

AGRICULTURAL COOPERATIVE DEVELOPMENT INTERNATIONAL

FARMER TO FARMER PROJECT

GRANT AGREEMENT # 263-0102-G-00-0066-00

QUARTERLY PROGRESS REPORT

JANUARY 1 -MARCH 31, 1993

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**FARMER TO FARMER PROJECT (FtF)
QUARTERLY REPORT**

January - March 1993

Phase II Project (June 1, 1990 - May 31, 1993)
Project Funding: LE 4,361,037 and U.S. \$ 3,420,181
Funded by USAID/Egypt Mission Under Grant Agreement No.:
263-0102-G-00-0066-00

A. Progress Achieved During the Quarter

I. Volunteer Assignments

Sixteen volunteers provided technical assistance during this quarter. Their names and specializations are as follows :

Name	Assignment
1. Kit Carpenter	Fertigation Specialist
2. Perry Contiente	Irrigation Specialist
3. William Bunch	Poultry Farmer
4. Frank Strickland	Poultry Nutrition Farmer
5. Rodney Lake	Potato Farmer
6. Brian Corr	Ornamental Plant Specialist
7. Amos Bourgo	Apple/Pear Physiologist
8. Oliver Elliott	Cucumber Pathologist
9. Christine Elliott	Cucumber Physiologist
10. Arden Sheets	Grape Farmer
11. Robert Stoltz	Potato Entomologist
12. William Rowe	Potato Storage Specialist
13. Ray Funk	Potato Physiologist
14. Barry Watson	Sheep & Goat Veterinarian
15. Jeanne Schwaller	WID Home Economics
16. Edward Schwaller	Cantaloupe Farmer

During this quarter, U.S. volunteers, along with FtF field staff, conducted 568 field visits, and held 24 seminars and village meetings that were attended by 326 farmers and extension agents.

- 1'

In the area of potato production, four volunteers, specializing in potato entomology, storage and physiology have been received during this quarter. Mr. Rodney Lake, potato farmer, suggested that ACIDI funds the production of a video that demonstrates the complete production of potatoes from beginning to end. Such a project, he believes, should be supervised by a "professional in the potato industry". Mr. Lake also recommended that more research on irrigation and fertility is needed in the New Lands. In his final report, he stressed the fact that the Egyptian potato farmer is doing very well considering the technology and information available to him.

Another potato farmer, Mr. William Rowe, identified many problems that face Egyptian farmers. These include : failure to treat seed before planting, inability to obtain seed tests and improper application of fertilizer and chemicals. He suggested developing an Egyptian potato seed industry as a solution for the potato seed problem. This idea, in his opinion, would require MOA support both financially and organizationally. With regard to future volunteer assignments, Mr. Rowe suggested that farmers who have experience in irrigation be sent to Egypt. The timing for volunteer visits should be during harvest so volunteers can offer advice on the proper handling of potatoes to prevent bruising. He stressed the fact that during his assignment he has seen improvements on many of the farms, but he thinks the need for change is still evident :

"Farmers listen to farmers. We had almost instant rapport. Let the FtF program keep its momentum."

He concluded his final report with the following quote :

"I am sold on the merits of the FtF program. The results that I have seen in the fields and the animated responses from the farmers themselves have convinced me that the FtF program merits continuation. The many achievements of this "grass roots" people to people transfer of expertise is well documented. Let us continue this work."

Mr. & Mrs. Elliott, cucumber specialists are two volunteers who visited Egypt this quarter. They conducted meetings at the MOA with Dr. Youssef Hamdi and some of his staff at the International Research Program office. They also visited Dr. Amin Okasha at the Horticultural Research Institute. They identified general problems that are faced by growers. One of the main problems they discussed was contaminated soil, for which they suggested that the only solution is to move the greenhouses to new soil or to try alternative methods of growing hydroponically. A second problem they identified with was nutritional problems and analysis. They stressed the idea that it is very important to have water and soil analyzed before deciding what will be needed for irrigation. They also mentioned the importance of proper pruning of greenhouse vegetables. They concluded their final report by suggesting improvements, one of which is that extension agents should be taught how to interpret soil and water analysis and to recommend to farmers changes that should be made. They also added that demonstration greenhouses should

be set up at Research Centers to demonstrate bag culture and nutrient film techniques for vegetable production.

Two US volunteers, Mr. William Bunch and Mr. Frank Strickland, were received in the area of poultry production. They emphasized the necessity of starting a good vaccination program for hens and through progeny. They highly recommended that a good veterinarian who fully understands poultry diseases be brought to stream immediately to work with parent stock breeders, hatcheries, broilers, commercial pullets and layers. They recommended sending a poultry group consisting of (1) veterinarian, (2) extension agents and (5) farmers to the US. They said they would be glad to set up a short review program that covers all phases of the poultry industry for the group.

In the field of ornamentals, one US volunteer was received. Mr. Brian Corr expressed his appreciation for working with extension agents, Mr. Ahmed Moustafa and Mrs. Sekina El Bably. He thinks that working with them is one of the most beneficial things that he did during his stay in Egypt because they will continue to work with growers after he is gone. Mr. Corr advised all ornamental growers to improve the sanitation of the growing area. Also he advised them to improve the growing medium used in containers. He expressed his pleasure in working with the FtF project :

"I enjoyed my visit and hope that I have provided some help to the Egyptian ornamental horticulture industry. I would gladly return again if asked."

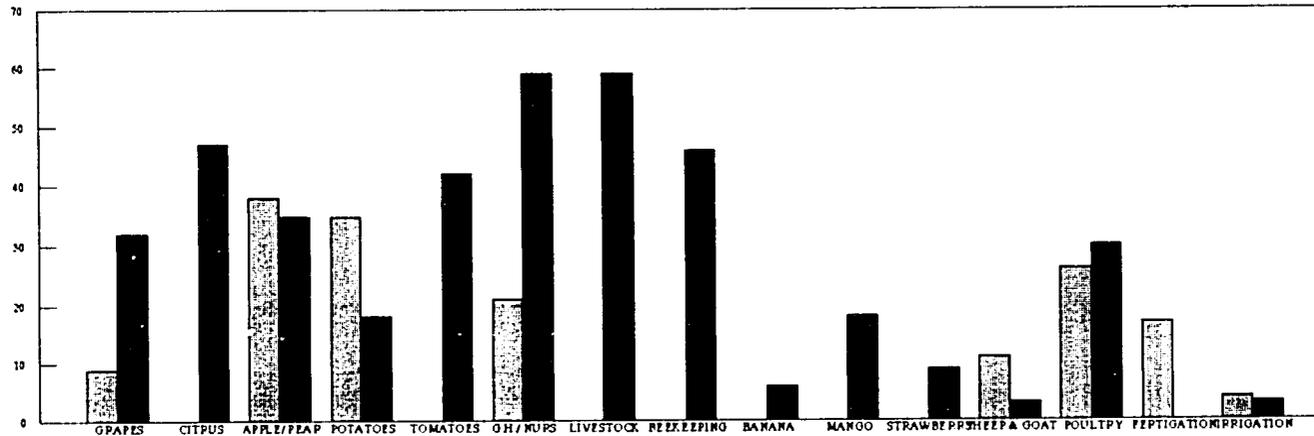
Finally, he recommended that the next volunteer should be someone who works in the semi-tropical regions of the US, so that the volunteer will have had first hand experience with available crops.

Following are charts summarizing the field activities in the governorates of Alexandria, Behera, Sharkia, Ismailia, Dakahlia, Mounefia, Kaliobia, Damietta, Gharbia, Fayoum and Giza.

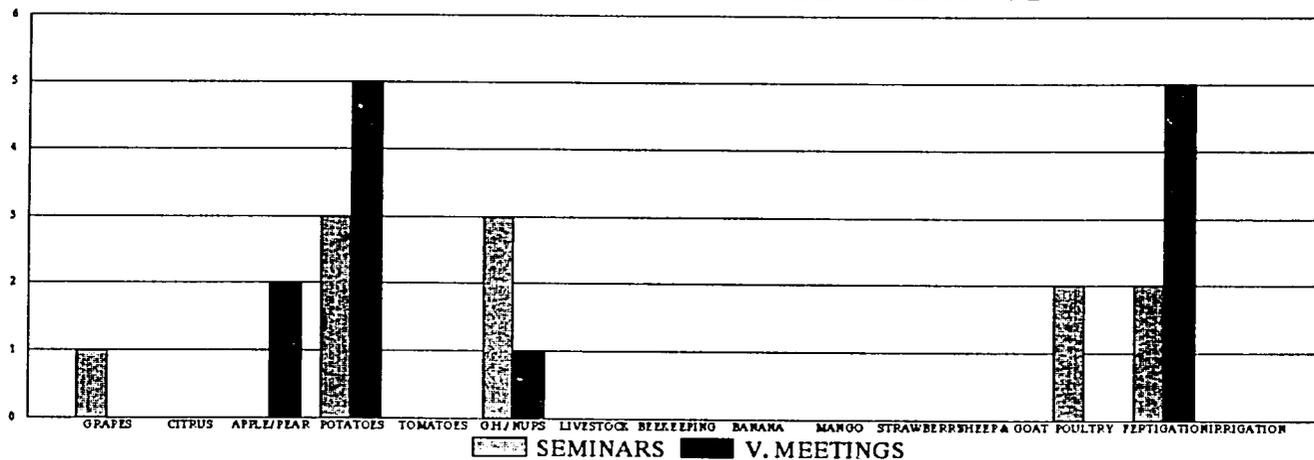
VOLUNTEER & FIELD STAFF ACTIVITIES JANUARY – MARCH 1993

	# OF FARM VISITS	# OF SEMINARS	# OF ATTENDANTS	# OF VILLAGE MEETINGS	# OF ATTENDANTS	FOLLOW UP VISITS
GRAPES	9	1	17			32
CITRUS						47
APPLES/ PEARS	38			2	36	35
POTATOES	35	3	22	5	50	18
TOMATOES						42
G.H./NURS	21	3	95	1	15	59
LIVESTOCK						59
BEEKEEPING						46
BANANAS						6
MANGOS						18
STRAWBERRIES						9
SHEEP & GOAT	11					3
POULTRY	26	2	5			30
FERTIGATION	17	2	53	5	33	
IRRIGATION	4					3
TOTAL	161	11	192	13	134	407

