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Consultancy Report

Impact Assessment: Farmer to Farmer

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EXECUTIVE SUMMARY

This impact assessment of ACIDI's Farmer to Farmer (FtF) program shows a return on investment of nearly \$3 for every \$1 of USAID grant funds for 600 direct beneficiaries (core farmers). If indirect beneficiaries (12,000 non-core farmers) are also considered, the return is significantly higher. The assessment shows that FtF's person-to-person approach with multiple interventions has enabled Egyptian farmers to increase their yields, decrease their costs, improve the quality of their produce, and, more broadly, enhance the quality of their lives.

The financial impacts and return on investment described by this study show beyond a doubt that the FtF methodology is a cost-effective, highly efficient approach to the rapid transfer of appropriate technology. The key component of FtF's effectiveness is that farmers are willing to trust a fellow farmer with practical experience who gives them sound recommendations that work. Close cooperation of FtF field staff with the farmers through followup visits and training sessions provides continuity and enables the farmers to ask questions that may arise as they implement program recommendations. FtF staff and volunteers have also maintained excellent relationships with Ministry of Agriculture staff.

To conduct the assessment, Eugene Miller, a US agro-enterprise development specialist, worked with an Egyptian agricultural economist and an Egyptian computer specialist as well as FtF field staff, to survey a 10% sample of 60 core farmers, including a subset who were also U.S. training participants. The sample was chosen to represent a cross-section of all governorates and commodities in which FtF currently works. Interviews included questions about yield or price increases as a result of recommendations applied, cost increases or decreases, price per unit of the commodity involved, and other benefits. To provide a small (1%) sample of non-core farmers, each core farmer identified two of the farmers with whom he or she had shared information, these farmers were also interviewed.

Financial impact was calculated using the increase or decrease in yield times the price per unit times the number of units, usually feddans. Changes in farm costs resulting from implementation of recommendations were included to obtain a figure for net financial impact. Impact per unit of production was calculated wherever possible. The median financial impact for each group of project beneficiaries was used as a measure of central tendency.

Social improvements noted include increased formation of self-help associations, increased status, purchase of additional land, home improvements, and better education for family members. Environmental impacts of FtF are expressed as increased interest in organic farming and more accurate use of agro-chemicals.

The impact assessment also contains recommendations for FtF in the future.

MAJOR CONTRIBUTORS

Eugene H. Miller, a US agro-enterprise development specialist, conducted the assessment of ACDI's Farmer to Farmer Project. He worked with Dr. Ibrahim Siddik Aly, an Egyptian agricultural economist, to design the sampling procedures and to prepare and field test the survey instrument. Supported by FtF field office directors and field assistants, Mr. Miller interviewed 60 core farmers, who themselves were major contributors to the assessment. Core farmers in turn interviewed two of the non-core farmers with whom they had shared FtF recommendations. The consultant prepared and presented results both in written form and in the form of a slide presentation, assisted by MIS specialist Mohammed Bashbishi.

This impact assessment would not have been possible without the help of the 178 farmers interviewed during the survey. They deserve special thanks for their contribution. None of the farmers complained about having to wait, sometimes several hours, before their "turn" or about having to answer so many questions.

Thirty-six Ministry of Agriculture officials were contacted during the impact assessment. Dr. Gharib El Banna, General Director of Horticulture, was particularly helpful in travelling to Menia, assisting with interviews, providing statistical information, and reviewing many of the questionnaires for validity of yields and prices. Dr. Mohammed Beltagui, Chief of the Horticultural Department, aided the assessment by suggesting that Dr. El Banna travel to Menia and by pointing out areas where the FtF program needed attention.

Blair Cooper, USAID Agricultural Development Officer, supported the assessment throughout, including visits to the field. Fenton Sands and Rollo Ehrich, USAID agricultural economists, and David Delgado, Director of Agriculture at USAID, answered many questions and provided valuable insights into Egyptian agriculture.

A complete list of persons contacted by the consultant appears in Appendix F.

LIST OF ACRONYMS

ACDI	Agricultural Cooperative Development International
ARC	Agricultural Research Center (Ministry of Agriculture)
ATUT	Agricultural Technology Utilization and Transfer
EED	Export Enterprise Development (USAID)
FA	Field Assistant
FtF	Farmer to Farmer Program
GOE	Government of Egypt
IPM	Integrated Pest Management
LE	Egyptian Pounds
LOP	Life of Project
MIP	Marketing Information Project
MIS	Management Information System
MOA	Ministry of Agriculture
USAID/Cairo	United States Agency for International Development, Cairo Mission
VOCA	Volunteers in Overseas Cooperative Assistance

I Introduction FtF Program Description

A Goal and Components

With the goal of increasing private sector agricultural investment, productivity and income, the Farmer to Farmer (FtF) Program uses a unique combination of US volunteer technical assistance, US and local participant training, and tailored outreach activities to provide Egyptian farmers and extension agents with improved farming technologies and farm management techniques. The program operates in over half of Egypt's governorates, extending from Siwa and Matrouh to the North Sinai, and from Alexandria to Minya. Working directly with a core group of almost 600 leader farmers, the program reaches over 12,000 other farmers indirectly.

In order to maximize the impact of program interventions, the selection of program commodities and regions involved a thorough analysis of national agricultural production. First, Ministry of Agriculture data were reviewed to identify commodities with the highest production. Then, governorate-level production data were considered in order to select the areas where significant plantations existed. To accomplish maximum impact, FtF focused interventions for commodities in the regions where their production was highest. In some cases, cultivation methods such as greenhouse production or tunneling were targeted rather than specific commodities. Text Table 1 shows the commodities and regions selected. One of the three key components of the program is technical assistance provided by US farmers, researchers and extension agents who are recruited by Volunteers in Overseas Cooperative Assistance (VOCA) and who volunteer four weeks of their time to work with farmers and extension agents in Egypt. Volunteers usually work in pairs following a schedule prepared by FtF staff. A typical volunteer assignment begins with program orientation in the Cairo office and a technical briefing from MoA specialists about the volunteer's commodity in Egypt. Volunteers then visit MoA officials in the governorates and districts and visit up to 30 farms, where they observe field production and offer recommendations. If possible, volunteers also conduct practical training sessions for groups of farmers. As the assignment nears its end, volunteers return to Cairo for debriefing by FtF staff, USAID staff, and MoA officials (if possible). Volunteers are allowed time to prepare their final report before departing Egypt. The USAID Project Officer attends briefings, de-briefings, and field visits as his schedule permits.

The second major program component is a study tour in the US for innovative farmers and extension agents who are active in FtF. Participants visit farms of varying sizes, packing and processing facilities, research centers, local trade shows, and produce markets. The schedule is arranged and coordinated by ACDI Headquarters Training Department staff. Each group is accompanied by an Egyptian FtF staff member who serves as escort/interpreter.

Text Table 1 Commodities or Cultivation Methods Targeted by Region											
Commodity	Alexandria	Ismailia	Fayoum	Behera/ Nubaria	Gharbia	Matrouh	Sharkia	North Sinai	Kalhoubia	Menia	Beni Suef
Apple/Pear	x			x	x						
Bees					x		x			x	
Citrus				x			x		x	x	
Cucurbits	x	x	x	x			x				
Figs						x					
Fish	x		x			x	x				
Grapes					x					x	
Green Pepper		x		x							
Mangos		x					x				
Peaches				x				x			
Potatoes				x	x						
Sheep/Goats						x					
Tomatoes	x	x	x	x			x				x
Cultivation Methods											
Greenhouses		x					x				
Tunnels		x						x			

In the third program component, outreach, FtF staff build upon the other components in a number of ways. Upon the completion of a volunteer assignment or a study tour in the US, FtF field assistants work with the farmers to follow up on the recommendations and lessons learned to ensure that the technology transfer process is ongoing. In addition, core farmers share their newly acquired information with neighboring farmers, by hosting demonstrations on their farms, visiting farming colleagues, and conducting village seminars. In addition to supporting logistics for the leader farmers' seminars, FtF has presented a Training of Trainers program designed to upgrade the capabilities of core farmers to share information with others.

Another important outreach activity, launched by FtF in 1995, is the in-country participant training program that facilitates the exchange of information about program commodities between groups of farmers from different regions within Egypt. For example, a group of sheep and goat farmers travelled from the Delta and North Sinai to the Matrouh governorate, which is the region with the highest number of sheep and goat herders. The visitors learned about the nutrition, vaccination, and management practices of their Bedouin hosts, and they also initiated a number of trading arrangements, including some with export possibilities.

B Background

ACDI launched the FtF program in Egypt as a pilot activity in 1987. The main component of the program was US volunteer technical assistance, with no US participant training to complement the Egypt-based technology transfer process. From October 1987 through May 1990, 51 volunteers undertook assignments in Egypt in the areas of dairy herd management and grape, citrus and vegetable production.

Recognizing the benefits of hands-on technical assistance from US agriculturalists, USAID approved a three-year expansion of the FtF activity which included a US participant training component. This component, based on the importance of "seeing is believing," aimed to enhance the technology transfer process initiated by the US volunteers by providing Egyptian farmers with firsthand experience of a private sector oriented agricultural production system. From June 1990 - August 1993, 105 volunteers undertook assignments in Egypt, and 170 Egyptian farmers and extension agents participated in US study tours. A number of special projects provided farmers with additional training in specialized areas of interest, ranging from agriculture-related enterprise development to the introduction of beekeeping in newly reclaimed desert areas. A mid-term evaluation of the program concluded that "the FtF technical assistance program has been exemplary," cited examples of significant financial impact, and highlighted the impact of the program on the Egyptian agricultural sector as a whole, stating that the new technologies introduced by FtF "are definitely changing the way farmers are looking at their production systems."

With this positive assessment and with an array of effective technology transfer activities in place, ACDI and USAID agreed to the current three year program focused on outreach. The grant has an authorized funding level of \$5.2 million.

C Beneficiaries

1 Core Farmers

FtF classifies farmers as core and non-core. The core farmer is a leader farmer selected for his/her potential to become a model farmer and demonstrate FtF program recommendations to the surrounding community. Volunteers and FtF staff visit core farmers on their farms and offer recommendations, core farmers then serve as volunteer outreach agents, sharing what they have learned from the program with other farmers. Core farmers are then eligible for travel to the US as training participants. The Program's Management Information System (MIS) has a file on each of the core farmers in which the field staff record program interventions including volunteer visits and recommendations given.

Under the current grant agreement, the FtF program targets 600 core farmers. Selection of core farmers takes place within the framework of the commodities and governorates targeted by FtF. The first step is consultation with the Ministry of Agriculture representatives in the districts targeted. Program staff also consult other farmers as part of the selection process. In the case of the Ismailia field office, for example, 700 farmers were interviewed before 200 were finally selected by FtF staff.

FtF organizes field visits and communicates with farmers through the Cairo FtF office as well as field offices in Alexandria and Ismailia (**Appendix D, Core Farmer Table 6**). The number of farmers and commodities varies by field office and at the time of the survey the distribution was as follows:

Commodity	Ismailia	Cairo	Alexandria	Total
apple/peach	17	17	23	57
citrus/mango	41	19	22	82
grapes		22	16	38
figs			14	14
cucurbits	23	11	32	76
tomato	20	37	37	94
potato	16		16	32
fish	8	10	18	36
beekeeping	20	12	29	61

livestock	12		20	32
sheep/goat	16		30	46
poultry	25		15	40
TOTAL	198	128	272	598

2 Participants

Participants are defined as core farmers who travel to the US on study tours. FtF chooses nominees for participant training from the pool of core farmers. The primary criterion for nomination is that the farmer has demonstrated an openness to change by applying one or more of the recommendations made by volunteers. Field office staff forward nominations for specific commodity study tours to the Cairo FtF office where they are reviewed. When all is in order, the MoA's Selection Committee (established by the Minister for this purpose) is convened to interview selected nominees and decide which ones will be authorized to travel. The Selection Committee forwards its decision to the Minister of Agriculture who publishes an official decree naming the individuals to travel to the US. Appendix B lists participants as of March 1996.

3 Non-core Farmers

The grant agreement states that ACDI will reach 12,000 non-core group farmers, based on the expectation that each core farmer will work with 20 other farmers. The participation of non-core farmers in FtF is through the core farmers and/or training sessions delivered by VOCA volunteers or FtF staff. They do not receive volunteer visits or visits from the field staff. They receive volunteer recommendations indirectly by observation of a core farmer's work or by being told about a recommendation by someone other than a volunteer. Although a non-core farmer usually is a neighbor of a core farmer, anyone who attends an FtF training session is considered to have received an indirect benefit from the program and is classified as a non-core farmer.

D Status of Outputs

The following text table summarizes progress in achieving program outputs as of November 30, 1995

Output	Life of Project Target	Total
Volunteer Assignments	120	88
Farm Visits by Volunteers	2,400	1,528
Participant Visits to US	120	95
Core Group Farmers	600	598 ¹
Non-core Farmers	12,000	12,659
Training Sessions	900	806
Training of Trainer Trainees	300	220
Technologies Transferred	480	476

II The Impact Assessment

The impetus for the study emerged as a result of discussions between ACDI and USAID in mid-1995. While staff of the USAID Agricultural Directorate were generally impressed with the individual farmers they encountered during trips to the field and with farmer profiles included in the progress reports, they questioned whether the FtF Program has broad development impact. ACDI, convinced that such impact is occurring on a large scale, requested and obtained USAID approval for the impact assessment to be conducted to determine and quantify specific program benefits.

¹ According to the latest FtF quarterly report, covering the period September - November 1995, there are 691 farmers in the core group. The consultant was only able to verify 598 names. It appears that the calculation of 691 includes some duplicate names, possibly as a result of slight variations in spelling.

A Objectives

The objectives of the present study are as follows 1) To assess the technology transfer adoption rate, 2) to analyze the financial, social and environmental impact of the program, and 3) to recommend a system for tracking these factors in the future The complete scope of work is presented in Appendix G

B Approach

ACDI contracted with Eugene Miller as the principal investigator for the study Mr Miller is an agro-enterprise development specialist who recently completed an assignment in Egypt working with the Trade Development Center as an Export Promotion Specialist under USAID's Export Enterprise Development (EED) Project With an educational background focused on agriculture and business management, he has over 30 years of development experience in areas ranging from agribusiness evaluations for USAID to private sector farm management

ACDI hired Dr Ibrahim Siddik Aly to assist Mr Miller with the sample selection, questionnaire design, and preliminary interviews Dr Siddik is an agricultural economist with extensive experience in project evaluation

Working closely with ACDI management, FtF project staff, and an outside MIS consultant, Mr Miller and Dr Siddik developed the parameters for the sample of core group farmers, designed and field-tested the questionnaire, drew both primary and alternate samples, and began preliminary interviews Upon the completion of Dr Siddik's assignment, Mr Miller continued with the remainder of the core group interviews, worked with the MIS consultant to design a data entry, analysis and retrieval system, and developed an approach for sampling and interviewing the non-core group of farmers In addition to yielding statistical information on the program, the interviews -- particularly with core group farmers -- provided information for case studies, which USAID had stressed during preliminary discussions about the impact assessment The methodology is described in greater detail below

Throughout the data collection and verification process, Mr Miller had numerous discussions with representatives from the MOA and from USAID's Agriculture Directorate This included MOA extension agents and governorate-level officials in all of the areas visited, as well as the participation of Dr Gharib el Banna, General Director of the Horticulture Department, Ministry of Agriculture, who joined Mr Miller for three days of interviewing in Minya and who reviewed the study calculations with him at that time, as well as preliminary findings in subsequent weeks At USAID, Mr Miller received informal comments about his strategy and findings from the Mission's agricultural economists, as well as from other Agriculture Directorate staff

C Methodology

1 Sample Selection

A 10% sample was considered to be a significant sample of the universe to ensure statistical validity. The universe of 598 core farmers was clustered into three geographical areas corresponding to the farmers' relationship with the FtF offices in Alexandria, Ismailia and Cairo. The commodities were weighted by number of volunteers' visits and participants to the US. The farmers in each of these clusters were stratified by twelve commodities, and a sample of approximately 10% (60) was randomly drawn. An equal number of alternates was also selected at random.

With respect to sampling the non-core farmers, 120 non-core farmers were selected by having each core farmer interviewed identify two non-core farmers with whom he has shared information. One core farmer did not have any non-core farmers, reducing the sample size from 120 to 118 (59 core farmers x 2).

2 Questionnaire Design

The questionnaire was designed to capture the financial impact of FtF. It focuses on recommendations received from the program, the costs to implement the recommendations, the results in terms of yield, and the financial impact on the farm. There were additional questions relating to technology adoption rate, social and environmental issues. Eight of the twenty one questions sought yes/no or numerical answers.

The questions were pre-tested on approximately 15 farmers before doing the survey in the Alexandria field office. Modifications and additions to the questionnaire resulted from the pre-test. The final questionnaire is presented in Appendix H. The input code was established after the pre-test and discussions with the MIS consultant took place to design the input format. The input program was designed on the same platform (Foxpro) as the FtF MIS so that the questionnaire and data could be incorporated into the overall project MIS after the assessment was complete.

3 Interview Process

Core farmers in the sample were contacted by program staff to schedule interviews. Most of the interviews took place in the program offices in Cairo, Alexandria and Ismailiya, some were held in MOA offices (ElArish, Minya, Marsa Matrouh, Siwa and Fayoum), a few were done on the farms.

Interviews were conducted separately by the assessment team members, Dr Ibrahim Siddik Aly and Eugene H. Miller. FtF Field Coordinators or Field Assistants were present at the interviews, translating when necessary. The interview consisted of asking the questions in the

questionnaire and making the necessary calculations to determine the effect of program recommendations. Farmers were asked amounts of yield increases, farmgate price changes, or quality changes that they had noted as a result of FtF interventions. They were also asked to detail additional costs or cost savings resulting from application of recommendations. The farmers' numbers were accepted if they seemed reasonable to the interviewer. Each interview required an average of 60 minutes to obtain clear and complete information relating to the questions.

FtF field staff who had participated in the interviews of core farmers carried out interviews on the selected non-core farmers under the supervision of the Field Coordinators. The same questionnaire was used to assure comparability of data.

After the interview was finished the completed questionnaire was reviewed for reliability and accuracy with the field staff. Many questionnaires were reviewed a second time for reasonableness with ACDI staff members familiar with Egyptian agriculture. Dr Gharib El Banna, General Director Horticulture Administration, MOA, also reviewed a number of questionnaires.

The last step was ACDI staff entering the information from the questionnaires into the data base. The consultant cross-checked to assure accurate transcription of the data.

III Survey Results

A Beneficiaries

1 Core Farmers

Demographic data about the core farmers appear in Appendix D, Core Farmers, Tables 1-6. Based on the survey sample, the average FtF core farmer is male, 42 years old, and has four children. Core farmers are well educated: 65% are university graduates, 22% high school educated. The amount of land owned and rented by core farmers after FtF ranges from 0 to 500 feddans, with the median falling at 25 feddans. Seventeen per cent (17%) of core farmers receive income from sources other than agriculture.

2 Participants

Demographic data about participants, a subset of the core farmers, is presented in Appendix D, Participants, Tables 1-5. Eighteen participants (30% of the sample) visited the USA under the participant program. The average participant in the sample was male (100%), 40 years old, a university graduate (78%), with 4 children. The average participant's source of income was from agriculture (89%). Sixty-seven per cent (67%) of the participants were from the Alexandria field office and 28% were from the Ismailia office. The amount of land owned and rented by participants ranges from 1 to 150, with the median falling at 39 feddans.

3 Non-Core Farmers

Information about exchange of information between core farmers and non-core farmers is presented in Appendix D, Core Farmers, Table 20) Ninety per cent (90%) of the sampled core farmers shared recommendations with their neighbors. Core farmers reported the number of non-core farmers with whom they shared recommendations, and these numbers were recorded. A total of 3,988 non-core farmers received recommendations in this way, far exceeding the 1,200 envisaged in ACDI's proposal. The original concept was that each core farmer would be in contact with 20 non-core farmers, the survey showed that in most cases 7 to 10 neighbors applied recommendations from the sample core farmers. Seventeen per cent (17%) of the sample passed recommendations to 51 neighbors or more (Appendix E, Slide 18). The outreach to non-core farmers is being expanded through associations, cooperatives, community networks such as the Bedouin in Mersa Matrouh, and the MOA extension system.

B Program Interventions

Program beneficiaries can be involved in one or more of seven different FtF interventions. Appendix D, Core Farmers, Table 12 shows the distribution of these interventions among core farmers.

1 Volunteer Visits

The sample core farmers reported 236 visits to their farms for an average of 4 visits per sample core farmer (Appendix D, Core Farmers, Table 12). The 60 sample core farmers received a total of 409 recommendations from volunteers. They report implementing 315 of them, which yields a 77% adoption rate (Appendix D, Core Farmers, Tables 8 & 9). 83% of the sample core farmers reported using the recommendations within a time frame of one year.

The recommendations were classified into 11 categories (Appendix D, Core Farmers, Table 10). The sample core farmer reported recommendations falling in the categories of pest and weed control, fertilizers and micro-nutrition, and soil and water management as the ones most frequently used.

2 US Participant Training

Participants in the sample received a total of 174 recommendations and applied 141, yielding an adoption rate of 81% (Appendix D, Participants, Tables 8-9). The recommendations used were in the categories of pest & weed control, soil & water management, fertilizer & micro-nutrition, and farm management (Appendix D, Participants, Table 10).

3 FtF Staff Visits

The sample core farmers received a total of 368 visits (Appendix D, Core Farmers, Table 12) from FtF staff members. The staff members follow up on volunteer visits and deliver a

written Arabic version of the recommendations given by the volunteer during his visit. The staff member also passes on recommendations from previous volunteer visits. This is especially true in the case of fig and livestock core farmers since these farmers did not receive any visits from volunteers under the current grant.

4 Core Farmer Visits

There were 187 visits by other core farmers to core farmers in the sample (Appendix D, Core Farmers, Table 12). This sharing of information is very common with the farmers interviewed. For example, a beekeeper in Menia said that he always talked about bees with his neighbors or cooperative members (over 1,000 members). At weddings, funerals, any chance to be together, the topic of conversation would be about bees. This is important for the farmer who is starting to change a traditional method of farming.

5 Training Sessions

155 training sessions were attended by core farmers in the sample (Appendix D, Core Farmers, Table 12). The training sessions are commodity related and are conducted by a volunteer, FtF staff member, another core farmer, or a specialist from the MOA or a university.

6 Internal Participant Training

The FtF internal participant training program takes core farmers from one area to a different location to learn from other farmers. From the sample core farmers, 21 had attended internal participant training programs (Appendix D, Core Farmers, Table 12).

7 Linkages with the MOA

36 MOA employees were interviewed during the assessment (see Appendix F). All volunteer visits include an MOA extension agent or other MOA representatives. The extension agents interviewed said that, after the farm visits, they then passed on the volunteer recommendations to their own farmers outside of the FtF program and in one example (Alexandria) the extension agent put the volunteer's recommendation on the morning radio program or into the monthly MOA magazine.

IV Impact

Time after time, consultant interviews noted that FtF interventions, particularly volunteer visits and US participant training, have made a significant difference in the financial status of farmers and in the quality of their lives.

Husny Hamza, a core farmer, lives in Ahmed Ramy Village in Bustan where he grows cucurbits. He says that "FtF is the only source for practical information that reduces my costs and increases my production." He has invoices that show a 40% increase in production. He has bought a pump, gone into potato production with a colleague, and purchased five head of livestock as result of his FtF experience.

Shahat Ahmed Aly of Emam Hussein village in Boustan, is a graduate growing cucurbits and peppers under plastic in the New Lands. The FtF recommendation to spray micro-nutrients saved his entire greenhouse, worth an estimated 4,000 LE, at a cost of only 300 LE.

Ghenewa AbdelSadek, a core farmer and a Bedouin fig grower from Mersa Matrouh. FtF improved the quality of my fruit and "buyers are now coming to my farm to buy my fruit."

Financial data were compiled from farmer interviews (see Methodology, p 9), and are based on farmers' reports of yields and prices. Financial impact was then calculated by the consultant and checked for reasonableness with ACIDI staff, MOA officials, and USAID staff. Prices and yields showed wide variation. Individual cases can be explained by differences in such factors as the variety grown, market cycles, and quality. Decreased costs due to reduced use of inputs, or increased costs to put recommendations into effect, were included as part of the calculation insofar as the information was available from the farmers.

A Financial

1 Core Farmers

Net financial increase for each core farmer as a result of FtF interventions is shown in Appendix D, Core Farmers, Table 24. The median for the reported financial increases is 17,000 LE or \$5,000. The case studies presented in Appendix I show illustrative examples of financial impact. The median was used as a measure of central tendency because of the relatively small number of respondents and the wide range in financial increases.

Using a one-year straight-line projection for the 600 core farmers x \$5,000 US, the sum is \$3 million US per year. It is assumed that the improved technologies adopted by the farmers will continue to generate higher levels of income over the next five years. Projecting the impact to that horizon yields \$15 million.

Text Table 5 shows impact per unit (feddan, greenhouse, or hive) for core farmers in the sample. Not all farmers are included, either because the relevant data was missing from the survey, or because it did not fit a unit analysis. In particular, fish and poultry operations did not work easily with unit analysis. See illustrative case studies in Appendix I for benefit analysis for these commodities.

Commodity and # of farmers	Units	Total Net Increase (LE) for One Year	Total # of Units	LE Increase/ Unit/ Year
Peaches (4)	feddans	51,430 LE	160	321 LE
Apples (2)	feddans	23,500 LE	10	2,350 LE
Citrus (6)	feddans	135,400 LE	218	621 LE
Cucurbits, field (1)	feddans	800 LE	1	800 LE
Figs (1)	feddans	93,860 LE	80	1,173 LE
Grapes (4)	feddans	322,100 LE	135	2,386 LE
Potato (3)	feddans	179,375 LE	89 5	2,004 LE
Tomato (10)	feddans	964,130 LE	188	5,128 LE
Cattle (2)	animal	261,400 LE	420	622 LE
Sheep/ Goats (4)	animal	65,770 LE	730	90 LE
Bees (7)	hive	621,802 LE	3,210	198 LE
Cucumber (4)	greenhouse	47,500 LE	32	1,484 LE

2 Participants

Mohammed Hegazi, a poultry breeder from Tanta, says that when he visited the USA and saw poultry farms, "it came alive for me, and I really understood what I needed to do when I returned to Egypt "

The random sample of the core farmers included a subset of 18 who were also participants. Net financial increase for each participant core farmer as a result of FtF interventions is shown in Appendix D, Participants, Table 24. The median for the reported financial increases is 75,000 LE or \$22,000. This significantly higher impact has two causes. First, as noted earlier (p 10), participants tend to have larger holdings than the other core farmers so the multiplier for any impact on their farms is greater. Second, the on site exposure to US agriculture (farmers, associations, markets) allowed the Egyptian farmer to glean more ideas on what would work on his farm, compared to his fellow core farmers who were not selected to travel to the US.

The projected yearly benefit, for participants only, using the US \$22,000 median from the 18 sampled participants is 120 core farmer participants x US \$22,000 or US \$2.64 million. Projecting a five-year benefit, the amount would be US \$2.64 x 5 or US \$13.2 million.

3 Non-core Farmers

Sayed Abdu Mohammed is a non-core farmer who has learned from his colleagues. He applied recommendations in part of his greenhouse and got a substantial increase in yield. In his view, FtF "is the difference between someone eating and not eating."

Net financial increase for each non-core farmer as a result of FtF interventions is shown in Appendix D, Non-Core Farmers, Table 24. The median annual financial increase for the reported increases is 3,200 LE or \$941. It is not surprising that this number is significantly lower than the impact on core farmers and participants, since non-core farmers receive recommendations indirectly and often through only one intervention.

The target number for non-core farmers is 12,000. If each achieves the median impact indicated by the survey, the total for one year will be \$11.29 million, or \$56.46 million over five years. This impact partially overlaps the spillover effect that takes place in the Bedouin communities, associations and cooperatives where the FtF project has its core farmers.

