EGYPTIAN AGRICULTURAL MECHANIZATION PROJECT

Contract Number 263-0031-HHC-01

ACTIVITY REPORT NUMBER 7

1 October 1982 - 31 December 1982

Submitted by
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1.0 SUMMARY

The Extension and Training programs have blossomed: 1194 farmers participated in 82 cotton stalk cutting and grain drilling demonstrations and 1685 people, mostly farmers, participated in 119 training programs; the extension unit also cooperated with the Major Cereals project by seeding approximatelly 100 feddans of wheat. In addition, the information unit developed a cotton stalk cutting program for Egyptian national television.

A dramatic change has occurred with the Service Center/Village Workshop subproject (table 1.1) : one service center and four village workshop loans totaling LE 308,000 were bank-approved, and the total loan activity reached LE 2.1 million, a 43 percent increase over the last reporting period. A major implementation problem involves moving these loans through the banks.

Other highlights of subproject activities briefly were:

1. Planning and Evaluation: Completed farm management data collection and started collation on the 1981-82 winter crop started. Prepared a preliminary analysis of three cotton stalk methods -- manual, double-sickle mower, and single-sickle mower. Both financial and economic costs favored the double-sickle mower (section 2.2.1.). Completed the 1983-84 evaluation workplan, which emphasizes impact of mechanization both within and outside of the project as well as evaluation of internal project activities. Restructured village studies progran: nine of the 23 villages will receive intensive study; and selected seven control villages.

2. Research and Development: Received the first set of research prototype equipment that was on order for more than a year. This set included primary and secondary tillage tools, planters and cultivators. Tillage research will be conducted on three soil classes: heavy clay, medium clay, and desert soils. Prepared testing procedures for primary and secondary tillage tools, potato and root crop digging, and maize shelling.

3. Local Manufacturing Program: Continued the all-crop thresher development with tests in the rice crop: tests of short durations developed a theoretical input capacity of three tons per hour for the total crop material.

Table 1.1. Service Center and Village Workshops loans in-process at Governate banks and within the Project as of 31 December, 1982.

Participant	Location	Loan Value (LE)
A. Bank loans approved:		
1. Service Center		
a. Moshen Azmy	Beni Mazar, Minia	250,000
2. Village Workshops		
a. Four loans		58,000
3. Total loans approved		308,000
B. Loans in-process at governate banks:		
1. Service Center		
a. Shaity Co	Tanta, Sharkia	240,000
b. Hammami	Abou Hommos, Beheira	185,000
c. Mahmoudia Motors	Mahmoudia, Beheira	200,000
d. M. Ali Alla	Kafr Zied, Sharkia	100,000
e. M.Kamal Deen El Robat	Benha, Qaliubia	95,000
		820,000
2. Village Workshops		
a. Seven loans		140,000
3. Total in-process at governate bank		960,000
C. Loans in-process at Project level		
1. Service Center		
a. Egypt Trac	Qaluib, Qaliubia	250,000
b. Diabex	Aga, Dakhlia	250,000
c. Shukry	Nasr, Kafr El Sheik	250,000
		750,000
2. Village Workshop		
a. Tour loans		100,000
3. Total in-process at Project level		850,000

Table 1.1 (Continued)

D. Active loan summary	Service Center	Village Workshop
1. Bank aproved	250,000	58,000
2. Bank in-process	820,000	140,000
3. Project in-process	750,000	100,000
	1,820,000	298,000
4. Grand Total	2,118,000	

4. Land Improvement Subproject:

Finished Working Paper No.4, "Basin Survey of Minia Governate". The results indicated 77 percent of the surveyed area (a questionaire survey) requires some form of land improvement: landleveling, subsoiling, and gypsum application. Completed topographical surveys in demonstration basins Abou Asker and El Beek in Minia.

Thirty-six percent (US$ 14,574,063) of the $ 40 million United States contribution has moved into the pipeline and expended category (table 3.1, section 3), which represents on increase of $ 1.2 million over the last reporting period. This means that funds are : 1) being processed by USAID and/or MOA, 2) in bank accounts and directly available to the project, and (3) physically dispersed.

The Contractors technical input totaled 262 man- monthes compared to an estimated 276.5 man-months in the Inception Report. This includes the new position of senior accounting advisor. The shortfall of 14.5 man-months represents the unfilled extension advisors position and late starting dates, as compared to the Inception Report. But this shortfall is still recoverable over the life of the Project.

Several implementation issues remain to be resolved:

1. Movement of service center applicants through the PBDAC so that service center and village workshop facilities can be started.
2. Legal approval of research contracts so the Applied Research Fund can be implemented.
3. Award notification to the successful bidders for the Land Improvement IFB.
4. Land Improvement support has not been forth coming from the SAO.
5. Farm management collation and programming is falling behind schedule.

2.0 PROJECT ACCOMPLISHMENTS

2.1 Overall Accomplishments

1. Activated the Senior Accounting Advisor's position during this period effective 1 November,
2. Dispersed the first funds from the Service Center Fund.
3. Made substantial progress in starting the movement of local currency expenditures: Local currency expenditures increased 78% from 3.0 million dollars to 5.35 million.
4. Expended eighty percent of the first tranch of the Waterlifting Fund and requested the second tranch.
5. Received final approval for the extension advisor's position so that this position will commence this next reporting period.
6. Assisted Major Cereals Project by planting approximately 100 feddans.