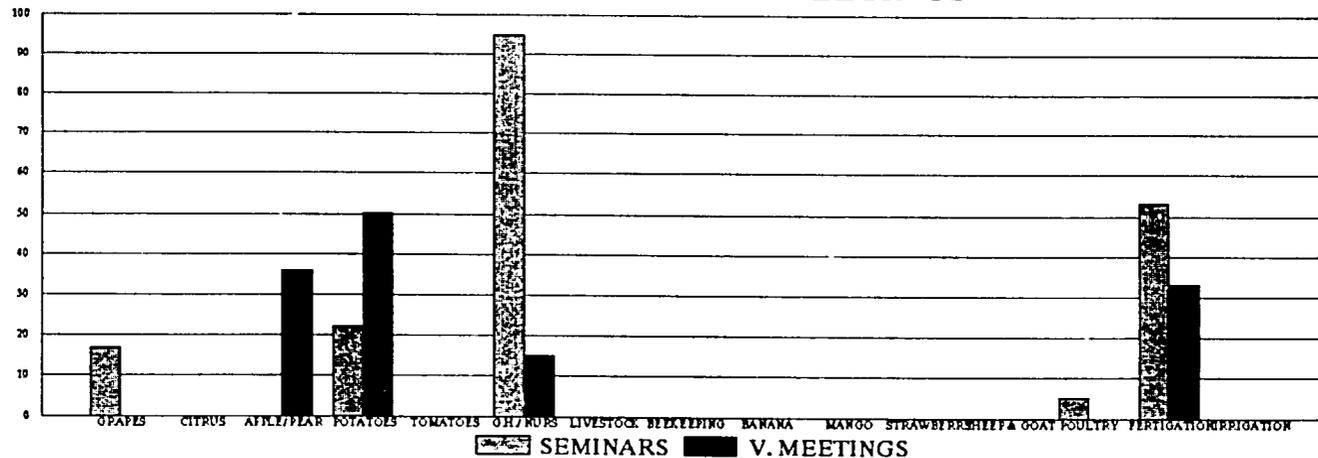
FARM AND FOLLOW UP VISITS



SEMINARS & VILLAGE MEETINGS

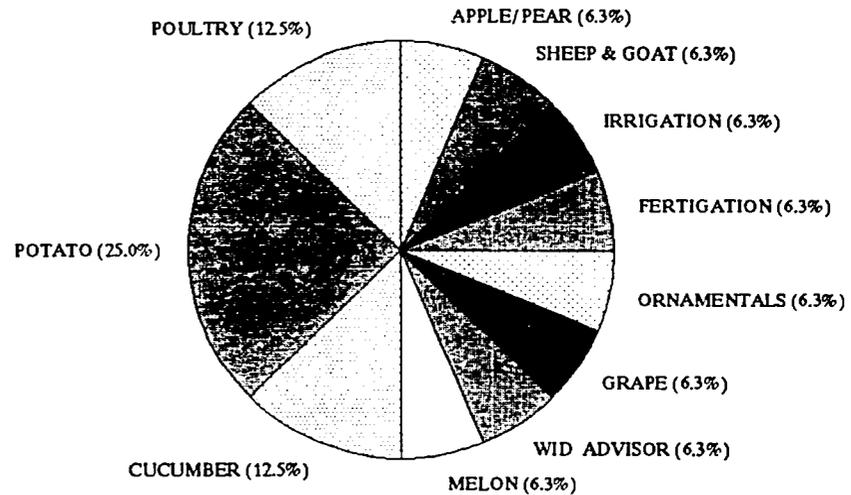


ATTENDANCE AT SEMINARS & VILLAGE MEETINGS



VOLUNTEER ASSIGNMENTS PER COMMODITY DURING QUARTER 11 : JAN 93 – MAR 93

FERTIGATION	1
IRRIGATION	1
SHEEP & GOAT	1
APPLE/ PEAR	1
POULTRY	2
POTATO	4
CUCUMBER	2
MELON	1
WID ADVISOR	1
GRAPE	1
ORNAMENTALS	1



TOTAL 16

II. Egyptian Participants Training Program

3 groups of participants travelled to the U.S. for on-farm training during the quarter.

<u>Group</u>	<u>Date</u>	<u>Location</u>
NURSERY and GREENHOUSE		
5 Farmers	Jan 10 –Feb 6, 93	California – Florida
1 Extension Agent		
1 FtF E/I		

The program was designed to expose the participants to green house production for both vegetable and ornamental plants. In Tennessee the group was hosted by the Blacks who run an organic nursery/greenhouse farm. The group joined Mr. Black on his daily farm routine as part of their practical hands-on training. The group received their study tour in Florida where they visited the Tropical Plant Industry Exhibition and Arizona where they visited the Arizona Biological Controls (ARBICO) research center. The participants learned, and plan to apply new heating, cooling and disease control methods, to simplify their technique for sterilizing soil, and to keep a balanced level of humidity to maintain a healthy greenhouse. One of the things that impresses most of the Egyptian farmers during their visit to the U.S. and certainly impressed this group, is the strong relationship between farmers, research stations and universities. The participants hope they can build these strong linkages in their communities.

SHEEP and GOAT

5 farmers	Feb 6 –Mar 9, 93	California
1 Extension Agent		
1 FtF E/I		

The program was designed to cover many topics related to sheep and goat breeding including: herd and farm management, vaccination, feed and nutrition, castration, and breeding practices. The group received their hands-on training in California and had their study tour in Kansas and Arizona. The group was fascinated by the coordination between the veterinarians and extension agents in the prevention of diseases. Upon their return, they plan to form a sheep growers association that can introduce polices and strategies as well as providing the growers with other services.

OUTREACH

9 farmers Mar 10 –April 10, 93
1 extension agent
2 FtF E/I
(final report on activities not yet received)

Egyptian Participants' Activities upon their Return from the United States

Upon their return from the United States, the Egyptian participants undertake numerous activities in coordination with the field staff, sharing what they learned with other farmers in their community and expanding the impact of the FtF program. During this quarter, returned participants conducted 44 farm visits and held 11 seminars and village meetings in the areas of livestock, tomatoes, potatoes, apples and pears, greenhouses, grapes, poultry and citrus.

During this quarter two associations have been formed which highlight the activities of returned participants. These associations are :

Ornamental Producers Association in Alexandria

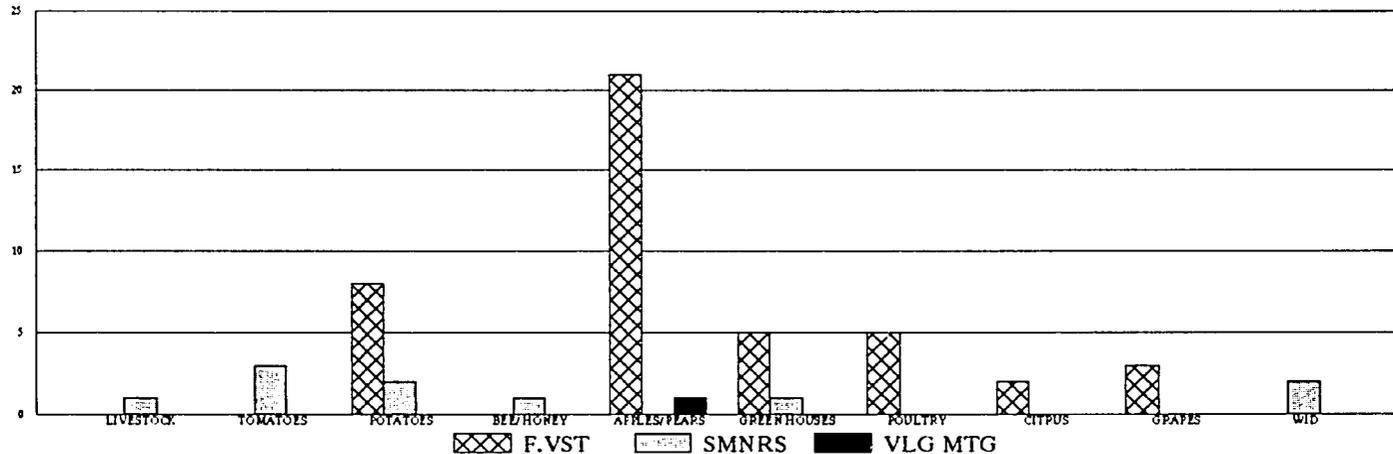
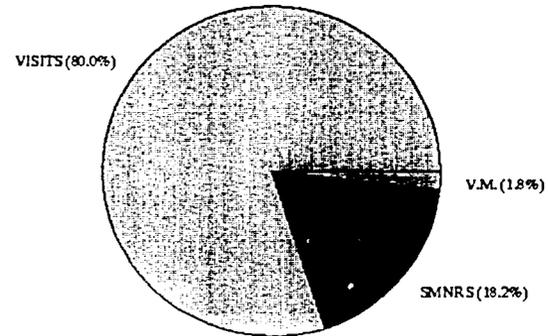
This association was formed in January 1993. Among its objectives : high quality products for local and export markets, exchanging information and ideas between members, and preparing feasibility studies for new markets.

Beekeeping Association in Sharkia

This association was also formed in January 1993. Among its objectives: developing beekeeping information and gaining access to new technologies.

EGYPTIAN PARTICIPANTS' FOLLOW UP ACTIVITIES UPON RETURNING TO EGYPT (JAN - MAR 1993)

	# OF F. VISITS	# OF SMNRS	# OF V.M.
LIVESTOCK		1	
TOMATOES		3	
POTATOES	8	2	
BEE/ HONEY		1	
APPLES/ PEARS	21		1
GREEN HOUSES	5	1	
POULTRY	5		
CITRUS	2		
GRAPES	3		
WID		2	
TOTAL	44	10	1



III. Sub Projects

A. Outreach Program

During this quarter, the following activities have taken place :

- i) Leader farmers were chosen in different commodities.
- ii) Villages were chosen so that each would be specified to a certain field.
- iii) The first steps were taken to form an "Outreach Association" which will be located in Behera.
- iv) Outreach core leaders held several meetings, seminars and farm demonstrations in co-ordination with the Graduates department.
- v) A participant training program was organized in March 1993. It consisted of ten outreach agents and training focused on extension and leadership.

