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A socio-economic study of the sugar beet cultivation project in West Nubaria

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Abstract. In 1987, the Ministry of Agriculture started land reclamation in Egypt by distributing to settlers (graduates and farmers) new lands in the West-Nubarian sector. This distribution concerned parcels of land between 5-10 feddans (2,1-4,2 ha). The settlers encountered many social and economic problems which are studied as well as their effects on the settlers' stability so as to present some proposals to policy decision makers. The main social and economic problems seem to be: farm boundary shortage in land security, fire fighting, transportation and communication, shortage in extension, water for irrigation, land fertility and production inputs.

Keywords. Farm - Land reclamation - Soil fertility - Irrigation - Fire fighting - Migration - Sugar beet - Extension - Social needs - Egypt

Titre. Etude socio-économique sur le projet de culture de betterave sucrière dans la Nubie de l'Ouest

Résumé. *En 1987, en Egypte, le ministère de l'Agriculture démarra un projet de mise en valeur des nouvelles terres dans l'ouest de la Nubie en octroyant des terres à des colons universitaires et paysans. Cette distribution des terres concernait des lots de 5-10 feddans (2,1-4,2 ha). Les colons ont dû faire face à des problèmes économiques et sociaux qui ont mis en danger leur stabilité. Cette étude a pour but d'étudier la nature de ces problèmes et leurs effets afin d'en présenter les résultats aux décideurs politiques. Les résultats obtenus suggèrent que les principaux problèmes rencontrés concernaient l'insuffisance de la délimitation de leurs terres, la lutte contre l'incendie, les transports et les communications, l'insuffisance de la vulgarisation et de l'eau d'irrigation, la fertilité du sol et les intrants.*

Mots clés. *Exploitation agricole familiale - Mise en valeur du sol - Fertilité du sol - Irrigation - Lutte anti-incendie - Migration - Betterave sucrière - Vulgarisation - Besoins sociaux - Egypte*

I – Introduction

The sugar beet project concerns around 49 thousand feddans including 32 villages. The whole area was distributed among 7 734 holders in four stages between 1986 and 1990 (Table 1).

Table 1. Distribution according to the different stages of the project

Stages	Holders (in feddans)	Total area Farmers	Holders Graduates	Number of villages
Stage I	8 002	1 092	295	7
Stage II	9 168	-	1 528	8
Stage III	12 954	-	2 175	8
Stage IV	13 853	-	2 644	9
Total	**49 343**	**1 092**	**6 642**	**32**

Source: Results of the survey.

The holders are farmers having migrated from other regions where they were already farmers and graduates (generally, young people coming directly from the university). The number of farmers is 1 092 (14 % of the total) to whom the land was distributed during the first stage. The total number of graduates is 6 642 (86 % of the total) who settled on their farms at the four different stages above (Table 2).

Table 2. Holders' distribution in each sugar beet area and village

Stage / Village	Area (in feddans)	No. of holders Farmers	No. of holders Graduates	Farmers Dates of settlement:	Graduates Dates of settlement:
Stage I					
Village (1)	1 590	186	94	12/1986	01/1990
(2)	750	125	13	"	"
(3)	700	109	11	"	"
(4)	1 153	178	17	"	"
(5)	1 480	181	72	"	"
(6)	1 335	162	72	"	"
(7)	994	151	16	"	"
Total Stage I	*8 002*	*1 092*	*265*		
Stage II					
Village (13)	1 074	-	179	-	12/1987
(14)	798	-	133	-	12/1988
(15)	1 176	-	196	-	12/1987
(16)	1 200	-	200	-	"
(17)	1 194	-	199	-	12/1988
(18)	1 176	-	196	-	"
(19)	1 092	-	182	-	"
Central village	1 458	-	243	-	"
Total Stage II	*9 168*	-	*1 528*		
Stage III					
El Tanmia	2 550	-	425	-	12/1988
M. Farid	958	-	160	-	12/1987
S. Hegazi	1 014	-	176	-	12/1988
El-Zehour	2 520	-	420	-	12/1987
(20)	1 134	-	189	-	12/1988
(21)	1 008	-	168	-	12/1988
El-Olaa	3 275	-	548	-	12/1987
S. Darwish	495	-	90	-	1/1990
Total Stage III	*12 954*	-	*2 175*	-	
Stage IV					
M. Esmail	1 295	-	259	-	1/1990
A. Abdel Samad	1 305	-	261	-	"
A. Sahra	2 420	-	484	-	"
(20)	1 482	-	247	-	"
(23)	978	-	163	-	"
(24)	792	-	132	-	"
(25)	46	-	91	-	"
(27)	3 115	-	623	-	"
El-rewist	1 920	-	384	-	"
Total Stage IV	*13 853*	-	*2 644*		
Total	**49 343**	**1 092**	**6 642**		

Source: Results of the survey.

It was expected that the holders would have to face some problems of financial farm balance. The present study analyzes these and try to find issues likely to increase production and farm income.

The questionnaire was divided into three parts: 1) social aspect of the holders settlement (demographic characteristics, standard of living, level of education and professional experiences, conflicts and cooperation, geographic stability, social life, community facilities and agricultural extension; 2) and 3) production data, costs and incomes for the main winter and summer crops cultivated in the sugar beet area.

II – Sample and demographic data

1. Sample size

The sample size was limited to 200 holders, i.e. about 2,6 % of the total number of holders. They lived in 20 villages, 10 holders from each village. The settlers belonged to all the villages of Stage I (nos. 1 to 7).

