MEJORAR RENDIMIENTOS
USO DE INSECTIDAS NATURALES
USO DE NITRONAT EN CULTIVO DE FRIJOL
USO DE PLANTULAS PARA LA PROD. DE HORTALIZAS
USO DE SISTEMAS DE RIEGO PARA PRODUCCIÓN DE FRIJOL
USO DEL PLASTICO MULCH
USO SEGURO DE BIOPLAGUICIDAS
USO SEGURO DE PLAGUICIDAS
USO Y ESTABLECIMIENTO DE TRAMPAS AMARILLAS Y AZULES
USO Y MANEJO NUTRICIONAL DE CULTIVOL DE FRIJOL
USO Y MANEJO DE AGROQUIMICOS
USO Y MANEJO DE AGUA PARA LA PRODUCCION
USO Y MANEJO DE INOCULANTE NITRONAT EN CULTIVO DE FRIJOL
USO Y MANEJO DE NITRONAT EN EL CULTIVO DE FRIJOL
USO Y MANEJO DE PROD.QUIMICOS
USO Y MANEJO DE SUELOS PARA LA AGRICULTURA Y SELECCIÓN DE CRITERIOS INDICADORES PARA MEDIR LA FERTILIZACION DE LOS SUELOS
USO Y MANEJO DE TRICHODERME Y BEAUBERIA EN LA AGRICULTURA.
USO Y MANEJO DEL PAQUETE FITOSANITARIO DE FRIJOL NICA
USO Y MANEJO SEGURO DE PLAGUICIDAS
USO Y MENEJO DE INOCULANTE PARA FRIJOL NOTRONAT
VALIDACIÓN DE 10 VARIEDADES DE PAPA
VALIDACION DE CARTA TECNOLOGICA/CAFÉ
VALIDACION DE CARTA TECNOLOGICA/MALANGA
VALIDACION DE COSTOS DE CACAO
VALIDACION DE COSTOS DE CAFÉ
VALIDACION TECNOLOGIA EN PRE-SECADORES SOLARES
VALIDACIÓN TECNOLOGÍA ENMIENDAS MINERALES
VALOR AGREGADO
VALORACION PRODUCTIVA DEL CAFÉ Y VARIEDADES ALTERNATIVAS
VENTAJAS DE LA PREPARACIÓN DE SUELO.
VENTAJAS DE LOS SISTEMAS DE RIEGO
VENTAJAS DEL MUETREO DE PLAGAS.
VIAJE DE INTERCAMBIO (ALAJUELA, SAN JOSE, HEREDIA Y CARTAGO - COSTA RICA)
VIAJE DE INTERCAMBIO DE EXPERIENCIAS CON AGRICULORES A PAÑAS BLANCAS-COSTA RICA
VIDA EN EL SUELO
VIDA EN EL SUELO Y ELABORACIÓN DE BIOFERTILIZANTE EN LA COMUNIDAD
VIDA EN EL SUELO Y ELABORACIÓN DE BIOFERTILIZANTE EN LA COMUNIDAD
VISITA DE INTERCAMBIO DE EXPERIENCIA EN MANEJO DE FRIJOL DE RIEGO
AGRICULTURA ORGÁNICA
BUENAS PRACTICAS DE MANUFACTURAS
BUENAS PRACTICAS DE MANUFACTURAS EN RAICES Y TUBERCULOS
CERTIFICACIÓN DE FINCAS
CERTIFICACIÓN Y COMERCIO JUSTO
CONSTRUCCION DE BENEFECIO ECOLÓGICO
CONTROL DE ENFERMEDADES Y MANEJO POST COSECHA EN FRIJOL
CONTROL DE PLAGAS Y ENFERMEDADES PARA CAFÉ EN DESARROLLO
DIAGNOSTICOS PRIORIZACIÓN DE RUBROS
DISEÑO E INSTALACION DE SISTEMAS DE RIEGO POR GOTEO
EXPERIENCIA EN MANEJO AGRONOMICO DE PRODUCCION DE SEMILLA DE FRIJOL
FERTILIDAD Y FERTILIZACIÓN
FERTILIDAD Y FERTILIZACIÓN DE SUELOS
FERTILIZACION FOLIAR EN HORTALIZAS
GIRA A PLANTA DE MALANGA
GIRA DE CAMPO
GIRA DE CAMPO CULTIVO DE FRIJOL SEMILLA Y COMERCIAL
GIRA DE CAMPO PRODUCCION DE SEMILLA
GIRA DE INTERCAMBIO CENTRO PRODUCCION DE PLANTULAS EN SANTA CLARA
GIRA DE INTERCAMBIO CON PRODUCTORES DE SOMOTO, PUEBLO NUEVO Y MOZONTE EN SEBACO-CARRETA QUEBRADA
GIRA DE INTERCAMBIO DE EXP. CON PROD. DE YALI EN MANEJO DE AREAS DE PROD DE SEMILLA DE FRIJOL
GIRA DE INTERCAMBIO DE EXPERIENCIA
GIRA DE INTERCAMBIO PARA VISITA A PARCELAS DE CHILE PICANTE
INTERCAMBIO DE EXPERIENCIAS CON PRODUCTORES DE SOMOTO, MOZONTE Y PUEBLO NUEVO. PARA SIEMBRA DE CHILE
INTERCAMBIO DE EXPERIENCIAS RAÍCES Y TUBERCULOS