2.2 Planning and Evaluation Subproject

2.2.1 Economic and Financial Planning

1. Initiated Waterlifting Fund in all 23 project villages. Two-hundred seventy-eight units of the following sizes have been sold as of December 31,1982:

HP Class	Pump Units
5	178
6	33
7.5	22
8	9
10.5	10
11	26
	278

2. Completed a preliminary analysis of cotton stalk cutting methods based upon the farm management study and extension data. The comparison was between manual cutting and two types of mowers, a double sickle mower and a single sickle mower. The results were as follows:

Method	Financial Cost/Fed (LE)	Economic Cost/Fed (LE)	Financial IRR	Economic IRR
1. Manual	14.73	14.73	-	-
2. Double-sickle mower	5.77	11.01	107.49	43.45
3. Single-sickle mower	6.89	13.68	91.0	3.99

Both the financial and economic costs favored the double sickle mower (see annex B).

3. Prepared working Paper No. 5, " A Methodology for Evaluating Economic and Financial Costs of Tract. Operations in the Arab Republic of Egypt", which is submitted with th' quarterly activity report as an addendum. This model calculates economic and financial costs per hour of operation, and per horsepower hour. In addition, it evalvates both economic and financial costs per feddan for partial and maximum power load conditions.

- Established an accounting system for all US AID financed local currency transactions and a property control system that is compatible with Ministry of Agriculture procedures.
- Approved by US AID new loan limits for the service center subproject : LE 250,000 for service centers and LE 50,000 for village workshops,
- Finished the data collection phase of the farm management study December 31,1982 for the project areas in Beheira, Gharbia, Sharkia, and Qalubia.

2.2.2. Evaluation Subunit

Completed the evaluation workplan for the coming year. The emphasis is upon : (1) impact of mechanization resulting from Project activities, as well as activities outside of the Project, and (2) evaluation of internal Project activities. See annex C of this report for the details of the workplan.

Restructured the village studies program: nine of the 23 Project villages will be chosen for intensive study and will reflect the full range of the character istics of the 23 villages.

Selected seven control villages as means of monitoring project impact and separating the impact from nonproject factors. These villages were chosen from the nonproject villages in area mechanization survey, " The State of

Agricultural Mechanization in Egypt, Results of a Survey: 1982".

4. Assisted the Land Improvement subproject to select demonstration basins in Minia: Land holders, and the size of their holdings, were identified in each of four basins; preliminary discussions were held with farmers to gauge their interest and respectivity to this program.

5. Disseminated for comments.The first draft of Working Paper Number 6, " Project Village Profiles",

6. Proposed a research design for investigating the socioeconomic organization of the Minia demonstration basins(annex D),

2.3 MACHINERY MANAGEMENT EXTENSION/TRAINING SUBPROJECT

1. Reorganized the Machinery Management Extension/training subproject as in figure 2.1.

2. Solved the critical transportation problem with the arrival of seven suburbans and their assignment to this program.

3. Employed Mr Mathew Peart, an equipment specialist from Ohio State University for this program as a three month TDY concentrating on grain drill and cotton stalk mower demonstrations and the maintenance and repair of these equipment.

2.3.1. Extension subunit

1. Completed training of the Mechanization specialists for Project areas in Qalubia, Sharkia, and Minia program at Sakha Training Center.

2. Presented extension workplans for the coming year by the Mechanization specialists from Project areas in Beheira and Gharbia.

3. Conducted 47 field demonstrations cutting cotton stalks with silage mowers, which in volved an estimated 200 feddans for 64 farmers with a total of 707 farmer participants.

4. Conducted 35 field demonstrations planting wheat with grain drills, which involved an estimated 326 feddans for 541 farmers and 487 farmer participants.