The choice of the graduates concerned 13 villages : all the villages of Stage II (nos. 13, 14, 15, 16, 17, 18, 19), five villages of Stage III (El-Tanmia, Mohamed Farid, El-Zehour, no. 20 and El-Olaa) and one village of Stage IV (no. 24) (Table 2).

2. Demographic data of the sample

Table 3 indicates that 80 % of the farmers were between 40-60 years old while all graduates were between 16-40 years old. Among the farmers, 91 % were married against only 25.4 % of graduates. The latter were just beginning their working life and had not enough money to marry and make families.

The average agricultural labour unit was respectively 0.8 and 0.92 M/D for farmers and graduates.

The level of education was very different: 31.5 % of the farmers were illiterate (61.5 % having attended primary schools and about 7 % preparatory schools) whereas all the graduates had university degrees.

Table 4 shows the previous dwelling places of the holders. About 34 % came from Dakahlia and Kafr El-Shekh, both with a high population density.

Previously, most of the farmers lived in the Behera and Alexandria governorates, both close to Nubaria. Very few of them came from upper-Egypt Governorates because of the very long distance to Nubaria and of the creation of new reclaimed lands in this region. Nobody came from Cairo, Giza or Kalubia which are non agricultural areas.

About 75 % of the graduates migrated from Cairo and Alexandria. Adding to that those from the Behera Governorate, the percentage would reach 80 %. There was an easy connection between the graduates from those governorates and those responsible of the new land policy.

Table 4. Holders distribution according to their previous dwelling places

Holders' previous dwelling places	Farmers		Graduates		Total	
	No.	%	No.	%	No.	%
Cairo	-	-	41	31,6	41	20,5
Alexandria	11	15.8	56	43.1	67	33.5
Behera	15	21.5	7	5.4	22	11.0
Matroh	4	5.8	-	-	4	2.0
Garbia	1	1.4	3	2.3	4	2.0
Dakahlia	12	17.1	7	5.4	19	9.5
Kafr El-Shek	12	17.1	-	-	12	6.0
Sharkia	8	11.4	-	-	8	4.0
Menoufia	1	1.4	2	1.5	3	1.5
Kalubia	-	-	3	2.3	3	1.5
Giza	-	-	7	5.4	7	3.5
Bani Sewef	-	-	1	0.8	1	0.5
Menia	1	1.4	-	-	1	0.5
Assiut	1	1.4	-	-	1	0.5
Sohag	1	1.4	2	1.5	3	1.5
Qena	2	2.9	1	0.7	3	1.5
El-Wady El-Gaded	1	1.4	-	-	1	0.5
Sample total	**70**	**100**	**130**	**100**	**200**	**100**

Source: Results of the survey.

Table 3. Sample characteristics according to sex, age, marital status, level of education and labour unit

Holders'	Farmers									Graduates						Total					
	16-40 yrs		40-60 yrs + 60 yrs		Total		16-40 yrs	40-60 yrs+ 60 yrs	Total												
characteristics	M	F	M	F	M	F	M	F	Gross	M	F	M	F	M	F	M	F	Gross	M	F	Gross
Size of sample	12.0	-	54.0	2.0	2	-	68.0	2	70.0	124.0	6.0	-	-	-	-	124	6.0	130.0	192.0	8.0	200.0
Labour unit key *	1.0	0.6	0.8	0.5	0	0	-	-	-	1.0	0.6	0.8	0.5	0	0	-	-	-	-	-	-
Labour unit	12.0	0.0	3.2	1.0	0	0	55.2	1	56.2	124.0	3.6	-	-	-	-	124	3.6	127.6	179.2	4.6	183.8
Marital status																					
Single	-	-	-	-	-	-	-	-	-	93.0	4.0	-	-	-	-	93	4.0	97.0	93.0	4.0	97.0
Married	12.0	-	52.0	-	-	-	64.0	-	64.0	31.0	2.0	-	-	-	-	31	2.0	33.0	95.0	2.0	97.0
Widow	-	-	2.0	2.0	2	-	4.0	2	6.0	-	-	-	-	-	-	-	-	-	4.0	2.0	6.0
Total	**12.0**	**-**	**54.0**	**2.0**	**2**	**-**	**68.0**	**2**	**70.0**	**124.0**	**6.0**	**-**	**-**	**-**	**-**	**124**	**6.0**	**130.0**	**192.0**	**8.0**	**200.0**
Level of education																					
Without formal education**	5.0	-	15.0	1.0	1	-	21.0	1	22.0	-	-	-	-	-	-	-	-	-	21.0	1.0	22.0.0
Primary school	5.0	-	36.0	1.0	1	-	42.0	1	43.0	-	-	-	-	-	-	-	-	-	42.0	1.0	43.0
Preparatory school	2.0	-	3.0	-	-	-	5.0	-	5.0	-	-	-	-	-	-	-	-	-	5.0	-	5.0
Secondary school	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
University	-	-	-	-	-	-	-	-	-	124.0	6.0	-	-	-	-	124	6.0	130.0	124.0	6.0	130.0
Total	**12.0**	**-**	**54.0**	**2.0**	**2**	**-**	**68.0**	**2**	**70.0**	**-**	**-**	**-**	**-**	**-**	**-**	**124**	**6.0**	**130.0**	**192.0**	**8.0**	**200.0**

Source: Results of the survey
* GTZ (Sugar beet and oil crops), West-Nubaria - Samona - Alexandria; ** Cannot read and write

III – Family characteristics

1. Classification of family members according to sex

From Table 5, it is found that the total number of family members for farmers and graduates were respectively 503 and 197 with an average of 7.2 and 1.5 persons/family. This means that the farmers migrated to the new area with their large families, while the great majority of graduates were not accompanied by their complete families. Moreover, as the graduates were younger, most of them were not married; according to Table 6, about 67% of the farmers were married against only 46 % for the graduates. These characteristics are confirmed by the age classification (Table 4) where we can see that 86.8 % of the graduates' family members are between 16 and 40 years old and 10.2 % less than 6 years old.

