

Appendices

Appendix 1 Sugar Beet Growers Interview Questionnaire (English)

QUESTIONNAIRE

**“The Effectiveness of Agricultural Extension Programs in the Desert Areas of Nubaria,
Egypt: A Case Study of a Sugar Beet Program”**

For

Sugar beet growers

Questionnaire No ()

Name (Optional):

Farmer Category:

Graduate youth () Small holder () Investor ()

District:

Village:

*The data of this questionnaire is considered confidential
and will be used for research purposes only*

Dear fellow participant:

This questionnaire is aimed at determining the effectiveness of sugar beet program of the winter season of 2008/2009. Therefore, I would like to ask you the following questions.

- Age Years

- Level of education Specialization

3 - Origin Rural () Urban ()

4 – Work experience in new lands Year(s)

5 -Family members’ contributions to the farm work

No	Relatives			Contribution Degree		
	Son	Daughter	Wife	No Contribution	Part Time	Full Time
1						
2						
3						
4						

6 - Land tenure and soil and irrigation types

Land tenure	Area (Feddan)	Irrigation type		Soil type		
		Surface 1	Modern 2	Sandy 1	Loamy 2	Calcareous 3
Owned land						
Rented land						

7 – Sugar beet area (last season) (Feddan)

8 - Cultivation date Delivery date:

9 - Plant density..... (Number of plants/Feddan)

10 –Costs and Revenue

Returns Elements	Value	Costs Elements	Value
Production	..... Tan	Excluding rate	.....
Sugar percentage	.....	Pesticide costs	..... EP
Premium of early harvest	..... EP	Fertilizer costs	..... EP
Exemption from seeds price	..... EP	Irrigation costs	..... EP
		Labour costs	..... EP
		Rental costs	..... EP
		Mechanization costs	..... EP

11- Sugar Company provides a number of services, have you received any service during last season? No () Yes ()

If yes, could you please indicate the service that you had received?

Service	Yes	No
Planting using combine		
Laser levelling		
Free dose of pesticides		

12 - Attitude towards the agricultural Extension

Please rate to what extend you agree or disagree with the following statements.

No	Statements	*D	N	A
		1	2	3
1	Extension staff do not consider our opinions regarding solving problems.			
2	Extension staff know about the farming methods which are suitable for new lands.			
3	As long as I apply the recommendations of the extension staff, I do not have to worry about my crops.			
4	There is nothing new with the extension staff; they only repeat the same ideas.			
5	We cannot forego extension services because they provide a remarkable service.			
6	I have seen that the extension recommendations are unsuitable for new lands.			
7	Extension staff s' recommendations are easy and applicable for all farmers.			
8	The extension staff is my preferred source of information because they have accurate, well examined information.			

* Disagree (D), Neutral (N), and Agree (A)

Satisfaction degree of beet programs activities.

13 - Farm visits

Did you attend any farm visits either on your farm or any other farm? No () Yes ()

If yes, could you please indicate your opinion regarding the following:

The selection of the farm location		
Poor (1)	Fair (2)	Good (3)
The researcher's interest in listening to the growers' problems.		
Poor (1)	Fair (2)	Good (3)
The information suitability to the circumstances of the new lands.		
Poor (1)	Fair (2)	Good (3)
The way of inviting beet growers for a field day.		
Poor (1)	Fair (2)	Good (3)

14- Pamphlets

Did you read the sugar beet pamphlet or did someone read it to you? No (1) Yes (2)

If yes, could you please indicate your opinion regarding the following?

The content suitability to the circumstances of the new lands.	Poor (1)	Fair (2)	Good (3)
The content clarity.	Poor (1)	Fair (2)	Good (3)
Covering all the agricultural processes.	Poor (1)	Fair (2)	Good (3)

15 - Field days

Have you attended a field day? No (1) Yes (2)

If yes, could you please indicate your opinion regarding the following?