INTERCAMBIO DE EXPERIENICIA SOBRE PRODUCCIÓN Y COMERCIALIZACIÓN DE CHILE TABASCO, ABANERO Y CAYENE
MANEJO AGRONOMICO DE MALANGA
MANEJO DE CONTROL DE BABOSAS EN CULTIVO DE FRIJOL
MANEJO DE ENFERMEDADES EN CAFETALES
MANEJO FITOSANITARIO DE FRIJOL
MANEJO POST COSECHA EN FRIJOL
MANEJO Y PRODUCCION DE SEMILLA CERTIFICADA DE FRIJOL
NUTRICION FOLIAR MILAGRO EN CULTIVO DE FRIJOL
PRESENTACION DE DIFERENTES PRODUCTOS (MILAGRO)
PRIMER ENCUENTRO DE PRODUCTORES DE CEBOLLA DE JINOTEGA
PRIORIZACIÓN DE RUBROS
PRODUCCIÓN ARTESANAL DE SEMILLA DE FRIJOL
RECOMOCIMIENTO DE PLAGAS Y ENFERMEDADES DEL CULTIVO DE FRIJOL
SEGUIMIENTO PARCELAS DE MALANGA
TALLER DE MANEJO INTEGRADO DE PLAGAS
TALLER DE MANEJO POST-COSECHA
TALLER MANEJO DE POSTCOSECHA
TALLER MANEJO INTEGRADO DE PLAGAS
TRAZABILIDAD E INOCUIDAD DE LOS PRODUCTOS
USO DEL RIEGO

6.2.3. Environmental Program

Water

ADMINISTRACIÓN DE SISTEMAS DE AGUA POTABLE RURALES.
AGUA POTABLE Y SALUD PREVENTIVA
AGUA POTABLE Y SANEAMIENTOS
AGUA SEGURA PARA TODOS
AGUA Y SANEAMIENTO
AGUA Y SANEAMIENTOS
AGUA Y SANIAMIENTO
APROBECHAMIENTO DE OBRAS DE CONSERVACION DE SUELO Y AGUA PARA LA CERTIFICACIÓN
BENEFICIADO HUMEDO Y EL BUEN USO DEL AGUA
BUEN USO DEL AGUA PARA LA PRODUCCIÓN
BUEN USO DEL AGUA PARA LA PRODUCCIÓN Y LEY GENERAL DE AGUA 620
BUENAS PRACTICA AGRICOLAS
BUENAS PRACTICAS PARA EVITAR CONTAMINACIÓN DEL AGUA
CAPACITACIÓN A COMITÉ DE AGUA POTABLE
CAPACITACIÓN A COMITES DE AGUA POTABLE Y SANEAMIENTO
CAPACITACION EN DISEÑO Y ESTABLECIMIENTO DE PRACTICAS DE CONSERVACION DE SUELOS Y AGUAS
CAPACITACION EN GENERO Y CALIDAD DE AGUA
CHARLA DE USO Y MANEJO DE AGUA PARA CONSUMO DOMESTICO Y USO ADECUADO DEL FILTRO
COMITÉ DE AGUA POTABLE / CAPS LEY 722
COMITÉ DE AGUA POTABLE / CAPS LEY 723
COMITÉ DE AGUA POTABLE / CAPS LEY 724
COMITÉ DE AGUA POTABLE / CAPS LEY 725
COMITÉ DE AGUA POTABLE / CAPS LEY 726
CONCEPTOS BASICOS DE GENERO Y MEDIO AMBIENTE
CONOCER Y APROBAR REGLAMENTOS DEL CAPS
CONSERVACIÓN DE LAS FUENTES DE AGUA/JORNADA DE LIMPIEZA
CONSERVACIÓN DE SUELO
CONSERVACIÓN DE SUELO Y AGUA
CONSERVACION DE SUELOS
CONSULTA PRESUPUESTARIA
CONSULTA PRESUPUESTARIA MUNICIPAL
CONSULTA PRESUPUESTARIA MUNICIPAL
DESARROLLO DEL PROESO DE CONSULTA COMUNITARIA
DIA DE CAMPO EN CONSERVACIÓN DE SUELO Y AGUA (C.S.A)
ESTABLECIMIENTO DE OBRAS DE CONCERVACION DE SUELOS Y AGUAS
GENERO Y CALIDAD DE AGUA
GENERO Y MEDIO AMBIENTE
GÉNERO Y MEDIO AMBIENTE
GIRA DE INTERCAMBIO DE CONOCIEMIENTOS EN MANEJO DE AGUA
GIRA DE INTERCAMBIO MEJORES PRACTICAS PARA EL MANEJO DE AGUA
GIRA DE INTERCAMBIO SOBRE COSERVACION DE SUELO
GIRA DE INTERCAMBIO SOBRE OBRAS DE CONSERVACIÓN DE SUELOS Y AGUAS
GIRA INTERCAMBIO SOBRE OBRAS DE CONSERVACIÓN DE SUELOS Y AGUAS
GIRA SOBRE CONSERVACIÓN DE SUELO Y AGUA (CSA)