Table 5. Family members distribution (farmers and graduates) according to age and sex

Age classes (in years)	Farmers						Graduates					
	Male		*Female*		*Total*		*Male*		*Female*		*Total*	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 6	49	17.3	52	23.8	101	20.1	8	5.6	12	22.2	20	10.2
6-12	68	23.9	41	18.7	109	21.7	-	-	-	-	-	-
12-16	29	9.9	13	5.9	41	8.1	-	-	-	-	-	-
16-40	72	25.3	76	34.7	148	29.4	129	90.2	42	77.8	171	86.8
40-60	59	20.8	31	14.2	90	17.9	4	2.8	-	-	4	2.0
More than 60	8	2.8	6	2.7	14	2.8	2	1.4	-	-	2	1.0
Total	**284**	**100**	**219**	**100**	**503**	**100**	**143**	**100**	**54**	**100**	**197**	**100**
(%)		**56.5**		**43.5**				**72.6**		**27.4**		

Source: Results of the survey.
NB: a) Age classification according to GTZ (Sugar beet and oil crops). West Nubaria - Samona - Alexandria
b) The number of family members included the number of holders

Table 6. Family members distribution (farmers and graduates) according to age and marital status

Age classes	Farmers								Graduates							
	Single		*Married*		*Widow*		*Total*		*Single*		*Married*		*Widow*		*Total*	
	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%
16-40 years	64	91.4	84	49.0	-	-	148	58.7	93	98.9	78	95.1	-	-	171	96.6
40-60 years	6	8.6	76	45.0	8	61.5	90	35.7	-	-	3	3.7	1	100	4	2.3
More than 60	-	-	9	5.3	5	38.5	14	5.6	1	1.1	1	1.2	-	-	2	1.2
Total	**70**	**100**	**169**	**100**	**13**	**100**	**252**	**100**	**94**	**100**	**82**	**100**	**1**	**100**	**171**	**100**
(%)		**27.8**		**67.1**		**5.1**		**100**		**53.1**		**46.3**		**0.6**		**100**

Source: Results of the survey.
NB: Not included the first three age classes (less than 6 years. from 6 to 12 and from 12 to 16).

2. Classification of family members according to labour unit

In Table 7, it appears that the family labour units were 228.1 M/D for farmers and 157.4 M/D for graduates, with an average of 3.26 and 1.21 M/D/family. This means that production cost is less important for farmers compared to graduates.

Table 7. Family members distribution (farmers and graduates) according to age and labour unit (LU)

Classes of age	Labour unit key		Farmers					Graduates				
	M	F	M		F		Total	M		F		Total
			No.	LU	No.	LU	LU	No.	LU	No.	LU	LU
Less than 6 years	0	0	49	-	52	-		8	-	12	-	
6 - 12	0.3	0.2	68	20.4	41	8.2	28.6	-	-	-	-	-
12 - 16	0.5	0.4	28	14.0	13	5.2	19.2	-	-	-	-	-
16 - 40	1.0	0.6	72	72.0	76	45.6	117.6	129	129.0	42	25.2	154.2
40 - 60	0.8	0.5	59	47.2	31	15.5	62.7	4	3.2	-	-	3.2
More than 60	0	0	8	-	6	-	-	2	-	-	-	-
Total	**-**	**-**	**284**	**149.6**	**219**	**74.5**	**228.1**	**143**	**132.2**	**54**	**25.2**	**157.4**

Source : Results of the survey.

3. Classification of family members according to education

Table 8 shows that farmers are interested in educating their children: among the 150 children between 6 and 16 years old, 131 attended school, i.e. 87.3 % of the total. In other respects, out of 148 family members, there were 81 of 16-40 years , i.e. 55 %. The percentage of educated members decreased in the other two categories (40-60 years and more than 60 years). From the same table, it is observed that the percentage of educated persons increased in the different age groups of graduates (except for the youngest, i.e. less than 6 years).

IV – Standard of living

1. Dwelling additions and their values

It has been given 6 feddans of land per holder and a house with two rooms, toilets and a yard, with drinkable water near to the house. Many house additions were made depending on whether the house belonged to the farmers group or the graduates group (Table 9).