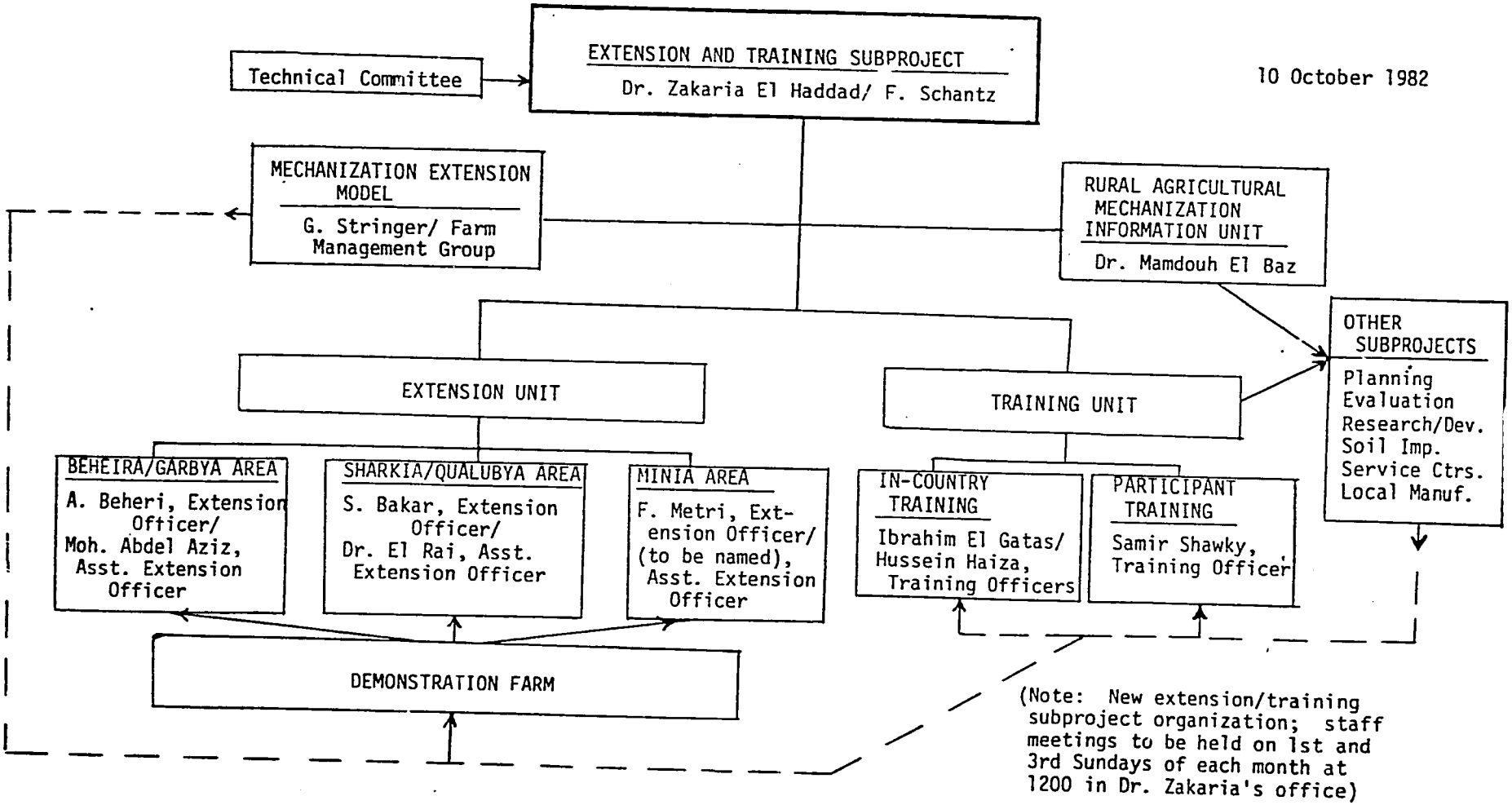


Figure 2.1.

ORGANIZATION CHART OF THE
MACHINERY MANAGEMENT EXTENSION AND TRAINING SUBPROJECT

5. Delivered demonstration equipment for ten Beheira and Gharbia Project villages: 10 grain drills, 10 landshapers, and 10 ridgers.

6. Prepared additional demonstration/training equipment specifications involving 21 items and 236 pieces of equipment (See Annex A, Extension/Training December report).

7. Seeded approximately 100 feddans of wheat the MOA/USAID Major Cereals project.

8. Formed a new Demonstration/Training unit at Gabal Asfar: This unit will develop a fully mechanized farming system on 250 feddans for Training and Demonstration purposes.

2.3.2. Rural Agricultural Information Unit

The highlights of the Rural Agricultural Information Units are reviewed in this report : Since the unit's inception in June, the following was accomplished:

1. Prepared and distributed information posters:

   a) Long furrow irrigation - 5000 copies
   b) Replacement of sakias with water pumps - 5000 copies.

2. Prepared Bulletins and folders:

   a) Long furrow irrigation - 20,000
   b) Sakia replacement by water pumps - 20,000
   c) Use of audio visual aids by extension personnel
   d) Tractor maintenance - 50,000
   e) Project loan progran - 20,000

3. Developed National Television Programs:

   a) Mechanized rice transplanting - 2 June 1983
   b) Tracotr maintenance -- 14 June 1983
   c) Long furrow irrigation -- 9 August 1983
   d) Waterpumps -- 19 August 1983
   e) Mechanized harvesting and threshing of rice -- 12 September 1983
   f) Cotton stalk cutting -- 12 October

4. Broadcast Extension information weekly over the national radio.

5. Developed video tapes in addition to the national television programs:

   a) Waterpumps electrification
   b) Mechanized cultivation of potatoes
   c) Seedbed preparation and wheat drilling

6. Collected fifteen hundred slides.

2.3.3. Training Unit

1. Offered 39 programs on a monthly basis, which varied from daily sessions to three months.

2. Conducted 119 training programs involving 1685 participants:

Prugram Location	Monthly Program	Parcticipants
a) Training Center	28	115
b) Project Villages	85	1334
c) American University	6	31
	119	1685

3. Screened 65 candidates from the MOA for English language testing for the participant training program.

4. Instituted Waterlifting short courses to sup-port the Waterlifting Fund.

5. Trained fifty - five key farmers in a new course, Mechanized Agriculture: Theory and Practice, at the Sidi Bishr Training Center.