4 Return on Investment

Text Table 6 projects the financial impacts quantified during the survey of 60 core farmers sampled for the target of 600 direct beneficiaries. For the purposes of projecting overall financial impact for all core farmers based on the sample, we have included the participant subset of core farmers within the larger group. The five-year horizon for the projections is a realistic time-frame for the farmers to benefit from the recommendations and other support received from FtF.

	Number	Median Financial Impact per year	One Year Impact (\$)	Projected Horizon	Total Projected Impact (\$)
Core Farmers	600	\$5,000	\$3,000,000	5 years	\$15,000,000

The FtF project received a three-year grant of \$5,186,000 US. This grant when considered as an investment in the development of Egyptian agriculture measured against increased farmer earnings, demonstrates a return of \$2.88 for every US \$1 (\$15,000,000/\$5,200,000) invested over a five-year period (for core farmers only). If the median financial impact calculated for

non-core farmers (\$941/year) is added, a substantially higher return would result. The study did not quantify spillover effects, obtained through cooperatives, associations, or farmers serviced only by MOA extension agents that have received secondary benefit from the FtF program. These would further increase the impact of the program.

5 Spillover Effects

Spillover refers to impacts beyond FtF's core and non-core farmers. The survey identified three primary channels for this broadest aspect of program outreach. Although it is not possible to quantify the impact from this universe, it appears this is where the greatest impact from the program's recommendations is taking place.

a Associations

Shahat, a core farmer from Boustan, identified marketing as a significant problem for him and his neighbors. As a result of FtF volunteer suggestions, he has formed an informal group of ten farmers who share the rental of a truck to take their produce to market. Cost sharing ensures that the higher prices the group receives in the market will cover each one's transportation costs.

Appendix D, Core Farmers, Table 18 shows 15 sample core farmers (25% of those surveyed) started an association. The same table shows 42% of the survey improving their participation in an existing association. Appendix D, Core Farmers, Table 20 shows 9 (15%) sample core farmers passing recommendations to more than 100 neighbors. In cases with such large numbers, it became clear that these "neighbors" are members of cooperatives, associations or community organizations (Bedoun). Over 3,000 farmers have been touched through this important channel.

b Bedoun

All of the bedoun interviewed had passed the volunteer recommendations on to their communities, averaging 400 families, as well as to neighboring communities. This Bedoun network has the same effect as associations among settled farmers. In Mersa Matrouh, the result is outreach to more than 1,000 non-FtF farmers.

c MOA

All volunteer visits in FtF include an MOA extension agent or other MOA representatives. After the farm visit the extension agents interviewed said that they then passed on the volunteer recommendations to their own farmers outside of the FtF program. The following examples illustrate how the technology transfer works.

Alexandria extension agent Aly Morsy passes the volunteers' recommendations on to his non-FtF farmers. Aly works with 1,000 farmers that farm 4-5 feddans.

each, as well as 20-30 poultry farmers. After volunteers' visits Aly puts the volunteers' recommendations on the morning radio program or into the monthly MOA magazine.

As an example of the impact of FtF recommendations passed on to a non-FtF by Aly Morsy, the consultant interviewed Ahmed El-Nagar. Ahmed is 66 years old, can read and write, and has 8 children. His only income is from agriculture and he farms 2 feddans. Ahmed's crops are grains and vegetables. The FtF recommendations that Ali passed to Ahmed were for white fly control and protection against blight. Ahmed reported reducing his inputs by 700 LE per feddan for a savings of 1,400 LE. Ahmed belongs to a cooperative and has passed the recommendations on to 60 cooperative members.

Mohamed Feteha (Head of Extension Department) and his supervisor, Said AbdelWahed (Head of Agricultural Sector), are both very familiar with the FtF program and the volunteers' recommendations. Mr AbdelWahed spoke of specific recommendations concerning optimum use of fertilizer, IPM (integrated pest management), and pruning. Mr AbdelWahed receives a report from his extension agents with Mr Feteha's comments and reviews these reports with all of his field related staff for the governorate. Mr AbdelWahed decides if the volunteers' recommendations are suitable for other areas of his governorate and advises Cairo of his own plans.

B Social

As a result of the FtF program, farmers report improvement in the family and quality of life. Appendix D, Core Farmers, Table 15 shows that 55% of those surveyed reported doing home improvements, 25% of those surveyed reported sending their children to better schools. One non-core farmer said that he had been able to get married because of the extra income earned by applying FtF recommendations.

Shukry Mohammed Suleiman is a core farmer. As a result of increased income from FtF recommendations on training and pruning his cucurbits, ventilation in the greenhouses, and proper fertilizer applications, he has brought his family to work with him in the New Lands, rented an additional five feddans, and bought a spraying machine which he rents out to other farmers.

1 Participation of Women

The survey sample included 2 women core farmers, 3.3%. Program totals are 15 women out of the 600 core farmers, or 2.5%. Appendix D, Core Farmers, Table 16 shows that 22% of the core farmers surveyed reported that their spouses participated in volunteer visits and take an active role in the management of the farm.

2 Status in the Community

Appendix D, Core Farmers, Tables 16 and 18 show the sample core farmers improving their overall standing in the community by their participation in the FtF program. The core farmer is recognized as a leader in the community and his farm is generally used for demonstrations in the community. If the core farmer is selected as a participant, this is especially important in helping both the core farmer and his neighbors introduce sustainable change in their farming practices.

3 Attitude Changes

Consultant notes report the following from one of the assessment visits:

"He is taking initiative to solve his own problems rather than writing complaints to government officials. Using a list of diseases prepared by a volunteer, he can recognize potential problems early, which reduces his costs for treatment and increases production."

As shown in Appendix D, Core Farmers, Tables 16 and 18, of the core farmers sampled, 28% started new business links, 50% reported that their neighbors noticed positive changes in their farming practices, and 42% were able to rent or buy more land. Clearly, their self-confidence has increased, along with their ability to make an adequate living from agriculture. FtF has led the core farmers toward treating agriculture as a business rather than a family inheritance. Another indicator of this change in attitude is that marketing was most commonly identified as the biggest problem facing Egyptian farmers.

C Environmental

Of the same farmer, the consultant notes:

"He recognizes the value of Integrated Pest Management as a way to reduce costs, improve health and environment, and meet a growing demand for organically grown product for export."

The volunteers bring to the Egyptian farmer the worldwide concern over the use of chemicals. This information has been well received and many farmers and MOA employees ask questions about proper use of agricultural chemicals. Sixty-five per cent (65%) of those surveyed (Appendix D, Core Farmers, Table 17) reported an increased environmental awareness and were able to give examples of changes they have made to their farming operation. Fifty-three per cent (53%) have decreased their pesticide usage and 47% have decreased their chemical fertilizer usage (Appendix E, Slide 16). When asked to comment on which of the volunteers' recommendations had been adopted, core farmers in the survey group cited recommendations about pest and weed control, fertilizers and micro-nutrients most frequently (Appendix E, Slide 13).

As a result of FtF interventions the Egyptian farmer and MOA officials participating in the survey are more familiar with up-to-date agricultural information, for example, on subjects relating to IPM (integrated pest management)

Another important environmental impact is the interest expressed in organic farming by 77% of the farmers surveyed (Appendix D, Core Farmers, Table 17) The reason usually given was "we know that this is a better way to farm"

V Conclusions

The financial impacts and return on investment described by this study show beyond a doubt that the FtF methodology is a cost-effective, highly efficient approach to the rapid transfer of appropriate technology A clear example of the efficiency of the methodology is the opening of the Ismailia field office after the start of the current grant

An FtF Field Office was transferred from Mansoura to Ismailia in January 1994 with 23 core farmers Three of the staff had been trained under the previous FtF program starting in 1990 Having three trained staff members was a major advantage in starting the field office in a new area Other than the 23 previous core farmers, no other farmers had been contacted before arriving in January After arrival, approximately 700 farmers were interviewed The names of the farmers were given to the FtF office by MOA representatives or by other farmers From the 700 farmers interviewed, 250 were initially selected, later this number was reduced to the current level of 198

It should be noted that the selection process followed normal procedures, that the FtF project was in complete control of the selection process, and that there was no external pressure concerning who should be selected as a core farmer After the selection process was complete, the field staff conducted initial core farmer surveys and discussed previous volunteer recommendations Some of the newly selected core farmers started to use these recommendations

In two years, the core farmers in the Ismailia sample received a median increase in annual earnings of 19,500 LE per farmer as a result of program recommendations, projecting a median increase for the entire group of 198 Ismailia core farmers of almost 4 million LE This indicates that it is possible to start into a new area with trained staff and in a period of two years have a positive financial impact with a group of core farmers

A Key to Success

The key component of FtF's success, the factor that allows the transfer of technology to take place, is simply that a farmer or trusted non-farmer with practical experience tells another farmer about a recommendation that works The recommender must be someone who is technically qualified and can communicate the reason a given recommendation works FtF

field staff, with their exposure to the US volunteers and their observation of the recommendation being placed into effect by core farmers, are ideal individuals to pass on and follow up recommendations. However, FtF staff cannot take the place of an Egyptian farmer who has applied the recommendation or a US volunteer farmer who brings the recommendation to Egypt. The internal participant program takes into consideration this "key to success" and should be continued.

B Sound Recommendations to Farmers from Volunteers

Many of the recommendations given were practical, inexpensive to implement, and technically straightforward. There are many examples: a deeper well for sweeter water which saved a crop, Apistan to control Varroa mite in beehives, use of iodine on the navel of a newborn lamb to reduce the mortality rate, pruning and thinning in the peach orchards of North Sinai, placing fertilizer in several locations around a fig tree instead of in one location under the tree, reducing plant spacing for a potato crop, and pollination by bees.

A major concern that was expressed during interviews with individuals not directly involved with the FtF program was the possibility of an Egyptian farmer receiving and using a recommendation that was not suited to his farm. An inappropriate recommendation could cause the farmer financial or other farm related problems. During farmer interviews there was no evidence of a "wrong" recommendation being used. The best explanation of why not, was given at a meeting in Menia by the MOA staff: "There is one person responsible for accepting and implementing recommendations on a farm and that is the farmer himself. If the farmer does not agree with the recommendation he will not use it." Many farmers experiment on a small portion of their field or orchard first before accepting a recommendation. When asking a farmer why he accepted some of the volunteers' recommendations and not others, the reply was consistently "I knew it was a good recommendation. I could tell based on my own experience."

C Role of Field Staff

The adoption rate for recommendations, based on the 60 farmers interviewed, is 77%. Of those interviewed, most farmers accepted a recommendation for change after one volunteer visit. One of the reasons for this high acceptance rate is the positive role of the field staff both during the volunteer's visit and during follow up visits to the farmer. Acceptance of recommendations was also facilitated by pamphlets provided by the FtF program, training sessions, and visits from other core farmers. The core farmer can ask the staff questions concerning the recommendation and ask to see other farmers who are using the recommendation.

Since no volunteers for livestock were included under the current grant agreement, field staff helped livestock core farmers by passing on previous volunteer recommendations (before 1993), since these farmers did not receive any visits from volunteers. All impact recorded in this commodity area, therefore, resulted from field staff support.

The FtF program will benefit by emphasizing the role of the field staff. The volunteer visits to a core farmer can be reduced and the staff can be recognized for being a key factor in the successful implementation of a volunteer's recommendation. Project management should request that each field staff member keep a record of his core farmers' increased earnings and the recommendations received by the core farmer. This can be done by having the field staff use the questionnaire designed for this assessment on a quarterly basis for each of his core farmers and enter the information in the MIS system.

D MOA Relationship

There is no doubt of fine cooperation with the MOA in the field. The extension agents are with the volunteers when they visit the core farmer and, in the Alexandria region, the recommendations are reviewed and approved by the Agricultural Research Center before being given to other, non-FtF farmers. All of the Under Secretaries interviewed knew of the FtF project and were very positive about the results as were the other MOA staff at these locations. The MOA representatives in Cairo, however, need to become more involved in the project. Responses from these officials during interviews indicated some misunderstanding of the project. It would be helpful to provide the key Cairo officials with a quarterly report showing the financial impact of the program.

E MIS Upgrade

As a result of this assessment the MIS has been upgraded. The questionnaire developed for the assessment uses a new data entry format in the MIS, which when entered, will prepare similar tables to the ones that are attached to this report. If the questionnaire is used for each core farmer on a regular basis, the MIS will become a financial diagnostic tool. Management will be able to make "informed" changes to the program based on individual farmer economic gains, that will be reported on the questionnaire, entered into the MIS, and summarized in the tables prepared by the MIS. By using the new MIS it will be possible to add or delete commodities and evaluate individual volunteer performance based on the increased earnings by the core farmer receiving the recommendations. In addition the MIS will be capable of giving similar reports for participants (Egyptian farmers that have gone to the USA) and non-core farmers. All reports and analyses will be based on using the questionnaire developed for the impact assessment.

F Allocation of USAID Grant by Line Item

The USAID FtF grant is for \$5.2 million dollars over a three year period. The major areas of expenditure (See Appendix C) are for staff, equipment and support, volunteers, and participants as follows

Text Table 7 Grant Allocation		
	U S Dollars (millions)	Percent of Total
Egyptian Staff	1 0	19
U S Staff	5	10
Volunteers	1 4	27
Participants	2 0	38
Equipment and Commodities	3	6
TOTAL	5 2	100

Given the integrated and complementary nature of the program's activities, it is not possible to allocate program impacts to a single expenditure area with accuracy. One indicator, however, might be participant training. This study shows that the median financial impact for an Egyptian farmer who travels to the U S under FtF is \$22,000. That figure multiplied by the life of project target of 120 participants yields an annual financial impact of \$2,640,000. A straight-line projection over the three-year life of the current grant results in an estimate of \$7,920,000 in benefit to Egyptian farmers against USAID support of \$2 million.

VI Recommendations

A Core Farmers Graduate After Two Years

The normal time frame for a farmer to accept recommendations, implement these recommendations, and to ask questions after implementation, is two years. After having worked with a group of farmers for two years, FtF field staff are familiar with volunteer recommendations and know which farmers are implementing particular recommendations. As a result of followup visits, field staff should know about increased income resulting from FtF program interventions. It would appear that the core farmer should graduate to an "informed" core farmer and not receive the continuous attention required as a core farmer. A new farmer should take his place and the process can start over. This has proven to be true for the Ismailia field office, since they started in January 1994 and are now well established with their core farmers receiving positive results.

B New Lands and Graduates

At a work session with all of the FtF staff members it was agreed that the FtF program should place greater emphasis on the New Lands. This is the future of Egypt and an area that needs attention from activities like the FtF project. FtF, with its core farmers approach, can

establish model farms to be copied by others FtF has the institutional knowledge of the past volunteer visits and their recommendations, trained staff and farmers Now is the time to go more extensively into these areas with the appropriate "know how" The same is true for the graduates that have gained land under Mubarak's graduate scheme These capable young adults learn quickly from volunteers (27% of the core farmers in Alexandria are graduates) and are eager to assist their companions These two areas should be considered in any form of future FtF project effort

C Internet and Email

The use of internet and email can be helpful when trying to help a farmer with a farm related problem Many universities have computers connected to email that can search for references dealing with a particular problem Many volunteers have email service and if connected to a library can assist in helping to solve a problem FtF staff should be encouraged to use these resources in seeking solutions to new problems the farmers are encountering

D FtF Store

A cucumber volunteer mentioned a very important point He said that there is one item that can have a tremendous impact on Egyptian agriculture a pH and salt solubridge meter "All farm plans in Egypt need to be oriented around the critical issue of soil and water pH", but this instrument is not available in Egypt Another mentioned that a product called Apistan has changed the bee industry and can be imported only from the US A peach farmer in El Arish said he would do anything to get a pair of pruning shears like the one the American farmer used A vegetable farmer said he wanted to have some seeds like the kind mentioned by the volunteer The stories continue and stress the need for FtF to have its own supply store for the FtF core and non-core farmers

E New Direction for FtF

There were four Under Secretaries interviewed (Alexandria, Minya, Ismailia, Mersa Matrouh) When asked how the FtF project could best help their Governorate, the answer was the same "Now that our production is improving, we need assistance in reaching the market place (post harvest handling, packaging, processing and marketing)" When talking to farmers, the consultant heard many say that they now needed help in marketing their product MOA officials indicated the need to add value to the farmers product with better marketing The FtF project has not been a marketing outlet for the farmer, but this would be a natural evolution for the project to take The farmers trust the FtF staff and are asking for help The MOA field staff are asking for help in this area There is the need and opportunity to add to or change the FtF project to assist in this area

Appendix A
Volunteer Assignments
September 93 - March 96

NAME	EXPERTISE	DATE
Arden Kashishian	Tomato Post Harvest Specialist	12/11/93 - 01/04/94
Thomas Wellborn	Fish Disease Specialist	01/04/94 - 01/21/94
Fred Zeitoun	Tomato Nurseries Specialist	01/05/94 - 02/01/94
Michael Sayers	Beekeeper	01/25/94 - 02/25/94
Daniel Pesante	Bee Disease Specialist	01/25/94 - 02/25/94
Eugene Ingalsbe	Cooperative Development Specialist	02/03/94 - 03/04/94
Conrad Krass	Tomato Pathology Specialist	03/15/94 - 03/31/94
Sadek Ayoub	Citrus Pathology & Nematology Sp	03/15/94 - 04/04/94
Anne Gannam	Fish Nutrition Specialist	03/31/94 - 04/20/94
Chris Hyde	Fish Production Specialist	03/31/94 - 04/20/94
Paul Jennings	Cucurbits Extension Agent	06/24/94 - 07/21/94
George Hughes	Cucurbits Extension Agent	06/24/94 - 07/21/94
Martin Krieg	Grape Production Specialist	07/08/94 - 08/04/94
Raymond Lockard	Peach Extension Agent	07/22/94 - 08/19/94
Stephen Baran	Grape Post Harvest Specialist	07/29/94 - 08/25/94
Raymond Nabors	Beekeeper	07/29/94 - 08/25/94
James Paswater	Bee Disease Specialist	07/29/94 - 08/25/94
Jean New	Sheep and Goat Nutritionist	07/29/94 - 08/26/94
Charles Lindborg	Sheep and Goat Veterinarian	07/29/94 - 08/26/94
Milton Schilde	Apple and Pear Post Harvest Specialist	07/29/94 - 08/26/94
Carol Schilde	Apple and Pear Processing Specialist	07/29/94 - 08/26/94
Mahmoud El Begearmi	Poultry Nutritionist	07/29/94 - 08/26/94
David Mitchell	Poultry Veterinarian	07/29/94 - 08/26/94
Roy Nelson	Mango Production Specialist	08/12/94 - 09/08/94
Robert Knight	Mango Extensionist	08/12/94 - 09/08/94
Robert Bullock	Citrus Production Specialist	09/09/94 - 10/07/94
Robert Pelosi	Citrus Extensionist	09/09/94 - 10/07/94
Eugene Hess	Potato Production Specialist	11/04/94 - 12/02/94
Doug Hess	Potato Extensionist	11/04/94 - 12/02/94
Daniel Pesante	Bee Disease Specialist	11/11/94 - 12/09/94
Michael Sayers	Beekeeper	11/11/94 - 12/09/94
Fred Zeitoun	Tomato Pathologist	11/18/94 - 12/15/94
Jesus Valencia	Tomato Extensionist	11/25/94 - 12/15/94
Gregory Hartsell	Tomato Extensionist	11/25/94 - 12/23/94
Darrell Blackwelder	Tomato Specialist	11/25/94 - 12/23/94
Abdullah Muhammad	Citrus Extensionist	12/30/94 - 01/26/95
Irving Eaks	Citrus Post Harvest Specialist	12/30/94 - 01/26/95
Alvin Hamson	Deciduous Extensionist	01/06/95 - 02/02/95
George Nielson	Deciduous Production Specialist	01/06/95 - 02/02/95
Richard Kastner	Water Quality Specialist	01/13/95 - 02/09/95
Michael Frinsko	Fish Nutritionist	01/13/95 - 02/09/95
James Reynolds	Fish Production Specialist	01/13/95 - 02/09/95
Henry Bowden	Grape Production Specialist	01/13/95 - 02/09/95
John Henry	Grape Production Specialist	01/13/95 - 02/09/95
Conrad Weiser	Cucurbits Physiologist	01/27/95 - 02/23/95
Robert Lambe	Cucurbits Pathologist	01/27/95 - 02/23/95
Thomas Obourn	Potato Extensionist	02/01/95 - 02/28/95
Nori Aoki	Tomato Extension Agent	03/03/95 - 03/30/95
Mike Murray	Tomato Production Specialist	03/03/95 - 03/30/95
James Bach	Beekeeper	03/10/95 - 04/07/95
Robert Zahler	Bee Disease Specialist	03/10/95 - 04/07/95
Michael Howden	Mango Extension Agent	03/17/95 - 04/13/95
Robert Faust	Mango Pathologist	03/17/95 - 04/13/95
Chris Hyde	Aquaculture Water Quality Sp	04/07/95 - 05/05/95
David Swann	Aquaculture Production Sp	04/07/95 - 05/05/95
Amos Bourgo	Deciduous IPM Specialist	05/12/95 - 06/09/95

NAME	EXPERTISE	DATE
Ralph Dunlap	Decidious Production Specialist	05/12/95 06/09/95
David Howell	Tomato Production Specialist	05/19/95 - 06/16/95
Robert Kortsen	Tomato Extension Agent	05/19/95 - 06/16/95
Howard Blackburn	Beekeeper	06/09/95 - 07/06/95
Craig Bovee	Citrus Extension Agent	07/07/95 - 08/03/95
Harlan Bentzinger	Citrus Production Specialist	07/07/95 - 08/03/95
George Arscott	Poultry Nutritionist	07/14/95 08/11/95
Daniel Andrews	Poultry Extension Agent	07/14/95 - 08/11/95
Agnes Spicer	Fish Extension Agent	07/21/95 - 08/18/95
Bruce Kahn	Water Quality Specialist	07/21/95 - 08/18/95
Alfred Skala	Tomato Extension Agent	07/21/95 - 08/18/95
Bobby Hatchcock	Tomato Pathologist	07/21/95 08/18/95
Mary Gessert	Sheep & Goat Veterianian	08/11/95 - 09/08/95
Fremont Bell	Sheep & Goat Extension Agent	08/11/95 09/08/95
Anne Harmon	Beekeeper	09/15/95 10/13/95
Ernest Miner	Bee Disease Specialist	09/15/95 - 10/13/95
Martin Krieg	Citrus Specialist	09/22/95 10/20/95
Lionel Stange	Citrus Specialist	09/22/95 10/20/95
Ivan Hopkins	Potato Extension Agent	09/29/95 - 10/27/95
Terrill Christensen	Potato Production Specialist	09/29/95 10/27/95

Added after impact Assessment

Herbert Thomas	Cucurbits Production Specialist	10/13/95 11/10/95
George Hughes	Cucurbits Extension Agent	10/13/95 - 11/10/95
Thomas Dyson	Tomato Extension Agent	10/13/95 - 11/10/95
Philip Giovannini	Water Quality Specialist	10/20/95 - 11/17/95
Steven Gabel	Aquaculture Extension Agent	10/20/95 - 11/17/95
Benjamin Mahilum	Mango Production Specialist	10/27/95 - 11/24/95
Jack Ross	Mango Extension Agent	10/27/95 - 11/24/95
John Blake	Poultry Nutrition Specialist	11/17/95 - 12/15/95
David Kradel	Poultry Vet	11/17/95 - 12/15/95
Robert Krassweller	Deciduous Extension Agent	11/25/95 - 12/22/95
Robert Boweres	Deciduous Production Specialist	11/25/95 - 12/22/95
Arden Kashishian	Grape Extension Agent	11/25/95 - 12/22/95
Myron Kerbajian	Grape Production Specialist	11/25/95 - 12/22/95
Leland Clinger	Potato Specialist	01/05/96 - 02/02/96
Roger Brinkman	Potato Specialist	01/05/96 - 02/02/96
Bruce Hicks	Cucurbits Specialist	01/12/96 02/09/96
Brian Moraghan	Cucurbits Specialist	01/12/96 - 02/09/96
Earl Lee	Beekeeper	02/23/96 - 03/22/96
Willie Cole	Beekeeper	02/23/96 - 03/22/96
Edgar Holcomb	Citrus Extension	03/08/96 - 04/05/96
Brian Boman	Citrus Production Specialist	03/08/96 - 04/05/96

Total = 97

TODATE VOL

Appendix B
List of Participant Groups
September 93 - March 96

Technical Focus	Participant		Escort	U S State
	Name	Governorate		
Pruning 1/19-2/12/94	Khaled El Gawahery Ahmed Zertoun Mohamed Idns Mohamed Shehata Ahmed Moustafa	Giza Alexandna Behera Alexandna Alexandna (MOA)	S El Sawa	California
Aquaculture 3/21-4/15/94	Mohamed Abdel Gawad Abdel Bary Shaawat Mahmoud Abdel Kareem Ibrahim Sharaf El Din Nageeb Mohamed	Fayoum Matrouh Alexandna Dameyeta Fayoum (MOA)	M Khafaguy	Texas Maryland Mississippi
Poultry 4/26-5/20/94	Amgad Zayed Ashraf Sayyoub Mohamed Hegazy Joseph Saad	Sharkia Damyeta Gharbia Ismailia (MOA)	A El Shirbiny	Alabama Missour
Citrus 5/2-5/28/94	Abdeen Negem Mohamed Abdel Kader Hassan Abaza Maged Youseff Mohamed El Sharawy	Gharbia Qalubia Behera Qalubia Alexandna (MOA)	B Awad	Anzona Flonda
Beekeeping 6/21-7/19/94	Moustafa Mohamed Mohamed Zedan Mahmoud Sakr Hamada Okda Ismail El Gendy Nabil Basouni Fouad El Assal	Menia Ismailia Ismailia Gharbia Behera Alexandna Alexandna (MOA)	H Abou Ali	N Carolina Gorgia
Vegetable 8/3-8/24/94	Nadia Hussien Nagwa Ahmed Amal Darwish Samira Amer Mona Hamdy	Alexandna Alexandna Alexandna Ismailia Alexandna (MOA)	S El Sawa	New Jersey Virginia Missour
Tomato 8/15-9/13/94	Mohamed Soliman Khasem Ghati Abdalla El Ahmed Mohamed El Sayed Mohamed Saram Abdel Basset Moussa Gouda Ghanem	Sharkia Sharkia Sharkia Ismailia Sharkia Ismailia (MOA) Sharkia (MOA)	S Zaki	California

Deciduous 10/5-11/1/94	Moustafa El Koury Mohseen El Beltagy Mohamed Salama Moustafa A Kareem Moustafa Sekeen	Gharbia Gharbia N Sinaa N Sinaa (MOA) Kafr El Sheih (MOA)	M El Melegy	California Colorado
Citrus 11/16-12/13/94	Khalid Khalil Mohamed Zeen Eddin Hassan A El Maatty Ali Abou Rabh Abdel Nasser Messad Mohamed Karim Mohamed El Zaafarany	Gharbia Giza Gharbia Alexandria Giza Ismailia Behera (MOA)	B Awad	California
Sheep and Goat 1/5-2/2/95	Medhat M Kotab Mohamed Gebreel Kowela Omar Kowela Taher Kaseh	Ismailia Matrouh Matrouh Matrouh (MOA)	A Sherbini	Utah Oklahoma Arizona
Tomatoes 3/16/95	Fatma Saleh Azza Diab Hala Farag Nemat Harby Nabila Abdou Lubna Ziedan Faiza Youssef Wafaa Zaki	Tanta Alexandria Alexandria Gharbia Alexandria Gharbia Alexandria (MOA) Alexandria (MOA)	M Khafaguy N Abdallah	Florida
Grapes 4/1/95 - 4/29/95	Khalaf Ibrahim Refaat Hanna Mohamed A Salam Mohamed Kamal Fouad Amer Amin Tawfiq Gamal Abou Khnba	Menia Menia Menia Giza Alexandria Gharbia Gharbia (MOA)	Hani A Ali A Refaie	California
Beekeeping 6/29/95 - 7/29/95	Ahmed Meligy Nazeh Selem Salah Malek Hamdy A Gawad Marwan El Badry Abdel Atty El Hady Reda Hassan	Qalubia Menia Menia Sharkia Menia Qalubia Gharbia (MOA)	Hani A Ali	N Carolina Gorgia
Sub-tropical 8/20/95 - 9/13/95	Hassan Abdel Gawwad Mahmoud El Ghabosh Ibrahim Ghounim Zakana Shehata Seoudi Hamed	Ismailia Ismailia Giza Sharkia Ismailia (MOA)	B Awad	Florida California