Table 9. Holders distribution according to the dwelling additions

Additions	Farmers					Graduates				
	No.	% total change	% total sample	Values LE	%	No.	% total change	% total sample	Values LE	%
Painting	14	6.4	20.0	2 880	2.4	22	10.1	16.9	5 870	5.2
Floor	4	1.8	5.7	380	0.3	18	8.3	13.8	5 280	4.8
Living room	41	18.6	58.6	85 250	70.6	38	17.4	29.2	71 051	62.9
Lighting	16	7.3	22.9	1 665	1.4	22	10.1	16.9	3 190	2.8
Water pipes	32	14.5	45.7	4 355	3.6	29	13.3	22.3	5 905	5.2
Sewage	10	4.6	14.3	2 200	1.8	18	8.3	13.8	6 490	5.7
Store	5	2.3	7.1	1 000	0.8	17	7.8	13.1	3 850	3.4
Barn/Water pot	44	20.0	62.9	20 895	17.3	29	13.3	22.3	7 820	6.9
Poultry shed	2	0.9	2.9	170	0.1	12	5.5	9.2	2 665	2.4
Oven	52	23.6	73.3	2 005	1.7	13	5.9	10.0	755	0.7
Total number of changes	**220**	**100**	**-**	**120 800**	**100**	**218**	**100**	**-**	**112 876**	**100**
Sample size	**70**	**-**	**-**	**-**	**-**	**130**	**-**	**-**	**-**	**-**

Source: Results of the survey.

Table 8. Family members distribution according to age and level of education

Classes of age	Without formal education		Primary school		Preparatory school		Secondary school		University		Total		Without formal education		Primary school		Preparatory school		Secondary school		University		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 6 years	77	32.8	24	12.7	-	-	-	-	-	-	101	20.1	20	74,1	-	-	-	-	-	-	-	-	20	10,2
6-12	14	6.0	91	48.1	4	9.3	-	-	-	-	109	21.7	-	-	-	-	-	-	-	-	-	-	-	-
12-16	5	2.1	9	4.8	19	44.2	8	23.5	-	-	41	8.1	-	-	-	-	-	-	-	-	-	-	-	-
16-40	67	28.5	35	18.5	18	41.9	26	76.5	2	100	148	29.4	4	14.8	-	-	-	-	21	95.5	146	99.3	171	86.8
40-60	61	26.0	27	14.3	2	4.6	-	-	-	-	90	17.9	2	7.4	1	100	-	-	-	-	1	0.7	4	2.0
More than 60	11	4.6	3	1.5	-	-	-	-	-	-	14	2.8	1	3.7	-	-	-	-	1	4.5	-	-	2	1.0
Total	**235**		**189**		**42**		**34**		**2**		**503**		**27**		**1**		**-**		**22**		**147**		**197**	
(%)		**46.7**		**37.6**		**8.5**		**6.5**		**0.4**		**100**		**13.7**		**0.5**		**-**		**11.2**		**74,6**		**100**

Source: Results of the survey
* Cannot read and write

Table 9 shows the high interest of farmers in adding more units to their houses. In all there were 220 additions with an average of 3.1 additions per family: ovens, followed by barns and water pots. Cattle appeared to be very important for food and farm production. Adding more rooms was also important due the continuously increasing family size. Water pipes, lighting, painting and sewage seem less important. Stores, floors and poultry sheds were obviously secondary. The highest percentage (73 %) was for ovens and the lowest (2.9 %) for poultry sheds.

Table 9 shows that the total additions for graduates were 218, with an average of 1.7 additions per family. It could be the result of the small size of the graduates' families. Building more living rooms was the first priority. Water pipes and barns ranked second while painting and electric light ranked third. This observation reflects the effect of the urban way of life on graduates.

These results will help decision makers to determine the equipment required for the settlement of new communities in the near future.

2. Ownership of electric sets and transportation means and their values

The study revealed that the most important sets and equipments which farmers owned were in decreasing order: TV, radios, washing machines, gas stoves, sewing machines, refrigerators, bicycles, motorcycles and private cars (Table 10). It was observed that the most important sets values concerned TV sets, private cars and radios, while bicycles, motorcycles and sewing machines were less important.

Table 10. Settlers distribution according to electric sets and transportation means and their values (in LE)

Equipments	Farmers					Graduates				
				Values					Values	
	No.	% total Equip.	Sample	LE	%	No.	% total Equip.	Sample	LE	%
TV	42	37.5	60.0	10 360	32.6	49	17.0	37.7	15 080	12.3
Radio	33	29.4	47.1	4 895	15.4	83	28.8	63.8	11 266	1.2
Video	-	-	-	-	-	-	-	-	-	-
Gas Stove	8	7.1	11.4	1 280	4.0	59	20.5	45.4	12 950	10.5
Refrigerator	3	2.7	4.3	850	2.7	41	14.2	31.5	16 366	13.3
Sewing machine	3	2.7	4.3	520	1.6	3	1.1	2.3	810	0.7
Private car	1	0.9	1.4	10 000	31.5	5	1.7	3.8	55 000	44.7
Motorcycle	1	0.9	1.4	5 000	1.6	3	1.1	2.3	1 650	1.3
Bicycle	2	1.8	2.8	200	0.6	9	3.1	6.9	2 393	1.9
Total equipment	**112**	**100**	**-**	**31 795**	**100**	**288**	**100**	**-**	**122 985**	**100**
Sample size	**70**	**-**	**-**	**-**	**-**	**130**	**-**	**-**	**-**	**-**

Source: Results of the survey.

Graduates were mainly equiped in radios, gas stoves, TV, refrigerators, washing machines; bicycles, private cars, motorcycles, and sewing machines in last position. According to their values, private cars, refrigerators and TV sets were more important while gas stoves, sewing machines and motorcycles were less important.

Thus, the settlers were better equiped in TV sets and radios than in transportation means. This phenomenon certainly depended on the scarcity of entertainment possibilities in this area. So, both groups of holders spent their leisure in watching TV, listening radio and visiting neighbours.