6. Developed ten observational study tours

2.4 Research and Development

1. Received and assembled the first set of research prototype equipment. This included the major primary and secondary tillage, planting, and cultivating equipment. The purpose will be to conduct research tests with this equipment on three soil classes: heavy clay, medium clay, and desert soils. From this work, recommended equipment types and suggested design can be made.

2. Reviewed and assembled RAU research prototype equipment to supplement the above equipment.

3. Assisted Dr Arabi in designing and conducting the first series of tractor soil compaction tests under tractor in the Damanhour area.

4. Prepared testing procedures for :
   a) Primary tillage tests
   b) Secondary tillage tests
   c) Potato digging tests
   d) Maize shelling tests

2.5. Local Manufacturing Program

1. Continued development of the all-crop thresher. Development high-lights were:
   a) Main drive capacity increased.
   b) Designed, fabricated, and tested a flywheel.
   c) Designed and tested air direction baffles under the sieves.
   d) Recutter development started.
   e) Rebalanced the 53^{O} helix cylinder.
2. Tested thresher in the rice crop: Short runs developed a theoretical input capacity of three tons per hour for the total crop material.
3. Prepared a seminar for the training/extension workshop at Sakha.
4. Updated training program (see annex F).

2.6 Land Improvement Subproject

1. Acquired four tractors for the landleveling demonstration unit; implementation waiting for laser equipment arrival.
2. Completed first draft of Land Improvement Technical Paper Number 4, "Results of an operation analysis of laser controled landleveling operations at Baltime." This paper deals with the volume of earth moved, time required and precision resulting from using laser controlled landleveling equipment.

3. Finished Project Working Paper No.4, " Basin Survey of Minia Governorate." The results indicated:
   a) The median basin size is 70 feddans,
   b) Seventy-seven percent of the surveyed area requires some from of land improvement: landleveling, subsoiling, and gypsum application.
   c) Twenty-five percent of this area requires landleveling (subjective analysis).
4. Completed topographical surveys in Abou Asker and El Beek basins in Minia.
5. Research Activities:
   a) Implemented soil compaction study, in association with R&D subproject,
   b) Started drainage experiments dealing with subsurface and surface drains,

2.7 Service Center/Village Workshop Subproject

At this time in this program, comparing with the previous quarter's monetary volume and number of participants probably best summarizes the activities of this subproject (table 2.1):

1. Loan activity of active applicants in various stages of development increased 43 percent from LE 1,481,000 to LE 2,118,000. This is approximately one-half of the Service Center Fund.
2. The first service center and village workshop loans have been approved by several banks totalling LE 308,000.
3. Loans at the banks increased 102% from LE 476,000 to LE 690,000
4. Loans in-process at the Project level decreased 15% from LE 1,005,000 to LE 850,000. This reflects the emphasis during this reporting period upon moving applicants into the banks.

Table 2.1 Change in Service Center/Village Workshop Loan Status Comparing Current Quarter with Previous Quarter.

Status	Current Quarter		Previous Quarter		Change	
	No.	L.E.	No.	L.E.	No.	L.E.
1. Bank Approved						
a. Service Center	1	250,000	- o -		+1	+250,000
b. Village Workshop	4	58,000	- o -		+4	+ 58,000
c. Total	5	308,000	- o -		+5	+308,000
2. Bank In-process						
a. Service Center	5	820,000	2	450,000	+3	+370,000
b. Village Workshop	7	140,000	2	26,000	+5	+114,000
c. Total		960,000	4	476,000	+8	+484,000
						102 %
3. Project In-process						
a. Service Center	3	750,000	4	925,000	-1	-175,000
b. Village Workshop	4	100,000	5	80,000	-1	+ 20,000
c. Total		850,000	9	1,005,000	-1	-155,000
						15 %
4. Summary						
a. Service Center	9	1,820,000	6	1,375,000	+3	+445,000
b. Village Workshop	15	289,000	7	106,000	+8	+192,000
c. Total	24	2,118,000	13	1,481,000	+11	+637,000
						43 %

3.0 FINANCIAL AND TECHNICAL LEVEL OF EFFORT

3.1 Financial Level of Effort : USAID Funds

Table 3.1 summarizes the financial level of effort through December 31,1 82. The categories of money flows are defined as follows:

1. Grant agreement (Columnl) : USAID obligated funding established by the Grant Agreement with the Government of Egypt.
2. USAID subobligated funds (column 2): Funds that have been sub-obligated through Project Implementation Letters and are available to the project following appropriate administrative procedures.
3. Expenditures and / or funds in process (column 3) : Funds requested and in process from USAID or MOA representing, for example, specific expenditures, cash needs advances, or credit fund advances.
4. Fund available balance (column 4): Funds directly available to the project.
5. Funds expended (column 5); Funds physically expended by the project.
6. Pipeline and expended funds (column 6); The total of columns 3,4, and 5, where columns 3 and 4 represent pipeline funds.