B. Women In Development :

During this quarter, the FtF project has made giant steps with respect to this sub-project :

- i) Mrs. Sheila Reins, a US consultant with expertise in food processing and small-scale enterprise development has been hired on a 3 month assignment. Her scope of work includes: identifying the market, identifying local experts who can provide short-term training, assisting targeted women in development of business plans and proposing follow-on activities. During her first week in Cairo, Mrs. Reins held meetings with relevant USAID officials and representatives of ARC, NGO, US agencies and the Social Fund. Afterwards, she moved to Alexandria where she concentrated all of her work in Bangar El Sokar which was chosen as the target area. Mrs. Reins started her work in Alexandria in beginning of February. The Alexandria office helped her make contacts with :

- * Alexandria University
- * The Graduates Sector Manager
- * Graduate Extension Agents and training people
- * The International Training Center
- * The ILO project in New lands

- ii) Mrs. Jeanne Schwaller, US volunteer, came to Egypt on a home economics assignment. It was very beneficial for the WID sub-project to have Mrs. Schwaller and Mrs. Reins working together at the same time. Mrs. Schwaller visited women at their homes in the Bangar El Sokar area and advised them on several issues such as sanitary production methods and cleanliness of the production site. In addition, she conducted cooking trails and demonstrated solar cookers to women. In her final report, Mrs. Schwaller highlighted the urgent need to solve the transportation problem so that products can move efficiently and profitably to the existing markets in the larger cities.

C. Beekeeping Training Program :

The second phase of this sub-project has actually begun. Training apiaries (fifteen bee hives and equipment) were distributed among the new graduates in the New Lands. A training program has also started as soon as the apiaries were installed.

B. FtF PROJECT LINKAGES

According to the FtF mid-term evaluation, "improved communication links between MOA /ARC/Technology Transfer component of the NARP, closer working relationship with regional University resources, and continued involvement with the local extension service will advance the 'Egyptianization' of the program."

MOA and NARP

FtF has developed linkages with the MOA and the NARP at national, regional and local levels. At the national level, there is an official relationship, as determined in the project proposal as well as an ongoing relationship based on information exchange. At the regional level, the relationship mainly consists of the FtF field staff working with the ARC or MOA regional staff to coordinate volunteer and participant seminars. At the local level, MOA field staff and FtF field staff work together very closely, and there is a constant exchange of information at this level.

National

The FtF official relationship with the MOA/NARP at the national level includes MOA participation in the section committee, an MOA/FtF liaison, an MOA/FtF coordinator, and MOA promotion of FtF in governorates where the project is active. FtF informs key personnel at the MOA and the NARP of volunteers' schedules so they will be able to hold orientation meetings or briefings with volunteers when they arrive in Cairo. Since October 1992, 100% of FtF volunteers have had at least one meeting with MOA personnel, with an average of two meetings per volunteer.

Volunteer briefings have established a valuable form of information exchange. Volunteers receive information about the most recent research in Egypt on topics related to their scopes of work and exchange technical information with Ministry personnel. Ministry personnel are informed about the types of information requested by farmers and the types of information being provided through FtF. The briefings have also created a broader base of MOA contacts in areas of the Ministry related to FtF's work.

An illustration of exchange of information appears in Attachment (1), which contains a letter by Dr. Youssef Hamdi, Director of International Research program addressed to Mr. Mahmoud Kamel, FtF Project Director. In this letter, Dr. Hamdi expresses his pleasure with the impact of the FtF project on farmers and production.

Regional

At the regional level, FtF cooperation with MOA officials is more frequent. The Under Secretaries for Agriculture and the General Directors for Agriculture in the areas help to monitor, assist and facilitate FtF activities by arranging meetings, coordinating producers of certain crops, and assisting in scheduling farm visits.

There is also communication with the regional ARCs. More than half of the volunteers who have come to Egypt since October 1992 have visited ARC stations and met with personnel there. FtF field offices have good relationships with the stations at Sabaheya, Alexandria and Montaza. FtF is in regular communication with the Graduates Department, and the department of agriculture and Veterinary Medicine in Alexandria and Behera.

Extension

There is a very close relationship between FtF field staff and the MOA field staff. MOA field staff participate in every farm visit and on-farm demonstration as well as assisting in scheduling them. Extension agents attend FtF volunteer and participant seminars and one extension agent is included in each group of trainees that goes to the U.S. The program provides excellent training for them, making them more effective tools to be used by Egyptian farmers. Extension agents provide useful information on farmer needs for FtF field staff.

Illustration of the above is demonstrated in Attachment (2) , which is a letter from Engineer Sayed Mohamed, Head of the Agricultural Training center at Ismailia to Mr. Mahmoud Kamel, FtF Project Director. In this letter Engineer Mohamed expresses his gratitude to Mr. Kamel for choosing this training center to be included in volunteers schedule while being in Egypt. (Translation of this letter is attached).

Universities

The FtF field office in Alexandria has enhanced relationships with the branches of the University of Alexandria: El Shatby, Saba Basha , El Sabehaya, Montazah branch and also with ARC. Enhancement of these relationships are illustrated as shown below :

* The Farmers Association for Rural Development; where many seminars were conducted in coordination with this association. Seminars were given in various commodities such as apples/pears and animal production. It is worth mentioning that after the last seminar, on February 18, 1993, the farmers association gained 30 new members.

* The Alexandria Association for Women Development; which was instrumental in developing the WID project. Professor Soheir Nour, Head of the Association, has provided a great deal of assistance in preparing the WID project.

FtF is also in communication with Zagazig and Mansoura Universities. Mansoura University has hosted several volunteer seminars. These seminars provide a place where extension agents, researchers, professors and farmers can meet.

C. VISITS TO FtF PROJECT

ACDI/WASHINGTON

Miss Eta Nahapetian, program assistant, visited Egypt during January 1993. Her visit to Egypt was timely and provided a good chance for her to come familiar with recent changes and how the FtF/Egypt program is running. During her stay in Cairo, she attended a selection committee at MOA for a group of sheep and goat farmers. She visited the Alexandria and Mansoura offices, where she met with women participants and sheep and goat farmers participants. Also, she made on-farm visits together with US volunteers.

Miss Nahapetian's visit to Egypt provided an excellent opportunity for her to gain a deeper understanding of Egyptian culture so that she can improve program implementation when she returns back to the US.

D. FtF ACCOMPLISHMENTS TO DATE DURING PHASE II.

As of March 31, 1993 Phase II of the project has accomplished the following:

Core Group of Farmers :

of farmers in the core group : 612 ¹

Initial and Follow up visits :

U.S. volunteers and FtF staff have conducted 3,596 initial and follow up visits to the core group of farmers.

U.S. volunteers :

U.S. volunteers have accomplished 94 assignments in Egypt.

Egyptian Participants' On Farm Training in the U.S. :

138 farmers and extension agents have completed 4-week on-farm training programs in the US:

# of farmers :	114
# of extension agents:	24
# of FtF interpreters :	26

Participation by non-core group farmers :

16,129 farmers outside the core group have attended village meetings, on-farm demonstrations, and video presentations:

Village meetings:	5,898
Farm Demonstrations :	4,666
Video Presentations :	5,565

¹ The number of the farmers in the core group is always fluctuating. The field offices eliminate non-active members and/or add new farmers who are showing interest in the program.

E. PROPOSED ACTIVITIES FOR THE NEXT QUARTER (APRIL –MAY 1993)

- Three groups of Egyptian participants will join US study tours during this quarter in the areas of grape production, women in development small scale enterprises (vegetable production and processing) and finally in potato production.

- 10 volunteer assignments will be conducted in the fields of fish, citrus, apples/pears, tropical fruit and grapes.

- Women in the New Lands will be introduced to seedling production as a small business activity. Accordingly, a consultant will be hired to provide assistance in this area.

- ACDI will be developing a proposal for a five year FtF expansion and enhancement of its program. The proposal provides for an expanded FtF project, covering a wider geographic area and greater diversity of subject matter. Project methodology will continue to include technology transfer provided through VOCA volunteer visits to Egypt and follow-on training of Egyptian participants sent to the US.

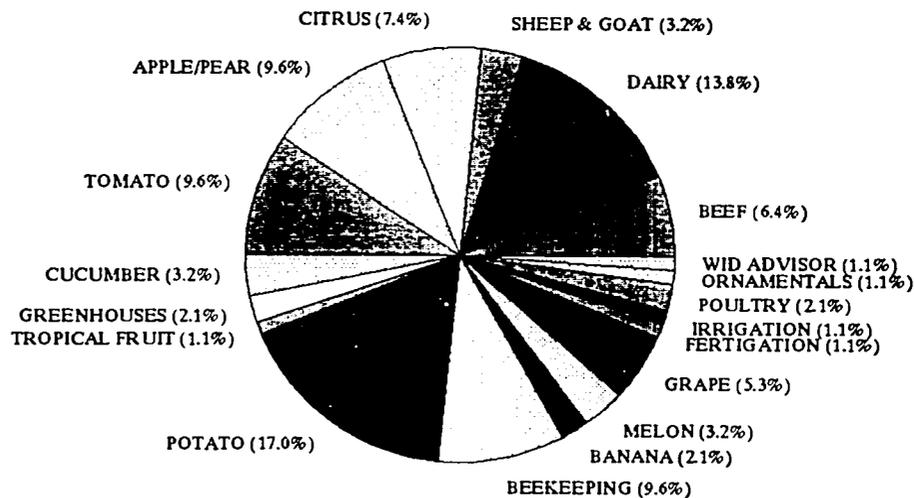
APPENDIX

"A"

**STATISTICS ON U.S. VOLUNTEERS'
PROGRAM**

VOLUNTEER ASSIGNMENTS PER COMMODITY DURING PHASE II TO DATE : JUN 90 – MAR 93

BEEF	6
DAIRY	13
SHEEP & GOAT	3
CITRUS	7
APPLE/PEAR	9
TOMATO	9
CUCUMBER	3
GREENHOUSES	2
TROPICAL FRUIT	1
POTATO	16
BEEKEEPING	9
BANANA	2
MELON	3
GRAPE	5
FERTIGATION	1
IRRIGATION	1
POULTRY	2
ORNAMENTALS	1
WID ADVISOR	1
TOTAL	94



APPENDIX

"B"