HABITOS DE HIGIENE AMBIETAL, PERSONAL Y DE LOS ALIMENTOS.
HIGIENE ALIMENTOS, PERSONAL Y AMBIENTAL
HIGIENE AMBIENTAL, HIGIENE PERSONAL E HIGIENE DE LOS ALIMENTOS
HIGIENE DE LOS ALIMENTOS
HIGIENE DE PERSONAL, HIGIENE DE LOS ALIMENTOS E HIGIENE AMBIENTAL
HOGARES SALUDABLE
HOGARES SALUDABLES
HOGARES SALUDABLES
INTERCAMBIO ENTRE PRODUCTORES DE COMISIONES DE EDUCACION SOBRE LEY AMBIENTAL.
INTERCAMBIO ENTRE PRODUCTORES Y TECNICOS SOBRE LEY AMBIENTAL
INTERCAMBIO ENTRE TECNICOS Y PRODUCTORES EN EL BUEN USO DEL AGUA.
INTERCAMBIO TECNICO EN TEMA LEY AMBIENTAL
INTERCAMBIO TECNICO LEY AMBIENTAL
INVERCIONES DEL GOBIERNO LOCAL Y LAS DEMANDAS DEL SECTOR PÚBLICO
LEY ESPECIAL DELITOS CONTRA EL MEDIO AMBIENTE Y RECURSOS NATURALES
LEY 40
LEY 620 LEY DE AGUA (FUNCIONAMIENTO DE LOS APS)
LEY AMBIENTAL Y USO SEGURO DE PLAGUICIDAS
LEY BASICA PARA REGULACION Y CONTROL DE PLAGUISIDAS LEY 274
LEY COMITÉ DE AGUA Y SANEAMIENTO / CAPS
LEY DE AGUA
LEY DE AGUA Y LEY DE LOS CAPS
LEY DE AGUA, LEY DE CAPS
LEY DE LOS COMITÉ DE AGUA POTABLE
LEY DE MEDIO AMBIENTE Y LEY DE PLAGUICIDAS
LEY DE MEDIO AMBIENTE Y LOS RECURSOS NATURALES
LEY DE MEDIO AMBIENTE Y RECURSOS NATURALES
LEY DE PALGUICIDAS (LEY 274)
LEY DE PLAGUICIDAS
LEY DE PLAGUICIDAS Y MEDIO AMBIENTE
LEY DE PLAGUICIDAS Y MEIO AMBIENTE
LEY DE PLAGUICIDAS, SUSTANCIAS TOXICAS OTRAS
LEY DEL AGUA
LEY DEL AGUA Y PROTECCION DE FUENTES HIDRICAS
LEY ESPECIAL DE AGUA Y CAPS
LEY GENERAL DE AGUA 620 PARA LA PRODUCCIÓN
LEY GENERAL DE AGUAS NACIONALES
LEY GENERAL DE AGUAS NACIONALES Y PROTECCIÓN DE FUENTES HÍDRICAS
LEY GENERAL DE PLAGUISIDAS
LEY GENERAL DEL MEDIO AMBIENTE Y SUS REFORMAS /COMPONENTE AGUA
MANEJO DE AGUA DE CONSUMO
MANEJO DE AGUA DE CONSUMO DOMESTICO/HUMANO
MANEJO DE AGUA DE COSUMO Y RIEGO
MANEJO DE AGUA PARA CONSUMO DOMESTICO
MANEJO DE AGUA PARA CONSUMO DOMESTICO
MANEJO DE AGUA PARA LA PRODUCCIÓN
MANEJO DE AGUA PARA USO DOMÉSTICO (ACUEDUCTO RURAL)
MANEJO DE OBRAS DE CONSERVACIÓN DE SUELOS Y AGUA
MANEJO DE PLAGUICIDAS
MANEJO DE PRODUCCIÓN DE PESTICIDAS EN BODEGAS
MANEJO DEL AGUA PARA CONSUMO DOMESTICO
MANEJO DEL AGUA PARA CONSUMO HUMANO
MANEJO USO DE AGUA DE CONSUMO DOMESTICO
MANEJO Y PROTECCIÓN DEL RECURSO AGUA.
MANEJO Y SOSTENIBILIDAD DE LOS SISTEMAS DE AGUA POTABLE, CALIDAD DE AGUA.
MANEJO Y USO AGUA DE CONSUMO
MANEJO Y USO DE AGUA PARA CONSUMO HUMANO
MANEJO Y USO DE PLAGUICIDAS
METODOLOGIA PARA LA CONSTRUCCIÓN DE DIQUES
METODOS Y TECNICAS PARA DESINFECTAR AGUA DE CONSUMO
OBRA DE AGUA (RETENCION) Y USO RACIONAL DEL AGUA
ORDENANZA MUNICIPAL
PLAN DE MANEJO FORESTAL
PROCEDIMIENTO PARA CONTROL DE AGUA EN EL CENTRO DE ACOPIO C.Q
PROTECCIÓN Y CONSERVACIÓN DE LAS FUENTES DE AGUA
REFORESTACIÓN DE AREA CON FUENTES DE AGUA
REFORESTACIÓN EN ÁREAS CON FUENTES DE AGUA
REFORESTACION EN FUENTES DE AGUA
REGLAMENTTO DE LOS CAPS, CONFORMACIÓN DE LOS CAPS
SALUD PREVENTIVA Y CALIDAD DE AGUA
SALUD PREVENTIVA Y CALIDAD DE AGUA.