The way of inviting beet growers to the field day		
Poor (1)	Fair (2)	Good (3)
The selection of the location for the field day.		
Poor (1)	Fair (2)	Good (3)
The timeliness according to the agricultural process's time table during the season.		
Poor (1)	Fair (2)	Good (3)
The organization and preparation of the field day.		
Poor (1)	Fair (2)	Good (3)
The researchers interest in listening to the growers' problems.		
Poor (1)	Fair (2)	Good (3)
The researchers interest in listening to the growers' suggestions.		
Poor (1)	Fair (2)	Good (3)
The information suitability to the circumstances of the new lands.		
Poor (1)	Average (2)	Good (3)

Could you please indicate the demonstration methods that were applied during the field day?

Demonstration methods	X
Agricultural processes were explained only, without any demonstration aids.	
Agricultural processes were demonstrated using images, slides, or films.	
The processes were demonstrated and applied in front of farmers.	
The processes were demonstrated and the farmers were asked to perform it under the supervision of the researcher.	

16 - The demonstration fields

Did you attend any demonstration fields, either on your farm or another farm? No (1) Yes (2)

If yes, did you notice a significant difference in the productivity between the demonstration field and the other fields? No (1) Yes (2)

If yes, could you please explain the differences according to the following table?

Differences	Difference degree			
	No difference (0)	Somewhat (1)	Good (2)	Strong difference (3)
Plant density				
Presence of weed				
Pest infection				
Early harvest				
Plant vitality				

17 - Extension meetings

Did you attend any extension meetings? No () Yes ()

If yes, could you please describe your opinion regarding the following:

The way of inviting beet growers to the field day.		
Poor (1)	Fair (2)	Good (3)
The timeliness according to the agricultural process's time table during the season		
Poor (1)	Fair (2)	Good (3)
The organization and preparation of the field day.		
Poor (1)	Fair (2)	Good (3)
The researchers interest in listening to the growers' problems.		
Poor (1)	Fair (2)	Good (3)
The researchers interest in listening to the farmers' suggestions.		
Poor (1)	Fair (2)	Good (3)
The information suitability to the circumstances of the new lands.		
Poor (1)	Fair (2)	Good (3)

8 - Agricultural production problems in your area

	Problem density		
	Mild 1	Moderate 2	Severe 3
First : General Problems at the district sphere:			
Second : Farming problems at farm sphere:			

19 - Shortages and suggestions of extension programs in the new lands.

Could you please explain the problems that hinder beet growers' benefits of the extension programs in Nubaria and your suggestions to overcome them?

Problems	Suggestions

20 - What are the (topics, agricultural processes or problems) that you like to have included in next year's program?

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.....

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21 - Knowledge and applications relevant to Sugar beet program

Agricultural applications	*K (X)	A (X)	The obstacles which interrupted the recommended application
<p>What is the best plant density for the new lands (Number of plants per feddan)?</p> <p>How could you achieve this number exactly?</p> <p>Row width: cm</p> <p>Plant spacing in the row: cm</p> <p>What is the best time to apply the thinning process?</p> <p>How do you apply the thinning process?</p> <p>What is the best time to apply the replanting process?</p> <p>How do you apply the replanting?</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>What are the irrigation requirements of each growth stage?</p> <p>Germination stage:</p> <p>Vegetation growth stage:</p> <p>Ripening and prior to harvesting stage:</p> <p>Do you watch the weather forecasting (on the news)? Yes () No ()</p> <p>What do you do if there is rain or frost?</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Adding nitrogen fertilizers to new lands</p> <p>Fertilizer (Name): Volume: Kg/Feddan</p> <p>How do you add nitrogen fertilizers?</p> <p>Number of doses:</p> <p>Supply time:</p> <p>What are the consequences of delaying the supply of nitrogen fertilizers?</p> <p>.....</p> <p>What conditions should be considered when adding manure?</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

* (K) Knowledge, (A) Applications

**Appendix 2 Extension Staff Interview Questionnaire
(English)**

QUESTIONNAIRE
**“The Effectiveness of Agricultural Extension Programs in the Desert areas of Nubaria,
Egypt: A Case Study of a Sugar Beet Program”**

For
Extension staff

Questionnaire No ()

<p>Name (Optional):</p> <p>District: Village:</p>
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*The data of this questionnaire is considered confidential
and will be used for research purposes only*

Dear Colleague,

This questionnaire is aimed at determining the effectiveness of a sugar beet program of the winter season of 2008/2009. Therefore, I would like to ask you to answer the following questions.