STATISTICS ON EGYPTIAN PARTICIPANTS

PROGRAM

PARTICIPANTS' SCHEDULE

TOTAL # OF PARTICIPANTS PROCESSED TO DATE : MAR 31, 93

138 FARMERS • 25 ESCORT/INTERPRETERS

MONTH	COMMODITY	#OF PARTICIPANTS PER GROUP		PROPOSED PARTICIPANTS		TOTAL # OF PARTICIPANTS	
		FARMER	E / I	FARMER	E / I	FARMER	E / I
TOTAL # OF PARTICIPANTS TO BE PROCESSED DURING THE LIFE OF THE PROJECT						180	33
YEAR 1 (JUNE 1, 90 – MAY 31,91)							
JAN 9	GRAPES	5	1				
MAY 19	DAIRY	7	1				
TOTAL # OF PARTICIPANTS PROCESSED DURING YEAR 1						12	2
YEAR 2 (JUNE 1, 91 – MAY 31, 92)							
JUL 9	VEGETABLE	5	1				
AUG 21	POTATO	8	1				
SEP 2	BEEKEEPING	4	1				
SEP 15	DAIRY	5	1				
OCT 5	DAIRY	5	1				
DEC 15	CITRUS	4	1				
JAN 27	GRAPES	7	2				
FEB 22	TOMATO	4	1				
MAR 7	DAIRY	6	1				
APR 9	BEEKEEPING	5	1				
APR 19	BEEF	7	1				
APR 30	VEGETABLE	5	1				
MAY 30	BEEKEEPING	5	1				
TOTAL # OF PARTICIPANTS PROCESSED DURING YEAR 2						70	14
TOTAL # OF PARTICIPANTS PROCESSED BY THE END OF YEAR 2 (Y1 + Y2) =						82 FRMR	16 E/I

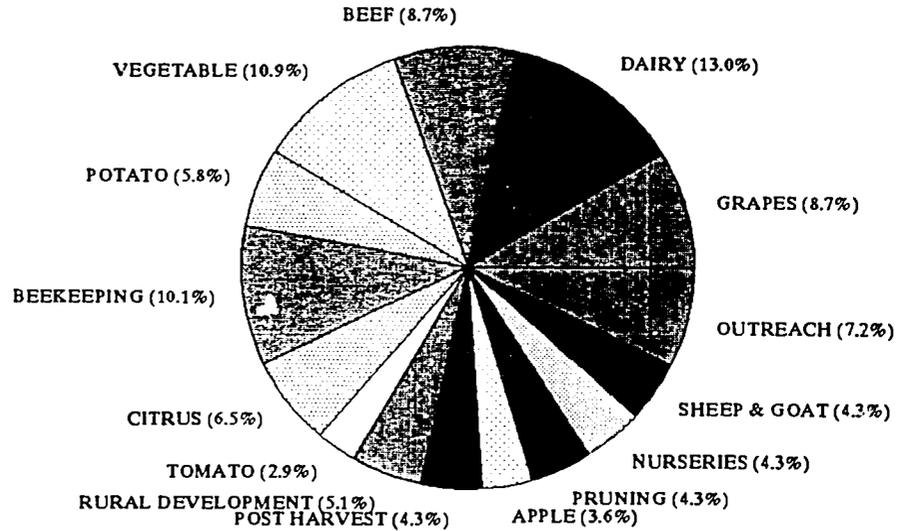
FARMERS • *FARMERS* IN THIS TABLE INCLUDE FARMERS & EXTENSION AGENTS

MAR 31, 93

MONTH	COMMODITY	# OF PARTICIPANTS		PROPOSED		TOTAL # OF	
		PER GROUP		PARTICIPANTS		PARTICIPANTS	
		FARMER	E / I	FARMER	E / I	FARMER	E / I
YEAR 3 (JUNE 1, 92 – MAY 31, 93)							
JUN	RURAL DEVELP.	7	1				
AUG	POST HARVEST	6	1				
SEP	APPLE	5	1				
SEP	VEGETABLE	5	1				
NOV	CITRUS	5	1				
NOV	PRUNING	6	1				
JAN	NURSERIES	6	1				
FEB	SHEEP & GOAT	6	1				
MAR	OUTREACH	10	1				
APR	GRAPES			6	1		
APR	RURAL DEVELOP.			6	1		
MAY	TROPICAL FRUITS			6	1		
TOTAL NUMBER OF PARTICIPANTS PROCESSED						56	9
PROCESSED DURING YEAR 2							
TOTAL # OF PARTICIPANTS PROCESSED TO						138	25
DATE							

OF PARTICIPANTS & E/I PROCESSED PER COMMODITY PHASE II TO DATE : JUN 90 – MAR 93

GRAPES	12
DAIRY	18
BEEF	12
VEGETABLE	15
POTATO	8
BEEKEEPING	14
CITRUS	9
TOMATO	4
RURAL DEVELOPMENT	7
POST HARVEST	6
APPLE	5
PRUNING	6
NURSERIES	6
SHEEP & GOAT	6
OUTREACH	10
TOTAL	138 PARTICIPANTS



114 FARMERS

24 EXTENSION AGENTS

26 FTF E/I

APPENDIX

"C"

SAMPLES OF VOLUNTEERS' FINAL REPORTS

FINAL REPORT
WILLIAM PAT ROWE
POTATO FARMER
MARCH 12—APRIL 08, 1993

My FtF experience in Egypt was widely varied, I visited farms and storages from the offices in Mansoura and Alexandria.

I participated in 2 seminars and 1 village meeting, with Bob Stoltz and Ray Funk. Farmers we met with numbered approximately 115, seminar attendance was 117, and we met with many MOA officials. I thoroughly enjoyed working with Bob and Ray. I and Egyptian farmers benefitted from their expertise and knowledge.

I had exceptional assistance from Wael and Hani made my task much easier. Dr. El Gamal has wide experience with potatoes. His help was greatly appreciated.

On-site visits were also expedited by Ministry of Agriculture extension agents and local cooperative personnel. They try very hard to assist the Egyptian farmer.

Examination of the fields and information given by the farmers revealed the following general problems:

1. **AVAILABILITY OF SOUND, DISEASE FREE SEED.**
Many farms had problems directly related to poor seed. Almost all farmers realize the need for better seed but were emphatic about the fact that they were unable to purchase quality seed.
2. **FAILURE TO TREAT SEED BEFORE PLANTING.**
Seed piece decay was evident in many fields. Captan or a similar product was recommended. All cut seed should be treated.
3. **INABILITY TO OBTAIN SEED TESTS.**
Testing is basic to good farm management.
4. **IMPROPER APPLICATION OF FERTILIZER AND CHEMICALS.**
label directions are often not followed. Phosphate is often applied before irrigation as a side dress. Chemical companies and Extension personnel should educate farmers as to proper application methods.
5. **SOIL NEEDS HUMUS.**
Work all crop residue into the soil. Do not remove and/or burn wheat straw. Mulch the straw and work it into the soil.

DAILY MANAGEMENT PROBLEMS INCLUDE:

1. **OVER AND UNDER IRRIGATION.**
Do not let moisture get below 65% of soil capacity at seed depth but do not over irrigate. Farmers may want to experiment with irrigating every other row for the first two irrigations and then irrigate every row for the third irrigation. When flooding the potatoes do not let water fill more than 1/3 of the furrows.
2. **IMPROPER SEED DEPTH:**
Plant the seed 4" to 6" deep. Make sure seed is in good moisture.
3. **IMPROPER SPACING OF SEED:**
Space the seed 7" to 9" apart in the rows.
4. **NEED A WIDE, FLAT, LOW HILL:**
Row width should be 30" to allow proper hilling. Hilling helps prevent sunburn and hinders tuber moth activity.
5. **SPRAY WHEN NEEDED:**
Many farmers spray by the calendar. Insect traps could help timing of spray applications. Follow all label directions.
6. **POOR FIELD PREPARATION:**
Prior to planting, work the soil to a depth of 10" to 12". This will allow better root development and aid in water management.
7. **VOLUNTEER POTATO PLANTS:**
Kill all volunteer plants that are growing in old sacking areas or other areas near the field. Volunteer plants could be diseased and insects could spread the disease and insects could spread the disease to growing plants.
8. **HARVESTING POTATOES WHEN VINES ARE DEEP GREEN:**
Delay harvesting the potatoes until the vines are yellowing and dying. This will allow the plant to translocate nutrients to the tuber thereby increasing yield.
9. **HARVESTING IMMATURE POTATOES:**
make sure potatoes are mature before harvesting. Immature potatoes bruise easily, have a short shelf life and do not store well.
10. **IMPROPER HANDLING OF POTATOES DURING HARVEST:**
To prevent loss due to bruising, potatoes should be handled very gently. Potatoes should never be dropped over 4" and never be thrown onto other potatoes.

OBSERVATIONS

POTATO FRESH PACK SHED

on March 15, 1993, we observed a fresh pack potato shed in El Deres, Aga. The shed packs the Diamont variety for export to Greece.

The farmers sized and graded the potatoes at their storage sites (outdoor potato storage). They then took the potatoes that they believed were of export size and quality to the packing shed. The shed then sorted the potatoes removing green, rotten, deformed and undersized potatoes. Dirt and foreign material was also removed. Potatoes that met standards were then packed into 25 kilo burlap bags.

The machinery in operation was purchased used and refurbished. It was newly painted. Electric motors, chains, sprockets appeared to be in good repair.

We were told that 2,000 tons were to be exported from this facility in 1993 and projected that 4,000 tons would be shipped in 1994. The export price to Greece was 100 L.E. per ton above the local price for number one potatoes.

Potatoes were graded according to size and quality. Number ones were over 6 oz, defect free with no green potatoes; number two's were 3 oz to 6 oz in size, some defects and some green; number 3's were smaller than 3 oz, severe defects, severe green and rot.

A representative of the importer lives in Mansoura. His position is to maintain quality control, and to facilitate and coordinate shipments of the produce.

This type of marketing should be given encouragement. It provides a larger marketing area for the farmers, provides employment for the people, and provides a premium price for premium produce. This activity also aids Egypt by generating income through exports.

OUTDOOR POTATO STORAGE

On several occasions we were shown potatoes being stored on the ground. The potatoes were piled about 6 inches high, 12 inches in width and 25 to 40 inches in length. The potatoes were covered with a 10" to 13" layer of rice straw. The piles were in a very neat row with adequate working space around each pile.