V – Qualification and experiences

It is well known that there is a relationship between previous and present job for any person. From Table 11, it appeared that 80 % of farmers had previously worked in agriculture and 17 % had jobs related with agriculture.

As for graduates, 44 % of them had no work before their settlement as farmers, 22 % had jobs related with agriculture, 17 % had non agricultural jobs and only 16 % worked in agriculture.

Table 11. Settlers distribution according to previous job

Previous job	Farmers		Graduates		Total	
	No.	%	No.	%	No.	%
* Farming						
a) Family labour	38	54.3	21	16.2	59	29.5
b) Hired labour	18	25.7	-	-	18	9.0
* Related to farming	12	17.2	29	22.3	41	20.5
* Unrelated to farming	1	1.4	23	17.7	24	12.0
* Without work	1	1.4	25	43.8	58	29.0
Sample size	**70**	**100**	**130**	**100**	**200**	**100**

Source: Results of the survey.
* The period of the previous job lasted more than one year.

If we refer to Table 12, we can see that only 20 % of farmers and 28.5 % of graduates attended training programs. For graduates, 72 % of them did not attend any training programs in farming and that affected negatively their management. It means that about 75 % of the whole sample received their agricultural experience from other different sources.

Table 12. Settlers distribution according to training programs which they attended

Training programs	Farmers		Graduates		Total	
	No.	%	No.	%	No.	%
* Attending	14	20	37	28.5	51	25.5
a) One program	14	20	21	16.2	35	17.5
b) Two programs	-	-	11	8.5	11	5.5
c) Three programs	-	-	2	1.5	2	1.0
d) More than 3 programs	-	-	3	2.3	3	1.5
* Not attending	56	80	93	71.5	149	74.5
Total	**70**	**100**	**130**	**100**	**200**	**100**

Source: Results of the survey.

Table 13 shows that the training programs focused on general courses and wheat cultivation for both groups. Wheat cultivation knew a great success in this area. Moreover, graduates attended training courses on animal production and also mechanization and green houses.

Table 13. Settlers distribution according to the types of training programs which they attended

Trainings	Farmers		Graduates		Total	
	Total training periods (in days)	No. of trainees	Average of the training period (in days)	Total of training periods (in days)	No. of trainees	Average of the training period (in days)
General	42	2	21	286	13	22
Tomatoes	15	3	5	-	-	-
Wheat	18	9	2	42	6	7
Animal production	-	-	-	198	18	11
Pest control	-	-	-	14	2	7
Mech. and green houses	-	-	-	456	12	38
Soil and irrigation	-	-	-	14	7	2
Other	-	-	-	15	3	5
Total	**75**	**14**	**5.4**	**1 025**	**61**	**16.8**

Source: results of the survey.

The development of agricultural experience for both types of holders appears in Table 14. It shows that their experience has increased for traditional field crops and vegetables. The average experience development was greater for graduates than farmers. That was because farmers had experienced agricultural activities in other areas while, for most of graduates, it was their first experience as farmers. Indeed, 80 % of graduates came from cities (Table 4) and about 78.5 % had non agricultural activities.

In the fields of poultry, dairy, livestock and mechanization, both groups had very little experience before and after receiving their farms.

Table 14. Settlers distribution according to their agricultural experience before and after receiving farms

Agri. activities	Before						After					
	Nil		Low		Normal		Nil		Low		Normal	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
I. Farmers												
Traditional crops	1	1.4	12	17.1	57	81.5	-	-	4	5.7	66	94.3
Vegetable	3	4.3	26	37.1	41	58.6	-	-	8	11.4	62	88.6
Poultry	32	45.7	25	35.7	13	18.6	22	31.4	16	22.9	32	45.7
Dairy production	28	40.0	19	27.1	23	32.9	17	24.3	5	7.1	48	68.6
Animal production	10	14.3	39	55.7	21	30.0	3	4.3	23	32.9	44	62.8
Mechanization	37	52.9	25	35.7	8	11.4	30	42.8	20	28.6	20	28.6
Fruit and nursery	38	54.3	26	31.1	6	8.6	29	41.4	20	28.6	21	30.0
II. Graduates												
Traditional crops	80	61.5	29	22.3	21	16.2	-	-	21	16.2	109	83.8
Vegetable	85	65.4	32	24.6	13	10.0	12	9.2	29	22.3	89	68.5
Poultry	98	75.4	28	21.5	4	3.1	74	56.9	101	7.7	46	35.4
Dairy production	108	83.1	21	16.2	1	0.8	94	72.3	29	22.3	7	5.4
Animal production	100	76.9	23	17.7	7	5.4	78	60.0	18	13.8	34	26.2
Mechanization	93	71.5	28	21.5	9	7.0	67	51.5	16	12.3	47	36.2
Fruit and nursery	128	98.5	2	1.5	-	-	119	91.5	8	6.2	3	4.3

Source: Results of the survey.

VI – Social relationships and extension

1. Conflicts and cooperation

Geographic stability is mainly affected by social environment. In Table 15, it appeared that respectively 83 % and 65 % of farmers and graduates had no quarrels with neighbours. These results meant that friendly relationships prevailed between settlers. Few of them started quarrels with neighbours because of either irrigation water, or farm boundary, or both.