Vegetable 10/18/95 - 11/14/95	Ahmed Khalifa Hassan El Sayed Hamdy Bashah El Shohat Amer Mohamed Ali Abdel Salam Temraz Hanna Ghattas	Sharkia Alexandria Alexandria Alexandria Sharkia Alexandria Fayoum (MOA)	M Moussa	Anzona Mezoni Colorado
Potato 10/30/95 - 11/22/95	Hussien Othman Mohamed Fisal Ahmed Abdallah Diaa El Din Dabbous Ibrahim El Oraby Nasser Nada Omar Cheater	Ismailia Ismailia Ismailia Alexandria Gharbia Alexandria Alexandria (MOA)	M Shirawy	New Mex Flonda

Added after Impact Assessment

Deciduous 02/29/96 - 03/23/96	Fawzy Abdel Maksoud Faysal Hashem Sameh El Makawy Ahmed Sayed Salem Seliman El Sayed Yassen Mahmoud Abdel Fatah	Giza Behera Alexandria Alexandria North Sinai North Sinia (MOA) (MOA)	N Abdel Aal	California Washington
----------------------------------	---	---	-------------	--------------------------

Governorate	Farmers	Extension Agents
Giza	6	1
Alexnadria	20	7
Behera	4	1
Fayoum	1	2
Matrouh	3	1
Dameyeta	2	0
Sharkia	9	1
Gharbia	11	2
Qalubia	4	0
Menia	7	0
Kafr El Sheikh	0	1
North Sinaa	2	2
Ismailia	11	3
Tanta	1	0
Total	81	21

TOTAL = 102

TODATE PAR

Appendix C

FTF Program Expenditures Report

August 01 1993 till August 31 1996

No	Item	Year 1 Actual Expenditures		Year 2 Actual Expenditures		Year 3 Estimated Expenditures		Total Three Years	
		USD	EGP	USD	EGP	USD	EGP	USD	EGP
1	Staff salaries	108 476	442 016	59 345	541 417	131 040	717 141	298 861	1 700 574
2	Payroll Added Costs	23 289	96 781	32 334	163 538	55 109	373 078	110 732	633 397
3	Travel Transportation and Per diem	5 681	253 061	3 772	457 685	148 638	147 000	158 091	837 746
4	Consultants	0	35 320	0	52 700	9 547	149 768	9 547	237 788
5	Equipment & Commodities	20 729	138 808	93 942	63 123	3 684	44 595	118 355	246 526
6	Participant Training	130 215	256 867	255 958	285 703	225 942	438 980	612 115	961 550
7	Other Direct Costs	1 943	276 560	11 715	316 827	7 262	456 421	20 920	1 049 808
	Sub Total	290 222	1,409,413	457,095	1,660,934	581,222	2,326,923	1,328,620	5,627,390
8	Overhead Due 36.6%	1 107 101		372 444		469 256		1 113 258	
9	Sub agreement VOCA	164 574	23 214	280 384	46 373	514 412	100 003	979 370	171 590
	Sub Total	1,271,675	23,214	652,828	46,373	983,668	100,003	1,092,628	171,590
	Grand Total	1,561,897	1,432,627	1,109,923	1,707,307	1,564,890	2,426,926	2,421,248	5,800,980

Equipment & Commodities
 Staff Salaries
 Participants Program Costs
 Volunteers Program Costs

 Overhead Due 36.6% in US\$ & LE
 Grand Total in US\$ & LE
 Grand Total in US\$

Equipment & Commodities	118 355	246 526	263 105	5%
Staff Salaries	109 593	2 333 971	1 519 806	29%
Participants Program Costs	770 205	2 249 146	1 977 502	38%
Volunteers Program Costs	1 009 837	1 029 336	1,425,588	27%
Overhead Due 36.6% in US\$ & LE	2 307 930	5 8 8 980	5,186,002	100%
Grand Total in US\$ & LE	486 273	2 081 585		
Grand Total in US\$	2,794,265	7,940,565		
	5,186,002		US\$	%
Egyptian Staff		960 303		18.5%
U S Staff		559,504		10.8%
		1,519,806		29.3%

BEST AVAILABLE COPY

Appendix D

List of Tables

A Sample Core Farmers

Table 1	Total Number of Farmers (questionnaires)
Table 2	Income Source
Table 3	Educational Level
Table 4	Age
Table 5	Family Size - Children Only
Table 6	Farmers by Regional Office
Table 7	Year Joined FtF
Table 8	Recommendations Received
Table 9	Recommendations Applied
Table 10	Number of Farmers Sharing Recommendations
Table 11	Distribution of Participants/Non-Participants
Table 12	Technical Assistance Received from FtF Program
Table 13	Recommendations Applied by Commodity
Table 14	Distribution of Commodities by Feddan
Table 15	Improvements
Table 16	Attitude Changes
Table 17	Environmental Impact
Table 18	Participation in Associations
Table 19	Reduction in Cost of Inputs
Table 20	Number of Neighbors Applying Recommendations
Table 21	Feddans Owned and Rented Before and After FtF
Table 22	Decreased Costs of Production
Table 23	Increased Costs of Production
Table 24	Program Financial Impact

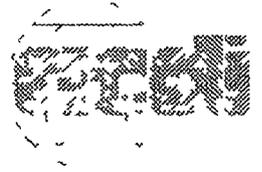
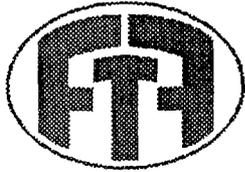
B Participants

Table 1	Total Number of Farmers (questionnaires)
Table 2	Income Source
Table 3	Educational Level
Table 4	Age
Table 5	Family Size - Children Only
Table 6	Farmers by Regional Office
Table 7	Year Joined FtF
Table 8	Recommendations Received
Table 9	Recommendations Applied

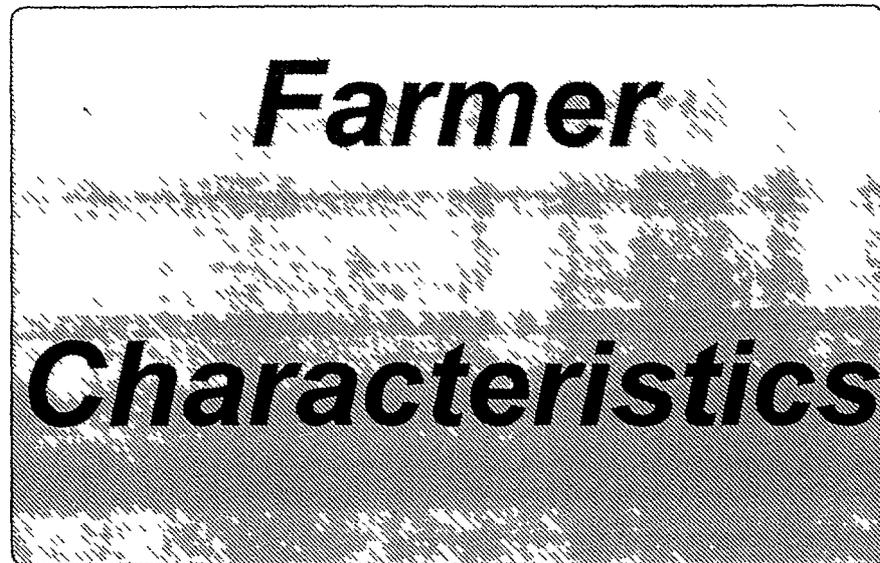
Table 10	Number of Farmers Sharing Recommendations
Table 11	Distribution of Participants/Non-Participants
Table 12	Technical Assistance Received from FtF Program
Table 13	Recommendations Applied by Commodity
Table 14	Distribution of Commodities by Feddan
Table 15	Improvements
Table 16	Attitude Changes
Table 17	Environmental Impact
Table 18	Participation in Associations
Table 19	Reduction in Cost of Inputs
Table 20	Number of Neighbors Applying Recommendations
Table 21	Feddans Owned and Rented Before and After FtF
Table 22	Decreased Costs of Production
Table 23	Increased Costs of Production
Table 24	Program Financial Impact

C Non-Core Farmer

Table 1	Decrease of Cost of Production
Table 2	Increase of Cost of Production
Table 3	Financial Impact

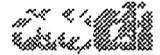


**Results of
the Farmer to Farmer
Survey**



Part I

SAMPLE CORE FARMERS



Farmer Characteristics

SAMPLE CORE FARMERS

Total Number of Farmers (questionnaires)

Sex	No of Farmers	%
Male	58	97
Female	2	3

Table (1)

Income Source	No of Farmers	%
Agriculture	50	83
Non-agriculture	10	17

Table (2)

60

Educational Level	No of Farmers	%
Illiterate	1	2
Read/write	~	12
High School	13	22
University	30	65

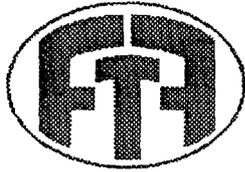
Table (3)

Age		
Years	No of Farmers	%
<= 25		
25 - 29	5	6
30 - 34	7	12
35 - 39	12	20
40 - 44	14	23
45 - 49	11	18
>= 50	11	18
Average		42

Table (4)

Family Size Children Only		
Frequency	No of Farmers	%
1	2	3
1 - 2	8	13
3 - 4	23	38
5 - 9	14	23
>= 10	4	7
Average		4

Table (5)



**Results of
the Farmer to Farmer
Survey**

***Participation
in Program***

Part II

SAMPLE CORE FARMERS



Participation in Program

SAMPLE CORE FARMERS

Total Number of Farmers (questionnaires) 60

Regional Office	No of Farmers	%
Alexandria	27	45
Ismailia	20	33
Cairo	13	22

Table (6)

Date	Joined FtF		Participants Visited USA	
	No	%	No	%
1989				
1990	1	2		
1991	1	2		
1992	5	8	3	5
1993	30	50	1	2
1994	21	35	-	12
1995	2	3	-	12

Table (7)

Recom Received	No	%
0		
1	1	2
2	2	3
3	7	12
4	11	18
5	6	10
6	12	20
7	5	8
8	2	3
9	3	5
10	3	5
11	1	2
12		
13		
14	2	3
15	2	3
16		
17		
18		
19		
20	3	5
>20		

Average	7
---------	---

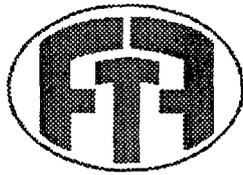
Table (8)

Average	5
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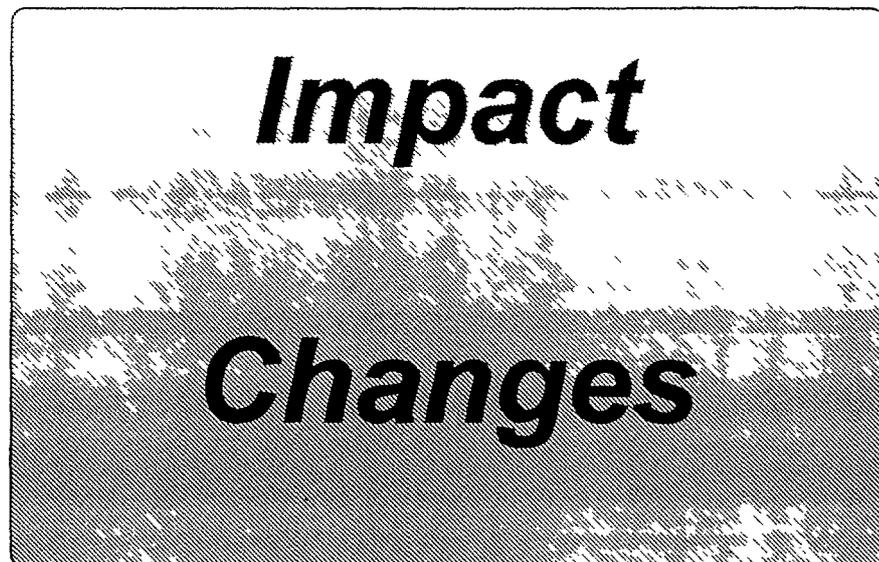
Table (9)

Rec Received	409
Rec Applied	315
Adoption Rate	77%

Recom Applied	No	%
0		
1	2	3
2	5	8
3	13	22
4	15	25
5	6	10
6	6	10
7	4	7
8		
9	1	2
10	1	2
11	1	2
12	1	2
13		
14		
15	1	2
16		
17		
18		
19	1	2
20	1	2
>20		



**Results of
the Farmer to Farmer
Survey**



Part III

SAMPLE CORE FARMERS



Participation in Program

SAMPLE CORE FARMERS

Total Number of Farmers (questionnaires) **60**

	No of Farmers	%
Number of Farmers Sharing Recommendations with Neighbors	54	90

Recommendations Applied * See Table 13 for the breakdown by commodity	No of Farmers	% Multiple Answers
Soil & Water Management	25	42
Fertilizers & Micro-Nutrition	32	53
Pest & Weed Control	43	72
Farm Management	16	27
Variety Selection	2	3
Post Harvest / Marketing	4	7
Orchard Management	18	30
Bee Management	8	13
Herd / Cattle Management	6	10
Poultry / Fish Management	7	12
Feed Management	9	15

Table (10)

Distribution	No of Farmers	%
Participant	18	30
Non-participant	42	70

Table (11)

Technical assistance received from FtF program *Multiple Answers	
A Volunteer visits	236
B Participant training	18
C Visits of FtF staff	368
D Visits of core farmer	187
E Training courses	156
F Internal participant training	41
G Other government linkage	34

Table (12)



Participation in Program

7/21

Total Number of Farmers (questionnaires) 60

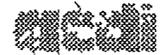
The distribution of the recommendations applied among different commodities

SAMPLE CORE FARMERS

Recommendations Applied	Apple Pear		Citrus		Grapes		Figs		Cucurbits		Tomato		Potato		Fish		Beekeeping		Livestock		Sheep goat		Poultry		
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	
Soil & Water Management	1	2	5	8	3	5			2	3	6	10	1		3				1	2					
Fertilizers & Micro-Nutrition	6	10	5	8	2	3	1	2	2	3	9	15	4		5						1	2			
Pest & Weed Control	4	7	8	13	3	5	1	2	6	10	10	17	1			3			1	2	3	5	3	5	
Farm Management									4	7	8	13	3						1	2					
Variety Selection									1	2	1	2													
Post Harvest / Marketing	1	2	1	2							2	3													
Orchard Management	6	10	8	13	3	5	1	2																	
Bee Management									1	2															
Herd / Cattle Management																			2	3	4	7			
Poultry / Fish Management															1								3	5	
Feed Management															1	2	3	5	1	2	2	3	2	3	5

Table (13)

28



Participation in Program

Total Number of Farmers (questionnaires) 18

SAMPLE PARTICIPANTS

The distribution of area (Feddan) farmed by major commodity

Area (Feddans)	Apple/Pear		Citrus		Grapes		Figs		Cucurbits		Tomato		Potato		Fish		Beekeeping		Livestock		Sheep&goat		Poultry	
	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%
<= 2																								
3 - 9											1	6												
10 - 19											2	11												
20 - 29													3	17									1	6
30 - 39					1	6							1	6										
40 - 49																								
50 - 59									1	6														
60 - 69																								
70 - 79															1	6								
80 - 89																								
90 - 99																								
100 - 149																				1	6			
150 - 199																								
>= 200																	4	22						

Table (14)
Page 5

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Participation in Program

RICE

Total Number of Farmers (questionnaires) **60**

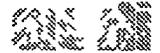
SAMPLE CORE FARMERS

The distribution of area (Feddan) farmed by major commodity

Area (Feddans)	Apple/Pear		Citrus		Grapes		Figs		Cucurbits		Tomato		Potato		Fish		Beekeeping		Livestock		Sheep&goat		Poultry	
	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%	# Farmers	%
<= 2			1	2					3	5	1	2			1	2							1	2
3 - 9	2	3									5	8											1	2
10 - 19			3	5	1	2			2	3	2	3	1	2										
20 - 29	1	2			1	2							1	2	1	2					1	2	1	2
30 - 39	1	2	1	2	1	2							1	2										
40 - 49											1	2												
50 - 59	1	2	2	3					1	2												1	2	
60 - 69					1	2										1	2							
70 - 79			1	2											1	2								
80 - 89			1	2			1	2																
90 - 99											1	2												
100 - 149																			1	2				
150 - 199																1	2							
>= 200															1	2	5	8	1	2	2	3		

Table (14)
Page 5

40



Impact Changes

SAMPLE CORE FARMERS

Total Number of Farmers (questionnaires) 60

Changes	No of Farmers	%
Rent More Land	13	22
Buy More Land	12	20
Home Improvement	33	55
Better Schooling	15	25
Buy Car/Truck	14	23

Table (15)

	No of Farmers	%
Started New Business Links	28	47
Bought Agriculture equipments from USA	16	27
Neighbors noticed changes	50	83
Volunteers work with the wife	13	22

Table (16)

	No of Farmers	%
Increased environmental awareness	39	65
Interested in organic farming	46	77

Table (17)

Has the FTF Program Changed Participation in the Community Association	No of Farmers	%
Improved participation in existing one	25	42
Established new associations	15	25

Table (18)

41



Impact Changes

SAMPLE CORE FARMERS

Total Number of Farmers (questionnaires) *60*

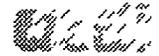
Did the Recommendations Reduce the Amount of	# Farmers	%
Chemical Fertilizers	28	47
Pesticides	52	87
Irrigation Water	33	55
Feed	6	10

See Tables 22 and 23
Increase and Decrease
in Cost of Production

Table (19)

No of Neighbors Applying Rec	No of Farmers	%
< 2	11	18
3 - 6	16	27
7 - 10	5	8
11 - 14	2	3
15 - 18	6	10
19 - 22	4	7
23 - 50	6	10
51 - 100	1	2
101 - 200	3	5
201 - 300	3	5
> 300	3	5

Table (20)



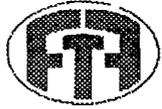
Impact Changes

SAMPLE CORE FARMERS

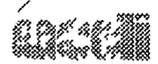
Total Number of Farmers (questionnaires) 60

Area (Feddans)	#of Farmers owned land before project		#of Farmers owned land after project		#of Farmers rented land before project		#of Farmers rented land after project	
	No	%	No	%	No	%	No	%
<= 2	16	17	7	12	27	93	45	75
3 - 9	14	23	15	25			6	10
10 - 19	11	18	10	17	1	2	3	5
20 - 29	3	5	3	5			1	2
30 - 39	5	8	6	10	1	2	1	2
40 - 49	1	2						
50 - 59	2	3	3	5	1	2	2	3
60 - 69								
70 - 79	2	3	1	2			1	2
80 - 89	3	5	4	7				
90 - 99	1	2	1	2				
100 - 149	4	7	5	8				
150 - 199	3	5	4	7			1	2
>= 200	1	2	1	2	1	2		

Table (21)



The Decrease in the Cost of Production



SAMPLE CORE FARMERS

The figures are in L E

The Decrease in Cost total Average

5193 50

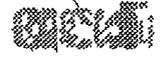
	Apple/Pear	Citrus	Grapes	Figs	Cucurbits	Tomato	Potato	Fish	Beekeeping	Livestock	Sheep&goat	Poultry
Alexandria	2000 00				1200 00		875 00			131400 00		
	3000 00		4600 00		2000 00	600 00	5000 00				6300 00	
		7000 00			13400 00	3000 00			3000 00		12960 00	
						15000 00						
Alex. Average	2500 00	2333 33	2300 00		2533 33	4650 00	2937 50		1000 00	131400 00	6420 00	
Ismailia						300 00	1500 00			150 00	310 00	
		975 00				2100 00	2500 00					4380 00
		4000 00				18000 00						
		4350 00										
Ism Average		2338 75				6800 00	2000 00			150 00	310 00	2190 00
Cairo			16250 00		400 00	700 00			2500 00			
	1250 00	750 00	31250 00			900 00			6600 00			
						1080 00						
Cairo Average	625 00	375 00	23750 00		400 00	893 33			4500 00			
Total Average	1041 67	1000 56	13025 00		2833 33	4168 00	2468 75		1728 87	65775 00	4892 50	1400 00

Table (72)

14



The Increase in the Cost of Production



SAMPLE CORE FARMERS

The figures are in L E

The Increase in Cost total Average

5502

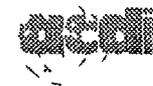
	Apple/Pear	Citrus	Grapes	Figs	Cucurbits	Tomato	Potato	Fish	Beekeeping	Livestock	Sheep&goat	Poultry
Alexandria		45290 00	15000 00	2060 00					16000 00			180000 00
Alex Average		15003 33	7500 00	2060 00					5333 33			180000 00
Ismailia	1000 00					1755 00		51800 00	225 00 4200 00			6615 00
Ism Average	500 00					585 00		51800 00	2212 50			3307 50
Cairo	600 00							4600 00	1000 00			
Cairo Average	300 00							4600 00	500 00			
Total Average	260 00	5031 11	3750 00	2060 00		175 50		14100 00	3060 71			6220 00

Table (13)

54



Program Financial Impact



SAMPLE CORE FARMERS

The figures are in Thousand Egyptian Pounds (1000 L E)

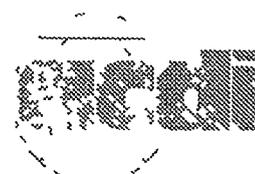
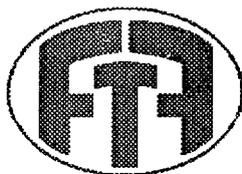
The Overall Impact total Average

75

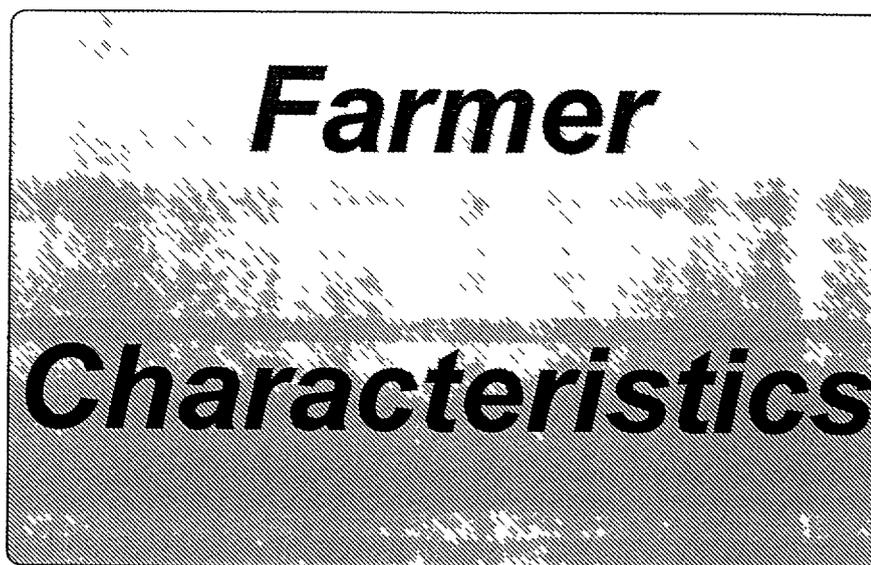
	Apple/Pear	Citrus	Grapes	Figs	Cucurbits	Tomato	Potato	Fish	Beekeeping	Livestock	Sheep&goat	Poultry
Alexandria	9 00	— —	15 00	86 14	4 00	9 00	6 88	— —	2 70	252 60	7 20	1170 00
	14 50	-6 08	42 10		7 00	17 40	75 00	— —	56 00		15 00	
		112 00			113 40	123 00			207 00		43 26	
Alex Average	13.75	35.31	28.55	86.14	41.47	101.10	40.94		48.57	252.60	21.82	1170.00
Ismailia	8 00	— —			17 00	30 05	34 50	385 70	6 96	130 00	0 31	33 90
	15 60	1 00			19 50	37 10	97 50		23 25			125 60
		8 51				468 00						
		13 98										
Ism Average	11.80	6.62			18.25	178.35	66.00	385.70	15.11	130.00	0.31	29.79
Cairo	12 60	— —	53 75		0 80	2 25		16 10	19 00			
	15 25	7 00	211 25			2 84			28 60			
						19 50						
Cairo Average	13.93	1.50	132.50		0.80	8.20		16.10	23.80			
Total Average	13.49	15.03	80.53	86.14	26.94	96.41	53.47	100.45	43.08	151.30	10.44	443.20

Table (2^o)

24

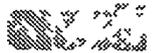


**Results of
the Farmer to Farmer
Survey**



Part I

SAMPLE PARTICIPANTS



Farmer Characteristics

SAMPLE PARTICIPANTS

Total Number of Farmers (questionnaires)

Sex	No of Farmers	%
Male	18	100
Female		

Table (1)

Income Source	No of Farmers	%
Agriculture	16	89
Non-agriculture	2	11

Table (2)

18

Educational Level	No of Farmers	%
Illiterate		
Read/write		
High School	1	22
University	14	78

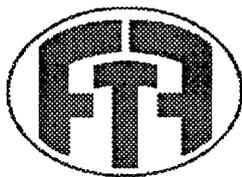
Table (3)

Age		
Years	No of Farmers	%
<= 25		
25 - 29	1	6
30 - 34	2	11
35 - 39	5	28
40 - 44	5	28
45 - 49	5	28
>= 50		
Average		40

Table (4)

Family Size Children Only		
Frequency	No of Farmers	%
1	1	6
1 - 2	2	11
3 - 4	6	33
5 - 9	6	33
>= 10	1	6
Average		4

Table (5)



**Results of
the Farmer to Farmer
Survey**

***Participation
in Program***

Part II

SAMPLE PARTICIPANTS



Participation in Program

SAMPLE PARTICIPANTS

Total Number of Farmers (questionnaires) 18

Regional Office	No of Farmers	%
Alexandria	12	67
Ismailia	5	28
Cairo	1	6

Table (6)

Date	Joined FtF		Participants Visited USA	
	No	%	No	%
1989				
1990	1	6		
1991	1	6		
1992	2	11	1	6
1993	11	61	1	6
1994	3	17	1	6
1995			1	6

Table (7)

Recom Received	No	%
0		
1		
2		
3	1	6
4	1	6
5	2	11
6	3	17
7	2	11
8	1	6
9	1	6
10	1	6
11		
12		
13		
14	2	11
15	2	11
16		
17		
18		
19		
20	2	11
>20		

Average	10
---------	----

Table (8)

Average	7
---------	---

Table (9)

Rec Received	174
Rec Applied	141
Adoption Rate	81%

Recom Applied	No	%
0		
1		
2	1	6
3	1	6
4	2	11
5	3	17
6	3	17
7	1	6
8		
9		
10	1	6
11		
12	1	6
13		
14		
15	1	6
16		
17		
18		
19	1	6
20	1	6
>20		



Participation in Program

SAMPLE PARTICIPANTS

Total Number of Farmers (questionnaires) 18

	No of Farmers	%
Number of Farmers Sharing Recommendations with Neighbors	17	84

Recommendations Applied <small>* See Table 13 for the breakdown by commodity</small>	No of Farmers	% Multiple Answers
Soil & Water Management	10	56
Fertilizers & Micro-Nutrition	8	44
Pest & Weed Control	12	67*
Farm Management	8	44
Variety Selection	1	6
Post Harvest / Marketing	2	11
Orchard Management	3	17
Bee Management	4	22
Herd / Cattle Management	1	6
Poultry / Fish Management	2	11
Feed Management	3	17

Table (10)

Distribution	No of Farmers	%
Participant	18	100
Non-participant		

Table (11)

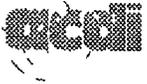
Technical assistance received from FtF program <small>*Multiple Answers</small>	
A Volunteer visits	82
B Participant training	18
C Visits of FtF staff	127
D Visits of core farmer	50
E Training courses	70
F Internal participant training	11
G Other government linkage	14

Table (12)

51



Participation in Program



Total Number of Farmers (questionnaires) 18

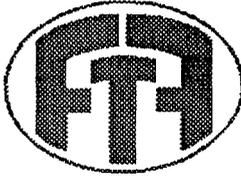
The distribution of the recommendations applied among different commodities