On an overall basis, 36 percent of the total Grant Agreement either is in the pipeline or has been expended. However, on the basis of funding that USAID has currently obligated (US $ 33.5 million, column 2), 43 percent of the monies fall into the pipeline and expended category. The major change has been in the local currency expenditure category, which increased from US$ 694,879 to US.$ 2,661.170 during this period.

3.2 Technical Level of Effort

Table 3.2 summarizes the technical level of effort. During this reporting a new position was added -- that of Senior Accounting Advisor. The total technical level of effort was 261 man-months. This leaves a deficiency of 14.5 man-months reflecting a time lag in two positions: 7.0 man-months for the Soil Improvement irrigation engineer and 5.4 man-months for the extension advisor. This shortfall is recoverable over the life of the Project.

Table 3.1: Financial Level of Effort:Foreign Currency and Local Currency from September 15 1980 through December 1982

	(1) Grant Agreement	(2) USAID Obligation	(3) Expenditures Funds in process	(4) Funds Available Balance	(5) Funds Expended	(6) Pipeline and Expended funds (col 3+4+5)
Foreign Currency						
1. Technical Assist.	6,424,000	5,955.618	-	3,844,948	2,110,670	5,955,618
2. Commodities	9,133,000	9,133,000	1,500,000	-	385,336	1,885,336
3. Training	2,023,000	674,350	-	-	8,900	8,900
4. Research Support	1,005,000	1,005,000	-	-	185,891	185,891
5. Special Stud.$Eval.	215,000	215,000	-	-	-	-
6. Total	18,800,000	16,982,968	1,500,000	3,844,948	2,690,797	8,035,745
Local Currency(US$ Equivalent						
1. Technical Assist	3,302,000	1,665,280	-	995,211	670,069[1)]	1,665,280
2. Commodities	2,000,000	2,000,000	-	-	1,322,562[2)]	1,322,562
3. Training	1,000,000	1,000,000	-	43,458	196,105	239,563
4. Veh.Operating Exp.	100,000	100,000	20,290	-	-	20,290
5. Facilities	70,000	70,000	-	-	-	-
6. Credit Funds(13 mil.)						
a.Service Center	5,000,000	5,000,000	-	1,433,869	66,131	1,500,000
b.Waterlifting	2,000,000	2,000,000	-	93,697	406,303	500,000
c.Machine Intr.	2,000,000	2,000,000	-	1,000,000	-	1,000,000
d.Uncommitted	4,000,000	-	-	-	-	-
7. Research Support	2,000,000	2,000,000	-	271,872	-	271,872
8. Special Stud.&Eval.	728,000	728,000	-	18,751	-	18,751
9. Special Studies &	21,200,000	16,565,280	20,290	3,856,858	2,661,170 12.6%	6,538,318 31%
Overall	40,000,000	33,548,248	1,520,290	7,701,806	5,351,967 13.4%	14,574,063 36%

(1) Through Oct. 31,1982
(2) Through Jan 31,1983

TABLE 3.2: Level of Effort: Technical Staff, from Sept 15, 1980 through December 31, 1982, in man months

Position	Starting Date Day/Mo/Yr	Actual Effort	Anticipated Effort(1)
1. Team Leader	4/10/80	26.9	27.0
2. Planning/Evaluation Advisor	15/9 /80	27.5	27.5
3. Research Director	3/11/80	25.9	26.0
4. Evaluation Advisor	7/12/80	24.8	25.0
5. Extension Advisor	12/1 /81	17.6	23.0
6. Farm Management Advisor	15/4 /81	20.5	20.0
7. Service Center Director	9/4 /81	20.7	20.0
8. Equipment Repair Advisor	3/6/ 81	19.8	20.0
9. Soil Improvement Director	13/7/ 81	17.6	18.0
10 Training Advisor	9/9/ 81	15.7	17.0
11 Machinery Development Advisor	5/1 /82	11.8	12.0
12 LOcal Manufacturing Advisor	3/2 /82	10.9	12.0
13 Soil Improvement Irrigation Eng	1/4 /82	9.0	16.0
14 Senior Accounting Advisor	1/11/82	2.0	2.0
15 Short Term Technical Assistance		11.3	11.0
	—	262.0	276.5

NOTE:

(1) As reflected in the Inception Report, p.52

4.0 IMPLEMENTATION

4.1 Workplan implementation schedule

4.1.1. Planning and Evaluation Subproject

The farm management field team completed the data collection during this period, and data collation started for the 81-82 winter crop. Due to the limited staff, data collation and analysis will take longer than anticipated in the Inception Report. Consequently, the initial data analysis will proceed on a crop by crop basis, which will permit short, interim reports. The village studies program has been restructured, as reflected in the evaluation workplan (annex B of this report). The labor analysis is behind schedule.

4.1.2. Research and Development Subproject

Now that tillage research prototype equipment has arrived, implementation will start next quarter, but the program is a year behind schedule. Applied research contracts have not as yet received legal approval from the MOA so that this program continues to be delayed. Hence, this program is also a year behind schedule. Adequate harvester testing during the rice crop was not achieved because of premature prototype machine failure. However, certain design criteria were established, e.g., pickup reel and a need of a four-wheel machine for field stability and ease of operation.