Upon examination the potatoes appeared to be storing well. Potatoes that had been bruised had healed and little rot was evident. Some feathering was present which would indicate that the potatoes were not fully mature when harvested. The thick layer of straw

allowed adequate air to the potatoes and seemed to protect them from insect damage. It was reported that potatoes may be stored in this manner for up to two months. I recommended that potatoes be mature at harvest. Potatoes should be gently handled, never thrown onto the pile and not dropped over 4 inches.

NAWALLA

On March 30, we visited a 30 year old nawalla owned by Ateya Mohamed El Kasalsy, located in El Tood, Beheira.

This Nawalla is a mud walled structure with many small holes (3" x 6") in the walls to allow air into and through the storage. The wall is about 8" to 10" thick. One wall had large screen windows from the eaves down about 3" to 4".

This storage was 12" to 14" in height, 36" to 40" wide and 120" to 140" long. The roof supported with brick or concrete pillars. Main cross beams were wooden 4" x 8" x 20". Main wooden beams were doubled, some tripled, and in a few places steel beams had been installed.

Poles (4" to 6") were used to span the main beams. Bamboo, tree branches, and rice straw were layered onto the poles.

The nawalla is used to store the fall and winter crops of potatoes. The fall crop is stored during the months of November through March for various periods of time to aid in the marketing process for the export and local markets. The winter crop is stored from May until planting time in September. These potatoes are to be used for seed.

When the potatoes are placed into storage a three foot layer of rice straw is placed onto the pile. Insecticides are used on the first layer of straw to combat insects.

It was reported that water was sprayed in the middle of the cellar (alley way) during the summer months to help cool the nawalla. Mr. Ateya also stated that prior to putting new crop potatoes into storage the nawalla was sprayed with disinfectant and insecticide in separate operations.

I recommended:

- 1) That he experiments with watering the floor prior to storage. This practice should add humidity and help the potatoes store better.
- 2) That he be certain that disinfectant and insecticide be applied in separate operations.
- 3) Clean the nawalla of all debris, old potatoes, old potato sacks, anything that could carry disease from one crop to another crop.

POTATO STORAGE

The condition of the potatoes going into storage determines to a large extent how well they will store and what their condition will be coming out of storage. The first step to good storage is good potatoes. A mature tuber, free from excessive bruising, late blight, or field rot and reasonably free from dirt is a necessity for long term storage. All a storage can do is to help maintain quality. An improvement in quality will not take place. Diseased, rotten, or badly bruised potatoes going into storage will suffer a significant quality loss during storage.

Because of the high water content (about 75% by weight), moisture loss from potatoes is critical. Moisture loss is weight loss and is compatible to a reduction in yield. However, moisture loss also affects quality as shrink affects the appearance and firmness of the tubers.

To reduce moisture loss in potatoes in storage, high relative humidity is recommended. Temperature also important in potato storage. In general, temperature recommendations for long term storage are: table and seed potatoes 38 to 40 F, french fries 45 to 50 F, and chip potatoes 50 to 55 F. Higher temperatures increase the respiration rate of potatoes and increase the likelihood of sprouting once dormancy has been broken. The greatest weight loss from potatoes occurs during the first two to three weeks of storage. During this period, high respiration, high moisture loss, and high heat loss occurs.

To minimize weight loss or shrink during early storage wound healing (suberization) must occur. Excellent conditions for suberization are high temperatures, 60 F, and high relative humidity. Under excellent conditions wound healing may occur in three or four days. A supply of oxygen during suberization is needed because of the high rate of respiration. To supply oxygen air circulation is recommended at least once a day for a brief period of time. Run the air system during the evening or early morning when outside humidity is at its highest.

CHEMICAL APPLICATOR

I brought to Egypt the working mechanism for a handy box type insecticide applicator. I left this and the literature explaining its operation with Alaa Abou Ali. If the applicator is built, great care should be taken as most systemic insecticides are extremely toxic. Follow all label directions. Allow only trained people to handle the chemical and/or the applicator.

FUTURE VOLUNTEERS

Send farmers to Egypt who have had experience in irrigation. All of the crops and produce raised in Egypt are raised on irrigated land.

Send farmers with potato experience to Egypt during the harvesting process to offer advice on the proper handling of potatoes to prevent bruising. These farmers could also visit storage facilities to observe the operations and offer appropriate suggestions as per storage and storage problems.

Much interest was shown in experimenting with raising the true seed. A volunteer well versed in this area could be of use to the Egyptian farmer.

Keep sending farmers to visit the potato growers about their potato production and problems that are present on their farms. I have seen improvement on many of the farms but the need for change is still evident. Farmers listen to farmers. We had almost instant rapport. Let the FtF program keep its momentum.

SUMMARY

I am sold on the merits of the FtF program. The results that I have seen in the fields and the animated responses from the farmers themselves have convince me that the FtF program merits continuation. The many achievements of this "grass roots" people to people transfer of expertise is well documented. Let us continue this work.

ACDI-VOCA
FINAL REPORT
OLIVER & CHRISTINE ELLIOTT
CUCUMBER PATHOLOGIST & PHYSIOLOGIST
MARCH 05-APRIL 01, 1993

SUMMARY:

We were welcomed warmly by Mahmoud Kamel and all the staff in Cairo office. We visited with Dr. Youssef Hamdi and some of his staff at International Research Program office and then visited with Dr. Amin Okasha and staff at Horticultural Research Institute. He was particularly interested in our specialty in hydroponics.

Mr. Amin Omar, the administrative assistant at the institute gave us a tour of greenhouses and we were delighted to see a greenhouse with tomatoes growing in Nutrient Film Technique and it was a beautiful crop.

We were made welcome in Alexandria and all visits went according to plan. There was a good mix of growers and we found all eager for new ideas and help.

GENERAL PROBLEMS:

- A. Contaminated soil.
 - B. Improper nutrition.
 - C. Not doing soil, water and leaf analysis properly.
 - D. Improper pruning of plants.
 - E. Sanitation.
 - F. Winter temperatures.
 - G. Water source contamination.
-
- A. All the growers we visited are still using methyl bromide for soil sterilization. We did not visit any using steam or sterilization as recommended by Charles Delp. They are concerned about the overuse of this chemical and realize that it is only a matter of time until they can no longer use it. What only a few recognized was that although this treatment may protect against disease and insect carry over, it does nothing to address the problem of salts build up from years of growing in a closed environment. We visited growers in both the "New Lands" and in the Delta. Invariably the growers in the New lands growing for the first time or for only two years in fresh sand had the best crops. The longer they have grown in the same spot whether it is Delta or sand the poorer the crop.

- B. We visited very few growers who had any idea what basic requirements for good plant growth and fruit production is. those who did, had the best crops.
- C. We found very few of the growers in Mansoura did any soil, water or leaf analysis testing. Many were not even aware that these services are available or how much it can help in identifying problems before they get beyond help. Farmers in Alexandria were better informed about lab service but were not using them to advantage. Most are simply guessing at what plants need and tend to overlook the fact that what they think is disease is in reality a nutritional problem.
- D. We only found a few growers who knew the proper way to prune greenhouse grown plants for maximum production. These were the better growers. One tomato grower asked why he was not getting much fruit. we showed him that he was not pruning the plant at all and was growing foliage instead of tomatoes. He then remembered that he had pruned it properly on his first crop and had good production.
- E. Sanitation in and surrounding greenhouses varied from grower to grower. Those who kept all weeds out of greenhouses and area surrounding the greenhouses had fewer problems with insects. This also applies to disposal of plant material as well. Many growers were not aware that both insects and disease can be carried from an infected greenhouse or plant to another greenhouse via the workers clothing or hands.
- F. The poor growth and some plant and fruit damage we saw was in part due to the cold temperatures during the winter months. The crops being grown in winter are all heat loving plants and do poorly at low temperatures.
- G. Water contamination from canals is a source for the introduction of many pathogens.

RECOMMENDATIONS TO FARMERS:

- A. Contaminated soil:
While it is possible to grow several good crops in new desert sand, the problem will start building up with each successive crop to the point of no return. The only solution is to move the greenhouses to new land or to try alternative methods of

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growing hydroponically. One grower we visited was experimenting with a sand trough system with drip irrigation where he can replace sand every few years. We recommended to several growers that they try a system using plastic bags filled with clean sand and a drip irrigation system. Several are eager to give it a try. Sand should be removed and sterilized, preferably by solarization. The Research Institute in Cairo is experimenting with a nutrient film system which is actually our first choice. However, the grower must be well trained in the system in use of EC and PH monitoring as well as the use of regular leaf analysis or it can be a disaster. He must know how to adjust nutrient formula to meet plants needs.

B&C. Nutritional problems and Analysis:

Farmers need to be informed of the basic elements needed for good production. In the Alexandria area we discussed the basic elements required and how very important it is to have a water and soil analysis before deciding what will be needed for irrigation. With use of canal water the best they can do is test more frequently and keep good records to try to come up with an average. This would be a good service for the extension agent in each area to do for the their farmers and make the results available to them. Soil analysis should be done before each crop and elements already in soil must be considered when planning nutrient formula to be injected. Finally, leaf analysis must be done at least twice a month to identify problems before they actually damage the plants.

D. Pruning of Plants:

Few growers understand the need for proper pruning of greenhouse vegetables. Those who did were the best growers. A cucumber or tomato plant grown in a greenhouse should be pruned to a single stem. As fruit is set and ripens the lower leaves should be removed as the fruit is picked. These leaves serve no useful function to plant and can be a breeding site for both disease and insects. No new fruit should be allowed to set in area where fruit has been picked. If it is allowed, it will cause developing fruit setting in upper portion of plant to abort and will also take vital nutrients away from the new growth in top of plant. The growing tip of cucumber is usually terminated when it reaches the wire and two laterals are allowed to grow down from either side of the main stem. Two additional laterals can be allowed to form as these laterals grow down. This will give a stronger main stem to give better production for a long crop.

Tomatoes are pruned to single stem and generally only 4 to 5 fruit are allowed to set per cluster. Removal of lower leaves as fruit is picked is also done. When stem reaches the wire, the plants are lowered with pruned stem parallel to the ground. This is called leaning and lowering the plant.