SAMPLE PARTICIPANTS

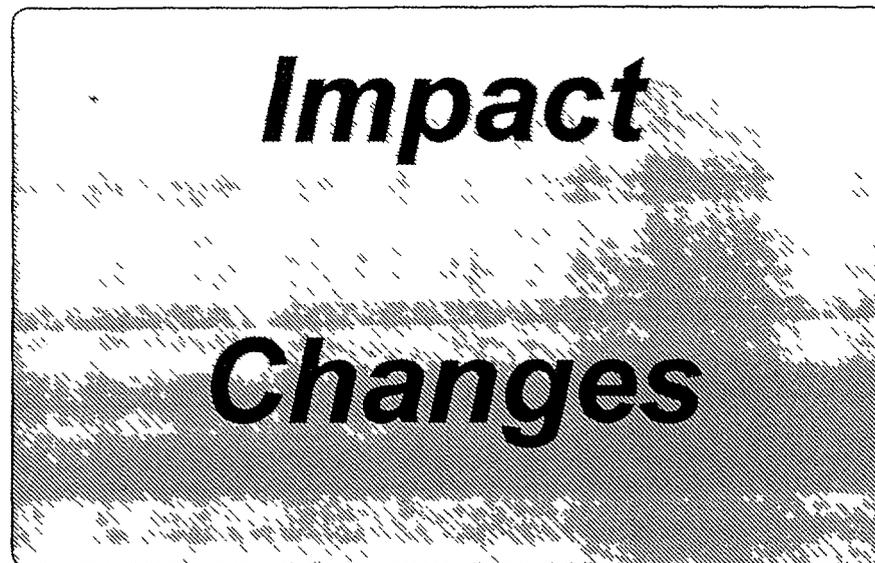
Recommendations Applied	Apple Pear		Citrus		Grapes		Figs		Cucurbits		Tomato		Potato		Fish		Beekeeping		Livestock		Sheep goat		Poultry	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Soil & Water Management			2	11					1	6	2	11	3	17	1	6			1	6				
Fertilizers & Micro-Nutrition			1	6							3	17	3	17	1	6								
Pest & Weed Control			2	11	1	6			1	6	4	22	1	6			2	11					1	6
Farm Management										1	6		3	17					1	6				
Variety Selection											1	6												
Post Harvest / Marketing											2	11												
Orchard Management			2	11	1	6																		
Bee Management																	4	22						
Herd / Cattle Management																			1	6				
Poultry / Fish Management														1	6								1	6
Feed Management																	2	11					1	6

Table (13)

52



**Results of
the Farmer to Farmer
Survey**



Part III

SAMPLE PARTICIPANTS



Impact Changes

SAMPLE PARTICIPANTS

Total Number of Farmers (questionnaires) **18**

Changes	No of Farmers	%
Rent More Land	8	44
Buy More Land	5	28
Home Improvement	11	61
Better Schooling	6	33
Buy Car/Truck	6	33

Table (15)

	No of Farmers	%
Started New Business Links	2	11
Bought Agriculture equipments from USA	10	56
Neighbors noticed changes	16	89
Volunteers work with the wife	5	28

Table (16)

	No of Farmers	%
Increased environmental awareness	16	89
Interested in organic farming	13	72

Table (17)

Has the FTF Program Changed Participation in the Community Association	No of Farmers	%
Improved participation in existing one	9	50
Established new associations	6	33

Table (18)

54



Impact Changes

SAMPLE PARTICIPANTS

Total Number of Farmers (questionnaires) 18

Did the Recommendations Reduce the Amount of	# Farmers	%
Chemical Fertilizers	8	44
Pesticides	10	56
Irrigation Water	4	22
Feed	1	6

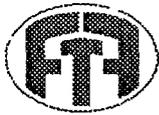
See Tables 22 and 23
Increase and Decrease
in Cost of Production

Table (19)

No of Neighbors Applying Rec	No of Farmers	%
< 2	3	17
3 - 6	1	6
7 - 10	2	11
11 - 14		
15 - 18	3	17
19 - 22	1	6
23 - 50	3	17
51 - 100		
101 - 200	1	6
201 - 300	2	11
> 300	2	11

Table (20)

55



Impact Changes

SAMPLE PARTICIPANTS

Total Number of Farmers (questionnaires) 18

Area (Feddans)	#of Farmers owned land before project		#of Farmers owned land after project		#of Farmers rented land before project		#of Farmers rented land after project	
	No	%	No	%	No	%	No	%
<= 2	2	11	1	6	18	100	12	67
3 - 9	7	39	7	39			3	17
10 - 19	1	6	1	6				
20 - 29	1	6					1	6
30 - 39	1	6	2	11				
40 - 49								
50 - 59			1	6			1	6
60 - 69								
70 - 79	1	6	1	6			1	6
80 - 89	1	6	1	6				
90 - 99								
100 - 149	3	17	3	17				
150 - 199	1	6	1	6				
>= 200								

Table (21)



The Decrease in the Cost of Production

SAMPLE PARTICIPANTS

The figures are in L E

The Decrease in Cost total Average

10448 61

	Apple/Pear	Citrus	Grapes	Figs	Cucurbits	Tomato	Potato	Fish	Beekeeping	Livestock	Sheep&goat	Poultry
Alexandria		7000 00			13400 00	3000 00	875 00 5000 00		3000 00	151400 00		
Alex. Average		3500 00			13400 00	3000 00	2937 50		1500 00	151400 00		
Ismailia						300 00 2100 00 18000 00	1500 00					
Ism Average						6900 00	1500 00					
Cairo									2500 00			
Cairo Average									2500 00			
Total Average		3500 00			13400 00	3000 00	2438 33		1375 00	151400 00		

Table (22)

51



The Increase in the Cost of Production

SAMPLE PARTICIPANTS

The figures are in L E

The Increase in Cost total Average 14624 17

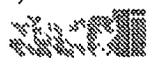
	Apple/Pear	Citrus	Grapes	Figs	Cucurbits	Tomato	Potato	Fish	Beekeeping	Livestock	Sheep&goat	Poultry
Alexandria		45280 00	15000 00						16000 00			180000 00
Alex Average		22640 00	15000 00						8000 00			180000 00
Ismailia						1755 00			4200 00			
Ism Average						585 00			4200 00			
Cairo									1000 00			
Cairo Average									1000 00			
Total Average		22640 00	15000 00			438 75			8000 00			180000 00

Table (23)



Program Financial Impact

SAMPLE PARTICIPANTS



The figures are in Thousand Egyptian Pounds (1000 L E)

The Overall Impact total Average 155 54

	Apple/Pear	Citrus	Grapes	Figs	Cucurbits	Tomato	Potato	Fish	Beekeeping	Livestock	Sheep&goat	Poultry
Alexandria		6 06 112 00	15 00		113 40	123 00	6 88 75 00		56 00 207 00	252 60		1170 00
Alex. Average		52 96	15 00		113 40	123 00	40 94		131 50	252 60		1170 00
Ismailia						30 05 37 10 468 00	97 50		23 25			
Ism. Average						178 35	97 50		23 25			
Cairo									19 00			
Cairo Average									19 00			
Total Average		52 96	15 00		113 40	169 54	89 79		26 51	252 60		1170 00

Table (2/3)

59



Results of the Farmer to Farmer Survey

Sample Non-Core Farmers

Sample Non-Core Farmers

**Impact
Changes**

Part I

**The Decrease in the Cost of Production
Sample Non-Core Farmers**

The Figures are in Egyptian Pounds

The Decrease in Cost total Average

743

	Apple/Pear	Citrus	Grapes	Figs	Cucurbits	Tomato	Potato	Fish	Beekeeping	Livestock	Sheep&goat	Poultry
Alexandria	250	0	100	100	0	0	0		0	0		
	900	0	450	150	0	200	200		0	300		
	1400	30	1000		150	400	300		0			
	1650	200	1200		400	800	400		0			
		500			550	900			8			
		1200			1200	1200			200			
						1800						
					2000							
	1050	322	688	125	383	913	225		35	150		
Ismailia		0			200	0	0					0
		0			200	0	0					0
		0				0	8					670
		0				0	50					670
		90				240						
		200				240						
		225										
	300											
		102			200	80	15					335
Cairo	430	130	5440		160	190		0	0			
	440	1090	5820		230	240		210	0			
	1680	1375	6600			480			7			
	2280	2340	9240			800			15			
						1080						
					4840							
	1208	1234	6775		195	1272		105	6			

Table 1

22

**The Increase in the Cost of Production
Sample Non-Core Farmers**

The Figures are in Egyptian Pounds

The Increase in Cost total Average

901

	Apple/Pear	Citrus	Grapes	Figs	Cucurbits	Tomato	Potato	Fish	Beekkeeping	Lrvestock	Sheep&goat	Poultry
Alexandria		0			0							
		0			0							
		0			0							
		0			0							
		30			0							
		300				2000						
		55			2000							
Ismailia	800	0				70	0	5000	550	1000	300	1000
	2000	0				70	0	12000	1000	1000	1900	1000
	3000	0				125	125		1070			1000
	3600	0				232	185		2000			1000
		0				232						
		150				375						
		350										
	800											
	2350	163				184	78	8500	1155	1000	1100	1000
Cairo		0						0	0			
		0						80	0			
		200							180			
		750							500			
		238						40	170			
	2350	143			2000	184	78	4270	663	1000	1100	1000

Table 2

The Figures are in Egyptian Pounds

The Financial Impact Average of the Program

7587

	Apple/Pear	Citrus	Capes	Figs	Cucurbits	Tomato	Potato	Fish	Beekeping	Livestock	Sheep&goat	Poultry
Alexandria	3300	600	1000	1050	250	550	0	0	240	600	3000	5000
	3750	800	2850	1300	1400	1000	800	0	288	800	4000	10000
	4400	1200	5600		1750	1200	1100	0	1040		13800	
	6150	1200	7200		3675	1800	1600	0	1440		23000	
		2000			6750	2300			2580		42025	
		3500			28000	6000			3840		56300	
						6600						
						6800						
	4400	1550	4163	1175	6971	3281	875	0	1571	700	23688	7500
Ismailia	3200	700			1250	925	525	5000	1700	2000	1800	21800
	4400	1475			1950	1725	658	13000	2040	3800	3120	31800
	6000	1950				16440	795		2200			41670
	14400	3000				16896	3950		2930			41670
		3000				23040						
		3300				41100						
		4600										
		8010										
	7000	3254			1600	16688	1482	9000	2218	2900	2460	34235
Cairo	3480	8002	5440		920	960		2710	1481			
	5520	11160	5820		2040	1080		7210	2650			
	10600	63125	6600			1520			9750			
	16200	66810	9240			4840			12500			
						6000						
						6330						
	8950	37274	6775		1480	3455		4960	6595			
	6283	10246	5469	1175	4799	7355	1179	3490	3191	1800	18381	25323

Table 3

69

Appendix E

Graphical Presentation

A Core Farmer

Slide 1	Educational Level
Slide 2	Age of Farmer
Slide 3	Family Size - Children Only
Slide 4	Male / Female Distribution
Slide 5	Income Source
Slide 6	Cultivated Land Distribution
Slide 7	Number of Farmers by Regional Office
Slide 8	Number of Participants in Sample
Slide 9	Year Joined FtF
Slide 10	Year Participant Visited USA
Slide 11	Frequency of Program Interventions
Slide 12	Recommendations Applied
Slide 13	Classification of Recommendations Applied
Slide 14	Changes at Home or on Farm Area
Slide 15	Other Benefits of FtF Program
Slide 16	Participation / Establishing Association
Slide 17	Input Changes
Slide 18	Neighbors Applying Recommendation
Slide 19	Decreased Input Cost
Slide 20	Increased Input Cost
Slide 21	Financial Impact

B Participant

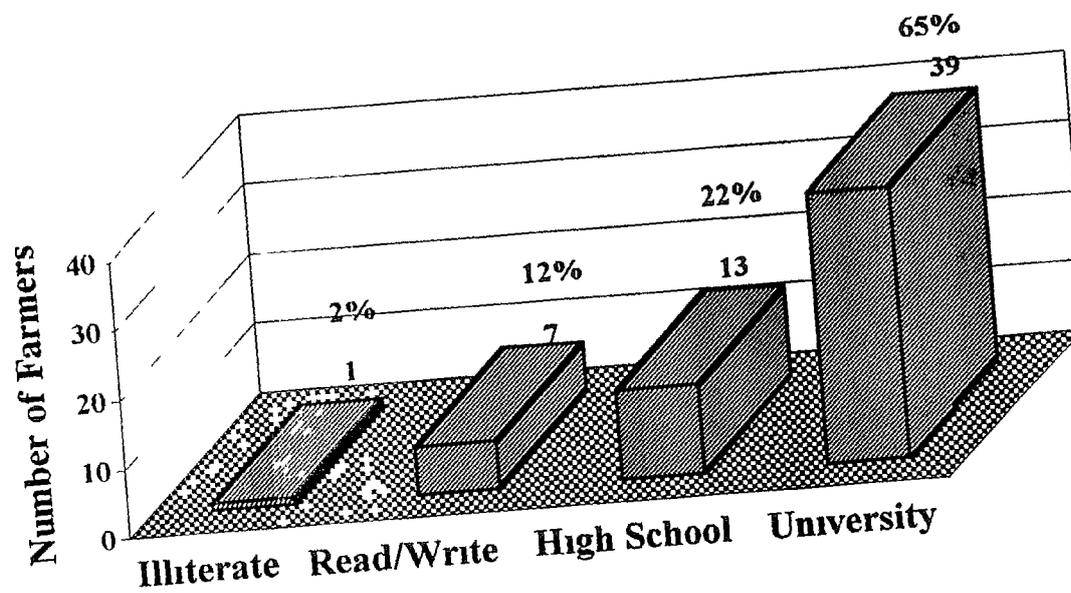
Slide 1	Educational Level
Slide 2	Age of Farmer
Slide 3	Family Size - Children Only
Slide 4	Male / Female Distribution
Slide 5	Income Source
Slide 6	Cultivated Land Distribution
Slide 7	Number of Farmers by Regional Office
Slide 8	Year Joined FtF
Slide 9,	Year Participant Visited USA
Slide 10	Frequency of Program Interventions
Slide 11	Recommendations Applied
Slide 12	Classification of Recommendations Applied

- Slide 13 Changes at Home or on Farm Area
- Slide 14 Other Benefits of FtF Program
- Slide 15 Participation / Establishing Association
- Slide 16 Input Changes
- Slide 17 Neighbors Applying Recommendation
- Slide 18 Decreased Input Cost
- Slide 19 - Increased Input Cost
- Slide 20 Financial Impact