Table 15. Settlers distribution according to their quarrels with neighbourhood

Quarrels and their reasons	Farmers		Graduates		Total	
	No.	%	No.	%	No.	%
No	58	82.9	84	64.6	142	71.0
Yes	12	17.1	46	35.4	58	29.0
Total	**70**	**100**	**130**	**100**	**200**	**100**
Reasons:						
a) Irrigation	8	66.7	30	65.2	38	65.5
b) Farm boundary	1	8.3	-	-	1	1.7
c) Both	3	25.0	16	34.8	19	32.8
Total	**12**	**100**	**46**	**100**	**58**	**100**

Source : Results of the survey.

Between farmers and their neighbours (Table 16), the most important types of cooperation were for hoing, harvesting, sowing and grass stripping along canals. There was less cooperation for borrowing animals and equipments and crops marketing.

Graduates mentioned that the agricultural processes for which they cooperated most frequently with neighbours were planting, crops transportation and harvesting, while there was less mutual help for borrowing animals, getting rid of farm remnants and manual weed control.

In general, cooperation with neighbours was important mainly for planting (sowing) and not very significant for borrowing animals. Good cooperation was also noticed in activities which needed hard manual work.

Table 16. Settlers distribution according to cooperation in agricultural activities within the village

Agricultural activities	Farmers		Graduates	
	No.	%	No.	%
Land preparation	31	44.3	46	35.4
Planting/sowing	42	60.0	61	46.9
Hoing	56	80.0	35	26.9
Irrigation	28	40.0	54	41.5
Manual weed control	25	35.7	27	20.8
Spraying	14	20.0	35	26.9
Harvesting	45	64.3	55	42.3
Crops transportation	28	40.0	59	45.4
Crops marketing	12	17.1	49	37.7
Borrowing equipment	14	20.0	31	23.8
Borrowing animals	11	15.7	18	13.8
Getting rid of farm remnants	16	22.9	21	16.2
Grass stripping along canal	41	58.6	43	33.1

Source: Results of the survey.

2. Geographic stability and farm management

Geographic stability was studied to know if holders were satisfied with their settlement or if they were ready to move to other new reclaimed areas in order to improve their situation. It was also the way to know their reasons for new settlements in other regions of Egypt.

Data in Table 17, indicate that farmers showed higher stability than graduates: respectively 93 % and 60 % of farmers and graduates had perfect stability while 7 % and 17 % had medium stability. Moreover, 23 % of the graduates showed slight stability.

High incomes was the most important reason of stability, other reasons being quietness and healthy environmental conditions.

Table 17. Settlers distribution according to geographic stability

Stability and reasons	Farmers		Graduates	
	No.	%	No.	%
I. Stability				
Perfect (more than 75%)	65	92.9	78	60.0
Medium (50-75%)	5	7.1	22	16.9
Low (25-50%)	-	-	30	23.1
Nil (less than 25%)	-	-	-	-
Total	**70**	**100**	**130**	**100**
II. Reasons of perfect and medium stability				
a) Only way to achieve high income	30	42.9	47	47.0
b) Availability of basic living requirements	8	11.4	6	6.0
c) Environmental reasons	1	1.4	4	4.0
d) Land cohesiveness	2	2.9	9	9.0
e) Other reasons	29	41.4	34	34.0
Total	**70**	**100**	**100**	**100**
III. Reasons of low and medium stability				
a) High cohesiveness with family in the home village	-	-	7	23.3
b) Business in other places	-	-	5	16.7
c) Difficulty of living in the village	-	-	3	10.0
d) Insufficient services	-	-	6	20.0
e) Other reasons	-	-	9	30.0
Total	**-**	**-**	**30**	**100**

Source: Results of the survey.

As factors influencing geographic stability, availability of basic living requirements and land cohesiveness differed between farmers and graduates. The former were more sensitive to the first item and the latter to the second one.

It is also pointed out that high cohesiveness with the family in the home village, the possibility of jobs in other places, the difficulties of living in the village and services shortage were reasons for the slight stability of graduates.

No doubt that good farm management is essential for successful stability. Data presented that all the farmers and 94 % of graduates run their farms. While 5.4 % of graduates hired persons to manage their farms, with a regular salary; and 0.6 % found a manager who accepted to share the farm income. In general, holders preferred to run their farms by their own for better income.

VII – Social participation

Table 18 shows that settlers (farmers and graduates) always went to the mosque at praying hours and also paid visits to their neighbours. Generally, graduates preferred to spend their free time in the sport club while farmers preferred to go to cooperatives for agricultural purposes.

Both groups rarely participated in social activities because they spent most of the time working on their farms.

VIII – Availability of community services and facilities

The availability of community services is one of the most important factors affecting the settlers' stability in new areas. The importance given to the existence of services or facilities by farmers and graduates differed according to their previous dwelling place, i.e. village or town.

Concerning community services and according to the holders' appreciation, the study revealed that there were four categories of services:

- ❏ services which were rare or inexisting (less than 20 %), such as fire fighting, sewage, farm credit and farm compensation;
- ❏ services which were slightly existing (from 20 to 40 %) such as health, communication and veterinary services;
- ❏ services which were present but insufficient (from 40 to 70 %) such as education, farm labours and irrigation water;
- ❏ services which were satisfactory (more than 70 %), such as electricity and drinking water.

Thus, in order to increase the settlers' stability in reclaimed areas, this study could lead decision makers to think seriously about the implementation of the necessary services and facilities to stabilize migrants in new areas.