Personal and professional data:

- Age Year(s)
- Level of education Specialization
- 3 - Origin Rural () Urban ()
- 4 - Housing Governmental () Non-governmental ()
- 5 - Experience in agricultural extension Year(s)
- 6 - Experience with new land Year(s)
- 7 - Experience in guiding Sugar beet growers Year(s)
- 8 - Jurisdiction area feddan(s)
- 9 - How do you view your salary (payment)?
Not enough () Right () Enough ()
- 10 - Do you have extra job in addition to extension work? No () Yes ()
- 1 - The availability of extension aids.

What aids did you use during the beet extension program activities?

Aids	Source	Number of time used during the extension activities of the last season (2008/2009)

12- Job satisfaction

Please indicate the extent to which you agree or disagree with each of the following statements:

No	Statements	*D	N	A
		1	2	3
1	The opportunities for promotion in the agricultural extension sector are slow compared to other organizations.			
2	I receive sufficient appreciation for my work.			
3	I suffer from a lack of farmers willing to attend the extension activities.			
4	Public extension doesn't provide us with the necessary equipment.			
5	There is a lot of work, one person is not enough.			
6	Long distances cost me additional time and money.			
7	I am comfortable and have a mutual understanding with my supervisors.			
8	Working in the field of agricultural extension make me feel safe and secure, for both myself and my family.			
9	I am always working in a team.			
10	I can see how worthy my work for the farmers is.			

* Disagree (D), Neutral (N), and Agree (A)

13 -Report writing

Do you write reports about the extension activities in your jurisdiction area?

No (1) Yes (2)

If yes, how often do you periodically write these reports?

Every season (1) Every month (2) Every week (3) After each activity (4)

Do you write reports about the crops' conditions in your jurisdiction area?

No (1) Yes (2)

If yes, how often do you periodically write these reports?

Every season (1) Every month (2) Every week (3) After each activity (4)

Do you need to write emergency reports about urgent problems sometimes?

No (1) Yes (2)

If yes, give examples of the problems that you have faced during the last season concerning sugar beet crops:

To whom do you give the reports to?

Direct Chief (1) S.M.S (2) Researcher (3)

How satisfied or dissatisfied are you with the responses to the barriers and problems that you mentioned in your reports?

Unsatisfied (1) Neutral (2) Satisfied (3)

14 - The extension activities

First: Demonstration fields

Did you have any demonstration fields in your jurisdiction area during the last season?

No (1) Yes (2)

In your opinion, to what extent do the demonstration fields contribute to delivering appropriate recommendations for the new lands?

Low contribution (1) Moderate contribution (2) High contribution (3)

In the case where you feel that the extension fields have a low contribution, **could you please give reasons for that?**

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Second: Field days

Have you carried out any field days in your jurisdiction area during the last season?

No (1) Yes (2)

How much do you think that the field days contribute to delivering the appropriate recommendations for the new lands?

Low contribution (1) Moderate contribution (2) High contribution (3)

In the case where you think that the field days have a low contribution **could you please give reasons for that:**

Third: Farm visits

Have you carried out any farm visits in your jurisdiction area during the last season?

No (1) Yes (2)

How much do you think the farm visits contribute to delivering the appropriate recommendations for the new lands?

Low contribution (1) Moderate contribution (2) High contribution (3)

In the case where you think that the farm visits have a low contribution, **could you please give reasons:**

Fourth: Extension meetings

Have you carried out any extension meetings in your jurisdiction area during the last season?

No (1) Yes (2)

To what extent do you think the extension meetings contribute to delivering the appropriate recommendations for the new lands?

Low contribution (1) Moderate contribution (2) High contribution (3)

In the case where you think the extension meetings have a low contribution, **could you please give reasons for that?**

Fifth: Pamphlets

Have you distributed pamphlets in your jurisdiction area during the last season?