- E. Sanitation:
Greenhouse floors can be covered with plastic to control weeds. There are also porous ground covers for this purpose. If this is too costly, the weeds must be controlled manually. Weeds in between greenhouses must be removed, manually without use of herbicides. All diseased plants, pruning from plants etc. should immediately be removed from greenhouse and burned.
- F. Winter temperatures:
The poor growth, misshapen fruit and curled leaves are in part the result of temperatures too low for these plants. Since the highest prices for these crops is in winter months, this problem needs to be addressed. One grower we visited had already realized this and is working towards a heating system for next winter. For this area and climate the cheapest and best solution would be a simple solar collection system combined with plastic bag culture. See attached drawings for a suggested system utilizing materials the farmer is familiar with.
- G. Water Contamination:
With the use of sand filters and screen filters followed by passing the water through an Ultra Violet lamp filter would deliver pathogen free water to the irrigation system. Some growers are already using the sand and screen filters. The Ultra Violet Lamps are available in Cairo through:
- P.E.C.A., P.O. Box 2703, EL HOREYA
Heliopolis, Cairo, Egypt
Contact: O. Zayan, Phone & Fax 20-2418129

SPECIFIC PROBLEMS FOR FUTURE VOLUNTEERS

1. Biological/Integrated pest management specialist.
2. Tissue culture specialist with emphasis on bananas. Requested by El Roda Company.
3. Specialist in solar heat storage for night time heating in winter.
4. Specialist in use of lab equipment for soil, water and tissue analysis with ability to train and teach the relationship of these tests to plant nutrition.

SUGGESTED IMPROVEMENTS

1. Suggest Extension Agents be taught how to interpret the soil, water and leaf analysis reports and be able to recommend to farmers changes that need to be made.
2. Demonstration greenhouses need to be set up at Research Centers to demonstrate bag culture and nutrient film techniques for vegetable production. Also solar heat storage demonstrations for night time heating. They should be located in Mansoura, Alexandria and Cairo. If there is any grant or aid money available, it would be spent on these demonstrations as the problems of growing in the soil in greenhouses will only continue.

VISITS AND SEMINARS:

Our service included visits to greenhouses growers in Governorates of Gharbeya, Dakahleya, Abou Hamad, Sharkeya, Kaliubeya and in Alexandria districts of Nubaria, Saba basha, Kafr El Dawar and El Boustan. Total of 18 farm visits. We visited Agricultural Center in Dakahleya where we planned a seminar but due to change in schedule it was canceled. Visited Faculty of Agriculture. Held a Village meeting in Ahmed Rami. In Cairo, we visited Horticultural Research Institute and International Research program in Cairo.

COMMENTS:

Our visits to the two villages in El Boustan district where the graduate program is being done, left us feeling sad and frustrated because they need so much help to be able to succeed. This is a wonderful program for these people and they truly want to succeed. The greenhouses are beautiful and well suited for this area. However, these people do not have any skills to do a good job and will be destined to fail unless they can receive intensive help from Extension Agents and the Research Centers. Their major problem is not understanding basic plant nutrition. They do not know about soil, water and leaf analysis and how important they are to successful growing. The best thing that could be done to help them succeed would be to have an Extension Agent who is well trained in greenhouse vegetable production and knows how to take samples for soil, water and leaf analysis. He and this lab must have well trained technicians to run tests and interpret them. This agent should be furnished transportation so that he can visit these growers at least once a week to check for early signs of problems whether it be nutrition, insects or disease. With this intensive help during one full season they should become good and successful growers.

A big shoukran to all the ACDI/VOCA team for all their help. Especially our wonderful translators, Seham Zaki, Adham El Sherbini and Adel Zekeizak who did a marvelous job of organizing our visits. Special thanks to our meya meya drivers Abdo, Adel and Soliman who all were excellent and safe drivers.

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APPENDIX

"D"

**SAMPLE OF EVALUATION REPORTS
ON U.S. TRAINING PROGRAMS**

FTF NURSERY & GREENHOUSE PROGRAM EVALUATION JANUARY 10TH TO FEBRUARY 6TH, 1993

Summary

Five Nurserymen/Greenhouse operators, one extension agent and the ACDI Escort/Interpreter arrived in Washington, D.C. on Sunday, January 10th. The group was briefed on Monday morning and in the afternoon met with Dr. Ibrahim Antar at the Agriculture Bureau of the Egyptian Embassy. On Tuesday the participants had a cultural briefing at Meridian International Center. On Wednesday, the group met with Mr. Michael McGirr of the U.S. Extension Service. The participants travelled to Florida, Arizona, Tennessee and Alabama and worked with former VOCA volunteers, university researchers, nurserymen and greenhouse operators.

Florida

James Abbott, a former VOCA volunteer, arranged the program for the participants in Florida. The group visited research centers, nurseries, greenhouses and a grocery store chain, but the highlight of Florida was visiting the Tropical Plant Industry Exhibition. The variety of exhibits, the number of people ready to answer questions and the opportunities available at the TPIE impressed the participants.

Arizona

The Arizona tour was arranged by the Farmer-To-Farmer program at the University of Arizona, Tucson. The group visited a variety of the university research facilities and were especially fascinated by ARBICO, Arizona Biological Controls, where they learned about Integrated Pest Management. Perhaps their most useful visit was to Bonita Nurseries, Inc., a Tomato Greenhouse recently built by a private Dutch company.

Tennessee

Four of the participants and the escort/interpreter had homestays with a nurseryman, Hector Black, and his niece in Cookeville, Tennessee. Mr. Black runs a completely organic nursery and greenhouse. The participants worked on Mr. Black's farm and visited neighboring nurseries, an Experiment Station and an Amish community.

Alabama

Two of the participants spent a week with former VOCA volunteer, Dr. Fouad Basiouny. Dr. Basiouny arranged a program through Tuskegee University and Auburn University to study ornamental greenhouse production techniques and commercial fruit production techniques.

The participants returned to Egypt with a large load of books, materials, and equipment for their greenhouses.

Technical Transfer

The participants were impressed with the strong relationship between the farmers, research stations and universities. They would like to see these linkages grow in their own communities.

Heating, Cooling, Disease Control--Dr. El Sayed Hashem took extensive notes and pictures of the construction of the greenhouses in the U.S. He plans on using new heating, cooling and disease control methods.

Dr. Hashem used to believe that high humidity causes fungi spores to grow, but while in the U.S. he discovered that the opposite is true; a balanced level of humidity is necessary for a healthy greenhouse. The participants observed the use of gas for heating. The greenhouse operators used Carbon Dioxide gas to increase the level of Carbon Dioxide in the greenhouse. For improved insulation, some of the participants will begin using two layers of polyethylene in greenhouse construction. This method cuts 40% off fuel costs.

In Tennessee, the participants observed a very simple heating system they could reproduce in Egypt. Their host, Hector Black, has lined his biggest wall with large barrels which he has painted black, filled with water and on which he has applied rust retardant. The black barrels absorb the heat of the sun during the day, warming up the water in the barrels. At night, the barrels emit heat.

The participants found Bonita Nurseries in Willcox, Arizona, to be highly efficient. The heating pipes serve double duty as rails for the mechanical carts used for harvesting. Dr. Hashem will try this in Egypt. Another easy method to reproduce in Egypt is capturing and re-using rain water.

Ornamental--Mohamed Ammer felt that the program had been designed just for him and stated that he would need at least a week to simply delineate all the new technologies he planned to use in his greenhouses. He learned a wide variety of production techniques for ornamental plants. For example, he learned the specific light requirements of several varieties of ornamental plants. In regards to the poinsettia, which is being imported into Egypt at this time, Mr. Ammer learned how to control the white fly, how to dwarf them, and how to insure flowers by Christmastime. Mr. Ammer learned new propagation techniques and how to use hormones and proper temperature control for Bougainvillaea and Hibiscus. He also learned of new varieties of Bougainvillaea, Hibiscus and palms.

During the Tropical Plant Industry Exhibition, Mr. Ammer made a deal to import palm seeds, aerial plants, and samples of cactus and palms. The TPIE also exposed Mr. Ammer to new display ideas, such as containers, pots, and using shiny oils for polishing the leaves.

Soil and Planting--While in the U.S. the participants learned how to greatly simplify their method of sterilizing the soil. In Egypt, most farmers complete many stages to sterilize their soil: first, they rinse the soil with water, then they apply fungicide, apply copper sulfate, rinse with more water, and then complete the process with a final application of fungicide. In the U.S. they learned they can cut this lengthy process to just one step; one application of chlorine is sufficient to sterilize the soil. In addition, the participants will now re-use the soil through

sterilization.

Hussein Sobieh plans on mechanizing his planting trays like he saw in the U.S. The machine is fairly easy to construct and will reduce his labor costs, lower diseases in his transplants, and increase uniformity in his transplants.

Mr. Sobieh also plans on using the different soil mixtures which he received information on while in the U.S.

IPM and Organic Farming--The participants learned about Integrated Pest Management and two of the participants ordered some predators to be delivered to them in Egypt. Several members of the group bought traps for white fly and an organic spray to eradicate white fly.

The participants learned that bumble bees are better in a greenhouse than honey bees. As soon as a messenger honey bee discovers better sources outside of the greenhouse, all the honey bees leave. Bumble bees do not communicate with each other like honey bees do. If possible, some of the participants would like to import bumble bees.

The Tennessee host family runs a nursery/greenhouse which is completely organic and highly diversified. The participants were impressed with their host's farm and the fact that he completely recycles all his materials. It was their opinion that organic farming in the U.S. was more than an alternative to using chemicals, but also a complete philosophy of life. The participants were impressed with this.

Recommendations

Hatem Imam, the extension agent selected to come on the program, left the program on the second day and did not return. Apparently he used FTF as a way to gain entry into the United States. ACDI/Washington reported his departure to the Office of International Training at AID and to the Egyptian Ministry of Agriculture. We suspect he is in Minnesota at this time. Possible ways to deter other participants from either leaving the program completely or partially are: keep their international airline tickets at ACDI/Washington; keep a percentage of the participants' allowance until they return to Washington or Egypt; keep their passports at ACDI/Washington (in this case they would need some form of identification to cash travellers checks); or only select married participants or those with significant financial investment in Egypt.