SANEAMIENTO SOBRE AGUA POTABLE
SECIÓN DE REFLEXIÓN AGUA Y SANEAMIENTO
SESIÓN DE REFLEXIÓN AGUA Y SANEAMIENTO
SUMINISTRO DE AGUA Y SANEAMIENTO E HIGIENE DE LOS CAPS.
TALLER DE SEGUIMIENTO A LOS CAPS
TALLER SOBRE LEGALIZACIÓN DE LOS CAPS
TALLER AGUA PARA LA PRODUCCION
TALLER BUENAS PRACTICAS AGRICOLAS
TALLER COMITE DE AGUA POTABLE
TALLER DE HIGIENE Y SALUD DE LOS ALIMENTOS
TALLER FAMILIA SALUDABLE (ENFERMEDADES EL CÓLERA, LA INFLUEZA HUMANA, LA GRIPE, LA DIARREA , LECTOSPIROSIS)
TALLER LEGALIZACIÓN DE LOS CAPS
TALLER MANEJO DE AGUA
TALLER MANEJO DE AGUA DE CONSUMO
TALLER SESIÓN DE REFLEXIÓN AGUA Y SANIAMIENTO
TALLER SOBRE HIGIENE DE LOS ALIMENTOS, PERSONAL Y AMBIENTAL.
TALLER SOBRE LEYES DE FUNCIONAMIENTOS DE LOS CAPS
TALLER: MANEJO SANITARIO Y BUEN USO DEL AGUA
TECNICAS DE POTABILIZACIÓN DE AGUA
TECNICAS EN MANEJO DE AGUA
USO DE MANEJO DE COCINAS PELUCERAS
USO EFICIENTE Y AHORRO DEL AGUA
USO Y CONSUMO DE AGUA DE PRODUCCIÓN
USO Y MANEJO DE AGUA
USO Y MANEJO DE AGUA EN LA PRODUCCIÓN
USO Y MANEJO DE AGUA PARA CONSUMO
USO Y MANEJO DE AGUA POTABLE
USO Y MANEJO DE CONSUMO DE AGUA DOMESTICA
USO Y MANEJO DE COSINAS PELUCERAS
USO Y MANEJO DE PLAGUICIDAS
USO Y MANEJO DE PLAGUICIDAS EN BODEGAS
USO Y MANEJO DE SISTEMAS AGROFORESTALES
VIAJE DE INTERCAMBIO PARA MEJORAR MANEJO DE AGUA TECNICAS DE MANEJO DE AGUA
ADMINISTRACIÓN DE SISTEMAS DE AGUA POTABLE RURALES.
AGUA POTABLE Y SALUD PREVENTIVA
AGUA POTABLE Y SANEAMIENTOS
AGUA SEGURA PARA TODOS
AGUA Y SANEAMIENTO
AGUA Y SANEAMIENTOS
AGUA Y SANIAMIENTO
APROBECHAMIENTO DE OBRAS DE CONSERVACION DE SUELO Y AGUA PARA LA CERTIFICACIÓN
BENEFICIADO HUMEDO Y EL BUEN USO DEL AGUA
BUEN USO DEL AGUA PARA LA PRODUCCIÓN
BUEN USO DEL AGUA PARA LA PRODUCCIÓN Y LEY GENERAL DE AGUA 620
BUENAS PRACTICA AGRICOLAS
BUENAS PRACTICAS PARA EVITAR CONTAMINACIÓN DEL AGUA
CAPACITACIÓN A COMITÉ DE AGUA POTABLE
CAPACITACIÓN A COMITES DE AGUA POTABLE Y SANEAMIENTO
CAPACITACION EN DISEÑO Y ESTABLECIMIENTO DE PRACTICAS DE CONSERVACION DE SUELOS Y AGUAS
CAPACITACION EN GENERO Y CALIDAD DE AGUA
CHARLA DE USO Y MANEJO DE AGUA PARA CONSUMO DOMESTICO Y USO ADECUADO DEL FILTRO
COMITÉ DE AGUA POTABLE / CAPS LEY 722
COMITÉ DE AGUA POTABLE / CAPS LEY 723
COMITÉ DE AGUA POTABLE / CAPS LEY 724
COMITÉ DE AGUA POTABLE / CAPS LEY 725
COMITÉ DE AGUA POTABLE / CAPS LEY 726
CONCEPTOS BASICOS DE GENERO Y MEDIO AMBIENTE
CONOCER Y APROBAR REGLAMENTOS DEL CAPS
CONSERVACIÓN DE LAS FUENTES DE AGUA/JORNADA DE LIMPIEZA
CONSERVACIÓN DE SUELO
CONSERVACIÓN DE SUELO Y AGUA
CONSERVACION DE SUELOS
CONSULTA PRESUPUESTARIA
CONSULTA PRESUPUESTARIA MUNICIPAL
CONSULTA PRESUPUESTARIA MUNICIPAL
DESARROLLO DEL PROESO DE CONSULTA COMUNITARIA
DIA DE CAMPO EN CONSERVACIÓN DE SUELO Y AGUA (C.S.A)
ESTABLECIMIENTO DE OBRAS DE CONCERVACION DE SUELOS Y AGUAS
GENERO Y CALIDAD DE AGUA
GENERO Y MEDIO AMBIENTE