4.1.3. Machinery Management Extension/Training Subproject

The extension program is on schedule with the completion of training of the second group of extension mechanization specialists at Sakha Training Center. The continued successful implementation of this sub-project will depend upon the availability of demonstration/training equipment.

That part of the training that is behind schedule is the overseas training program : The observational study tours and the academic programs. As indicated in this report (section 2.3.2), 10 observational tours are in the development stage so that this program should be back on schedule. The difficulties with the overseas academic training are twofold: (1) there has been a lack of interested applicants from MOA, and (2) those who have applied have not been able to meet the initial English language requirement. So instead of moving directly into an academic program, the English language has been a barrier. On completion of this part of the pipeline, acceptable candidates should emerge for the academic programs, but this is causing a delay in Stateside implementation.

The in-country training program is reviewed in table 4.1. This program is on schedule and is adepting to field needs and demands. Rescheduled and newly scheduled courses have been combined with several of the originally scheduled courses. For example, 2EX 80, rice transplanting, has involved farm tractor driving (2FX36), slowing (2FX52), Landleveling (2FX57,58,59) and planting (2FX56).

4.1.4. Local Manufacturing Program

The target this period was the completion of five threshers according to the precedence network (figure 4.1), but the effort fell short of this objective. Although one machine, four farmes, and many of the component parts were finished, machine development is very difficult for which to set a time frame.

4.1.5. Land Improvement Subproject

Considering the ineffectual input from the Land Improvement Exective Authority, and the limited resources of the Project, this subproject has maintained a reasonable implementation pace for this period. A training program for land-leveling was not undertaken because all of the equipment had not yet been procured, but it will commence at the beginning of the next quarter. Demonstration basins have been selected in Minia and meetings with farmers undertaken to explain the objectives of the program.

4.1.6. Service Center and Village Workshop Subproject

The pace of implementation is best summarized in Table 1.1. At the Project level, implementation is on schedule, but it is falling critically behind at the bank level.

4.2 Implementation Issues

1. Monies for the Service Center Fund are not moving through the banks : The Project has submitted loans to the banks valued at LE 1,268,000 but only LE 308,000 have been approved.

   Remedial Action: Meeting with the banks to enlist their active participation.

2. Overseas participant training is not fully on stream, but the program is picking up this quarter with 10 observational tours in preparation and 65 candidates selected for english language training.
   Remedial Action: Continue with current activities.

3. Land Improvement subproject is not receiving the needed support from the SAO that the project paper anticipated.

   Remedial Action: None at the Project level.

TABLE 4.1 : TRAINING COURSES SCHEDULED FOR OCTOBER-DECEMBER 1982 AS PER TRAINING PLAN AND RESCHEDULED COURSES

COURSE NO	TITLE	OCT	NOV	DEC	PARTICIPANTS/ LOCATION
A. EXTENSION					
1. SCHEDULED:					
2EX366	Farm Tractor driving	X	X		(24)Sadeen T.C.
2EX39	Farm Tractor driving	o			
2EX52	Plowing	o			
2EX53,54,55	Planting	o			Included with 2EX80,80d,82,83
2EX56	Planting	o			
2EX57,58,59	landleveling	o			
2EX60	Landleveling	o			
2EX61	Land Preparation	-	-	X	20- Project Villages
2EX64	Land Preparation	o			Included with 2EX80,80d,82,83
2EX65	Implement Adjustment	o			
2EX66	Harvesting		o		
2EX67,68,69	" "		o		
2EX71,72	Preventive Maintenance		o		
2EX73,74	Irrigation		o		
2EX75	Junior Tractor Driving			o	
2EX77	Basic Surveying			o	
2EX78	Tractor Operation		X	X	26-Nubaria T.C.
2EX79	Mechanic : Level 3			o	
2EX80	Mechanical Short Course			o	
2. NEW /RESCHEDULED :					
1EX14	Intensive English	X	-	-	1-AUC
2EX18c	Mechanic level 1	X	X	X	45-Mamoura
2EX16	Mechanization Extension: Village	X	X	-	12-Sakha T.C.
2EX25b	Mechanization Extension: District	X	X	-	26-Sakha T.C.
2EX80	Rice transplanting	X(b,c)	X(c,e)	X(h,i)	84- Kallin
2EX80d	Silage Mower: operation/ Maintenance	X	X	-	120- Project Villages
2EX80f	Machinists	-	X	X	18-Nubaria T.C.
2EX80j	Mechanized Agriculture theory & Practise	-	-	X	55-Sidi Bishr T.C.
2EX82.1-47[1]	Silage mower : Operation	-	-	X	707- Project Villages
2EX83.1-35[2]	Drain drill : operation/ maintenance	-	-	X	487- Project Villages

COURSE NO	TITLE	OCT	NOV	DEC	PARTICIPANTS/ LOCATION
B. Planning/ Evaluation					
1. SCHEDULED:	none				
2. NEW/RESCHEDULED:					
2PE5	Intensive English	X	X	-	10- AUC
C. RESEARCH	none				
D. SOIL IMPROVEMENT					
1. SCHEDULED :					
2SI17	Tractor Driving	-	-	o	
2. NEW/RESCHEDULED:					
2SI8	Mechanic: level 2	-	X	X	15 Mamoura T.C.
2SI11	Intensive English	X	X	-	4-AUC
E. SERVICE CENTRE	none				
F. TRAINING					
2T10	Intensive English	X	X	X	20 AUC
2T11 HP85	Computer Operation	-	-	X	1 Cairo
G. LOCAL MANUFACTURING					
2LM1	Industrial Technology I	X	X	X	9 Beheira T.C.