C Non-Core Farmer

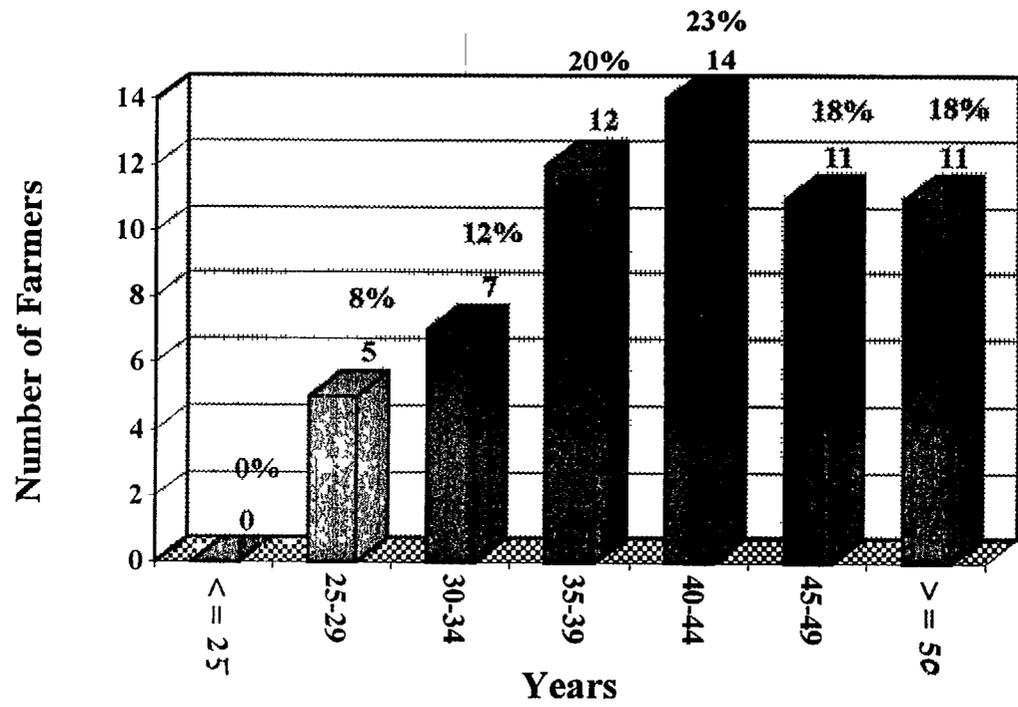
- Slide 1 Financial Impact

Educational Level Sample Core Farmer



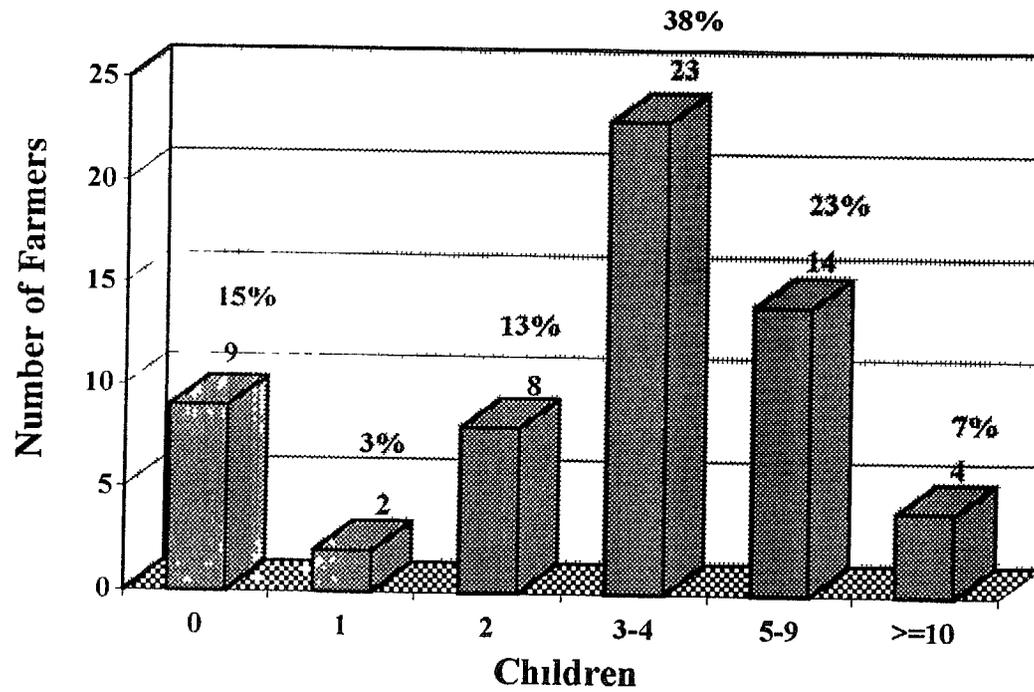
Age

Sample Core Farmer



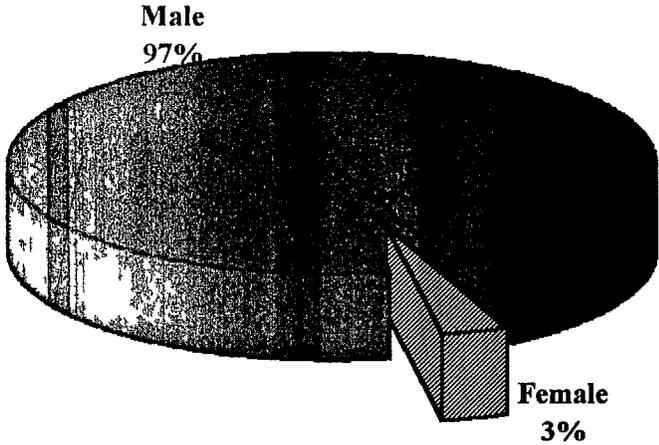
68

Number of Children Sample Core Farmer



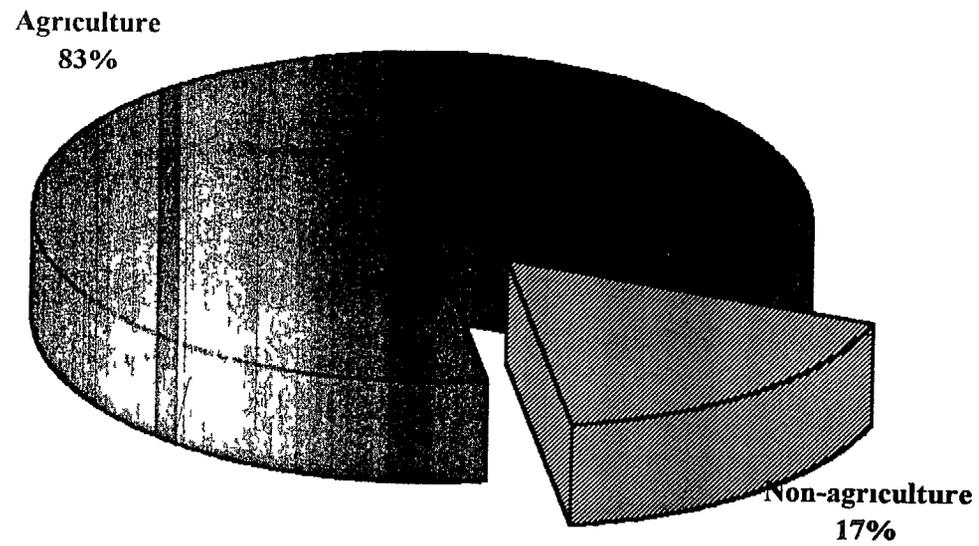
69

Sex
Sample Core Farmer

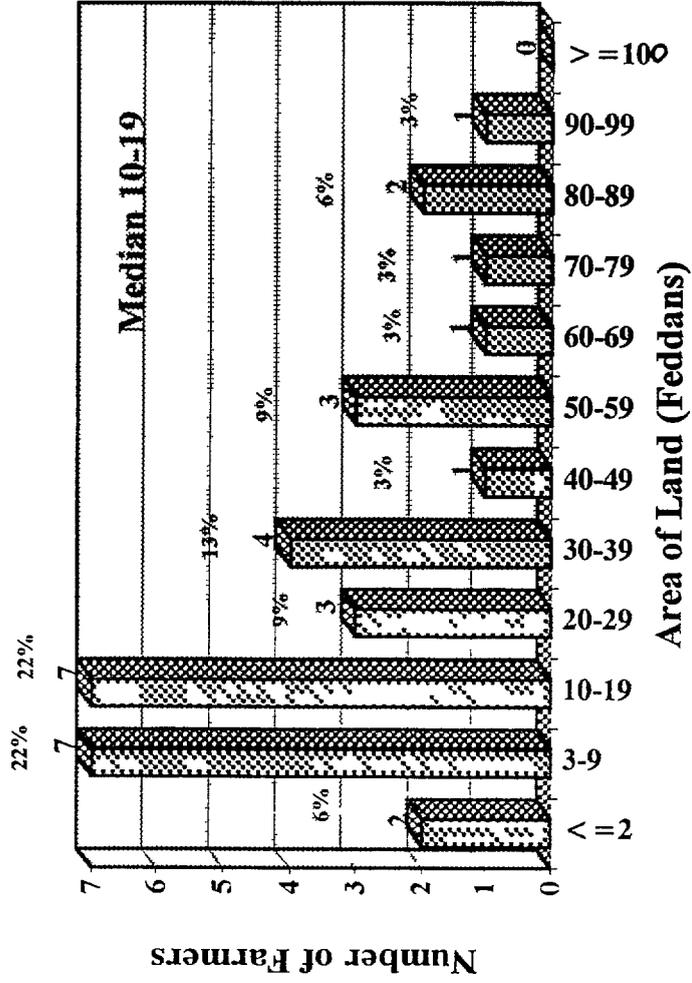


2

Income Source Sample Core Farmer



Distribution of Cultivated Land Farmed by Sample Core Farmer

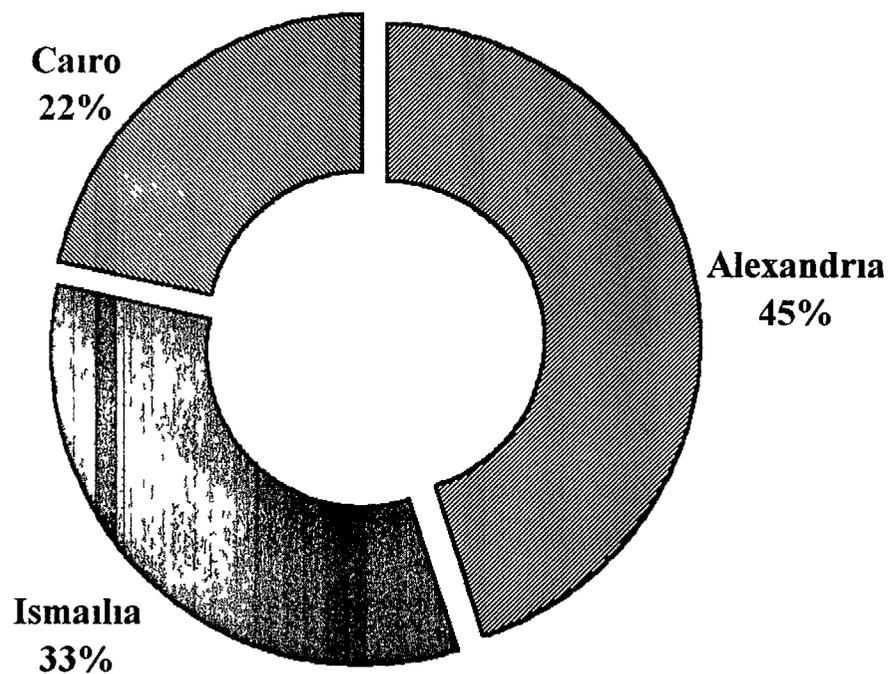


Sample Core Farmers

Participation in Program

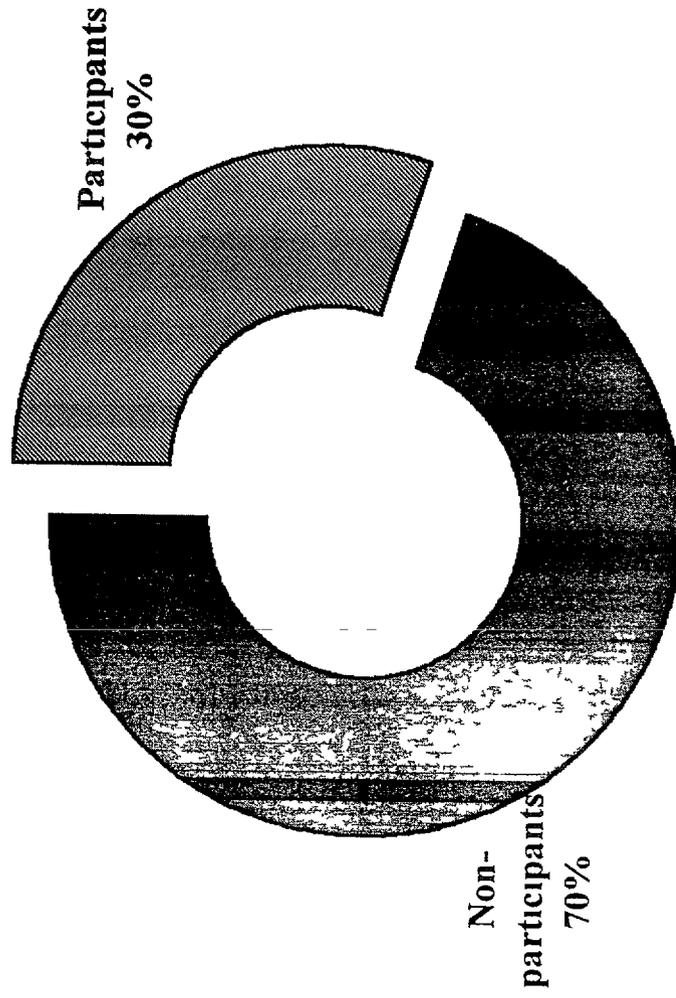
Part II

Distribution of Sample Core Farmer According to Regional Office

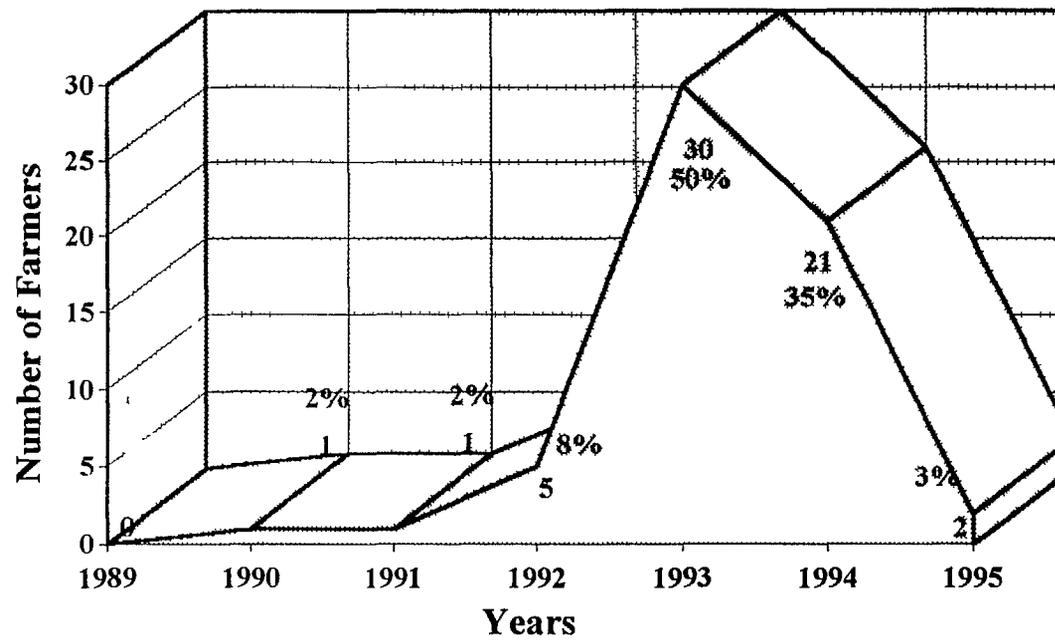


72

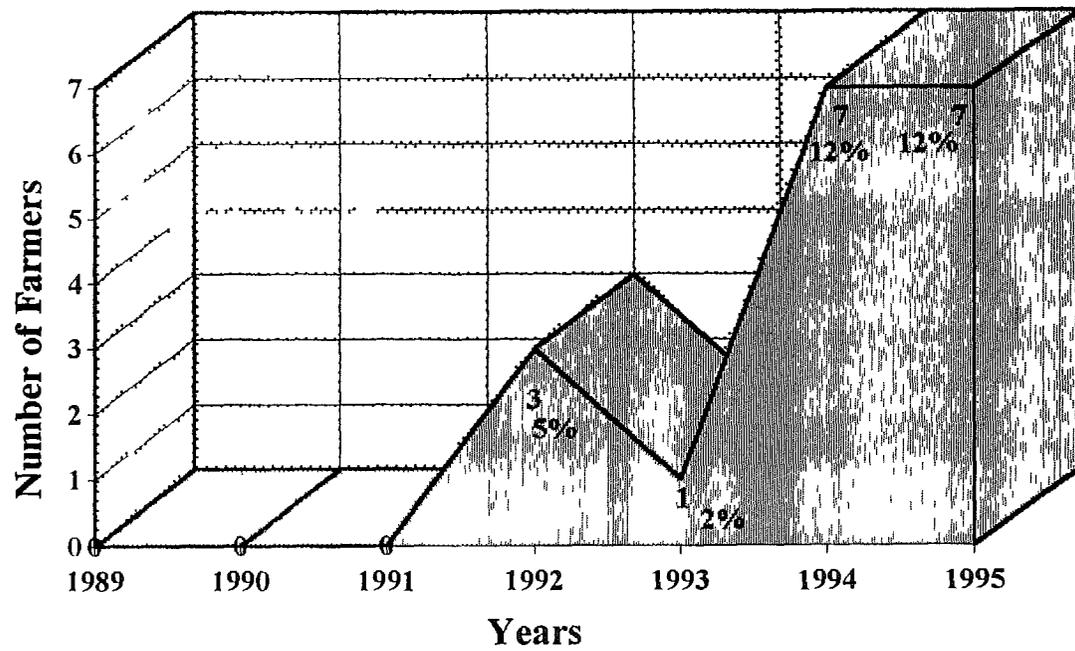
Number of Sample Core Farmers Participants and Non-participants



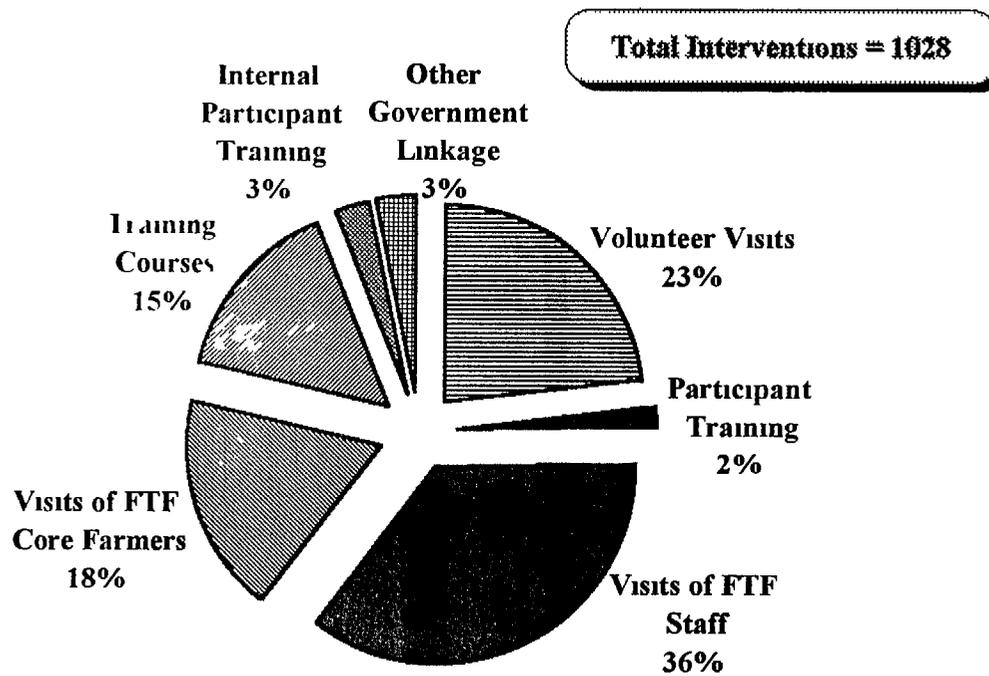
Years in which Sample Core Farmers Joined the FTF Program



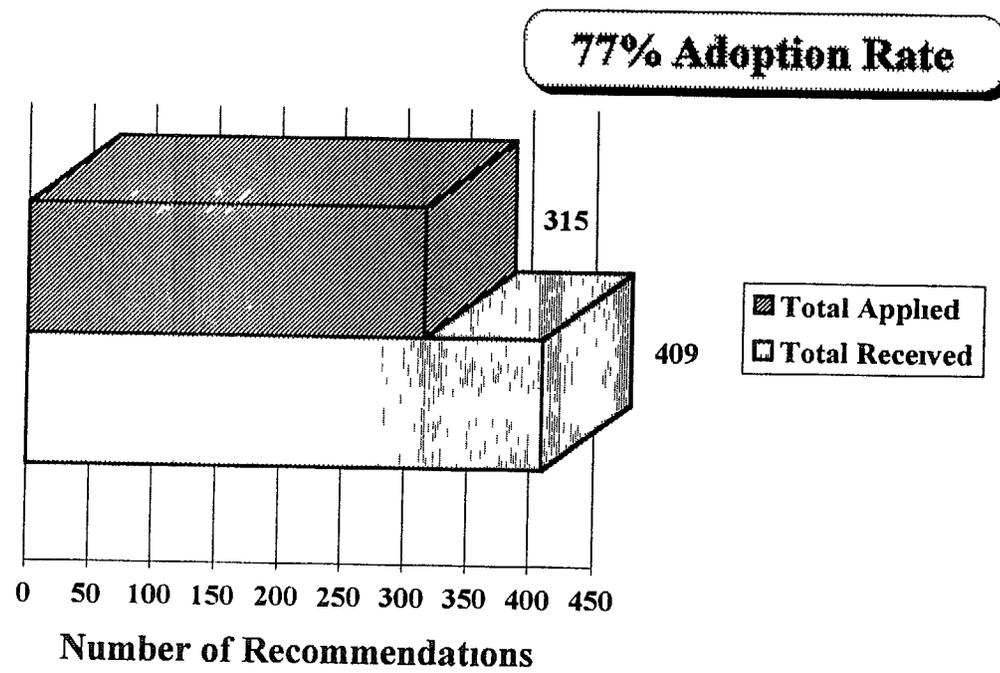
Years in which Sample Core Farmers Visited USA



Frequency of Program Interventions for Sample Core Farmers

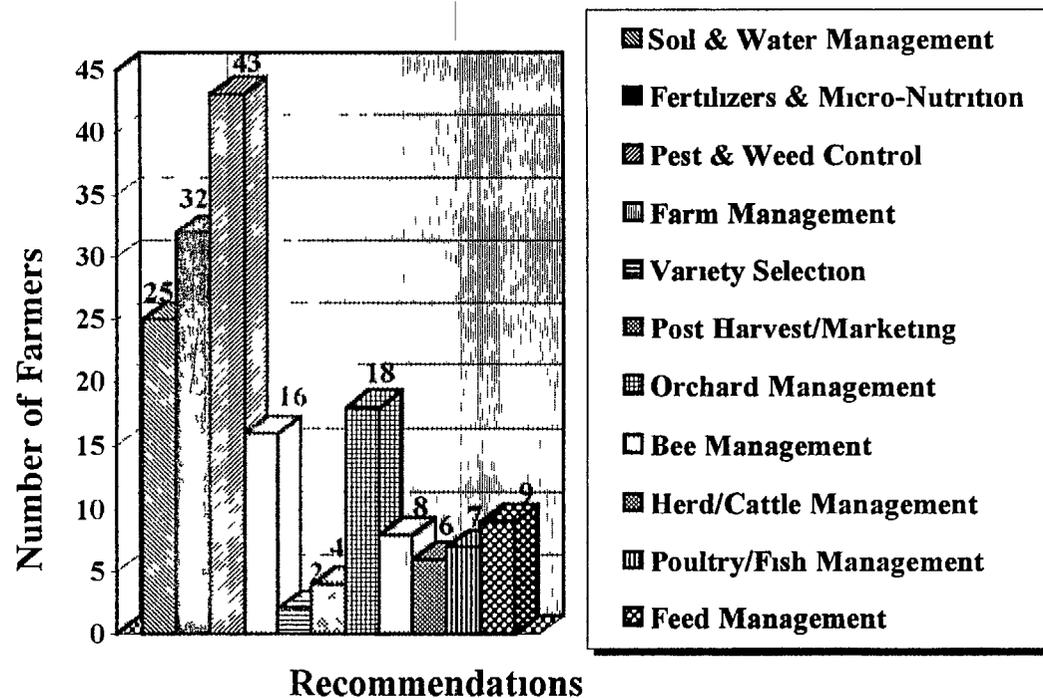


Recommendations Applied by Sample Core Farmer



19

Classification of Recommendations Applied by Sample Core Farmer

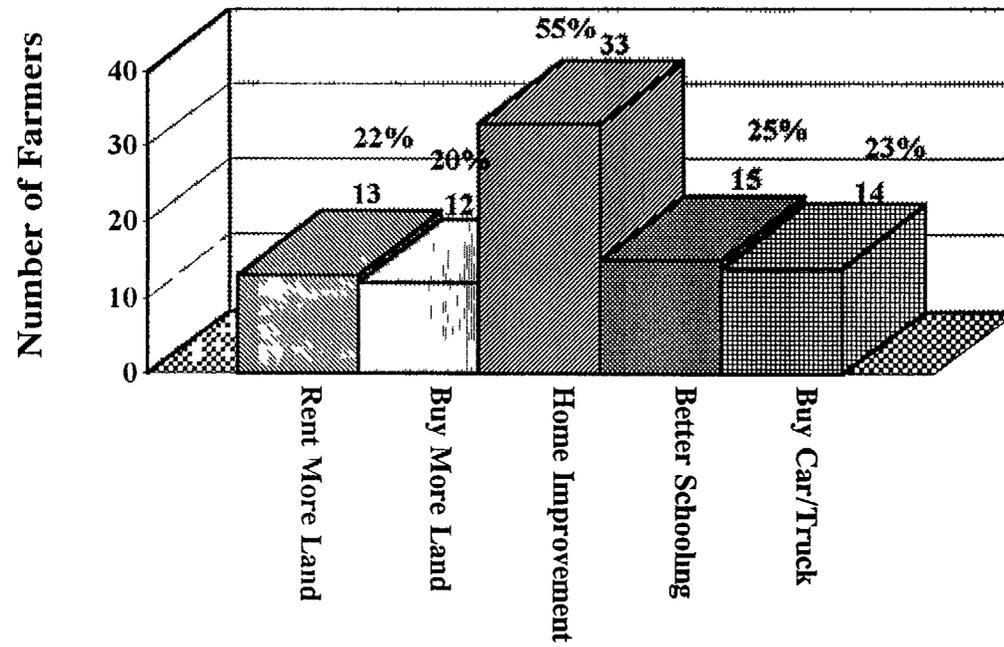


Sample Core Farmers

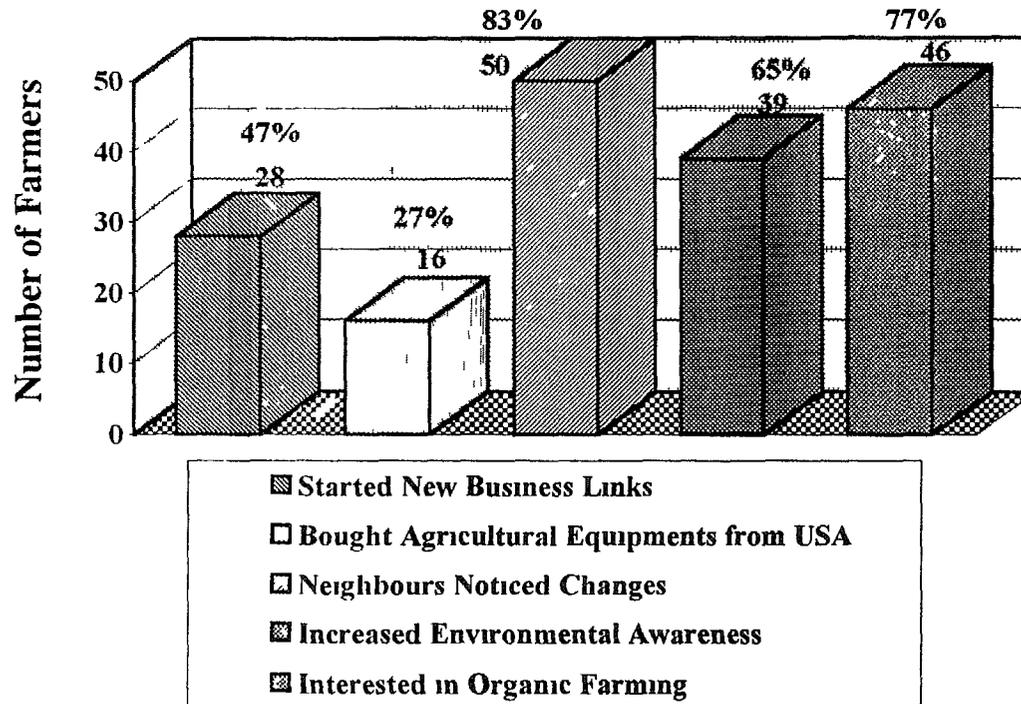
**Impact
Changes**

Part III

Changes at Home or on Farm by Sample Core Farmer

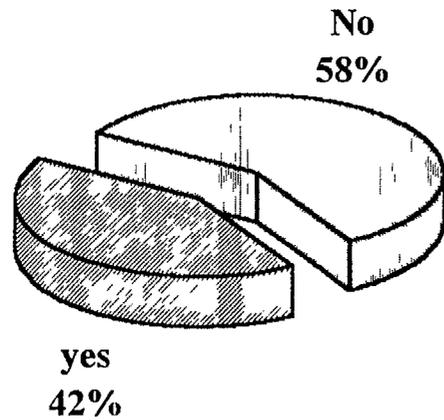


Other Benefits of FTF Program for Sample Core Farmer

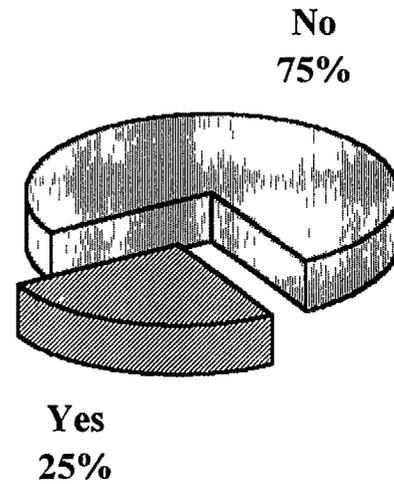


Sample Core Farmers Report Changes with Participation in Community Associations

Improved Participation in Existing Association

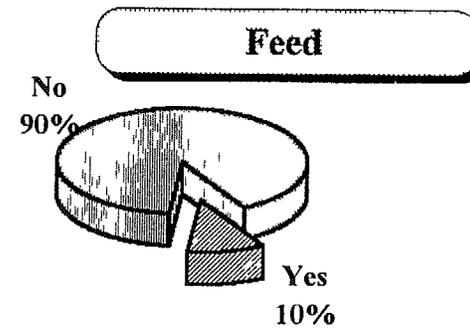
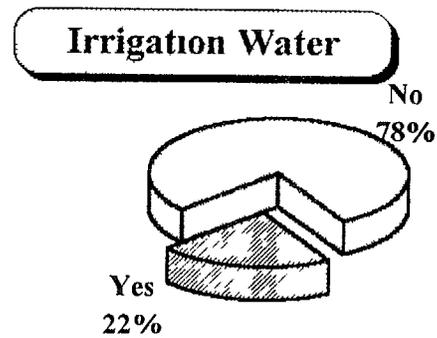
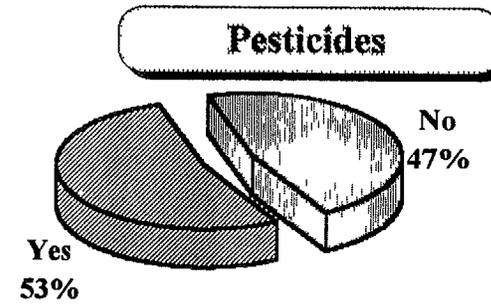
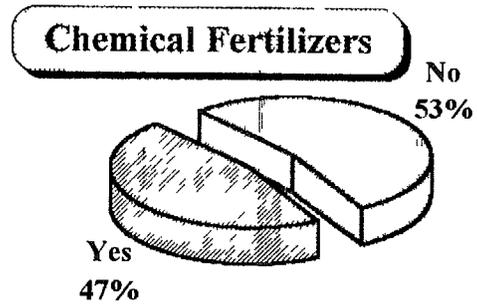


Established New Associations



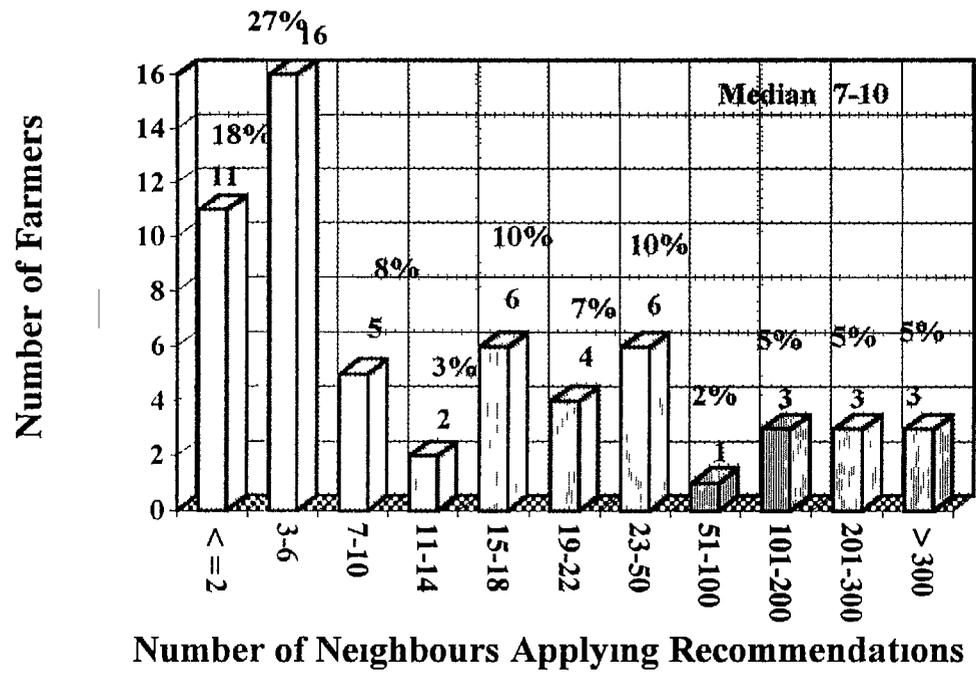
94

Sample Core Farmers Report Input Changes



98

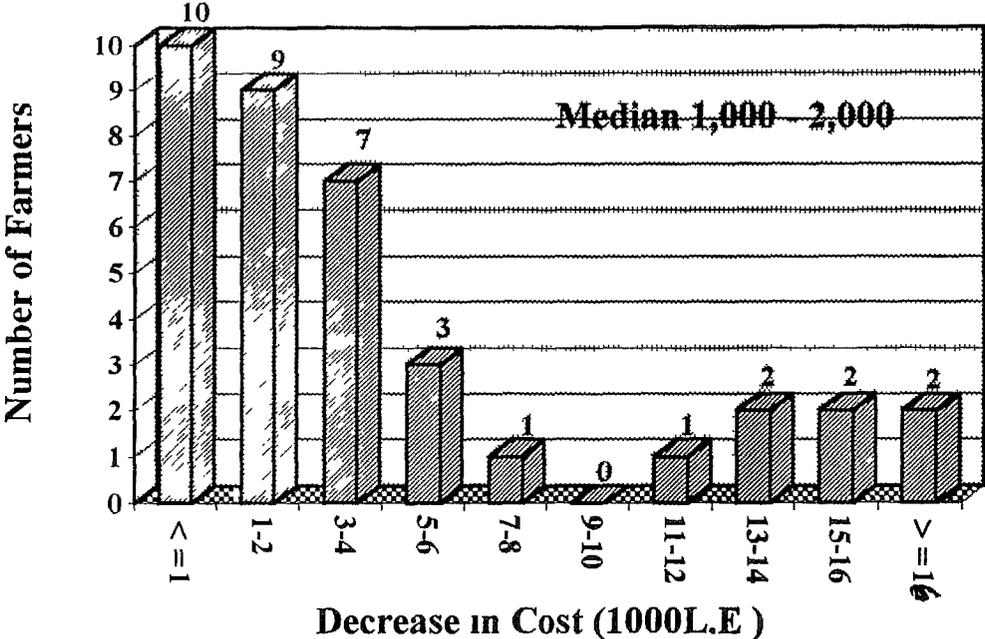
Number of Neighbours Applying Recommendations from Sample Core Farmers