No (1) Yes (2)

To what extent do you think the pamphlets contribute to delivering the appropriate recommendations for the new lands?

Low contribution (1) Moderate contribution (2) High contribution (3)

In the case where you think the pamphlets have a low contribution, **could you please give reasons for that?**

15 -Could you please indicate your opinion regarding the following aspects of the training you have received during the last two years (2008 200)?

Year	Course title	No. of training days	Time sufficiency			Timeliness within the season			Hospitality			Utilization of educational content			Sufficiency of practical training			Appropriateness of methods and aids		
			Insufficient	Fair	Sufficient	Inconvenient	Fair	Convenient	Bad	Fair	Good	Low	Moderate	High	Insufficient	Fair	Sufficient	Inappropriate	Fair	Appropriate
2008																				
2007																				

16- Would you please give examples of new ideas or information you acquired during the training?

2008

2009

-What are your suggestions for improving the training utility?

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Appendix 3 Extension Program of Sugar Beets

(2008/2009)

Technology Transfer

The Extension Program of Sugar Beets

2008/2009

Introduction

Sugar beet is considered one of the strategic and competitive crops of Egypt, thus growers recognize it in both old and new lands. Sugar beets have moderate irrigation requirements and are considered a soil improving crop and a tolerant crop regarding salinity. Such characteristics encourage growers to expand the amount of sugar beet cultivated area and apply the technical recommendations to increase the yields.

The main problems regarding sugar beet cultivation can be concluded based upon reports and the observations of research staff in the season of 2007/2008, as follows:

1. Growers do not know the recommended plant spacing requirements
2. Some growers defoliate the leaves before full ripening to feed animals
3. Some growers harvest the crop earlier than the full ripening stage to obtain the bonus of early harvest
4. Some growers delay the supply of nitrogen fertilizers
5. The infection of Cercospora leaf spot in some areas
6. A knowledge gap concerning the recommended irrigation practices, particularly considering weather forecasting
7. Growers are careless of implementing weed control

Program objectives:

After implementing the Sugar Beet Program growers should gain knowledge regard:

1. How to apply the recommended plant intensity.
2. The disadvantages of removing the plant leaves before full ripening
3. The importance of harvesting the crop during the full ripening stage
4. Recommendations of adding nitrogen fertilizer
5. Cercospora identification and control
6. The recommended practices of irrigation with regard to weather forecasting
7. The importance of weed control

Program work plan:

Mentioned objectives are to be obtained through the media and suitable extension methods and, in more detail, will be carried out as follows:

1. The Sugar Crops Council (SCC), which will apply the Sugar Beet Promotion Project (SBPP) in collaboration with the Sugar Factories (SF) and the Soil Improvement Service (SIS); such project provides tillage, subsoil tillage, laser leveling services and will supply agricultural gypsum (Calcium Sulfate - CaSO_4).
2. Increasing the mechanized area.
3. The program will give more attention to and intensify the extension services in order to increase the awareness of the technical recommendations of beet cultivation using demonstration methods; the program will target the following governorates: Port Said, Ismailia, Sharqiya, Alexandria, Nubaria, Fayyoun, Bani Suef, Asuit and Minya as experienced beet growers, and Kafr el Sheikh, Daqahliya, Damietta, El Beheira, Gharbiya and Giza as new beet growers, with a total number of 15 governorates.
4. The collaboration with other partners, namely the Sugar Crops Research Institute (SCRI) and SCs to avoid contradiction, repetition and in order to save effort, time, and money.
5. Apply all appropriate demonstration methods to achieve the program objectives.

Plan implementation

The program is to be implemented through the following activities:

First: Extension staff training

1. Subject matter specialist (SMS) training course

SMS training courses in target villages, for a total of 120 SMSs, are to be implemented to educate them on crop recommendations, and are to be held in the training auditoriums of the governorates by the researchers of SCRI and will be a two day training course. The training syllabus and content are to be determined by the SCRI. It is preferred to involve SMSs who are attending this course for the first time.