The participants all agreed that the group selected needed to have more common objectives. They felt a group needs to be more homogenous in product and in technological capabilities. The program was designed to examine greenhouse production in general, but ornamental production in particular. After arrival it became clear that most of the group was interested in vegetable production and some adjustments were made, but some of the participants felt that not enough vegetables, cucumbers in particular, were included in the program. Unfortunately, there is minimal production of cucumbers in greenhouses in the U.S.

One of the participants would have liked to have spent more time with his host family working on their greenhouse. By the end of the program the host, Hector Black, also felt more time on

his own operation would have been beneficial to the participants.

Thoric Cederstrom from the University of Arizona felt that perhaps the participants' trip to Arizona was too short, but believes FTF to be an "excellent opportunity for cultural and technological interchange."

The participants were surprised by the open nature of the Americans they met, and by their willingness to release information to them.

Through FTF, the participants feel that ACIDI is helping them gain status in their communities, and furthermore, have confidence in their own abilities. In addition, with their new knowledge they feel they are better qualified and more legitimate than American farmers as outreach agents to Egyptian farmers.

FTF SHEEP/GOAT GROUP EVALUATION FEBRUARY 6TH TO MARCH 9TH, 1993

Summary

Four Sheep/Goat producers, one veterinarian, the head of the Department of Agriculture in the Marsa Matrouh Governorate, and the ACIDI Escort/Interpreter arrived in Washington, D.C. on Saturday, February 6th. Two of the participants were Bedouins. The group was briefed at ACIDI on Monday morning, and in the afternoon they met with Dr. Ibrahim Antar at the Agricultural Bureau of the Egyptian Embassy. On Tuesday the group had a cultural briefing at Meridian International Center. The group travelled to California, Kansas, Arizona and New Mexico and worked with VOCA volunteers, extension agents, researchers and farmers.

California

Roderick Shippey, a VOCA volunteer, coordinated the California program and travelled with the group. Mr. Shippey took the group to visit Experiment Stations, Universities and farmers in northern California. The group was especially impressed by a Basque sheepman whose sheep operation they visited. The participants learned about wool production, sheep selection, artificial insemination, shearing techniques, sheep dog training, and disease prevention.

Kansas

The Kansas program was arranged by extension agent Dr. Clifford Spaeth at Kansas State University. Dr. Spaeth arranged for the participants to meet with researchers and veterinarians at Kansas State and visit several farmers and Experiment Stations around the state of Kansas.

Arizona/New Mexico

On the first program day of the New Mexico trip the group was scheduled to meet with Navaho sheep breeders and members of the Ramah Navaho Weavers Association. Unfortunately, a snow storm made the trip to Ramah, New Mexico impossible. The group did visit the Navajo New Lands Relocation Project and range management project. In Tucson, at the University of Arizona, the group visited the Goat Production and Experimental Farm; ARBICO, the Arizona Biological Control labs; the University of Arizona Dairy and Goat Farm; and the Arizona Woolproducers Association.

Technical Transfer

Herd Management--The participants agreed that they will now synchronize lambing in the flock to a certain season. In Egypt the rams and the ewes are kept together. Now, the participants plan on separating the rams from the ewes in preparation for a planned lambing season. The lambing season will be when there is good weather and a supply of feed; in Egypt, the best season will be spring. Developing a lambing season will be beneficial to the producer because it will facilitate identifying the proper time for vaccination, weaning, and fattening. One season is much easier to manage than having lambs every month.

Some of the participants will now keep some replacement ewes in their flock. In the U.S., 20% of a flock consists of carefully selected replacement ewes, while in Egypt they are all sold. If a replacement system is started, the Egyptian farmers can rid their flock of non-producing

animals and maintain a high quality, high milk and wool producing flock.

The participants saw an experiment that could be the solution to their orphan lamb problems. A "shirt" is put on the natural lamb and later transferred to the orphan so the orphan has the natural lamb's scent. This eases the acceptance of the orphan by the adoptive mother.

Some of the participants will begin or improve record keeping of their sheep. Each animal's breed, date of birth, and the total number in the flock will be recorded. This information will help farmers keep track of the productivity of their animals and when they should vaccinate them. Some of the participants will also start ear tagging or marking sheep with nitrogen on the neck. Some farmers in Egypt have started this procedure in large animals.

Only milking cows are dehorned in Egypt at this time. In the U.S. all animals are dehorned the second week after delivery mostly by the application of caustic cream. The participants will start this procedure because dehorning the animal causes less fighting and in turn the animals are more calm, less nervous and eat more. This is especially beneficial in regards to the more timid animals who will now have better access to food and produce more. They will also use caustic cream rather than the electric dehorner used now.

Vaccination Program--The participants agreed on the importance of vaccinating the lambs and ewes. In Egypt, the animals are only vaccinated once. In the U.S. the participants learned that the animals are vaccinated twice--once one month before delivery and once six months after they are born. The participants plan on implementing this program upon their return. In regards to external parasites, the participants will spray their animals with "Spot-on" after shearing, as they observed in the U.S. "Spot-on" is available in Egypt. The participants will also cut the sheep's tails since the tail is a popular residence for external parasites. Cutting it will reduce infestations.

The Head of the Department of Agriculture in Marsa Matrouh, Mr. Ali Saber, believes that there should be more coordination in Egypt between extension agents and veterinarians, as there is in the U.S. In addition, he now believes prevention of diseases should be a priority.

Feed & Nutrition Programs--Nasr El Behiry, the veterinarian, intends to cultivate a couple feddans of alfalfa for hay. In Egypt, the alfalfa is not sold as hay, it has to be processed by the farmer. Nasr also plans on making his own corn silage in small black plastic sacks. The alfalfa and corn silage will serve as additional elements/food supplements to improve the natural grazing system for the animals.

Nasr and the other participants plan on flushing the animals to increase the number of lambs as they observed in the U.S.--they will provide extra feed for the sheep 15 days before and after delivery.

In the past, Abdel Raouf Salama thought that soybean seed had to be ground before feeding to the animals. However, in the U.S. he learned that he could feed the whole soybean seed--2 kilograms maximum per head--to his animals. He will also begin feeding ground barley to his sheep. In the past, he only used ground barley for big animals, but learned he can also feed it

to his sheep. This will be very useful to him, especially in hot weather when feed is more scarce.

In a beef operation Abdel Raouf learned about pushing, or finishing his animals with a high protein concentrate to fatten them. He will start this practice with his beef cattle. For most of the season he will feed the animals two meals per day in addition to alfalfa in between. However, despite Dr. Spaeth at Kansas State warning him of the risks, Abdel Raouf plans on continuing with his practice of not feeding his animals concentrates one day out of ten. He believes this will lower his costs and clear out the animals' systems.

Castration--Some of the participants had never really considered castrating their animals before, but after observing it in the U.S. some were convinced that it would be beneficial in regards to speeding the fattening of the animals. It must be done in the first month. At present, castration is performed more for goats than sheep in Egypt.

Breeding--In regards to Ram selection, the participants state that the mother should be three years old; the ram should be a single, not a twin, to ensure that the ram had a good supply of milk from his mother; and the performance and shape of ram should be satisfactory.

To prevent uterus infections in cows Rod Shippey suggested to the group that they should select reasonably sized bulls in relation to the cows and in turn select appropriately sized embryos.

Land Management--One of the Bedouins, Gad El Mawla, learned a method for controlling his natural water supply in Siwa. Arizona has similar water springs. The spring is covered with a succession of pipes, each increasing in size as it rises. The increasing diameter serves to reduce the natural water pressure. A tap is attached to the top of the pipe to control the water. This method will significantly reduce wasted water in Siwa, since Gad informed us that at this time there are no pipes and taps and as a result there have been problems of subsoil water and flooding.

The participants learned that they can burn natural materials and use the ashes for fertilizer. Not only will this develop the pastures and field capacity for number of heads per feddan, but this process will also reduce waste and increase recycling. Composted manure will also be used for fertilizer.

In some parts of Egypt "Atroplex", a highly drought-resistant shrub, grows naturally and can be irrigated with salt water. However, the salinity is too high in the leaves for the animals to eat. In Tucson, the participants viewed a simple method to make "Atroplex" edible. The "Atroplex" is ground and soybean and molasses is added. Since Egypt imports soybean the participants will add barley instead.

Navaho New Lands--The Navaho New Lands Project is very similar to the Bedouin settling program by the World Feed Program. However, there were several ideas in the Navaho Project which the Bedouins and Mr. Ali Saber would like to see implemented for the Bedouin community: ownership of the land for the homes of members of the community; participatory decision-making through community councils; small training center for small industries--

carpentry, electronics, construction; houses grouped together to facilitate the provision of services; newsletters and training programs; promotion of small industries--such as food processing and wool processing in Siwa.

Cooperatives--The participants discussed starting a cooperative, such as a sheep growers association which could potentially operate as the Farm Bureau does. The association could introduce strategies, policies and other services for the growers.

Recommendations

All the participants and some of the coordinators felt that there was too much travelling in this program. If it were possible, they would have liked to spend more time in each location. They also felt that at this time of the year Kansas was very cold. However, Mr. Ali Saber admitted that despite the bitter cold, 50% of what he learned was learned in Kansas.

Ramadan was also a hardship at times. All the participants decided to fast and this proved to be difficult during the days they were travelling. They felt that it was best that groups do not come to the U.S. during Ramadan if at all possible.

Joseph Hickey, the driver/coordinator in northern Arizona, suggested that oral briefing and debriefing conferences be carried out during the day of the field visits. Also, he felt that providing supportive documentation translated into Arabic about the technical components seen and discussed would be helpful.

Rod Shippey, VOCA volunteer and coordinator in California, felt that any escort/interpreter who will be driving in the U.S. should have some training in U.S. driving, or at least become familiar with the rules of the road. He is sending ACIDI materials on the laws in California.

APPENDIX

"E"

**SAMPLE OF ARTICLES PUBLISHED IN
AMERICAN & EGYPTIAN NEWSPAPERS
REGARDING THE FtF PROJECT**

Shepherds compare notes

By CAROLE HESTER
for The Journal

Six Egyptian sheep farmers and their translator visited the Ukiah Valley and Lake County last week to learn about farming methods in America.

As part of a farmer-to-farmer exchange program, a federal program from Washington, D.C., the group is only one of several who have ventured to the U.S. to learn this country's farming techniques.