86

Decrease in Cost of Production

Sample Core Farmers

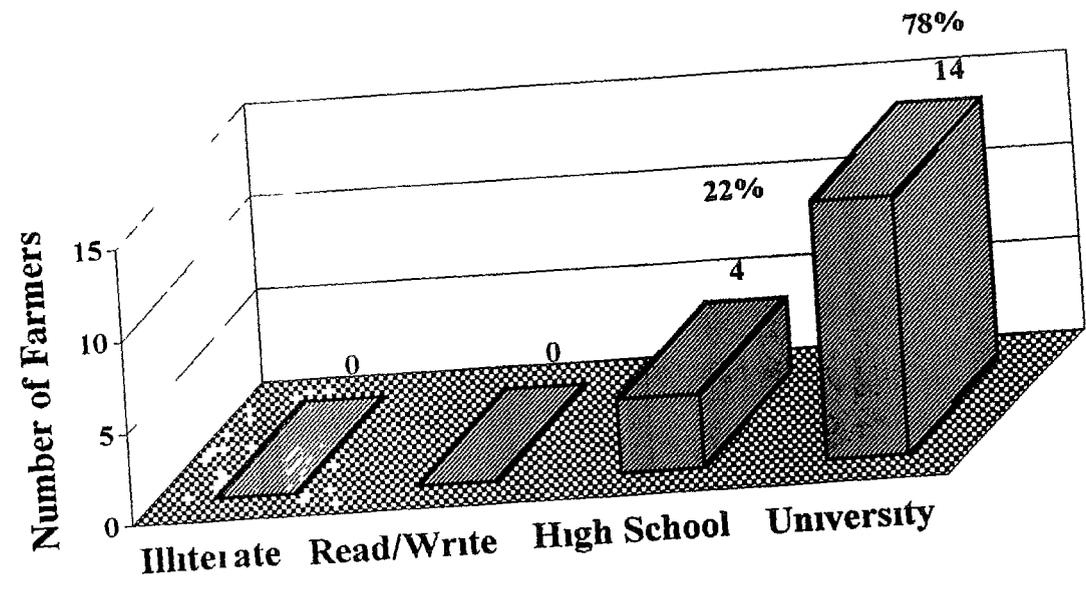


Sample Participants

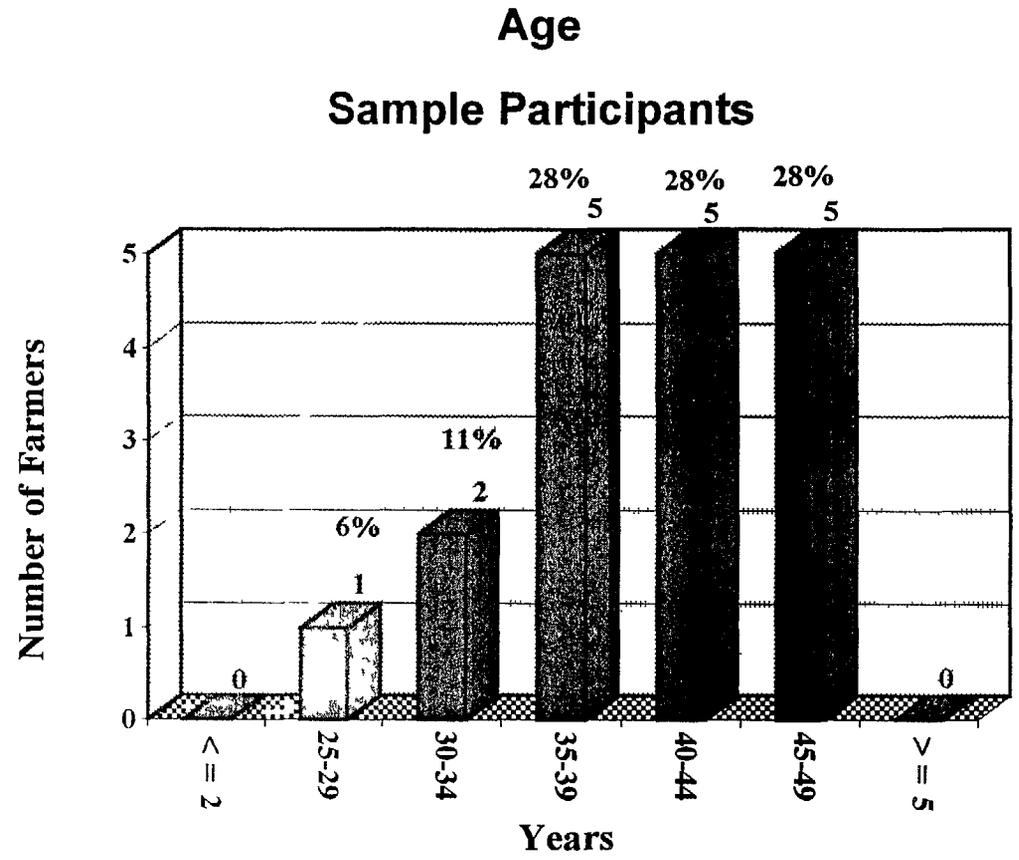
Farmer Characteristics

Part I

Educational Level Sample Participants



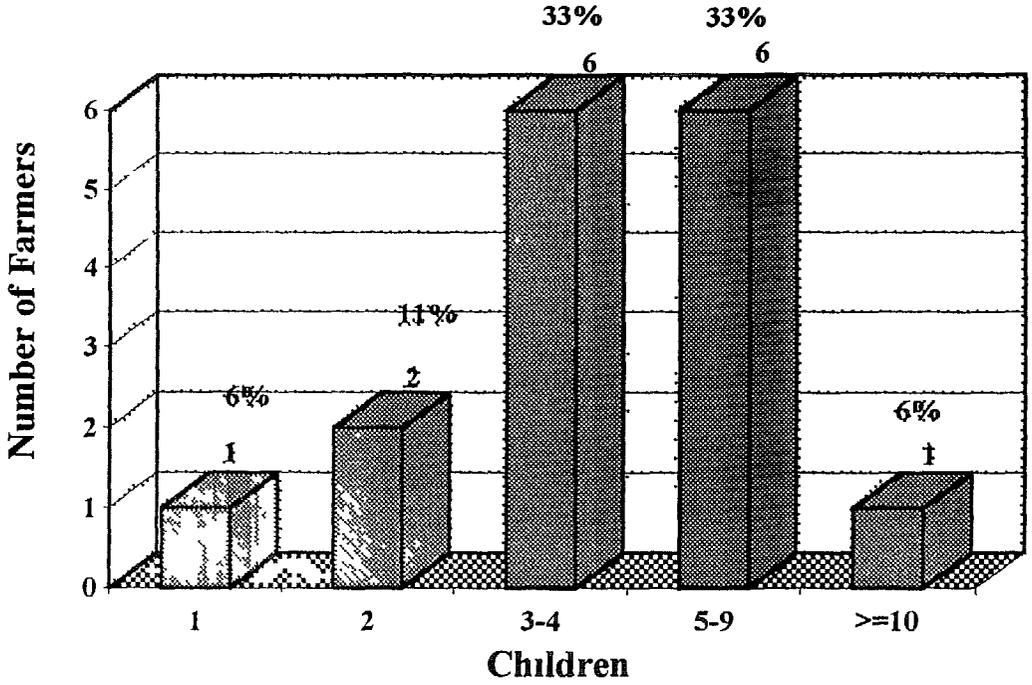
Slide 1



Slide 2

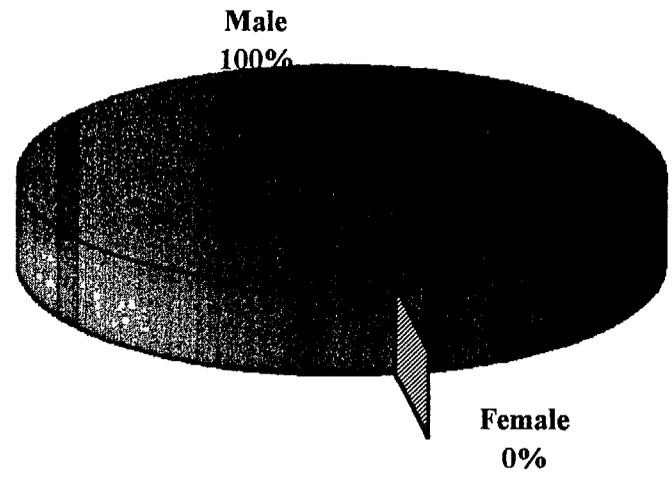
Number of Children

Sample Participants



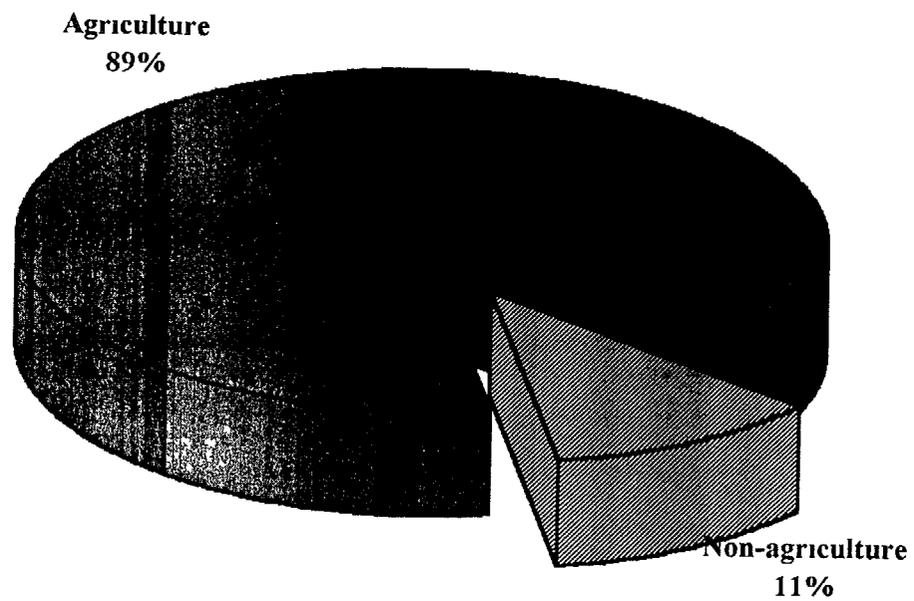
Slide 3

Sex Sample Participants



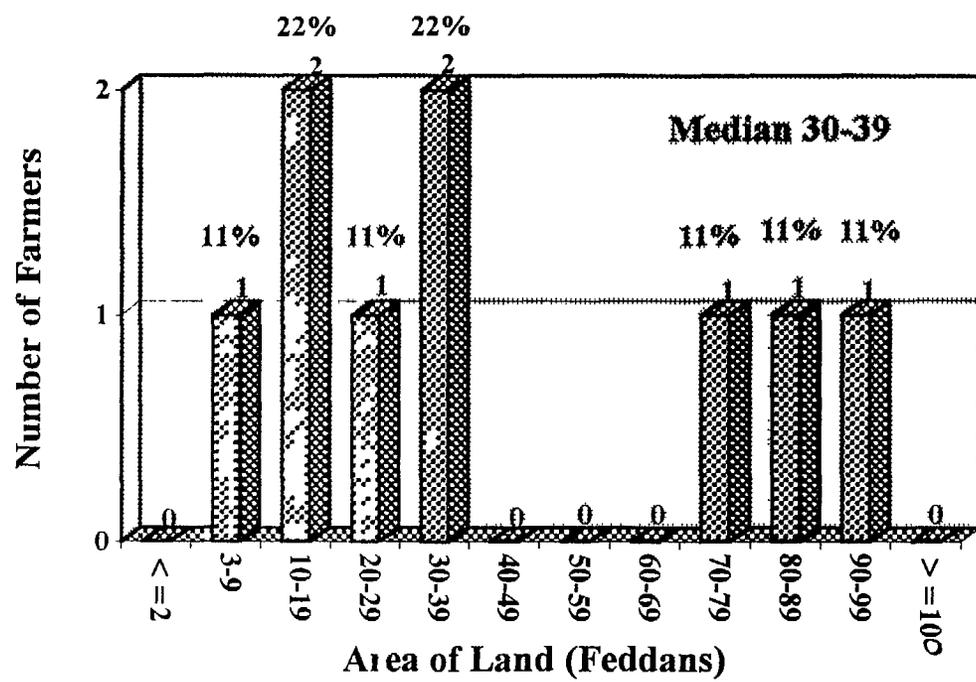
Slide 4

Income Source Sample Participants



Slide 5

Distribution of Cultivated Land Farmed by Sample Participants



5

Sample Participants

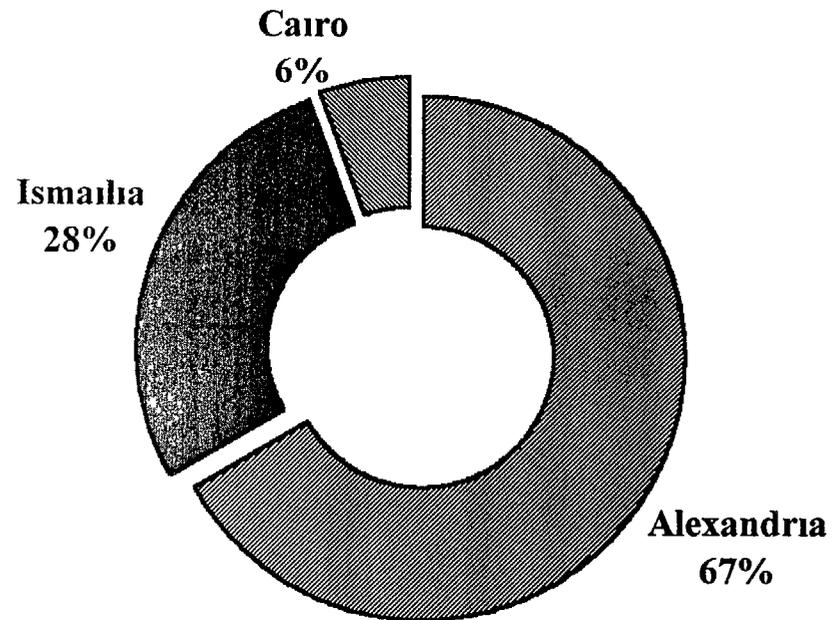
4

Participation in Program

Part II

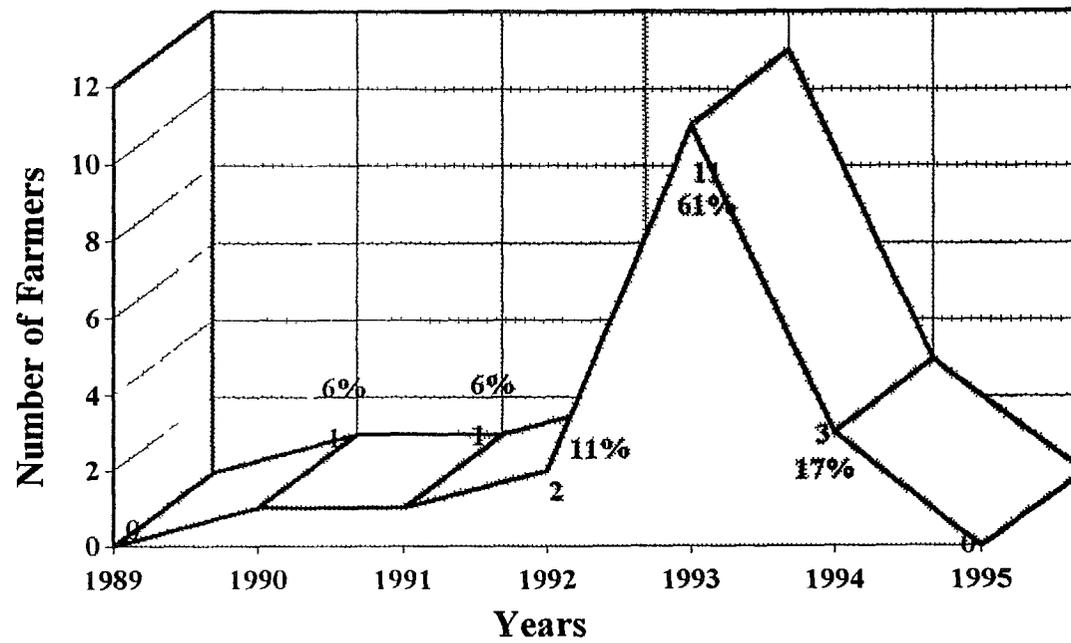
6

Distribution of Sample Participants According to Regional Office



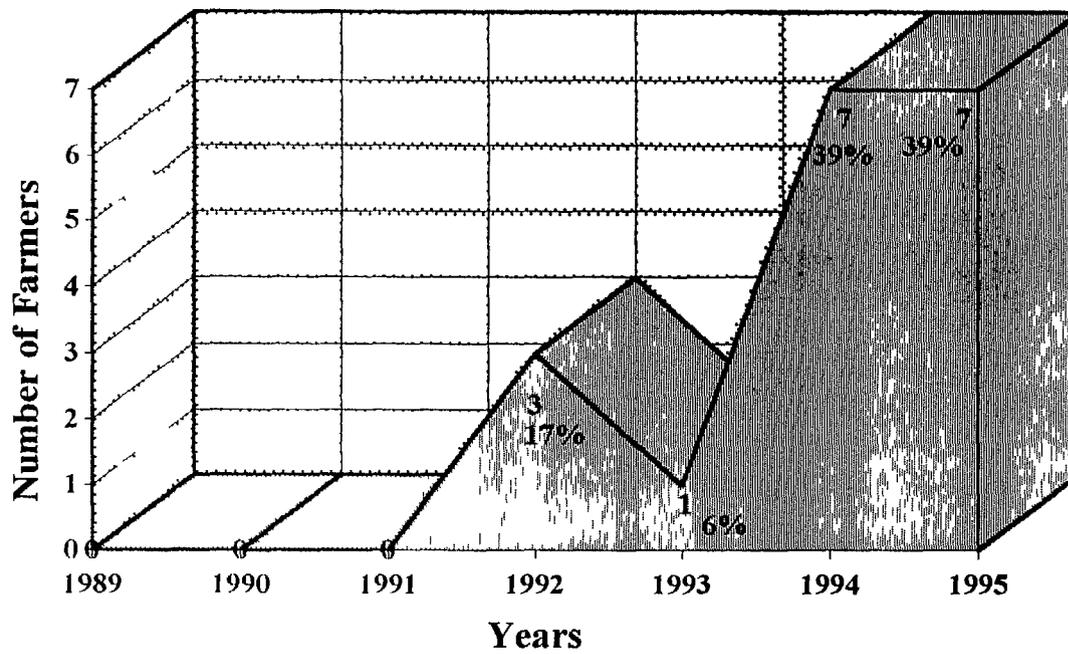
Slide 7

Years in which Sample Participants Joined the FTF Program



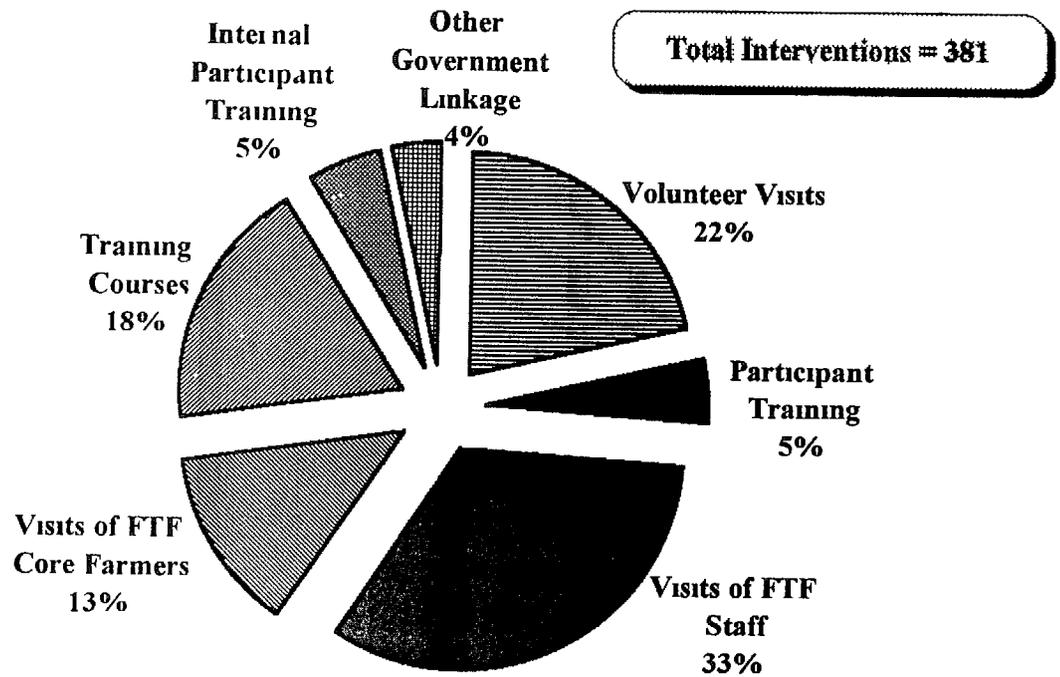
Slide 8

Years in which Sample Participants Visited USA



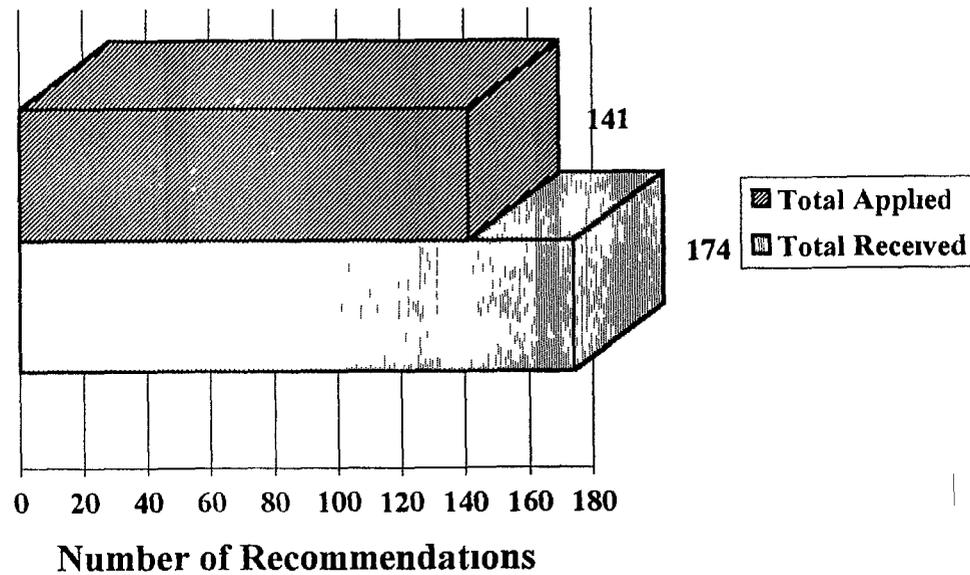
Slide 9

Frequency of Program Interventions for Sample Participants

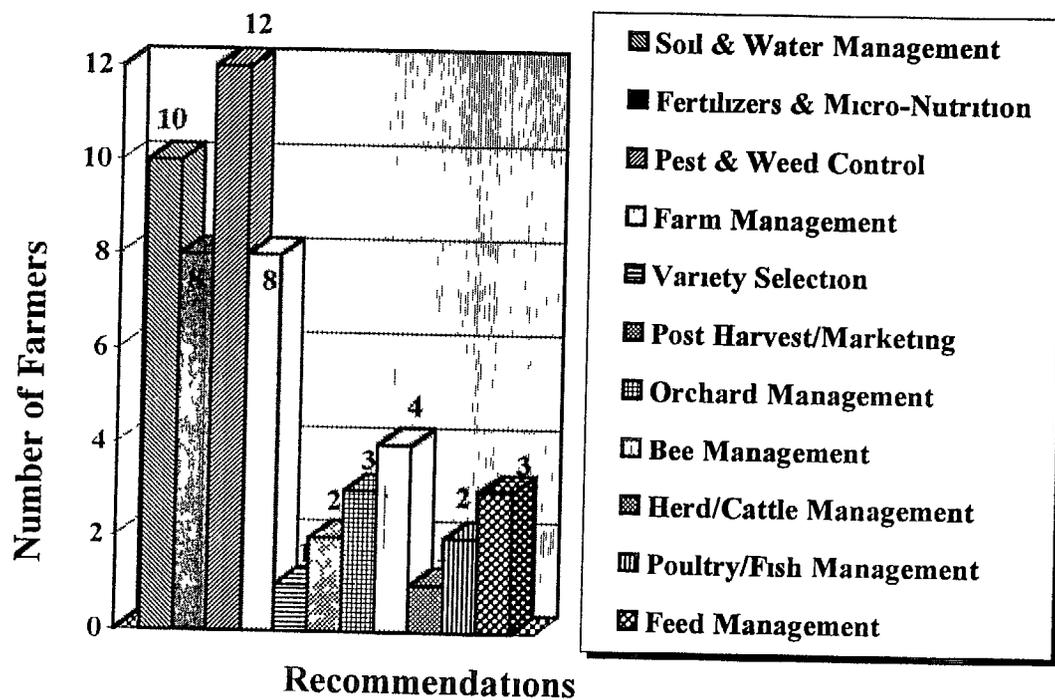


Recommendations Applied by Sample Participants

81% Adoption Rate



Classification of Recommendations Applied by Sample Participants



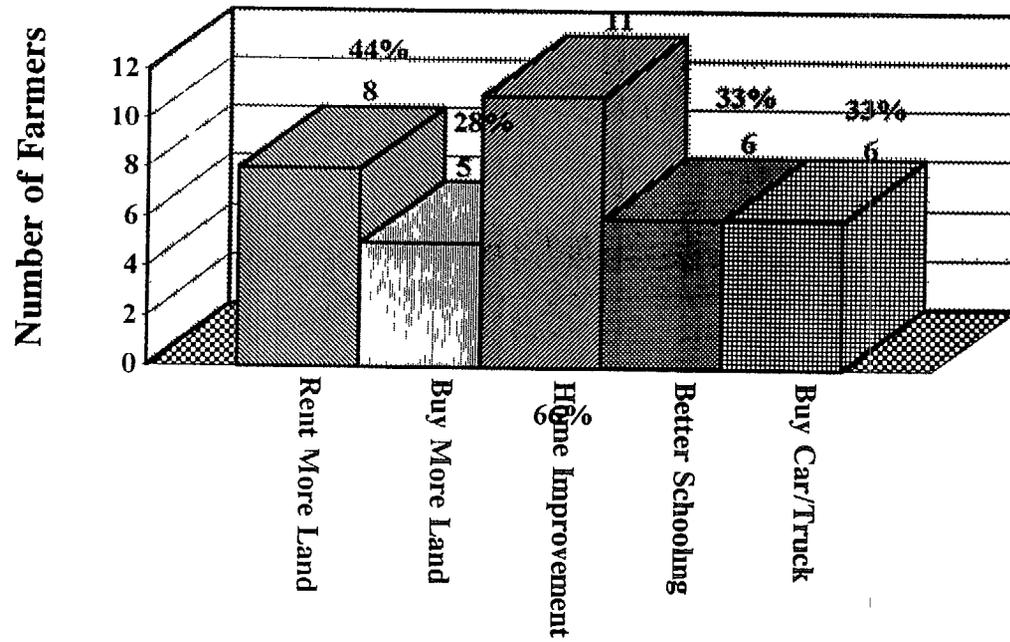
Slide 12

Sample Participants

**Impact
Changes**

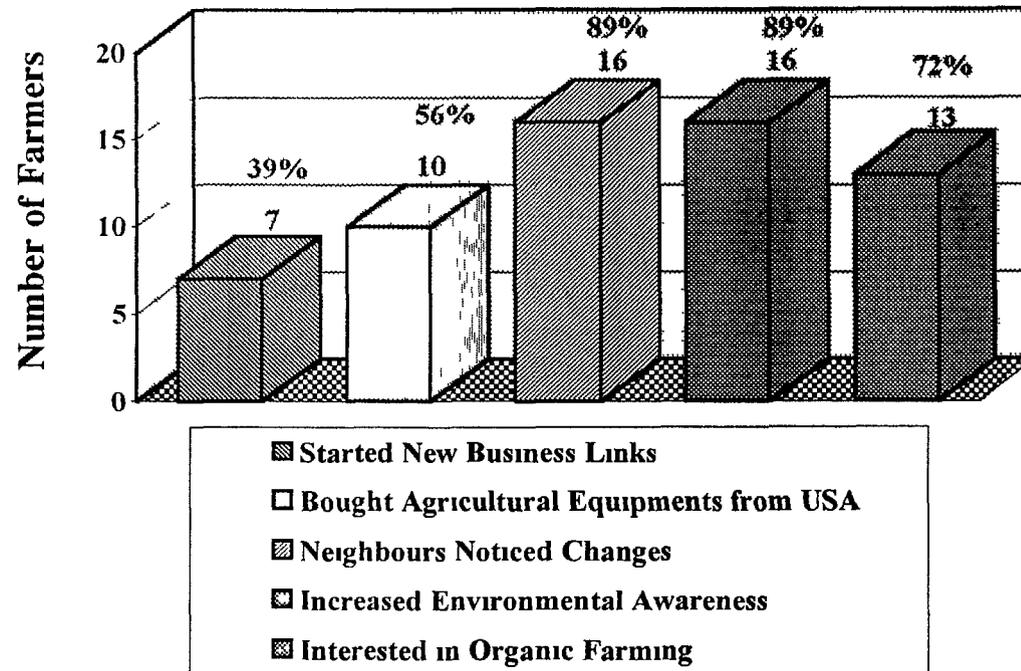
Part III

Changes at Home or on Farm by Sample Participants



Slide 13

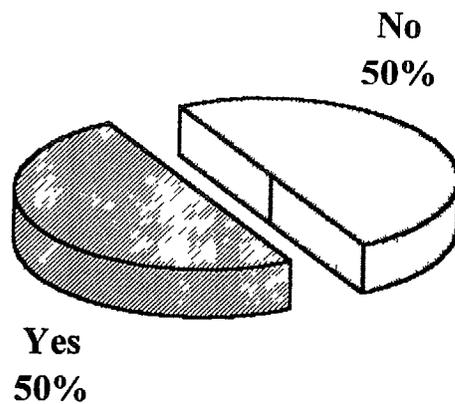
Other Benefits of FTF Program for Sample Participants