2. Village Extension Workers (VEW) training course

VEW training courses in target villages, for a total of 313 VEWs, are to be implemented to educate them on the crop recommendations, and will be carried out by the SMSs as a one day course. The training syllabus and content are to be determined by the SCRI, SCs and the Central Administration for Agricultural Extension (CAAE). It is preferred to involve VEWs who comes from villages which will be cultivating beet for the first time

Second: Beet growers training

1. Extension training meetings for growers at the main village level

To be implemented in the target areas by means of the crop specialists, SMS, SCs, to educate beet growers about crop recommendations, integrated weeding and pest control. According to the corresponding time schedule of the responsible governorate, it will be carried out in three phases; preparing the seed bed, vegetation growth and the ripening phase. Beet growers in the villages which reported low productivity and a larger beet area in the 2007/8 season are preferred for attending such meetings in the main village.

2. Field days

Are needed to instruct the agricultural applications and adjust the wrong practices in the presence of research staff, SMS, SCs, CAAE and Governorate Agricultural Administration (GAA). To be implemented according to the plan three times according to the following phases: preparing seed beds, vegetation growth and the ripening phase in 60 demonstration fields. In the last phase the beet growers are taught how to recycle beet tops as silage, or dry fodder. Field days' time schedules for each governorate are to be passed to the CAAE for the purpose of following up.

3. Demonstration fields

The Demonstration fields are confined to be chosen within the area of SBPP. VEW are to monitor and record all agricultural processes and costs of the chosen field. Field days are mostly carried out in the demonstration field.

4. Harvest days

Broaden meeting for local authority, SF, rural leaders, beet growers, extension and research staff and SCC. One location is to be selected in each governorate with the aim of educating growers about the importance of following the recommendation package and to demonstrate its impact on production.

5. Field monitoring

By means of the GAA, SCRI and the regional research stations, beet growers will be monitored at the local level.

6. Pamphlets

A number of 10000 pamphlets and brochures are to be distributed during the other extension activities.

Table 1 Educational content of SMS training course, winter 2008-2009

Day	Time	Content
First day	9.30-10.00	Opening
	10.30-11.00	Pre-assessment
	11.00-12.30	Seed bed preparation, rowing and plant density
	12.30-2.00	Weed control, hoeing , thinning and replanting, planting date, post harvest treatments and defoliation
	2.00-2.30	Break
	2.30-3.30	Integrated pest control
Second day	9.30-11.30	SCC plan to promote sugar beets and its feasible study
	11.30-12.30	Integrated pest control
	12.30 -1.00	Break
	1.00-3.00	CAAES plans to promote sugar beets
	3.00-3.30	Post-assessment

Table 2 Educational content of VEW training course, winter 2008-2009

	Content
1	Feasibility study and the main problems that hinder the promotion of beet productivity
2	Agricultural processes and weed control
3	Integrated pest control

Table 3 Educational content for beet growers, winter 2008-2009

	Content
1	Feasibility study and the main problems that hinder promoting beet productivity
2	Weed control
3	Adjusting wrong behaviors
4	Integrated pest control
5	Integrated disease control

Table 4 Sugar beet program activities at the Governorate level 2008/2009

	Governorate	SMS	VES	Extension meetings	Field days	Demonstration fields
1	Kafr El-Sheikh	10	30	5	12	4
2	Daqahliya	10	30	6	9	3
3	Gharbiya	4	22	4	6	2
4	Damietta	3	15	3	6	2
5	El Beheira	11	22	6	15	5
6	Sharqiya	13	24	6	24	6
7	Ismailia	3	15	6	15	5
8	Port Said	6	15	6	12	4
9	Alexandria	5	15	2	12	4
10	Nubaria	9	20	6	15	5
11	Giza	2	15	2	3	1
12	Fayyoun	12	25	5	5	5
13	Bani Suef	12	25	4	15	5
14	Minya	12	25	5	12	4
15	Asuit	5	15	4	9	3
	Total	120	313	70	180	60

Extension Villages (Demonstration plots) of Sugar Beets Program, 2008/2009

A number of 10 villages were selected as extension villages in the context of the sugar beet promotion project. A demonstration plot of around 100 feddan in size per each village applied the technical recommendations under the intense supervision of research and extension staff, starting from September to April, covering all agricultural applications and integrated weeds and pest control, with an overall aim of increasing yields.