So far, Agricultural Cooperative Development International has sent 23 groups on tours of the States. Rod Shippey, former 4-H and livestock farm adviser with the University of California Extension Office, visited Egypt some time ago and taught about grape farming. He invited ACDD to send farmers to Mendocino and Lake counties to learn about farming and ranching operations here.

The translator, Adham El Sherbini, also is a field assistant with ACDD, the company sending these farmers to the U.S. One of the farmers, Nasser El Tayed Mohamed, is also a veterinarian. Ali Saber Hamad is director of the agricultural department of ACDD as well as an extension agent.

The group first visited the Hopland Field Station, then Mendocino County Farm Supply Company in Ukiah. From there they visited the Guntly Ranch on Highway 20 and in Potter Valley. They were treated to strong tea and cinnamon rolls by Beth Guntly before her husband Buck Guntly showed the Egyptians his ranching operation and special electric fence.

Two of the Egyptians were Bedouins, two also raise dairy and beef cattle as well as sheep as part of their ranch in Egypt. Two come from the western part of Egypt which is a desert area. Two are from the delta area, where the production of crops is more efficient; therefore the ranching operations are larger and the men can support employees. Those from the desert regions utilize their family members as farm hands. El Sherbini said the farmers raise their own green feed (pasture) but buy concentrates (protein supplements). One of the farmers explained to Shippey, their contact person for this leg of their trip, that costs of the concentrates in Egypt are about three times what the price was at Mendocino Farm Supply. The Egyptians purchase different commercial medicines needed, such as worming medicines, etc., from European countries as well as the U.S.

In Egypt, you can be granted a piece of land upon which to raise your own sheep. The government supplies a piece of land to every graduate to raise his own sheep.

Sheep farming methods are much the same as in the U.S. But the two main breeds of sheep raised are Barkey and Rahamany.

Barkey is raised in the desert for meat and wool. Rahamany is used only for meat; the wool is a red color.

All the visitors, except the two Bedouins, are college graduates and their families have been farming for several generations.

A misconception is that Bedouins are still migrating tribes. For the most part, this group of people stay put in one place and raise sheep, although according to El Sherbini, there are some tribes that still move around.

El Sherbini reminded the Americans that the Egyptian civilization is 7,000 years old. He talked about the changes that must come, deviating from the traditional methods of farming.

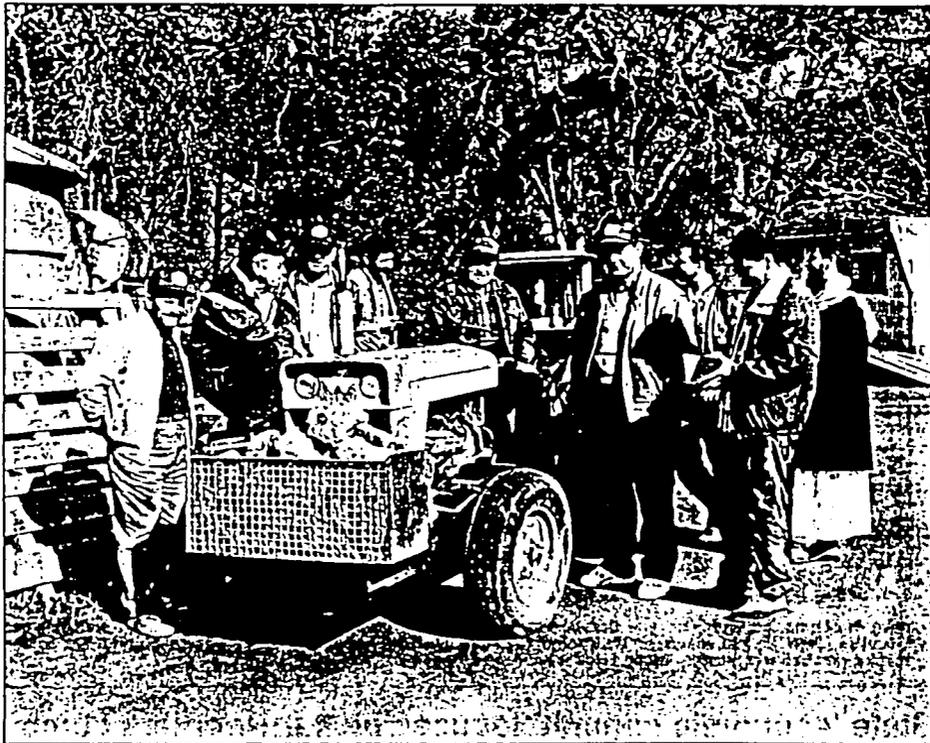
"We now have educated people who are open to new ideas and change," explained El Sherbini. "These people have university degrees, and they provide other people with new ideas."

Those farmers who tour the U.S. in this program are expected to return to Egypt and share their knowledge and impressions of America.

There is no 4-H in Egypt. However, the children do many tasks similar to their American counterparts who grow up on farms.

El Sherbini, on his third trip to the U.S., said that the range of "feddans" owned by the farmers is wide. A "feddan" is 1.2 acres. One farmer in the group owns 60 feddans, two own 30 feddans each, another owns six and another farmer owns 20 feddans. And these farmers, aged 27 to 49, make a living on those ranches.

Besides their local visit, the farmers will visit Arizona, Kansas, Washington, D.C. among others.



Circle 11 on the Daily Journal

Surrounded by the Egyptian sheep farmers and their translator, above, Buck Guntly sits on a tractor and talks about his Potter Valley ranch operation. Below left, John Collier of Mendocino County Farm Supply, at right, shows

a chick to two Bedouin farmers, Nasser El Tayed Mohamed, also a veterinarian, and Khamis Youssef Hamad. Below right, Rod Shippey, at right, talks to several of the Egyptian farmers.



Qatar to supply natural gas to India

DOHA. — Qatar signed a preliminary accord yesterday for a major contract to supply India with natural gas, consolidating its multi-billion dollar plans to develop its huge gas reserves. An official Qatari statement said a letter of intent was signed with the American firms Eon Corporation and Eon Development Corp to supply 25 million tonnes of liquefied natural gas (LNG) a year for 25 years from 1997 on. Qatar Energy Minister Abdullah bin Hamad Al-Attiyah said the gas would be used to fuel power generation in India. An associated document showed it would be used for electricity generation for the western Indian state Maharashtra.

The Egyptian Gazette

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Board Chairman **SAMIR RAGAB**

....

Editor-in-Chief: **M. ALI IBRAHIM**

MONDAY, APRIL 12, 1993

Mubarak-Rabin summit this week

CULTIVATION EXPERT: An American expert in cultivation of apples and pears, Dr. John Henry, will visit Egypt on April 20 — 22 at the invitation of the Alexandria Agriculture Directorate. According to Ministry of Agriculture Under Secretary Fathi Khalil, the American expert will hold two seminars on cultivating apples and pears in Egypt and how to combat disease and pests that may affect these crops.

APPENDIX

"F"

**ATTACHMENTS OF FtF
PROJECT LINKAGES**

AGRICULTURE RESEARCH CENTER

Office of

International Research Programs

ATTACHMENT (1)

Mr. Mahmoud H. Kamel

Project director

F to F/ ACIDI

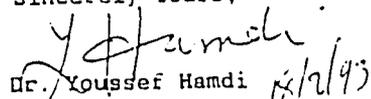
Dear Mr. Kamel :

I am pleased with F to F Program, the way it's conducted and the achievements reached during the first phase.

We are equally pleased with the impact of program on the farmers and the production. In order maximize benefits we wish to see that the program be expanded and to increase the areas of focus. There fore, it's our pleasure to propose some ideas concerning this program which would be developed for the next phase. We will be glad to discuss these ideas further in our next meeting.

In waiting to hear from you, please accept our regards.

Sincerely Yours,


Dr. Youssef Hamdi 18/2/93

Director of

International Research Programs

ATTACHMENT (2)

MOA
General Dept. for Training
Agricultural Training Center
Ismailia.

Mr. Mahmoud Kamel
FtF Project Director
Cairo

Thank you for choosing the Agricultural Training center at Ismailia as a place where US volunteers usually visit during their assignments in Egypt. This is mainly attributed to efforts exerted by Mr. Mahmoud Taha with the Mansoura office.

Hence, the center welcomes any co-operation on your behalf which leads to development of agricultural production. Accordingly, we request your co-operation in arranging for training sessions for extension agents in order to serve the agricultural sectors in Egypt.

Best regards.

Engineer Sayed Mohamed
Head of Agricultural Training Center

Feb. 17, 1993.

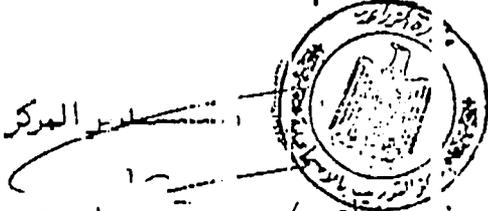
وزارة الزراعة
الادارة العامة للتدريب
مركز التدريب الزراعي بالاسماعيلية
ت ٣٢٢٧٨٥ الاسماعيلية

السيد الاستاذ المهندس / محمد كمال

مدير مشروع تبادل الخبرات بين المزارعين - القاهرة

تحية طيبة .. بعد

أوجسة الشكر لسبب اذتكم لاختياركم مركز التدريب الزراعي بالاسماعيلية التابع لوزارة الزراعة فى الزيارات للمزارعين لأمريكيين ضمن برامج الزيارات المتبادلة بيننا وبينهم وكان ذلك بفضل جهود المهندس / محمود طة بمكتب المنصورة ولما كان فترة الزيارات متفاوتة فى التوقيت فاننا ننتزع عن التأخير فى خطابنا هذا انتظارا منسائنتائج الزيارات التى تمت بالمركز والمسرركر ان يرحب بالتعاون معكم من خلال مشروعكم حيث انه يؤدى الى الفوائد الارشادية والتطبيقات العمية للمزارعين مما يؤدى الى زيادة الانتاج الزراعى بولهذا نرجوا التعاون معنا فى عمل دورات تدريبية للمرشدين الزراعيين بما يتناسب وخطتكم بما يخدم الزراعة المشروع بة ..
وتفضلوا بقبول فائق الاحترام



تحريرا فى ١٧ / ٢ / ١٩٩٣

مهندس زراعى / سيد محمد محمد على