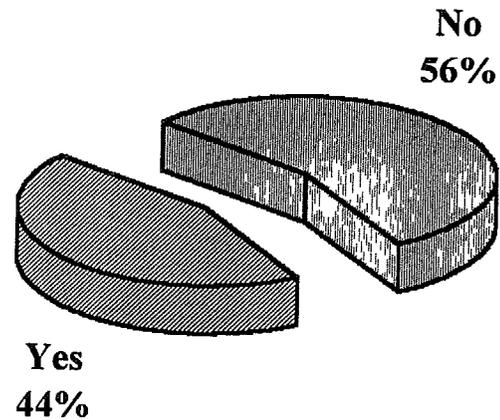
101

Sample Participants Report Changes with Participation in Community Associations

**Improved Participation
in Existing Association**



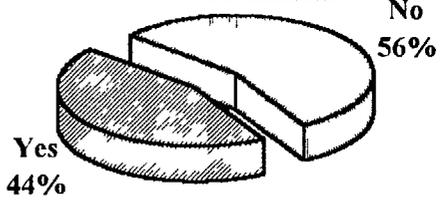
**Established
New Associations**



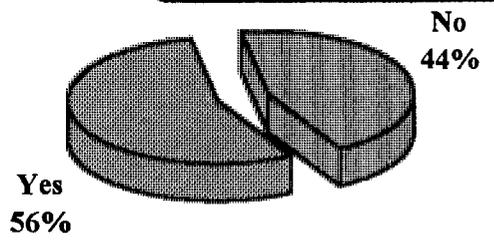
105

Sample Participants Report Input Changes

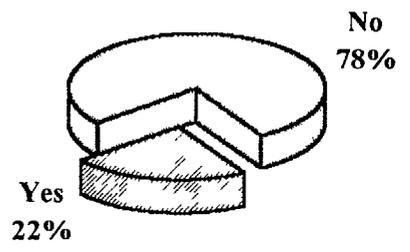
Chemical Fertilizers



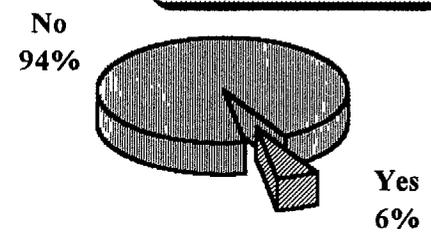
Pesticides



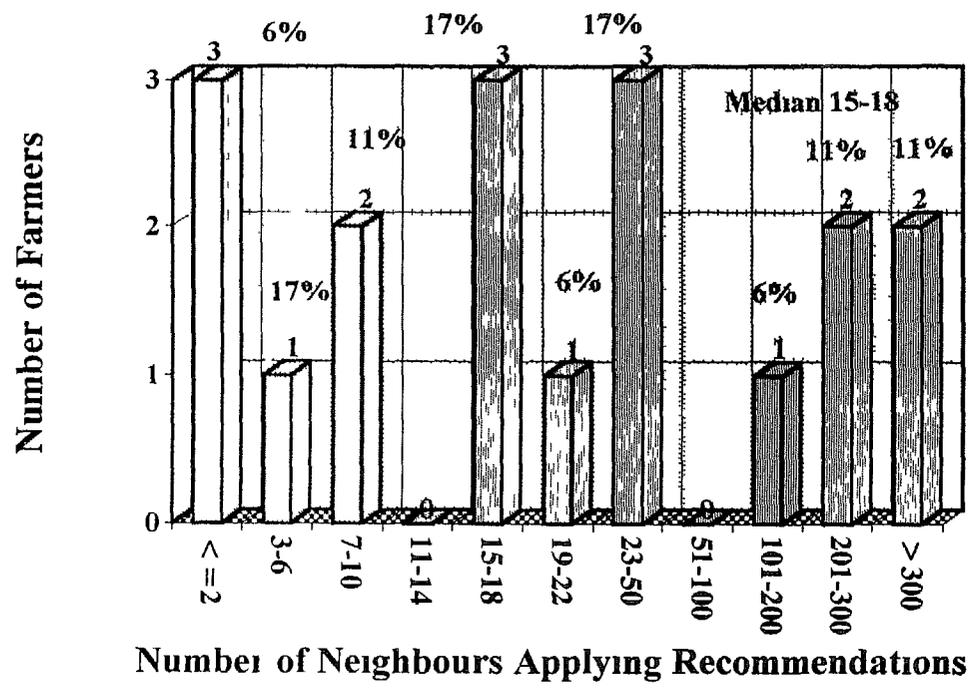
Irrigation Water



Feed

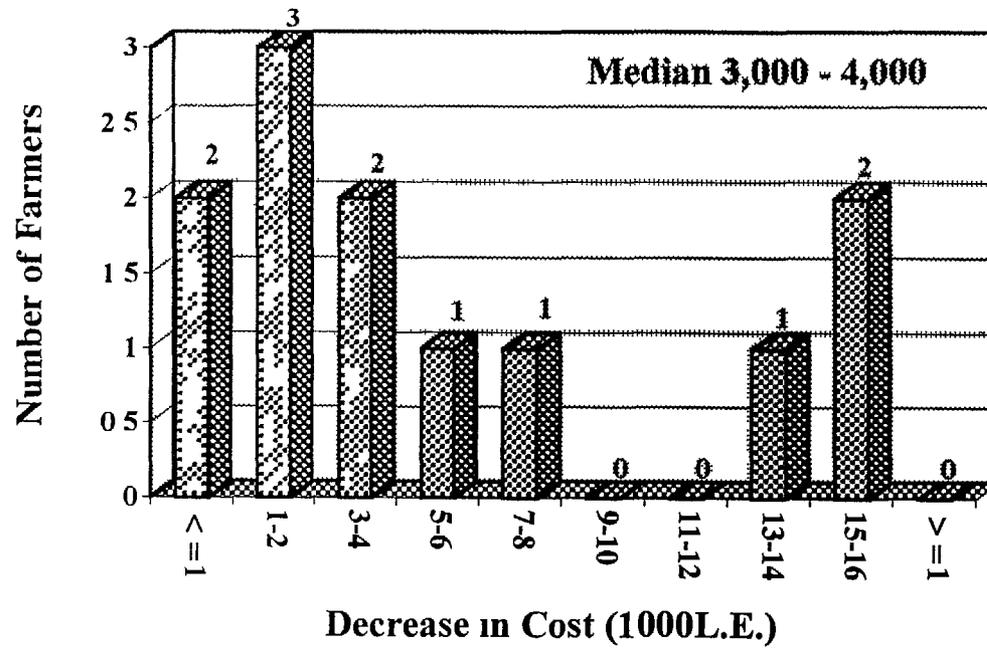


Number of Neighbours Applying Recommendations from Sample Participants



Decrease in Cost of Production

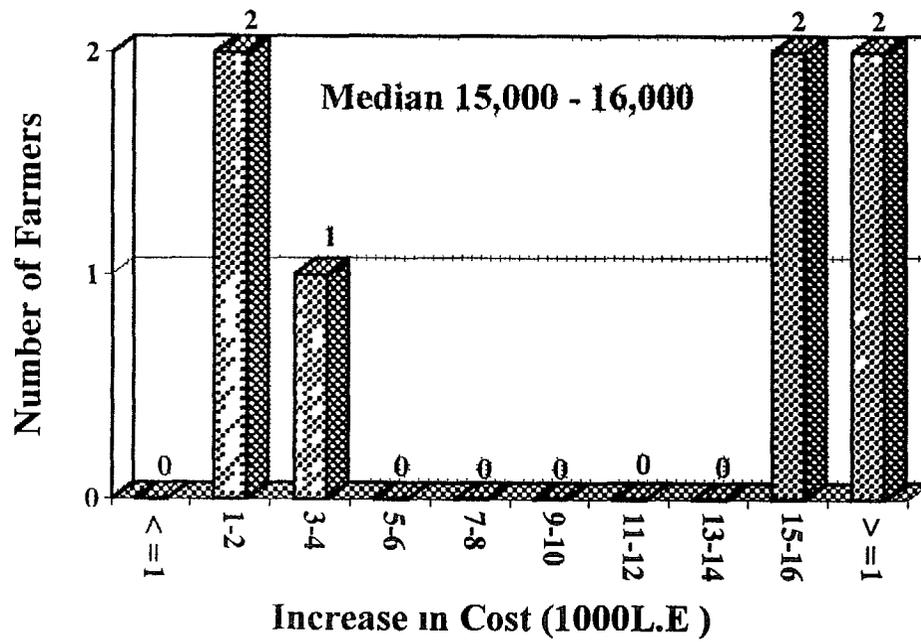
Sample Participants



108

Increase in Cost of Production

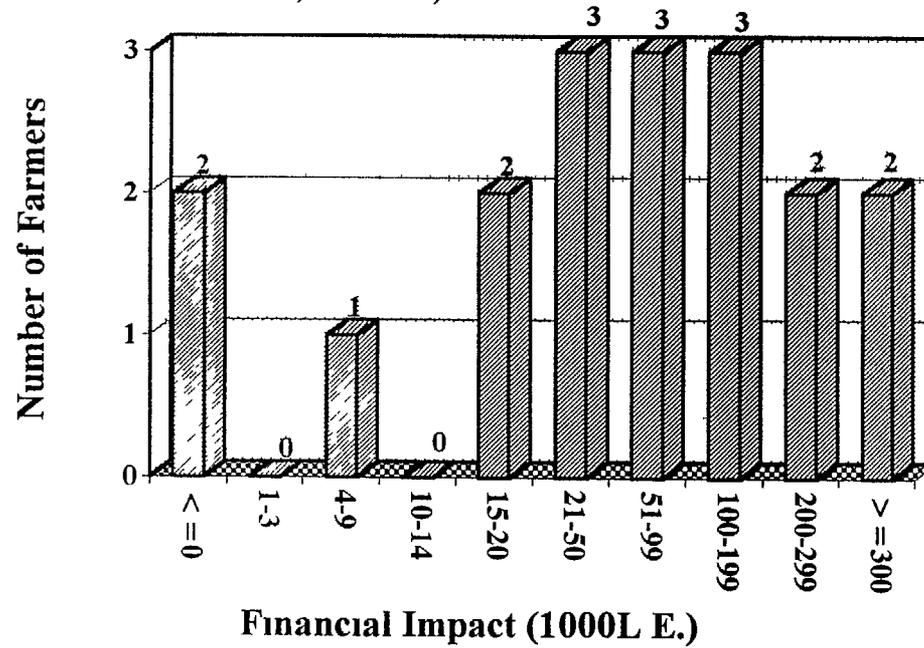
Sample Participants



Slide 19

Program Financial Impact for Sample Participants

Median 51,000 - 99,000



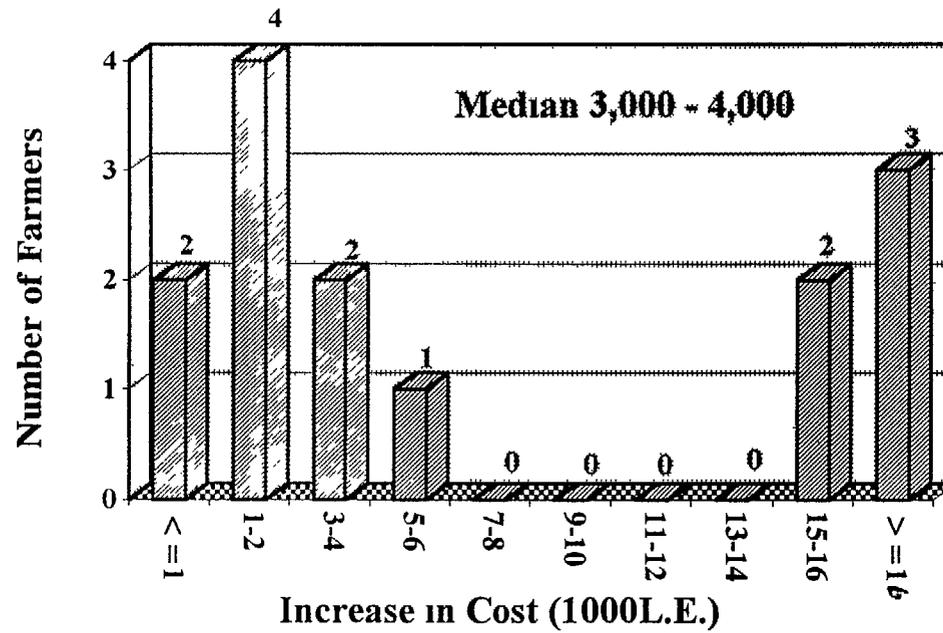


Results of the Farmer to Farmer Survey

Sample Non-Core Farmers

Increase in Cost of Production

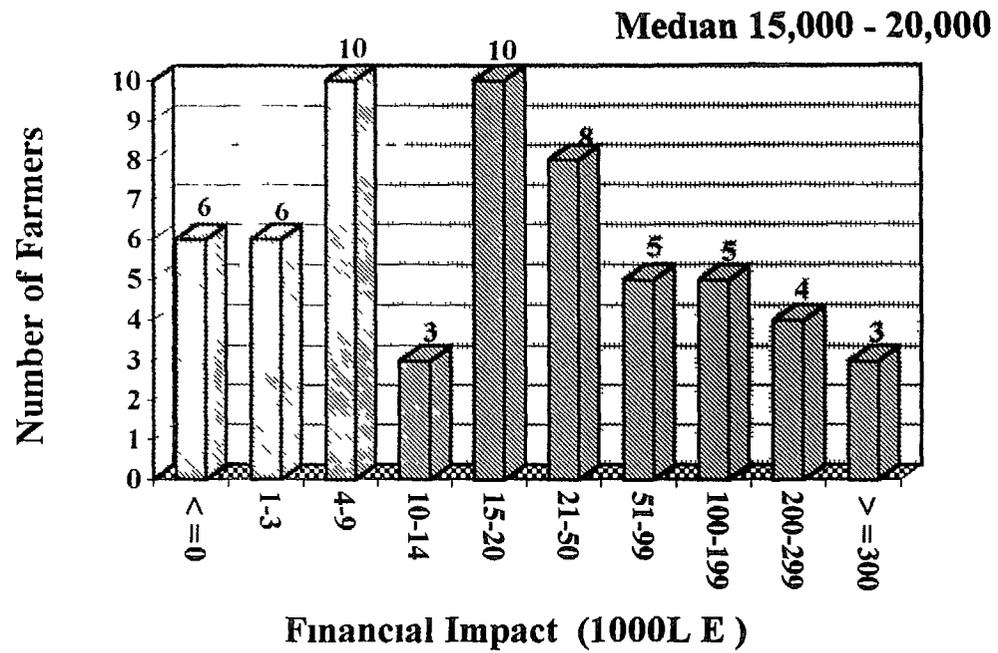
Sample Core Farmers



12

Program Financial Impact

Sample Core Farmers





Results of the Farmer to Farmer Survey

Sample Participants

114

Sample Non-Core Farmers

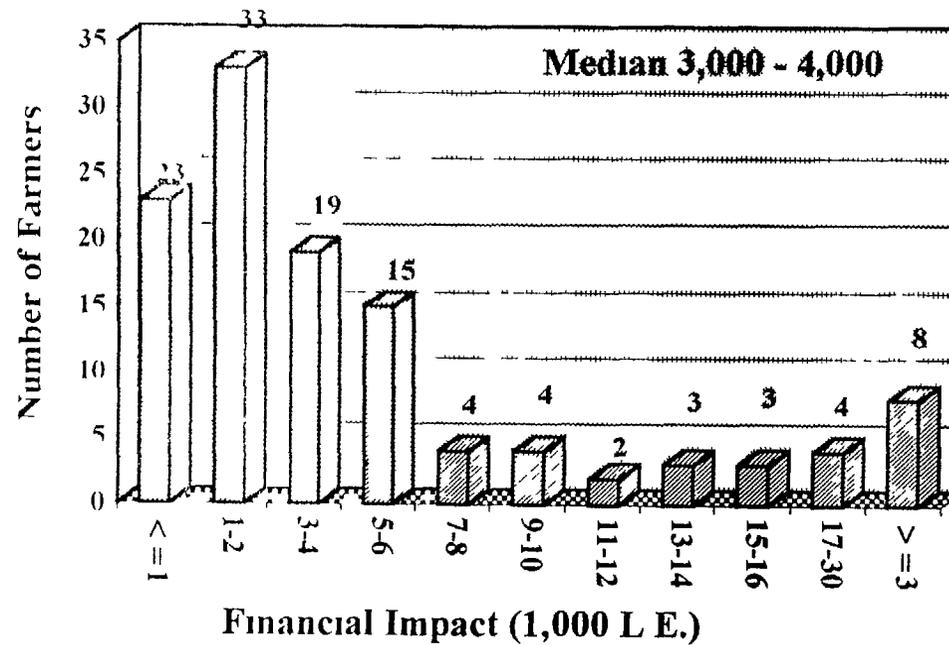
**Impact
Changes**

Part I

5/15

Program Financial Impact

Sample Non-Core Farmers



Slide 1

Appendix F

List of Persons Contacted

USAID

Blair Cooper - Agricultural Development Officer
David Delgado - Director Office of Agriculture
Rollo Ehrich - Senior Agricultural Economist
Fenton Sands - Agricultural Economist

MOA

- Mohamad Beltagv - Chief of Horticultural Department
- Gharib El Banna - General Director Horticulture Department - Cairo
- Saad Abd El Wahed El Shall - Deputy Horticulture Research Institute - Cairo
- Saber Fahim Mahmoud Moussa - Deputy Plant Protection Research Institute - Cairo
- Barsoum Bekhet Bozok - Deputy, Administration of Horticulture Welfare - Cairo
- Mohamed Abd El-Halim - ATUT, Extension Research Inst - Garlic - Cairo

- Essam Salama - Under Secretary - Fayoum
- Mohamed Abdel Hamid - Mobark Graduates Director Program - Fayoum
- Hanna Girqus - Vegetable Chief of Department - Fayoum
- Mostafa Hassan - Vegetable Extension Agent - Fayoum
- Ayman Mahmoud - Deputy of Fish Management - Fayoum
- Samir Abdulla - Extension Agent - Fayoum

- Osman Ahmed Awad - Under Secretary - Minya
- Ezzat Abd El-Mohsen - Director of Horticulture Administration - Minya
- Ahmed Kamel Easa - Extension Agent - Minya
- Farouk Tawfik - First Inspector on Vegetables, Horticulture Dept - Minya
- Kamal Kamel - First Inspector on Pomology, Horticulture Dept - Minya
- Nabil Sanious Labib - Vegetable Extension Agent - Minya

- Said Abdel Wahed - Head of Agricultural Sector - Alexandria
- Hamdi Emarah - ARC - Plant Protection - Alexandria
- Aly Morsi - Extension Agent - Alexandria
- Mohamed Feteha - Head of Extension Department - Alexandria
- Fouad Thabet El-Assal - Extension Agent for Beekeeping - Alexandria

- Ali Saber - Under Secretary - Matrouh
- Said Dabour - Extension Agent, Animal Production - Matrouh
- Samir Mohamed Omar Zayed - Director of Extension - Matrouh
- Taher Himeda Kaseh - Animal Production & Rangelands - Matrouh
- Tarek El-Said Abd Elaziz- Matrouh Fish Authority - Matrouh
- Abdallah Nafea Yakoub - Under Secretary - North Sinai
- Ismail Ouda Salama - Director of El-Shikh Zewaied District Ag Dept
- Salem Soliman Salem El Helw - Extension Agent - Rafah District
- El Sayed Yasien - Director of Rafah district Agent Dept
- Milad Stfanous - Extension Agent N S Agricultural Department
- Saleh Ghannam - N S Horticultural Department - Arish
- Aly Mohamed Saleh - ARC - Plant Pathologist, North Sinai

US ACDI Volunteers

- Philip Giovannini - Fish Specialist
- Steven Gabel - Fish Specialist
- Paulita M Mahilum - Mango Specialist
- Ben C Mahilum - Mango Specialist
- Roger Brinkman - Potato Specialist
- Leland Chnger - Potato Specialist

Matrouh Resource Management Project

- Mohamed A Allam - Director General

MIS Computer Consultant

- Mohamed El Bishbishy

FtF Staff

Cairo

- Abdel Razek Helmy - FTF Acting Project Director
- Ahmed Roushdy - VOCA Coordinator
- Ayman Refaie - Training Coordinator
- Noha El Sayed - Project Secretary
- Hami Abu Ali - Cairo Office Acting Coordinator
- Mohamed Moussa - Cairo Office Field Assistant
- Nermine Samir - MIS Data Entry

Alexandria

- Mohamed Farid - Field Coordinator
- Adham El Sherbini - Field Assistant
- Nabil Abdul Aal - Field Assistant
- Medhat El Melgie - Field Assistant
- Nasr Abdulla - Field Assistant
- Ghada Mustafa - Field Assistant
- Kamal Basta - Admn Assistant
- Hanan Abdul Salam - Secretary
- Marwa Kassem - MIS Data Entry

Ismailia

- Mohamed El Shinawy - Field Coordinator
- Mahmoud Taha El Sayed - Field Assistant
- Gehan El-Shafei - Secretary
- Abdel Basset El-Sarawy - Admn Assist
- Hamdy Attia - MIS Data Entry
- Galal Mousa - Field Assistant
- El Bayoumi Awad - Field Assistant
- Seham Zakı - Field Assistant

ACDI - Cairo

- David Davies - ACDI Vice President
- Sarah Jackson - ACDI Associate Director

FTF Central Support Service

- Mohamed El Ghouli - Administration General Support Director
- Samya A Nawar - Audit Finance Officer
- Ossama K Saafan - Accounting operations Officer
- Mohamed El Nawawy - Voucher Examiner
- Ahmed H Khedr - Voucher Examiner
- Sarwat Gaber Gerges - Administration Assistant
- Samy R Basta - Procurement

ACDI - USA

- Anne D'Angelo - Chief of Training Department

VOCA - Uganda

- Dann Griffiths - Regional Director

Appendix G

FTF IMPACT ASSESSMENT Scope of Work

Background The FtF program has been underway in Egypt since 1989. It aims to increase private sector agricultural investment, productivity, production and income by providing Egyptian farmers and extension agents with appropriate and efficient farming technologies and farm management techniques. Through a subcontract with VOCA (Volunteers in Overseas Cooperative Assistance), American farmers, researchers and extension agents are recruited to undertake four-week volunteer assignments to provide technical assistance. While in Egypt, volunteers conduct on-farm demonstrations and training sessions to disseminate information about new or alternative techniques and products. Complementing this technical assistance, ACIDI offers advanced training in the US for innovative farmers and extension agents. The month-long training programs include visits to farms, agricultural research stations, laboratories, and demonstration projects.

The FtF program is currently working with a core group of over 600 "core group" farmers and almost 12,000 non-core group farmers. As the program enters the third and final year of its current grant agreement with USAID, ACIDI is undertaking an assessment of the development impact of the program.

Objectives 1) To assess the technology transfer adoption rate, 2) to analyze the financial, social and environmental impact of the program, and 3) to recommend a system for tracking these factors in the future.

Key Questions

1 Technology Transfer Rate

Rate of Adoption of Volunteers' Recommendations by enterprise, type of recommendation (technology to be determined by consultant), number of farmers adopting the recommendations

Timeframe for Adoption How long does it take for farmers to act on volunteer's recommendations?

Number of Volunteer Visits and Rate of Adoption Do multiple visits increase the rate of adoption and are additional recommendations made?

2 Financial Benefits

These benefits include increased net income resulting from higher yields, new crops or varieties, crop or livestock management information, improved technology, value added activities, new markets, etc -- and reduced costs from better use of inputs, less labor, transportation, etc

Before and After Analysis To the extent possible, the consultant will reconstruct "baseline" data and compare this with the current status of the enterprise

With and Without Analysis Where it is appropriate (lack of financial gain because of exogenous circumstances), the consultant may do a with and without analysis to show what financial changes would have occurred without the volunteer's recommendations

Spillover effects The effects of improving the targeted enterprise may have had effects on other farm enterprises-- substitution and complementarity of capital, labor, land, technology

3 Social Benefits

Family & Quality of Life This may include changes in the role of women and children in agricultural activities-- education, health related (sanitation, nutrition, etc), work/leisure time ratio (type of work may be important)

Participation of Women Do volunteers work with both men and women? Do women adopt new techniques and information, how are their workloads affected, and have their incomes increased? Are there indicators in place that measure the effectiveness of extension and training (adoption rate), the availability of inputs, and the presence and effect of incentives for women?

Organizational Initiatives, Community Role Changes Among Farmers Establishing formal or informal groups, greater participation in agricultural related community activities, change of social role (leadership)

Attitudinal Changes Increased interest in extension information, initiative in adopting better technology and management skills

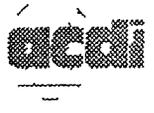
Agricultural Extension Service Increasing extension agents' skill and knowledge, improved relationships between extension agents and farmers (frequency of visits --to farmer-to agent, improved adoption of agent's recommendations)

4 **Environmental Impact Benefits**

Increased awareness of environmental factors in agricultural activities

5 **Recommendations for establishing a system to capture FTF benefits on a regular basis**

- a) Forms to be used
- b) Staff training
- c) Volunteer orientation
- d) Reporting periods



Farmer to Farmer Questionnaire

Regional Office _____ Farmer Number _____
 Name _____ Age _____ Sex _____
 Educational Level _____ Family Size _____ Income Source _____
 Date joined FtF program _____ Date Visited USA as Participant _____

1 Total land owned before project feddans, currently feddans
 Total land rented before project feddans, currently feddans

2 Main commodity area number
 Other commodity area number
 Other commodity area number

3 Have you recieved technical assistance from FtF program
 A Volunteer visits _____ B Participant training _____ C Visits of FtF staff _____
 D Visits of core farmer _____ E Training courses _____ F Internal participant training _____
 G Other government linkage _____

4 How many recommendations did you recieve _____

5 How many recommendations did you apply _____

6 What were the recommendations applied

Soil & water management	Fertilizers & micro-nutrition	Pest & weed control
Farm management	Variety selection	Post harvest/marketing
Orchard management	Bee management	Herd/cattle management
Poultry/fish management	Feed management	

7 Number of visits before using recommendations _____

8 What was the impact of the recommendation by commodity

Commodity	Yield Before	Unit	Yield After	Unit	Amount
<input type="text"/>					
<input type="text"/>					
<input type="text"/>					

9 Do recommendations reduce amount used of.
 - Chemical fertilizers - Pesticides - Irrigation water - Feed

10 Do recommendations affect the cost of production

Commodity	Increase	Decrease
<input type="text"/>	<input type="text"/> L E	<input type="text"/> L E
<input type="text"/>	<input type="text"/> L E	<input type="text"/> L E
<input type="text"/>	<input type="text"/> L E	<input type="text"/> L E

11 What has been the overall impact of the recommendation in L E

12 Did you share the recommendations with your neighbors

13 How many of your neighbors have applied these recommendations

14 Has FtF program changed participation in the community associations
 - Improved participation in existing one _____ - Established new association _____

15 Did you start any business links through your meetings with other farmers

16 Have you bought any agricultural inputs/equipments from the USA

17 Have your neighbors noticed changes (farming methods)

18 Have you made changes at home or on your farm
 - Rent Land _____ - Buy Land _____ - Home Improvement _____
 - Better Schooling _____ - Buy Car/Truck _____ - Better Nutrition _____

19 When the volunteer makes his visit does he/she work with the wife

20 Do you think that joining FtF has increased your awareness towards environmental conditions

21 Are you interested in learning about farming without chemicals (Organic Farming)

Appendix I

List of Case Studies

APPLE/PEACH

Case Study 1	Ahmed Abdel-Hamid Sayed	(A-4)
Case Study 2	Ramzy Fahmy Abdel-Malak	(A-5)
Case Study 3	Atiet Zayed Salem Salama	(I-2)
Case Study 4	Ezz El-Den Bahader	(C-5)

CITRUS

Case Study 5	Hassan Abaza	(A-13)
Case Study 6	Hatem Abdel-Hamid El-Tahan	(A-14)
Case Study 7	Mostafa Ali Iraqi	(I-23)

GRAPES

Case Study 8	Mohsen El-Beltagi	(A-9)
Case Study 9	Mahmoud El-Housseiny	(A-15)
Case Study 10	Ahmed Mahmoud Hasanien	(C-1)

FIGS

Case Study 11	Ghenewa Abdel Sadek	(A-4)
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CUCUMBER

Case Study 12	Hosni Hamza	(A-26)
Case Study 13	El-Sayed Ahmed Mohamed Awadein	(I-16)

TOMATO

Case Study 14	Kasem Saleh Tobeiz	(I-16)
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POTATO

Case Study 15	Ahmed Abdel-Rahman	(I-3)
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FISH

Case Study 16	Ibrahim Ahmed El-Sayed	(C-7)
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BEES

Case Study 17 Mohamed Amer Mohamed (C-12)

LIVESTOCK

Case Study 18 Mostafa Hashem El-Messeiry (A-1)

SHEEP

Case Study 19 Mohamed Omar Wanis (A-18)

POULTRY

Case Study 20 Mohammed A'Latif Hegazi (A-12)

IMPACT ASSESSMENT CASE STUDY

Name. AHMED ABDEL-HAMID SAYED

Characteristics: Ahmed is 43 years old and is a University graduate He is married with three children

Farm The farm consists of 17 feddans Ahmed owns 11 feddans and rents 6 feddans He has 5 feddans in apple production
Location BANGAR ELSOKAR

Commodity. APPLE

Before FtF. Ahmed was producing 1 ton of apples per feddan

Participation in FtF:

Ahmed joined the FtF program in 1993 He received ten recommendations from 1 volunteer visit The recommendations are in the following categories

- pruning
- pest control
- zinc sulphate spraying
- fertilizer application
- reducing insecticides
- farm management
- post harvest handling

Impact:

By applying the FTF recommendations Ahmed was able to increase his production from one ton per feddan to 5 tons per feddan He estimated his selling price at 625 L E per ton which provides a financial impact of 12,500 L E for his 5 feddans In addition Ahmed reduced his chemical usage by 400 L E per feddan or 2,000 L E This gives a total savings of 14 500 L E

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	1 ton	5 tons	625 L E / ton	4 tons/feddan x 625 L E /ton x 5 feddans	12,500
Input				400 L E saved per feddan x 5 feddans =	2,000
TOTAL IMPACT					14,500

Outreach

Ahmed has passed the volunteer recommendations to 20 neighbors

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IMPACT ASSESSMENT CASE STUDY

Name: RAMZY FAHMY ABDEL-MALAK

Characteristics: Ramzy is 45 years old and is a University graduate He is married with three children

Farm: The farm consists of 11 feddans He has 5 feddans in apple production
Location BANGAR ELSOKAR

Commodity: APPLE

Before FtF. Ramzy was producing 4 tons of apples per feddan

Participation in FtF.