GÉNERO Y MEDIO AMBIENTE
GIRA DE INTERCAMBIO DE CONOCIEMIENTOS EN MANEJO DE AGUA
GIRA DE INTERCAMBIO MEJORES PRACTICAS PARA EL MANEJO DE AGUA
GIRA DE INTERCAMBIO SOBRE COSERVACION DE SUELO
GIRA DE INTERCAMBIO SOBRE OBRAS DE CONSERVACIÓN DE SUELOS Y AGUAS
GIRA INTERCAMBIO SOBRE OBRAS DE CONSERVACIÓN DE SUELOS Y AGUAS
GIRA SOBRE CONSERVACIÓN DE SUELO Y AGUA (CSA)
HABITOS DE HIGIENE AMBIETAL, PERSONAL Y DE LOS ALIMENTOS.
HIGIENE ALIMENTOS, PERSONAL Y AMBIENTAL
HIGIENE AMBIENTAL, HIGIENE PERSONAL E HIGIENE DE LOS ALIMENTOS
HIGIENE DE LOS ALIMENTOS
HIGIENE DE PERSONAL, HIGIENE DE LOS ALIMENTOS E HIGIENE AMBIENTAL
HOGARES SALUDABLE
HOGARES SALUDABLES
HOGARES SALUDABLES
INTERCAMBIO ENTRE PRODUCTORES DE COMISIONES DE EDUCACION SOBRE LEY AMBIENTAL.
INTERCAMBIO ENTRE PRODUCTORES Y TECNICOS SOBRE LEY AMBIENTAL
INTERCAMBIO ENTRE TECNICOS Y PRODUCTORES EN EL BUEN USO DEL AGUA.
INTERCAMBIO TECNICO EN TEMA LEY AMBIENTAL
INTERCAMBIO TECNICO LEY AMBIENTAL
INVERCIONES DEL GOBIERNO LOCAL Y LAS DEMANDAS DEL SECTOR PÚBLICO
LEY ESPECIAL DELITOS CONTRA EL MEDIO AMBIENTE Y RECURSOS NATURALES
LEY 40
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LEY AMBIENTAL Y USO SEGURO DE PLAGUICIDAS
LEY BASICA PARA REGULACION Y CONTROL DE PLAGUISIDAS LEY 274
LEY COMITÉ DE AGUA Y SANEAMIENTO / CAPS
LEY DE AGUA
LEY DE AGUA Y LEY DE LOS CAPS
LEY DE AGUA, LEY DE CAPS
LEY DE LOS COMITÉ DE AGUA POTABLE
LEY DE MEDIO AMBIENTE Y LEY DE PLAGUICIDAS
LEY DE MEDIO AMBIENTE Y LOS RECURSOS NATURALES
LEY DE MEDIO AMBIENTE Y RECURSOS NATURALES
LEY DE PALGUICIDAS (LEY 274)
LEY DE PLAGUICIDAS
LEY DE PLAGUICIDAS Y MEDIO AMBIENTE
LEY DE PLAGUICIDAS Y MEIO AMBIENTE
LEY DE PLAGUICIDAS, SUSTANCIAS TOXICAS OTRAS
LEY DEL AGUA
LEY DEL AGUA Y PROTECCION DE FUENTES HIDRICAS
LEY ESPECIAL DE AGUA Y CAPS
LEY GENERAL DE AGUA 620 PARA LA PRODUCCIÓN
LEY GENERAL DE AGUAS NACIONALES
LEY GENERAL DE AGUAS NACIONALES Y PROTECCIÓN DE FUENTES HÍDRICAS
LEY GENERAL DE PLAGUISIDAS
LEY GENERAL DEL MEDIO AMBIENTE Y SUS REFORMAS /COMPONENTE AGUA
MANEJO DE AGUA DE CONSUMO
MANEJO DE AGUA DE CONSUMO DOMESTICO/HUMANO
MANEJO DE AGUA DE COSUMO Y RIEGO
MANEJO DE AGUA PARA CONSUMO DOMESTICO
MANEJO DE AGUA PARA CONSUMO DOMESTICO
MANEJO DE AGUA PARA LA PRODUCCIÓN
MANEJO DE AGUA PARA USO DOMÉSTICO (ACUEDUCTO RURAL)
MANEJO DE OBRAS DE CONSERVACIÓN DE SUELOS Y AGUA
MANEJO DE PLAGUICIDAS
MANEJO DE PRODUCCIÓN DE PESTICIDAS EN BODEGAS
MANEJO DEL AGUA PARA CONSUMO DOMESTICO
MANEJO DEL AGUA PARA CONSUMO HUMANO
MANEJO USO DE AGUA DE CONSUMO DOMESTICO
MANEJO Y PROTECCIÓN DEL RECURSO AGUA.
MANEJO Y SOSTENIBILIDAD DE LOS SISTEMAS DE AGUA POTABLE, CALIDAD DE AGUA.
MANEJO Y USO AGUA DE CONSUMO
MANEJO Y USO DE AGUA PARA CONSUMO HUMANO
MANEJO Y USO DE PLAGUICIDAS
METODOLOGIA PARA LA CONSTRUCCIÓN DE DIQUES
METODOS Y TECNICAS PARA DESINFECTAR AGUA DE CONSUMO
OBRA DE AGUA (RETENCION) Y USO RACIONAL DEL AGUA
ORDENANZA MUNICIPAL
PLAN DE MANEJO FORESTAL
PROCEDIMIENTO PARA CONTROL DE AGUA EN EL CENTRO DE ACOPIO C.Q

PROTECCIÓN Y CONSERVACIÓN DE LAS FUENTES DE AGUA
REFORESTACIÓN DE AREA CON FUENTES DE AGUA
REFORESTACIÓN EN ÁREAS CON FUENTES DE AGUA
REFORESTACION EN FUENTES DE AGUA
REGLAMENTTO DE LOS CAPS, CONFORMACIÓN DE LOS CAPS
SALUD PREVENTIVA Y CALIDAD DE AGUA
SALUD PREVENTIVA Y CALIDAD DE AGUA.
SANEAMIENTO SOBRE AGUA POTABLE
SECIÓN DE REFLEXIÓN AGUA Y SANEAMIENTO
SESIÓN DE REFLEXIÓN AGUA Y SANEAMIENTO
SUMINISTRO DE AGUA Y SANEAMIENTO E HIGIENE DE LOS CAPS.
TALLER DE SEGUIMIENTO A LOS CAPS
TALLER SOBRE LEGALIZACIÓN DE LOS CAPS
TALLER AGUA PARA LA PRODUCCION
TALLER BUENAS PRACTICAS AGRICOLAS
TALLER COMITE DE AGUA POTABLE
TALLER DE HIGIENE Y SALUD DE LOS ALIMENTOS
TALLER FAMILIA SALUDABLE (ENFERMEDADES EL CÓLERA, LA INFLUEZA HUMANA, LA GRIPE, LA DIARREA , LECTOSPIROSIS)
TALLER LEGALIZACIÓN DE LOS CAPS
TALLER MANEJO DE AGUA
TALLER MANEJO DE AGUA DE CONSUMO
TALLER SESIÓN DE REFLEXIÓN AGUA Y SANIAMIENTO
TALLER SOBRE HIGIENE DE LOS ALIMENTOS, PERSONAL Y AMBIENTAL.
TALLER SOBRE LEYES DE FUNCIONAMIENTOS DE LOS CAPS
TALLER: MANEJO SANITARIO Y BUEN USO DEL AGUA
TECNICAS DE POTABILIZACIÓN DE AGUA
TECNICAS EN MANEJO DE AGUA
USO DE MANEJO DE COCINAS PELUCERAS
USO EFICIENTE Y AHORRO DEL AGUA
USO Y CONSUMO DE AGUA DE PRODUCCIÓN
USO Y MANEJO DE AGUA
USO Y MANEJO DE AGUA EN LA PRODUCCIÓN
USO Y MANEJO DE AGUA PARA CONSUMO
USO Y MANEJO DE AGUA POTABLE
USO Y MANEJO DE CONSUMO DE AGUA DOMESTICA
USO Y MANEJO DE COSINAS PELUCERAS
USO Y MANEJO DE PLAGUICIDAS
USO Y MANEJO DE PLAGUICIDAS EN BODEGAS
USO Y MANEJO DE SISTEMAS AGROFORESTALES
VIAJE DE INTERCAMBIO PARA MEJORAR MANEJO DE AGUA TECNICAS DE MANEJO DE AGUA