H. summary January	Monthly Programs	Total Participants
Training Center	28	115
AUC	6	31
Project Villages	5	1334
Total	39	1684

4. The Applied Research Fund has not been activated because of MOA legel clearance of the research contract forms.
   Remedial Action: None until legel clearance is received.

5. Collation and programming the farm management data is falling behind schedule.

   Remedial Action: Additional personnel to process these data is needed.

5.0 MAJOR OBJECTIVES

5.1 Overall objectives

1. Movement of the loan funds through the governorate banks.
2. Shipment of Soil Test equipment.
3. Initiation of machinery development and soil investigation TDY.
4. Second tranch of the waterlifting fund in place.
5. Procurement of demonstration/training equipment.

5.2 Planning and Evaluation Subproject

1. Finish working paper No. 6 : Project Village Profiles,
2. Finish working paper No.7 : Mechanization Cost Model .
3. Commence with computer storage of farm management data for 1982-83 winter crop.
4. Start the tractor cost survey.
5. Start machine-specific evaluations.

5.3 Extension/Training Subproject

1. Develop 1983-84 training program and complete annual report for 1982.
2. Finalize Groups 2 and 3 demonstration training equipment.
3. Finalize village workplans for Sharkia, Qalubia, and Minia.
4. Start series of field day demonstrations with the 23 project Villages on Groups 2 and 3 equipment : backhoe demos in February; land scraper, disk harrow, bedders, and cotton planters in March.

5.4 Research and Development

1. Install tillage experiments outside the rainbelt on desert soil.
2. Install tillage experiments on heavy clay soil at Sakha, (Weather permitting).
3. Remodel S.A.A.P. sprayer.
4. Complete report on maize shelling tests.
5. Finish fabrication of testing equipment at the workshop.

5.5 Local Manufacturing Program

1. Complete four thresher prototypes for testing in the wheat crop.
2. Participate at the Cairo machinery expasition.
3. Develop a multiple-use building structure, a time permits
4. Prepare training program for the 1983 training plan.

5.6 Land Improvement Subproject

1. Complete equipment acquisition for the landleveling demonstration unit and move to Minia.
2. Train four tractor operators in laser-controlled landleveling.
3. Complete data analysis of topographical surveys in Abou Askar and El Beek basins in Minia prior to landleveling demonstration activities.
4. Cooperate with EWUP in landleveling activities.

5.7 Service Center Subproject

1. Emphasize movement of applications into the banks.
2. Encourage the banks to accelerate loan processing.

Annex A

Table of Contents

A.1 PLANNING AND EVALUATION SUBPROJECT

A.1.1 Planning and Financial Subunit

Activity Report
September - October, 1982

Submitted by: Mohamed Ali Shoukry
Zaki Helmy

Activities undertaken during the reporting period include the following:

The Water Lifting Credit Fund

The Water Lifting Credit Fund pre-test has been carried out satisfactory in Beheira Governorate during the reporting period. To date LE 59,465.175 has been disbursed as follows:

District	Village	No. of Pumps	Amount Disbursed
El Mahmoudia	El Atf	19	LE 20,549.035
	El Kasr El Moustagd		18,251.815
Etay El Baroud	Nikla El Enab	17	20,664.325
	El Shiek Ahmad	--	----
		53	LE 59,465.175

El Shiek Ahmad village did not use the amount allocated for it due to its special situation as an agrarian reform coop, which needs lots of administration work, the project has agreed to extend the pre-test period for El Sheik Ahmad village to the end of November, 1982.

The most favorable loan term in this credit fund is that the project has released the farmer from the down payment.

During October, 1982 visits have been carried out to the Development Banks in Beheira, Gharbia, Qalubia, Sharkia and Minia to initiate the credit fund in the 23 target villages and an amount has been allocated to each village according to the cultivated area and number of pumps in each village some of the criteria of the selection of farmers have been modified to allow farmers which hold up to 10 feddans to get benefit from the credit and giving priority to farmers holding 5 feddans and loan repayment period has been extended up to 7 years for farmers holding 5 feddans and less and up to 5 years for farmers holding more than 5 feddans and up to 10 feddans. Farmers owning pumps are not allowed to benefit from the credit. Insurance on the pumps will be carried out according to the Guarantee provided by the farmer and his financial position.

Machinery Introduction Fund

The Letter of Understanding of this credit fund signed be-

tween the project and the Principal Bank for Development and Agricultural Credit has been approved by the USAID and an advance amounting to the equivalent of one million dollars in Egyptian Pounds has been requested from the USAID to be deposited in the special account open for this credit fund in the PBDAC.

Financial Consulting Services:

USAID has approved to establish a Senior Accounting Advisory position starting November 1, 1982, Mr. Moustafa Abou El Ella will resume this position.