IX – Agricultural extension

Agricultural extension is considered as the link between agricultural research and agricultural practices providing packages to farmers for production increase and giving ideas to agricultural scientists to find out suitable solutions to different problems encountered by farmers. Table 20 shows the shortage of extension services in the new areas, except for few publications which mostly benefit to graduates. In general, the absence of agricultural extension is one of the most important factors affecting the development of farms.

Table 21 shows that neighbours represented the most important source of advice for both groups of settlers on field crops and vegetables. It was found that for the soil, the agricultural cooperative engineer was the source of advice for farmers while scientific publications were the main source for graduates. Concerning animal products and poultry, it was found that the veterinary association and neighbours were the two most important sources of advice for farmers, while scientific references and neighbours were the main source for graduates.

The results indicate that the most important sources of agricultural advice for farmers were, in decreasing order: neighbours, the agricultural cooperative engineer and the veterinary association. For graduates, these were: neighbours, scientific references and the agricultural cooperative engineer.

Since the absence of agricultural extension has had negative effects on agricultural production, it should be taken into consideration for new settlements.

X – Conclusion

This study was carried out in the sugar beet sector of the West-Nubarian region. Its objective was to identify the socio-economic situation of the settlers and the role played by extension services.

The most important conclusions which can be drawn are the following:

- ❏ Farmers are older than graduates because the latter had completed their education more recently. The number of married persons was more important in the farmers group. While graduates were obviously highly educated, the farmers group counted: 31.5 % of illiterates, 61.5 % who attended primary school and only 7 % having completed preparatory school.
- ❏ Compared to graduates, the family size was larger for farmers. This fact determined the number of family members who worked in the farm (respectively 3.26 and 1.21 M/D for farmers and graduates). Hence, the production costs were lower for farmers and their agricultural incomes higher. Moreover, a large family had an influence on the settlers' stability (respectively 93 % and 77 % for farmers and graduates).

Table 18. Settlers distribution according to their participation in social life

Social participation	Farmers								Graduates							
	Nil		Low		Medium		High		Nil		Low		Medium		High	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Visiting home village	4	5.8	32	45.7	26	37.1	8	11.4	8	6.1	27	20.8	58	44.6	37	28.5
Visiting neighbours in the village	1	1.4	7	10.0	21	30.0	41	58.6	3	2.3	10	7.7	29	22.3	88	67.7
Visiting friends in other villages	6	8.6	25	35.7	27	38.6	12	17.1	28	21.5	21	16.2	50	38.5	31	23.8
Going to the mosque	-	-	5	7.1	11	15.7	54	77.2	-	-	3	2.3	36	27.7	91	70.0
Participating in same production activities	64	91.4	6	8.6	-	-	-	-	99	76.2	18	13.8	13	10.0	-	-
Participating in nursery schools	70	100.0	-	-	-	-	-	-	130	100.0	-	-	-	-	-	-
Keeping the village clean and tidy	6	8.6	47	67.1	15	21.4	2	2.9	20	15.4	6	4.6	68	52.3	36	27.7
Participating in agricultural cooperative	2	2.9	7	10.0	31	44.3	30	42.8	15	11.5	29	22.3	44	33.8	42	32.4
Going to the village sport club	42	60.0	16	22.9	9	12.9	3	4.2	13	10.0	13	10.0	23	17.7	81	62.3

Source: Results of the survey.
Nil = less than 20 %; Low = from 20 to 40 %; Medium = from 40 to 70 %; High = more than 70 %

- For farmers, the level of education was increasing for the age classes of 6-12 years and 12-16 years (it reached 87 %), while it was only 55 % for the age class of 16-40 years.
- Due to their greater stability and their past experience of rural life, farmers applied home additions which suited their pattern of life. Graduates made much more home additions; it reflected their previous urban way of life. The study suggests that these additions should be taken into account for future settlements in order to attract more migrants.
- Television and radio were generally the most important means of entertainment. They were owned by most of the holders. The village sport club provides the main leisures for graduates while visiting their neighbours is the first leisure for farmers.
- On the one hand, before migrating to West Nubaria, 80 % of the farmers already had agricultural activities. Only 16 % of the graduates used to work in agriculture before their settlement. On the other hand, 28.5 % of the holders have been attending training courses on farming. Therefore, the study points out the necessity of providing training. Migrants need theoretical and practical training to improve their agricultural production and farm income.
- Harmony and friendship prevailed among holders, except for conflicts on irrigation water during the summer and land borders. Cooperation among farmers was really effective for sowing and harvesting while graduates mainly cooperated for harvesting and crops transportation.
- Although holders were satisfied with electricity and drinkable water, they all agreed that there was a shortage for services (communication, fire fighting, post office and telegram, sewage system, farm credit and veterinary cares). Services contribute to the welfare and attractiveness of an area, specially in the case of a new reclaimed land.