Environmental management

BPA ETA`S, EFECTOS DE PLAGUICIDAS EN LA SALUD, Y REGISTROS E INFRAESTRUCTURAS BASICA .
CAMBIO CLIMATICO
CAMBIO CLIMATICO ENFOCADO A CAFÉ
CAMBIO CLIMATICO Y CALENTAMIENTO GLOBAL
CAPACITACION A PROMOTORES EN CAMBIO CLIMATICO, MEDIO AMBIENTE SEGURIDAD E HIGIENE
COCIENCIA AMBIENTAL
CONSTRUCCION, USO Y MANEJO DE BIODIGESTORES
DISEÑO Y MANEJO DE BIODIGESTORES TUBULARES PLASTICOS
EFECTO Y MANEJO DE SUSTANCIAS TÓXICAS
ELABORACIÓN DE PLAN DE MITIGACIÓN AMBIENTAL.
EQUIPOS DE PROTECCIÓN PARA LA APLICACIÓN DE PESTICIDAS
FERIA ECOLOGICA
FORO AMBIENTAL
HIGIENE AMBIENTAL Y SALUD PREVENTIVA
III FERIA-FORO DEL CACAO DE LA RESERVA DE BIOSFERA DE R.S.J.
IMPORTANCIA DE EQUIPOS DE PROTECCION Y CALIBRACION DE EQUIPOS.
INTERCAMBIO DE EXPERIENCIA MANEJO DE LETRINAS CON BIODIGESTORES
JORNADA ECOLOGICA
LEY BASICA PARA LA REGULACION Y CONTROL DE PLAGUICIDAS Y LEY DEL MEDIO AMBIENTE
LEY PROTECCIÓN MEDIO AMBIENTE
LLL FERIA FORO DEL CACAO DE LA RESERVA BIOSFERA DE CACAO EN RIO SAN JUA
MANEJO DE PLAGUICIDAS Y SUSTANCIA TOXICAS
MEDIO AMBIENTE / PREVENCIÓN CONTRA INCENDIOS FORESTALES.
MEDIO AMBIENTE: AGUA Y RECURSOS NATURALES
PILOTAJE SERVICIOS AMBIENTALES
PRESENTACION DE MANUAL DE ORIENTACION SOBRE USO RESPONSABLE DE AGROQUIMICOS Y PROGRAMA CAMPO LIMPIO

PRESENTACIÓN DE RESULTADOS DE PRESECADORES SOLARES A INSTITUCIONES
REFORESTACION DE BOSQUES (MUNICICPALISMO)
REFORESTACION Y MANEJO DE BOSQUES PARA PROTECCION DE MEDIO AMBIENTE
SISTEMA DE EVALUACIÓN AMBIENTAL
TALLER AMBIENTAL
TALLER AMBIENTAL
TALLER DE MANEJO DE PLAGUICIDAS Y SUSTANCIAS TOXICAS
TALLER MANEJO DE PLAGUICIDAS Y SUSTANCIA TÓXICAS
TALLER MEDIO AMBIENTE, INCENDIOS FORESTALES
TALLER MEDIOAMBIENTAL
TALLER SOBRE CAMBIO CLIMATICOS
TALLER SOBRE DELITOS AMBIENTALES
TALLER SOBRE EL MANEJO DE SUSTANCIAS TOXICAS
TALLER SOBRE LOS EFECTOS DEL CAMBIO CLIMATICO EN EL CULTIVO DEL CACAO
TALLER SOBRE PREVENCIÓN DE INCENDIOS FORESTALES
TALLER USO Y MANEJO DE PLAGUICIDAS / GÉNERO
TIS, CAPTACION DIOXIDO DE CARBONO
USO DE AGROQUIMICOS Y MANEJO PRODUCTIVO DE FRÍJOL
USO DEL TRICHOMAX Y ELABORACIÓN DEL PLAN DE MITIGACIÓN.
USO Y MANEJO DE BIODIGESTORES
USO Y MANEJO DE BIOPLAGUICIDAS