A working team consisting of the Sugar Crops Research Institute (SCRI), the Sugar Crops Council (SCC), Governorate Agricultural Administration (GAA) personal and extension staff visited the selected villages 4 times a month to provide extension services and watch out for false application procedures. The SCC subsidized beet growers' demonstration plots with a free dose of Fetrilon-Combi (Micro nutrients); the dose was determined based on a soil analysis.

Table 5 List of Program cites, area, fetrilon doses, and productivity

	Governorate	Markaz	Village	Area	Fetrilon Doses		Productivity (Ton)	
					One	Two	Inside	Outside
1	Kafr el Sheikh	Al-Hamool	Al-Manawfah	100	121	39	24.2	19.7
		Sidi Salem	Kafr Al-Masharkah	100				
2	Daqahliya	Belkas	Wazeer	135	50	112	20.7	18.2
		Belkas	Besar	110				
3	Sharqiya	Abu Kebeer	Almashaalah	100	57	18	20.5	15.3
		Al-Hesaniah	Tymor	100				
4	El Beheira	Damanhour	Hafs	100	23	46	23.2	17.8
5	Nubaria	Nubaria	Al-Huda	100.5	42	13	15.5	13.0
6	Fayyoun	Tamyiahh	Fanos	100	49	10	14.5	11.0
7	Minya	Abu-Kurkas	Grees and Manton	100	42	46	32.1	25.7
8	Bani Suef	4 Bani Suef	Ahnasia Al-khadra	100	45	0.00	22.3	17.7
Total				1145	429	285	21.63	17.4

Source: Sugar Crops Council (SCC), Annual Report of Sugar Crops and Sugar Production, 2008/2009, Cairo, 2009(SCC 2009)

Appendix 4 Educational and developmental services in Nubaria region

A large number of organizations have developmental interests in Nubaria region; some of them provide extension services. The main focus of these organizations is to advance the agricultural systems and to improve the life style for new settlers in the communities established in the desert.

1 Governmental Organizations

Most of the following services are available in all villages at variant level, medical service, schools, police stations, bakery, market, veterinary service, mechanization station, cooperative association, post and telephone (Youth Graduate Project and Reclamation 2000; Donia and Farag 2010).

1.1 Research stations (RSs)

In Nubaria there are three research stations, Nubaria regional station, Nubaria breeding and non conventional fodders station belong to Agricultural Research Center (ARC), in addition to, Marut research station belongs to Desert Research Center (DRC). The main objectives of these stations are to provide with the technical consultancy and arrange training courses for new settlers in variant fields, as well as, produce the accredited seeds and evaluate the different crops in order to choose the best cropping pattern for Nubaria region. For this purpose, it carries out experimental fields to examine the viability of the innovations under the territory circumstances. Moreover it links the extension and research staff together with the growers. Beside it facilitates the dissemination of such innovations among them using training courses and other extension activates. Finally, it receives feedback of the application problems.

1.2 Extension centres

Three extension centres in Al-Bustan, West Nubaria, and Bangar Al-Sukkar were established to support and develop the agricultural extension infrastructure. These canters ease the access for the extension services and improve its performance. They also maximize grower's contribution in rural development programs and increase the coordination among other institutions working in the agricultural sector (see: <http://caaeg.com/>).

1.3 Centre of information support (Marut)

Marut centre is one of four centres along the country were established to produce audio-visual aids and printed martial for the extension activities. They are also responsible for planning and implementing programs in the field of increasing awareness, literacy, extension campaigns, rural development, and qualifying the graduated youths. These canters are equipped to provide the accommodation for trainees from other governorates (see: <http://caae-eg.com/>)

1.4 Irrigation Orientation Administration (IAO)

IAO is one of the irrigation development projects in the ministry of the irrigation and water resources. It helps in establishing and supporting water users unions. It helps growers to recognize the available water resources and the alternatives to improve water utilization in the basin level, and propose the more convenient one.