Ramzy joined the FtF program in 1993 He received 7 recommendations from 1 volunteer visit The recommendations are as following

- prune trees
- mite control
- control mineral deficiency
- weed management
- fertilization
- farm management
- change fertilizer from ammonium sulfate to ammonium nitrate

Impact:

By applying the FTF recommendations Ramzy was able to increase his production from 4 tons per feddan to 5.5 tons per feddan He estimated his selling price at 800 L E per ton which provides a financial impact of 6000 L E for his 5 feddans In addition Ramzy reduced his chemical usage by 600 L E per feddan or 3000 L E This gives a total savings of 9000 L E

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	4 tons	5.5 tons	800 L E / ton	1.5 x 5 feddans x 800	6,000
Input				600 L E saved per feddan x 5 feddan =	3,000
TOTAL IMPACT					9,000

Outreach:

Ramzy has passed the volunteer recommendations to 20 neighbors

IMPACT ASSESSMENT CASE STUDY

Name. ATIET ZAYED SALEIM SALAMA

Characteristics: Atiet is 37 years old and is a High School graduate. He is married with four children.

Farm. The farm consists of 52 feddans with 50 feddans in peaches.
Location EL-SHEIKH ZOWYED

Commodity: PEACHES

Before FtF: Atiet was producing 2.5 tons of peaches per feddan.

Participation in FtF:

Atiet joined the FtF program in 1994. He received five recommendations from 5 volunteer visits. The recommendations fall into the following categories:

- Pruning
- apply manure every year
- moderate amounts of nitrogen, potassium, phosphorus should be applied yearly

Impact:

By applying the FtF recommendations, Atiet was able to improve the quality of his peaches. His production per feddan did not increase. He estimated his selling price increased by 2 L E per field box of 15 kilos or 332 L E per feddan (166 field boxes). This provided an increased earnings of 16,600 L E. However, there was an additional cost of 20 L E per feddan for labor (18 L E) to prune the peach trees and (2 L E) for transportation. This reduced the increased earnings by 1000 L E. The overall increased earnings are 15,600 L E.

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	2 5 tons	2 5 tons	132 80 L E /ton increase in value (quality)	2 5 tons x 132 80 L E / ton x 50 feddans	16,600
Input				(15 + 5) 20 L E increased cost per feddan x 50 feddans =	(1,000)
TOTAL IMPACT					15,600

Outreach:

Atet has passed the volunteer recommendations to four neighbors

IMPACT ASSESSMENT CASE STUDY

Name: EZZ EL-DEN BAHADER

Characteristics: Ezz is 52 years old and is a University graduate. He is married with three children.

Farm: The farm consists of 80 feddans with 30 feddans in peaches.
Location CAI-ALEX 96 KM

Commodity: PEACHES

Before FtF: Ezz was producing 1.2 tons of peaches per feddan.

Participation in FtF:

Ezz joined the FtF program in 1994. He received 4 recommendations from 1 volunteer visit. The recommendations are as follows:

- nematode control
- reduce scaffold limbs to three or four main trunks
- how to thin the fruit buds
- how to correct a zinc and iron deficiency

Impact:

By applying the FtF recommendations, Ezz was able to increase his production from 1.2 tons per feddan to 1.75 tons per feddan. He estimated his selling price at 800 L E per ton, which provides a financial impact of 13,200 L E for his 30 feddans. He incurred an additional cost of 15 L E per feddan by using more fertilizer and 5 L E by using additional water. This reduced the increased earnings by 600 L E. The overall increased earnings are 12,600 L E.

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	1 2 tons	1 75 tons	800 L E / ton	55 tons x 800 L E /ton x 30 feddans	13,200
Input				(15 + 5) 20 L E increased cost per feddan x 30 feddans	(600)
TOTAL IMPACT					12,600

Outreach:

Ezz has passed the volunteer recommendations to two neighbors

IMPACT ASSESSMENT CASE STUDY

Name HASSAN ABAZA

Characteristics: Hassan is 37 years old and is a University graduate He is married with three children

Farm. The farm consists of 80 feddans with 80 feddans in citrus
Location DAMANHOUR

Commodity CITRUS

Before FtF Hassan was producing 2.5 tons of citrus per feddan

Participation in FtF.

Hassan joined the FtF program in 1993 and went to the USA as a participant in 1994 He received 5 recommendations from 1 volunteer visit The main recommendations are as follows

- Soil & plant analysis
- Fertilizer control
- Chemical for nematode control
- Pruning
- Leaf miner control - serious 50% reduction in yield

Impact:

By applying the FtF recommendations Hassan was able to increase his production from 2.5 tons per feddan to 3.725 tons per feddan He estimated his selling price at 400 L E per ton which provides a financial impact of 39,200 L E for his 80 feddans To put the recommendations into effect, it cost Hassan 566 per feddan or 45280 L E Therefore, Hassan had an overall decreased earnings of -6080 L E

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	2 5 tons	3 725 tons	400 L E /ton	1 225 tons x 400 L E / ton x 80 feddans	32,900
Input				566 L E increased cost per feddan x 80 feddans =	45,280
TOTAL IMPACT					(6,080)

Outreach:

Hassan has passed the recommendation on to 20 neighbors

January 8 1996
A-13

IMPACT ASSESSMENT CASE STUDY

Name HATEM ABDEL HAMID EL-TAHAN

Characteristics: Hatem is 43 years old and is a University graduate He is married with five children

Farm The farm consists of 150 feddans with 70 feddans in citrus
Location KOM HAMADA

Commodity: CITRUS

Before FtF: Hatem was producing 3 tons of citrus per feddan

Participation in FtF:

Hatem joined the FtF program in 1992 and went to the USA as a participant in 1992 He received six recommendations from 2 volunteer visits The main recommendations are as follows

- remove the soil to where there are large roots and provide good drainage
- eliminate weeds from the orchard manually, it is cheaper than using weedicide and better for the environment
- pruning lightly instead of opening the middle of the trees, it is better for the wood

Impact:

By applying the FtF recommendations Hatem was able to increase his production from 3 tons per feddan to 4 tons per feddan He estimated his selling price at 500 L E per ton which provides a financial impact of 105,000 L E for his 70 feddans He received an additional savings of 100 per feddan by reducing his chemical useage or 7,000 L E The overall increased earnings are 112,000 L E

	Yield Before	Yield After	L E price/ ton	Calculation	Total L E
Output	3 tons	6 tons	500 L E /ton	3 tons x 500 L E / ton x 70 feddans	105,000
Input				100 L E savings in cost per feddan x 70 feddans =	7,000
TOTAL IMPACT					112,000

Outreach:

Hatem belongs to the El Baloulous Cooperative which has over 100 members He has passed the recommendation on to them as well as to his 15 neighbors

November 27 1995
A-14

IMPACT ASSESSMENT CASE STUDY

Name. MOSTAFA ALI IRAQI

Characteristics: Mostafa is 52 years old and can read and write He is married with five children

Farm: The farm consists of 13 feddans with 13 feddans in mango
Location FAYED

Commodity: MANGO

Before FtF Mostafa was producing 5 tons of mango per feddan

Participation in FtF:

Mostafa joined the FtF program in 1993 He received nine recommendations from 2 volunteer visits The recommendations were in the following categories

- severe pruning
- addition of micro nutrients
- pest control
- improved irrigation management
- flowering

Impact:

By applying the FtF recommendations Mostafa was able to increase his production from 5 tons per feddan to 7 tons per feddan He estimated his selling price at 500 L E per ton which provides a financial impact of 13,000 L E for his 13 feddans He received an additional savings of 75 per feddan by reducing his pesticide usage or 975 L E The overall increased earnings are 13,975 L E

	Yield Before	Yield After	LE price	Calculation	Total LE
Output	5 tons	7 tons	500 LE /ton	2 tons x 500 LE / ton x 13 feddans	13,000
Input				75 LE increased cost per feddan x 13 feddans =	975
TOTAL IMPACT					13,975

Outreach:

Mostafa passed the volunteers' recommendations on to 5 neighbors

IMPACT ASSESSMENT CASE STUDY

Name: MOHSEN EL-BELTAGUI

Characteristics Mohsen is 45 years old and a University graduate He is married with two children

Farm The farm consists of 120 feddans He has 30 feddans in grapes production
Location - EL-MAHALA

Commodity: GRAPES

Before FtF: Mohsen was producing 3 tons of grapes per feddan

Participation in FtF:

Mohsen joined the FtF program in 1992 and went to the USA as a participant in 1994 He received 5 recommendations from 1 volunteer visit. The recommendations are in the following categories

- Thinning grapes
- Spray hormones

Impact

By applying the FtF recommendations Mohsen was able to increase his production from 3 tons per feddan to 4 tons per feddan He estimated his selling price at 1000 L E per ton which provides a financial impact of 30,000 L E for his 30 feddans In addition he reduced his chemical usage by 500 L E per feddan, which reduced his financial savings by 15 000 L E Thus the overall impact for his farm was 15 000 L E

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	3 tons	4 tons	1000 L E /ton	1 ton x 1000 L E / ton x 30 feddans	30,000
Input				500 L E increased cost per feddan x 30 feddans =	(15,000)
TOTAL IMPACT					15,000

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IMPACT ASSESSMENT CASE STUDY

Name: MAHMOUD EL-HOUSSEINY

Characteristics Mahmoud is 40 years old, a university graduate, and is married with two children

Farm: The farm consists of 100 feddans with 15 feddans in grape production
Location - KOM HAMADA

Commodity GRAPES

Before FtF: Mahmoud was producing 3 tons of grapes per feddan and owned 70 feddans

Participation in FtF:

Mahmoud joined the FtF program in 1993 He received 3 recommendations from 4 volunteer visits He applied the 3 recommendations in two categories

- vine training
- deepen well for sweeter water

Impact:

By applying the FtF recommendations Mahmoud was able to increase his production from 3 tons per feddan to 5.5 tons per feddan He estimated his selling price at 1000 L E per ton which provides a financial impact of 37,500 L E for his 15 feddans In addition he reduced his chemical usage by 306.67 L E per feddan for an additional financial savings of 4,600 L E Thus the overall impact for his farm was 42,100 L E If Mahmoud did not follow the volunteers' recommendation to deepen his well, he would have lost his entire crop due to the high salt content of the water The cost of deepening the well is not included in the overall impact

Mahmoud also increased his ownership in land from 70 feddans to 100 feddans

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	3 tons	55 tons	1,000 L E /ton	25 tons x 1000 L E / ton x 15 feddans	37,500
Input				306 67 L E savings in cost per feddan x 15 feddans =	4,600
TOTAL IMPACT					42,100

Outreach:

Mahmoud has given the volunteer recommendations to 6 neighbors

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	Yield Before	Yield After	L E price	Calculation	Total L E
Output	3 tons	5 5 tons	1,000 L E /ton	2 5 tons x 1000 L E / ton x 15 feddans	37,500
Input				306 67 L E savings in cost per feddan x 15 feddans =	4,600
TOTAL IMPACT					42,100

Outreach:

Mahmoud has given the volunteer recommendations to 6 neighbors

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IMPACT ASSESSMENT CASE STUDY

Name: EL-SAYED AHMED MOHAMED AWADEIN

Characteristics: Ahmed is 32 years old and can read and write. He is married with two children.

Farm: The farm consists of 16 feddans with two feddans having 17 greenhouses.
Location: EL-MANIEF

Commodity: CUCUMBER

Before FtF: Ahmed was producing 3 tons of cucumbers per greenhouse.

Participation in FtF:

Ahmed joined the FtF program in 1993. He received one recommendation from 2 volunteer visits. He applied the following recommendation:

- soak the soil with Ridomil for root rot.

Impact:

By applying the FtF recommendation, Ahmed was able to increase his production from 3 tons per greenhouse to 4 tons per greenhouse. He estimated his selling price at 1,000 L.E. per ton, which provides a financial impact of 17,000 L.E. for his 17 greenhouses.

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	Yield Before	Yield After	L E price	Calculation	Total L E
Output	3 tons/ greenhouse	4 tons/ greenhouse	1,000 L E /ton	1 tons x 1,000 L E /ton ton x 17 greenhouses	17,000
Input					0
TOTAL IMPACT					17,000

Outreach

Ahmed has shared his recommendation with five neighbors

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IMPACT ASSESSMENT CASE STUDY

Name: EL-SAYED AHMED MOHAMED AWADEIN

Characteristics Ahmed is 32 years old and can read and write He is married with two children

Farm: The farm consists of 16 feddans with two feddans having 17 greenhouses
Location EL-MANIEF

Commodity: CUCUMBER

Before FtF: Ahmed was producing 3 tons of cucumbers per greenhouse

Participation in FtF:

Ahmed joined the FtF program in 1993 he received one recommendation from 2 volunteer visits He applied the following recommendation

- soak the soil with Ridomile for root rot.

Impact:

By applying the FtF recommendation Ahmed was able to increase his production from 3 tons per greenhouse to 4 tons per greenhouse He estimated his selling price at 1,000 L E per ton which provides a financial impact of 17,000 L E for his 17 greenhouses

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	3 tons/ greenhouse	4 tons/ greenhouse	1,000 L E./ton	1 tons x 1,000 L E /ton ton x 17 greenhouses	17,000
Input					0
TOTAL IMPACT					17,000

Outreach

Ahmed has shared his recommendation with five neighbors

IMPACT ASSESSMENT CASE STUDY

Name: KASEM SALEH TOBEIZ

Characteristics: Kasem is 41 years old, a university graduate, married with one child

Farm: The farm consists of 130 feddans with 90 feddans in tomatoes
Location EL-SALHIA EL-GEDEDA

Commodity: TOMATO

Before FtF Kasem was producing 20 tons of tomatoes per feddan

Participation in FtF:

Kasem joined the FtF program in 1993 and visited the USA as a participant in 1994 received 20 recommendations from 6 volunteer visits. He applied recommendations in the following categories

- change in his irrigation practices
- use of micro-nutrients
- soil analysis and soil improvement
- pest control
- marketing information
- crop rotation and new crops

Impact.

By applying the FtF recommendations Kassem was able to increase his production from 20 tons per feddan to 30 tons per feddan. He estimated his selling price at 500 L E per ton which provides a financial impact of 450,000 L E for his 90 feddans. In addition he reduced his chemical usage by 200 L E per feddan for an additional financial savings of 18,000 L E. Thus the overall impact for his farm was 468,000 L E

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	20 tons	30 tons	500 L E /ton	10 tons x 500 L E / ton x 90 feddans	450,000
Input				200 L E increased savings per feddan x 90 feddans =	18,000
TOTAL IMPACT					468,000

Outreach:

Kasem has given the volunteer recommendations to 15 neighbors and has established a new association

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IMPACT ASSESSMENT CASE STUDY

Name. AHMED ABD EL RAHMAN

Characteristics: Ahmed is 47 years old, a high school graduate, married with six children

Farm: The farm consists of 39 feddans with 30 feddans in potatoes
Location EL-TALL EL-KABEER

Commodity: POTATO

Before FtF: Ahmed was producing 7 tons of potatoes per feddan

Participation in FtF:

Ahmed joined the FtF program in 1993 and visited the USA as a participant in 1995. He received 10 recommendations from 4 volunteer visits. He applied recommendations in the following categories:

- planting depth
- source of seeds
- width of rows
- irrigation practices
- fertilization program
- seed sorting

Impact:

By applying the FtF recommendations Ahmed was able to increase his production from 7 tons per feddan to 11 tons per feddan. He estimated his selling price at 800 L E per ton which provides a financial impact of 96,000 L E for his 30 feddans. In addition he reduced his chemical usage by 50 L E per feddan for an additional financial savings of 1,500 L E. Thus the overall impact for his farm was 97,500 L E.

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	7 tons	11 tons	800 L E /ton	4 tons x 800 L E / ton x 30 feddans	96,000
Input				50 L E increased savings/feddan x 30 feddans =	1,500
TOTAL IMPACT					97,500

Outreach

Ahmed has given the volunteer recommendations to 250 neighbors since he is a member of an existing association

IMPACT ASSESSMENT CASE STUDY

Name: IBRAHIM AHMED EL-SAYED

Characteristics: Ibrahim is 42 years old, a university graduate, married with three children

Farm. The farm consists of 23 feddans of fish ponds
Location FAYOUM

Commodity: FISH

Before FtF Ibrahim was producing 425 kilos of fish per feddan and owned 12 feddans

Participation in FtF:

Ibrahiem joined the FtF program in 1994 He received 6 recommendations from 4 volunteer visits He applied recommendations in the following categories

- method of harvest - change net
- how to improve aeration
- how to increase the algae in the ponds

Impact:

By applying the FtF recommendations Ibrahim was able to increase his production from 425 kilos per feddan to 500 kilos per feddan He estimated his selling price at 12 L E per kilo which provides a increased financial impact of 20,700 L E for his 23 feddans However the additional cost of aeration and fertilizer for increasing the algae content cost 200 L E per feddan or 4,600 L E Thus the overall impact for his farm was 16,100 L E In addition Ibrahim has increased the size of his farm from 12 feddans to 23 feddans

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	425 kilos	500 kilos	12 L E /kilo	75 kilos x 12 L E / kilo x 23 feddans	20,700
Input				200 L E increased cost per feddan x 23 feddans =	4,600
TOTAL IMPACT					16,100

Outreach:

Ibrahim has given the volunteer recommendations to 5 neighbors and has formed a fish marketing association

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IMPACT ASSESSMENT CASE STUDY

Name: MOHAMED AMER MOHAMED

Characteristics: Mohamed is 26 years old, a high school graduate, married with three children

Farm The farm consists of 200 bee hives
Location MINYA - SAMALOUT

Commodity: BEES

Before FtF: Mohamed was producing 14 kilos of honey per hive

Participation in FtF:

Mohamed joined the FtF program in 1992. He received 14 recommendations from 6 volunteer visits. He applied the 14 recommendations as follows:

- using honey for feeding when hives are not producing
- use of Apistan for pest control
- how to feed/concentrations/amount
- reduce the number of hives in an area for better bee production
- wasp control trap
- honey extraction and settling
- hygienic behavior and control of Varroa
- purity of breed/production/size of brood
- how to raise queen bees
- changing queen and how to select the queen
- vertical stacking of hives
- how to use a grommet to tighten wire frames
- use three hives to produce royal jelly to feed one queen rearing hive
- choose proper age for larva for queen

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Impact:

By applying the FtF recommendations Mohamed was able to increase his production from 14 kilos per hive to 24 kilos per hive. He estimated his selling price at 4 L E per kilo. By multiplying 10 kilo increase times 4 L E times 200 hives the additional production equals L E 8,000. In addition to the increased honey production, Mohamed's implementation of the volunteer recommendations reduced his cost of production by 33 L E per hive or 6,600 L E. Finally Mohamed has started his own business of selling queen bees. In 1995 he has sold 7,000 queen bees at a value of 2 L E each for a total of 14,000 L E. The overall impact for his farm is 8,000 L E plus 6,600 L E plus 14,000 L E for a total of 28,600 L E.

	Yield Before	Yield After	L E price	Calculation	Total L E
Output	14 kilos/hive	24 kilos/hive	4 L E /kilo	10 kilos/hive x 4 L E /kilo x 200 hives	8,000
Input				33 L E /hive savings in cost x 30 feddans =	6,600
Income from sale of queens				7000 queens x 2 L E (1995)	14,000
TOTAL IMPACT					28,600

Outreach:

Mohamed is a member of the Minya Beekeepers Cooperative, which has a membership of 1048, operating 52,000 hives over 9 districts. The cooperative packs honey in two size jars with a variety of flavors. It was estimated that 50 % of the membership has applied the volunteer recommendations or 26,000 hives. By multiplying 26,000 hives times 35 L E (the average output per hive is 60 L E) the amount of 910,000 L E is the spread effect.

IMPACT ASSESSMENT CASE STUDY

Name: MOSTAFA HASHEM EL-MESSEIRY

Characteristics: Mostafa is 30 years old, a university graduate, married with one child

Farm: The farm consists of 6 feddans with 70 feddans rented This is a dairy operation with 120 cows
Location BANGAR EL-SOKAR

Commodity: LIVESTOCK

Before FtF: Mostafa owned 6 feddans and 25 cows

Participation in FtF

Mostafa joined the FtF program in 1991 and visited the USA as a participant in 1992 He received 7 recommendations from volunteer visits prior to 1993 He implemented recommendations in the following categories

- feed and nutrition
- ventilation
- farm management
- veterinary

Impact:

By applying the FtF recommendations Mostafa was able to increase his dairy herd from 25 cows to 120 cows and to rent 70 feddans

There are two major impacts 1) Mustafa formed a marketing association that Mostafa based on a marketing organization he visited while in the U S A

After his visit he placed a cooling tank on his farm that allows daily milk pick up for his own farm and others in the marketing association Mostafa negotiated a contract with the buyer that has increased his price from 0.50 to 0.75 L E per kilo Mostafa has improved his herd and now has Holstein cows that produce 4000 kilos per year By multiplying 4000 kilos of milk times 120 cows times 0.25 L E , the financial impact is L E 120,000

2) The second major impact resulted from the injection of urea and ammonia into straw that is then used for dairy feed. His feed cost was reduced by 3 L E per day (10 - 7 L E = 3 L E). The cost of the injection is 45 L E per 10 tons and is considered in the new feeding cost of 7 L E. By multiplying 3 L E times 365 days times 120 cows the savings is 131,400 L E.

Of lesser impact is the reduction in mortality of new born calves by one per month or 12 calves per year. The value of a calf is 100 L E times 12 calves saved or 1,200 L E. The reduction of the mortality rate was done by the construction of a small pen to place the calves into for protection.

The overall impact from the above recommendations is 120,000 L E plus 131,400 L E plus 1,200 L E which equals 252,600 L E.

	Yield Before	Yield After	L E price	Calculation	Total L E
Marketing Association			increase from 0.50 to 0.75 L E/kilo	4000 kilos/cow x 120 cows x 25 L E	120,000
Injection of straw - savings			feed cost reduced by 3 L E/day	3 L E decrease in cost/day x 365 days/yr X 120 cows	131,400
Reduction of calf mortality		mortality reduction by 12 calves/yr	100 L E /calf	12 calves x 100 L E./calf	1,200
TOTAL IMPACT					252,600

Outreach:

Mostafa has given the volunteer recommendations to 10 neighbors and has established a new association.

IMPACT ASSESSMENT CASE STUDY

Name: MOHAMED OMAR ABDEL WANIS

Characteristics: Mohamed is a 50 years old and a Bedouin sheep farmer He can read and write and has 15 children

Farm: The farm consists of 50 feddans with 300 sheep and 15 goats for domestic use
Location BARANY

Commodity: SHEEP

Before FtF: Mohamed had 300 ewes with year around breeding, a 7.5% mortality rate, parasites in sheep

Participation in FtF:

Mohamed joined the FtF program in 1994 He received 5 recommendations from 1 volunteer visit He applied the recommendations as follows

- separate the rams from the ewes to avoid summer lambing
- mark the ewes that are twinning to be retained in breeding flock
- vaccinate the herd
- avoid inbreeding
- control parasites

Impact:

By applying the FtF recommendations, Mohamed has decreased the ewes' mortality rate, started selling his lambs during the peak-price season, increased the replacement of his herd, reduced his feed costs, and obtained greater weight gain He estimates that the overall economic impact of these changes is 15,000 L E in 1995

	Before	After	Savings	Total L E
avoid summer lambing 3 mos less labor	paid for labor - 900	labor not needed	900 L E	900
5% increase in twins		8 head @ 200 L E	1,600 L E	1,600
reduction parasites lower feed cost	feed cost 30 L E /mo per head	lower feed 7 L E /mo for 3 mos x 300	6,300 L E	6,300
reduction mortality rate	300 head @ 7.5% loss = 22.5 head	300 head @ 4% loss = 12 head	10 head saved @ 200 per head	2,000
avoid summer lambing - 3 mos in pasture for 70 head to be sold	feeding in pens - feed cost 0.80 L E /day x 25 days x 70 head x 3 mos = 4,200	feeding in pasture no cost	4,200 L E	4,200
TOTAL IMPACT				15,000

Outreach:

Given the tendency of Egyptian farmers -- and particularly Bedouin farmers -- to share information about new techniques and developments, the FtF recommendations are expected to spread throughout the Matrouh governorate, where there are more than 800,000 sheep. Mohamed estimates that he has conveyed the new information he received from FtF to approximately 300 other herders in his community and 600 in neighboring communities, leading to estimates of additional benefits equivalent to at least LE 2.2 million L E (900 families divided by 2 = 450 families, 15,000 L E x 33% = 4,950 L E, 450 families x 4,950 L E = 2.2 million L E)

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IMPACT ASSESSMENT CASE STUDY

Name: MOHAMED A'LATIF HEGAZI

Characteristics: A 32 year old owner of a poultry hatchery

Farm: His operation consists of 140 feddans with 8 poultry houses Mohamed rents an additional 20 houses The breeding stock is purchased from Europe and the baby chicks are sold in Egypt He has 60,000 hens in continuous production
Location TANTA

Commodity: POULTRY (BABY CHICKS)

Before FtF: Normally a laying hen produces 150 hatching eggs during the 40 week lay period Mohamed was selling 37 of these eggs per hen to the fresh market based on criteria of size and weight rather than hatching them into baby chicks This represents a 25% loss of salable chicks

Participation in FtF.

He joined the FtF program in 1993 and visited the USA as a participant in 1994 The recommendations from the FtF program (volunteers and US trip) are as follows

- reduction of the amino acid content in the feed
- maintain the hours of light for the chicks to be used as layers the same as for the laying hens (e g in June there are 15 hours of natural light, all layers are free range)
- weighing of layers to adjust the feed amount
- rotate hatch rooms for cleaning and sanitation
- testing for diseases
- feeding at 4am during the hot summer months
- light in winter
- control of merk disease by vaccination

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Impact:

Mohamed's main benefit from the recommendations is an increase in the number of baby chicks sold to the market place

By applying the FtF recommendations Mohamed was able to reduce the number of eggs sold to the fresh market from 37 to 7 eggs per layer or 5%. In other words, he increased the number of salable chicks per laying hen by 30 (37 - 7 = 30). Since his net profit per chick is LE 0.75 this increased his income of LE 22.50 per laying hen. That figure must be reduced by the lost income from the sale of 30 eggs on the fresh market, which he calculated as LE 3.00. The net increase to Mohamed for 1995 is thus LE 19.50 per layer per year, which multiplied by the total number of layers he has in continuous production yields a net impact of LE 1,170,000.

Before	150 eggs
-	less <u>37 eggs</u> sold to fresh egg market
	113 to be sold as baby chicks
<hr/>	
After	150 eggs
-	less <u>7 eggs</u> sold to fresh egg market
	143 to be sold as baby chicks
<hr/>	
Increased Income	30 hatching eggs @ 75 = 22.50
	<u>less value if sold as fresh eggs 3.00</u>
	net income per layer 19.50
	60,000 layers @ 19.50 = 1,170,000 L E

Outreach

The 87 customers for Mohamed's 8.6 million baby chicks receive additional benefits

- They receive disease-free birds,
- They have access to information on how to feed their hens/layers,
- They can purchase the feed from Mohamed,
- They can use the facilities of the in-house lab for the testing of disease problems in their flock, and
- They can visit Mohamed's operation to observe his effective and professional poultry management program

Quotation:

When I visited the poultry farms in the USA during my trip as a participant "it came alive for me, and I really understood what I needed to do when I returned to Egypt"

February 15 1996
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