6.2.4. Gender Program

ATENCIÓN MEDICA EN LA COMUNIDAD
AUTO ESTIMA
AUTOESTIMA Y GÉNERO
AUTOESTIMA Y LIDERAZGO
AUTOESTIMA, LIDERAZGO Y TOMA DE DECISIONES
CADENA DE VALOR DE LA PAPA, CON ENFOQUE DE GÉNERO
CAPACITACIÓN SOBRE AUTOESTIMA Y GÉNERO
CAPACITACIÓN SOBRE GÉNERO Y CALIDAD DE AGUA.
CINE FORO DE CUIDO PERSONAL
COMUNICACIÓN NO VIOLENTA
CONCEPTUALIZACIÓN DE LA ESTRATEGIA DE GENERO
CONCEPTUALIZACIÓN DE LA ESTRATEGIAS DE GENERO
CONSTRUCCIÓN DE LA POLITICA DE GENERO
COOPERATIVISMO Y GÉNERO
COORDINACIÓN DEL FUNCIONAMIENTO DEL GRUPO DE MUJERES EN LA COMERCIALIZACIÓN DE LA CANELA
CUIDO PERSONAL
DAR A CONOCER LA ESTRATEGIA DE GÉNERO DEL PROYECTO ACORDAR
DAR A CONOCER LA POLITICA DE GÉNERO DEL PROYECTO ACORDAR
DESARROLLO EMPRERSARIAL CON EQUIDAD DE GENERO
DESARROLLO EMPRESARIAL CON EQUIDAD DE GENERO
DESARROLLO EMPRESARIAL Y GENERO
DESARROLLO EMPRESARIAL Y GÉNERO
DESARROLLO HUMANO Y AUTOESTIMA
DESIMINACIÓN DE LAS POLITICAS DE GENERO
DISEMINACIÓN DE LA POLITICA DE GENERO
DISEMINACIÓN DE LA POLÍTICA DE GÉNERO
DISEMINACION DE LAS POLITICAS Y ESTRATEGIAS DE GENERO
DISEMINACIÓN DE POLITICA DE GÉNERO
DISEMINACION DE POLITICAS Y ESTRATEGIAS DE GENERO
DISEMINACION E IMPLEMENTACION DE POLITICAS Y ESTRATEGIA DE GENERO CON DIRECTIVOS
DIVULGACION DE POLITICA DE GENERO ACORDAR EN CECOOPSEMEIN
ELABORACIÓN POLÍTICAS DE GÉNERO Y MEDIO AMBIENTE
ENCUENTRO ANUAL DE MUJERES
EQUIDAD DE GENERO
EQUIDAD DE GENERO EN CADENAS DE VALOR DE R&T
ESTRETAGIA DE GÉNERO DEL PROYECTO ACORDAR
EVALUACIÓN Y MONITOREO DE INDICADORES DE GENERO
FORO: CADENAS DE VALOR CON ROSTRO DE MUJER
FORTALECIMIENTO DE LAS CAPACIDADES PARA UNA ASESORIA TECNICA CON ENFOQUE DE GENERO
GENERO
GÉNERO Y AUTOESTIMA
GENERO Y BPA
GENERO Y BUENAS PRACTICAS AGRICOLAS
GÉNERO Y CALIDAD DE AGUA
GÉNERO Y LIDERAZGO
GÈNERO Y MEDIO AMBIENTE
GRUPO FOCAL SISTEMATIZACION GENERO

IDENTIDAD DE GÉNERO
IMPLEMENTACION DE POLITICA DE GENERO EN GRUPOS DE MUJERES PRODUCTORAS DE ABONO ORGANICO LOMBRIHUMUS
INTERCAMBIO CON ORGANIZACIONES SOCIAS DE FLO EN EL PROCESO DE PILOTAJE DE INDICADORES DE GENERO
LIDERAZGO
LIDERAZGO EMPRESARIAL Y GÉNERO.
LIDERAZGO Y AUTOESTIMA
MONITOREO Y EVALUACIÓN DE LOS INDICADORES DE GÉNERO (ENCUENTRO CON PROMOTORAS)
PARTICIPACION EN FERIA SOBRE EQUIDAD DE GENERO (PRESENTACION DE GRUPOS DE MUJERES PRODUCTORAS DE LOMBRIHUMUS Y PRESENTACION DE BANDEJAS DE PLANTULAS
PARTICIPACION EN TALLER: DISEÑO Y FACILITACION DE EVENTOS EDUCATIVOS, DIRIGIDOS A MUJERES SOCIAS DE COOPERATIVAS (EDUCACION POPULAR)
PARTICIPACIÓNEN ENCUENTRO DEPARTAMENTAL DE PROMOTORAS EN GÉNERO
POLITICA DE GENERO
POLITICAS DE GÉNERO Y MEDIO AMBIENTE
PRESUPUESTOS Y FLUJOS DE CAJA
PRIMER FORO DE GÉNERO
PRINCIPIOS DE LIDERASGO Y MOTIVACION
PROTECCION, SALUD E HIGIENE AMBIENTAL Y DEL AGUA
PSICOLOGIA DE RELACIONES HUMANAS
RELACIONES HUMANAS
SALUD PREVENTIVA Y ATENCION MEDICA
TALLER DE CONSULTA PARA LA ELABORACIÓN POLITICA DE GENERO
TALLER A GRUPO DE MUJERES SOBRE DESARROLLO EMPRESARIAL
TALLER AUTOESTIMA
TALLER DE GENERO
TALLER DE GENERO SOBRE BUENA COMUNICACIÓN Y TOMA DE DECISIONES
TALLER DE LIDERAZGO EMPRESARIAL PARA INTEGRAR MUJERES A LAS COOPERATIVAS
TALLER DE LIDERAZGO EMPRESARIAL Y GENERO
TALLER DESARROLLO EMPRESARIAL Y GENERO
TALLER PARTICIPATIVO DE CONSULTA PARA LA ELABORACIÓN DE LA POLÍTICA DE GÉNERO.
TALLER PARTICIPATIVO DE GÉNERO. FORMULACION POLITICAS
TALLER PARTICIPATIVO PARA ELABORACION DE POLITICAS DE GENERO Y MEDIO AMBIENTE
TALLER PARTICIPATIVO PARA ELABORAR POLÍTICA DE GÉNERO Y MEDIO AMBIENTE DE COMULSAN
TALLER PARTICIPATIVO SOBRE GÉNERO Y MEDIO AMBIENTE
TALLER SOBRE CAMBIO MAS SIGNIFICATIVO A MUJERES DE COOPERATAIVAS DE BASE
TALLER SOBRE DISEMINACIÓN DE LAS POLITICAS DE GENERO
TALLER SOBRE FORMULACIÓN DE ESTRATEGIA DE TRABAJO DE GRUPO DE MUJERES DE CANELA
TALLER: GÉNERO Y LIDERAZGO
VIOLENCIA INTRAFAMILIAR
CONCEPTUALIZACIÓN DE GÉNERO