1.5 The Principal Bank for Development and Agricultural Credit

This bank is represented only in three retail units. It provides finance for micro, small and medium enterprises. The financial services cover a wide range of rural and agricultural projects: The agricultural production, marketing, rural development, vocational projects, food processing, modernizing the irrigation system, mechanization, soil development, and establishing storage, packinghouses, and greenhouses. As well as, poultry e.g. fish and animal production (Minstry of Agriculture and Land Recamation n.d.).

2 Non-governmental Organizations

2.1 Desert Development Centre

This centre is a non-profit, applied research institution. It was established by the American University in Cairo to improve the life style of Egyptians in the newly reclaimed lands. It focuses on the ecological, social, and economic sustainability of communities in the new lands. Moreover it provides by a number of services, chemical, physical, and biological analysis for both soil and water resources, as well as, render consultation and training in the field of farm management, plant diseases and high value crops production. The overall target is raising the agricultural productivity and maximizing the revenue (see: <http://www.aucegypt.edu/>).

2.2 The Extension Centre for Media and Training

The Media and Training centre was established by the agricultural extension department of the agriculture faculty in Alexandria University to extend the university education to the new communities in the desert. The centre focuses on studying the community problems and proposes the training needs for the workers in the developmental projects. It is involved also in planning and applying continuous education programs for both the growers' leaders and the extension staff about the agricultural innovations and small enterprises (Ministry of Agriculture and Land Recamation n.d.).

3 Development projects

3.1 Youth Graduate Project (YGP)

YGP is considered the largest project in the region which provides the graduates and landless farmers with 5-6 feddans of reclaimed land and a house. Furthermore, they were qualified theoretically and practically for the agricultural processes suitable for new lands. The area is equipped by basic infrastructure, including irrigation, electricity, hospitals, schools, and other services in order to establish new communities. Nevertheless, graduates and landless farmers often complain that the infrastructure is inadequate or of poor quality and insufficiently training (Zalla, Fawzy et al. 2000).

3.2 Al-Bustan Project for Agricultural Development

The project function as the coordinator among the other services providers in the region. The project mission is to advance the agricultural applications and insure the development sustainability. For this purpose, it produces the educational martial and manage the technology transfer activities. Also, it focuses on improving water management for both irrigation and drainage systems, in addition to empower rural women participation in generate the family income through either individual or Non Governmental Organizations (Ministry of Agriculture and Land Recamation n.d.).

3.3 Cooperation Training and Development Project in New Lands

The project resulted in the collaboration between Ministry of Agriculture and Land Reclamation (MALR) and the International Labour Organization. It attempts to develop the new communities in the desert areas. It runs programs for small and environmental enterprises, particular training programs in the food processing projects. The program targets rural families. Moreover, it provides administrative training for the workers and the members

in cooperation organizations. Eventually the program furnishes other integrated programs in the field of the agricultural extension (Ministry of Agriculture and Land Reclamation n.d.).

3.4 West Nubaria project (WNP)

WNP is targeting small-holders and old land tenants. The project aims at improving their livelihood conditions. WNP helps them to adopt the farming system which is more suitable for desert lands. Such system has developed by the agricultural research-extension organization in Egypt. The project provided 36,000 families by many benefits such as:

- a) Motivating growers to adopt water management practices.
- b) Supporting the development of small and medium enterprises in agricultural production and marketing.
- c) Providing information regarding marketing and technical recommendations.
- d) Developing the financial system and identifying the financing need for of small and medium enterprises.

The total fund of WNP is US\$54.8 million, from 2003 to 2013. International Fund for Agricultural Development conducted this project with collaboration with MALR, Food and Agriculture Organization, and Italian Debt Swap (International Fund For Agriculture and Development 2004).

**Appendix 5 Sugar Beet Growers Interview Questionnaire
(Arabic)**

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**Appendix Extension Staff Interview Questionnaire
(Arabic)**

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