❖

Table 19. Settlers distribution according to their appreciation about the avaibility of community services in their villages

Community services	Farmers								Graduates							
	Nil		Low		Medium		High		Nil		Low		Medium		High	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Health services	2	2.9	31	44.3	31	44.3	6	8.5	33	25.4	85	65.4	12	9.2	-	-
Education	-	-	12	17.1	38	54.3	20	28.6	20	15.4	75	55.4	38	29.2	-	-
Transportation	-	-	4	5.7	48	68.6	18	25.7	4	3.1	43	33.1	67	51.5	16	12.3
Communication	33	47.1	29	41.4	8	-	-	-	87	66.9	43	33.1	-	-	-	-
Security	6	8.5	24	34.3	37	52.9	3	4.3	64	49.2	48	36.9	18	13.9	-	-
Fire fighting	62	88.6	8	11.4	-	-	-	-	120	92.3	10	7.7	-	-	-	-
Supplying	60	85.7	10	14.3	-	-	-	-	45	34.6	62	47.7	23	17.7	-	-
Electricity	-	-	-	-	9	12.9	61	87.1	-	-	-	-	48	36.9	82	63.1
Drinking water	-	-	2	2.9	14	20.0	57	77.1	-	-	18	13.8	87	66.9	25	19.3
Sewage	57	81.4	10	14.3	3	4.3	-	-	94	72.3	36	27.7	-	-	-	-
Farm labours	-	-	4	5.7	54	77.2	12	17.1	-	-	22	16.9	89	68.5	19	14.6
Govern. farm credit	59	84.3	11	15.7	-	-	-	-	125	96.2	5	3.8	-	-	-	-
Veterinary	22	31.4	40	57.2	8	11.4	-	-	90	69.2	32	24.6	8	6.2	-	-
Irrigation water	-	-	5	7.1	55	78.6	10	14.3	4	3.1	28	21.5	98	75.4	-	-
Farm compensation	70	100.0	-	-	-	-	-	-	130	100.0	-	-	-	-	-	-

Source : Results of the survey.
Nil = less than 20 %; Low = from 20 to 40%; Medium = from 40 to 70 %; High = more than 70 %

Table 20. Settlers distribution according to their appreciation about the existence and the usefulness of agricultural extension means in their villages

Extension methods		Farmers								Graduates							
		Existence				Usefulness				Existence				Usefulness			
		Nil	Low	Med.	High	Nil	Low	Med.	High	Nil	Low	Med.	High	Nil	Low	Med.	High
Agric. exten. work	No.	49	18	3	-	53	2	13	2	88	26	16	-	88	11	21	10
	%	70.0	25.7	4.3	-	75.6	2.9	18.6	2.9	67.7	20.0	12.3	-	67.7	8.5	16.1	7.7
Lectures	No.	41	24	5	-	49	5	9	7	79	36	15	-	91	3	10	26
	%	58.6	34.2	7.2	-	70.0	7.2	12.8	10.0	60.8	27.7	11.5	-	70.0	2.3	7.7	20.0
Extens. publicat.	No.	63	7	-	-	67	3	-	-	27	46	39	18	27	5	30	68
	%	90.0	10.0	-	-	95.7	4.3	-	-	20.8	35.4	30.0	13.8	20.8	3.8	23.1	52.3
Radio	No.	60	10	-	-	64	4	2	-	106	17	7	-	122	8	-	-
	%	85.7	14.3	-	-	91.4	5.7	2.9	-	81.5	13.1	5.4	-	93.8	6.2	-	-
TV	No.	58	7	5	-	66	4	-	-	114	6	10	-	122	8	-	-
	%	82.8	10.0	7.2	-	94.3	5.7	-	-	87.7	4.6	7.7	-	93.6	6.2	-	-
Posters	No.	70	-	-	-	-	70	-	-	-	120	10	-	-	130	-	-
	%	100	-	-	-	-	100	-	-	-	92.6	7.7	-	-	100	-	-
Demonstrat. fields	No.	52	12	4	2	57	9	3	1	79	33	18	-	79	-	25	26
	%	74.3	17.1	5.7	2.9	81.5	12.8	4.3	1.4	60.8	25.4	13.8	-	60.8	-	19.2	20.0

Source : Results of the survey.
Nil = less than 20 %; Low = from 20 to 40 %; Medium = from 40 to 70 %; High = more than 70 %

Table 21. Settlers distribution according to their sources of advice/consulting in agricultural fields within the settlement communities

Source of advice Community services		Farmers						Graduates					
		Agric. extension worker	Agric. cooperative engineer	Neighbours	Scientific sources	Friends in home village	Veterinary services	Agric. extension worker	Agric. cooperative engineer	Neighbours	Scientific sources	Friends in home village	Veterinary services
Field crops	No.	3	39	61	1	4	-	10	70	108	83	22	-
	%	4.3	55.7	87.1	1.4	5.7	-	7.7	53.8	83.1	63.8	16.9	-
Vegetable	No.	3	37	59	1	4	-	4	67	105	86	28	-
	%	4.3	52.9	84.3	1.4	5.7	-	3.1	51.5	80.8	66.2	21.5	-
Soil	No.	4	40	23	11	3	-	2	25	46	51	18	-
	%	5.7	57.1	32.9	15.7	4.3	-	1.5	19.2	35.4	39.2	13.8	-
Animal husbandry and animal products	No.	-	2	25	1	3	38	-	12	29	31	16	18
	%	-	2.9	35.7	1.4	4.3	54.3	-	9.2	22.3	23.8	12.3	13.8
Poultry	No.	-	4	23	1	3	34	-	6	23	21	13	4
	%	-	5.7	32.9	1.4	4.3	48.6	-	4.6	17.7	16.2	10.0	3.1
Mechanization	No.	-	1	4	-	2	-	-	1	9	10	6	-
	%	-	1.4	5.7	-	2.9	-	-	0.8	6.9	7.7	4.6	-

Source: Results of the survey.
* Each holder could choose several responses; ** Each percentage was calculated according to the total number in each group of settlers.