6.2.5. Post-harvest Program

Manufacturing practices

MANIPULADORES DE ALIMENTOS
MANUAL DE BPM Y CALIDAD Y SUS ANEXOS (PROCEDIMIENTOS, INSTRUCTIVOS Y REGISTROS)
USO DE EXTINTORES

Post-harvest management

ALMACENAMIENTO Y MANEJO DE GRANOS
CALCULO E IDENTIFICACION DE PARAMETROS DE CALIDAD DE FRIJOL
CAPACITACION SOBRE PROCESO DE ACOPIO, FERMENTO, SECADO Y CALIDA DEL CACAO.
COSECHA Y POSTCOSECHA DE LAS PLANTACIONES DE CANELA
CRITERIOS PARA CUANTIFICAR LA CALIDAD DE FRIJOLES
DEMOSTRACION DE PARAMETROS DE FRIJOL NEGRO
ECA - WISCOYOL; COSECHA Y DÍA DE CAMPO.
INSTALACION DE PLASTICO EN PRE SECADOR
INTERCAMBIO DE EXPERIENCIA EN COSECHA Y POST-COSECHA EN CANELA
INTERCAMBIO EXPERIENCIA PRESECADOR ARTESANAL
MANEJO DE CALIDAD EN LA COSECHA Y POST-COSECHA DE CACAO
MANEJO DE CALIDAD EN LA COSECHA Y POST-COSECHA DEL CACAO
MANEJO DE LA CALIDAD DEL CACAO EN LOS PROCESOS DE COSECHA Y POST COSECHA
MANEJO DE LA CALIDAD EN LA COSECHA Y POST COSECHA DEL CACAO.
MANEJO DE LA CALIDAD EN LA COSECHA Y POSTCOSECHA DE CACAO
MANEJO DE LA CALIDAD EN LA COSECHA Y POSTCOSECHA DEL CACAO
MANEJO DE LA CALIDAD EN LOS PROCESOS DE COSECHA Y POST COSECHA DE CACAO.

MANEJO DE LA CALIDAD EN LOS PROCESOS DE COSECHA Y POST COSECHA DEL CACAO.
MANEJO DE LA CALIDAD EN LOS PROCESOS DE COSECHA Y POSTCOSECHA DEL CACAO
MANEJO DE POSTCOSECHA DE CACAO
MANEJO FITOSANITARIO
MANEJO POS- COSECHA
MANEJO POSCOSECHA DE PAPAYA E INTRODUCCION A LAS BPA
MANEJO POST COSECHA
MANEJO POST COSECHA DE CACAO
MANEJO POST COSECHA DE CACAO
MANEJO POST COSECHA DE CULTIVO DE TOMATE Y MANEJO DE PARATRIOZA
MANEJO POST COSECHA DE FRIJOL
MANEJO POST COSECHA DE GRANOS
MANEJO POST COSECHA DEL CACAO
MANEJO POST COSECHA EN EL CULTIVO DE FRIJOL
MANEJO POST COSECHA EN EL CULTIVO DE MALANGA
MANEJO POST COSECHA EN GRANOS BASICOS
MANEJO POST COSECHA EN PLATANO
MANEJO POST COSECHA EN SEMILLA DE FRIJOL
MANEJO POST COSECHA, HORTALIZAS Y GRANOS BASICOS EN FINCAS BPA
MANEJO POSTCOSECHA
MANEJO POSTCOSECHA DE FRIJOL
MANEJO POST-COSECHA DE FRÍJOL CON PRODUCTORES DE LA ORGANIZACIÓN APODER.
MANEJO POST-COSECHA EN CULTIVO DE CEBOLLA
MANEJO POST-COSECHA EN CULTIVO DE QUEQUISQUE.
MANEJO POSTCOSECHA EN HORTALIZAS Y GRANOS BASICOS
MANEJO POSTCOSECHA Y PARAMETROS PARA ACOPIO DE FRIJOL SEMILLA Y COMERCIAL
POS COSECHA
POSCOSECHA EN GRANOS BASICOS, PRUEBA DE HUMEDAD
POST COSECHA DE CULTIVO DE FRIJOL
POST COSECHA EN CACAO
POST COSECHA EN EL CULTIVO DE CACAO
POST COSECHA EN HORTALIZAS
POST COSECHA FRIJOL
POST-COSECHA DE HORTALIZAS
POSTCOSECHA EN CULTIVO DE FRIJOL
POST-COSECHA Y PROCESAMIENTO DE SEMILLA DE FRIJOL.
PRACTICAS DE CORTE DE CHILOTE
PRESENTACION RESULTADOS BENEFICIADO HUMEDO CAFE Y PRESECADORES SOLARES
TALLER DE COSECHA Y MANEJO POST-COSECHA DE LA CANELA
TALLER EN ENTRENAMIENTO EN SERVICIO TEORICO-PRACTICO SOBRE POSTCOSECHA EN CACAO
TALLER MANEJO POSTCOSECHA DE FRIJOL
TALLER POSTCOSECHA CULTIVO DE FRIJOL
TALLER POSTCOSECHA EN EL CULTIVO DE MALANGA
TALLER SOBRE COSECHA Y POST COSECHA DE LAS PLANTACIONES DE CANELA
TALLER SOBRE IMPLEMENTACIÓN DE LA RED DE ACOPIOS COMUNALES PARA GARANTIZAR LA COMERCIALIZACIÓN DEL CACAO.
TALLER SOBRE LEVANTAMIENTO DE ESTIMADOS DE COSECHA
TALLER SOBRE MANEJO DE LA CALIDAD EN LA COSECHA Y POST COSECHA DEL CACAO.
TECNICAS DE MANEJO POSCOSECHA DE CACAO

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