Studies

- A computer program has been developed showing the effect of the tractor operating hours on the operation cost.
- The unit still participating with the Project's technical office in preparing a proposed 5 year plan for Agricultural Mechanization in Egypt.

A.1 PLANNING AND EVALUATION SUBPROJECT

A.1.1 Planning and Financial Subunit

Activity Report
November, 1982

Submitted by: Steven Shepley
Zaki Helmy
Moustafa Abou El Ella
Mohammed Shoukry
Fuad Mitri
Ahmed Abdel Azziz

During the reporting period, the Subunit carried out a number of key activities related to management and control of project local currency funds and prepared a cost evaluation of mechanical vs. labor intensive cotton stalk removal. Details concerning these activities are provided below:

Analysis of Machinery Costs and Returns

At the request of Dr. Osman El Khoeli, Subunit staff prepared a preliminary evaluation of the economic and financial returns of using silage mowers for cotton stalk removal. The machines evaluated were double blade and single blade mowers, currently being demonstrated and tested by the Project Extension Subproject. Available performance and cost data were processed using computerized algorithm's previously prepared by Subunit staff and costs per feddan for the mechanical alternative were compared with manual cutting costs obtained from the Project Farm Management Survey in Beheira, Gharbia and Qalubia Governorates. The report covering the methodology and findings of the evaluation is attached as an appendix to this monthly report. In summary, it was found that replacement of labor intensive by mechanical stalk cutting methods appear to be financially and economically feasible. Results of the evaluation are presented in Table 1.

Table 1

Comparison of Mechanical Vs. Labor Intensive Cotton Stalk Removal Methods

Method	Financial Cost/Fed.	Economic Cost/Fed.	Financial IRR	Economic IRR
Manual	14.73	14.73	-	-
Double Blade Mower	5.77	11.01	107.49%	43.45%
Single Blade Mower	6.89	13.68	91.00%	3.99%

Preliminary conclusions from the analysis were that the double blade mower is the preferred method.

Computerized Cost Accounting System

An automated cost accounting system for Project local currency budgets and expenditures was prepared and tested. The program stores accounting information on magnetic disks and contains built-in routines to monitor project currency line item performance on a quarterly basis. The program is sufficiently flexible to permit runs on any desired time series basis in accordance with management needs.

Revised Manual Bookkeeping System

In addition to the automated system described above, the Project also keeps manual bookkeeping records to log all disbursements and receipts of funds by category of transaction. During the period covered by this report, a modified system was prepared and implemented which shows all transactions and analysis on a single entry sheet. The Subunits currently working with Ministerial personnel to implement this system on a project-wide basis to insure accurate and up-to-date records for all AID financed local currency transactions.

Quarterly Expenditure and Cash Need Statements

Comprehensive expenditure reports covering the period August 1, 1982 through October 31, 1982 were prepared to cover all AID financed expenditures for commodities, in-country training, and research support were prepared and submitted to AID. In addition, the Subunit also prepared quarterly cash need statements covering the period December 1, 1982 through January 31, 1983 for AID financed commodities, in-country training, research support and evaluations/studies. These statements have also been forwarded to AID.

Evaluation of Technical Assistance Contract Requirements Over Remaining Project Life

An evaluation of technical assistance contract line item budgets and cummulative expenditures was made to determine additional local currency requirements over the life of contract. Based on the above, local currency needs have been identified and incorporated into an amendment request which has been forwarded to project management for action. Included in this request is an additional request for further US$ funded for certain expatriate position extensions to allow the Extension Subproject to continue through the life of project.

Credit Fund Performance Monitoring

This activity has entailed frequent visits to the various governorate Agricultural Development Banks to resolve implementation problems and to monitor activity accounts. To date, the following water pump loans have been made in Beheira, Gharbia and Qalubia Governorates:

	Number of Loans	Amount
Beheira	55	61,608.45
Gharbia	103	102,411.00
Qalubia	76	84,483.65

One Service Center loan has been approved in Minia Governorate for LE 250,000.

A.1 PLANNING AND EVALUATION SUBPROJECT

A.1.1 Planning and Financial Subunit

Activity Report
December, 1982

Submitted by: Steven Shepley
Zaki Helmy Z. Wissa
Moustafa Abou El Ella
Mohammed Shoukry
Fuad Mitri
Ahmed Abdel Azziz

During this reporting period, the Subunit was engaged in activities related to further development of the tractor cost model, management and control of Project local currency funds and Project credit fund administration. These are described below:

Tractor Cost Modelling

Since tractors are being used and shall be used as prime movers for most farm machinery, the development of a reliable cost model for estimating societal and on-farm tractor operating costs is a major requirement for the Project's efforts to evaluate mechanization costs and returns and to quantitatively assess the income effects of agricultural mechanization in Egypt.

The process of constructing the tractor cost model was initiated in November, 1980 with a review of alternative methodologies for tractor and implement costing developed by the World Bank, the UNDP, the Egypt Water Use and Management Project and the American Society of Agricultural Engineers. In December of 1980, a preliminary and crude cost model was developed using a synthesis of the available methodologies. The initial model was programmed for the HP-41C programmable calculator.

The initial model was then used as a foundation for the development of a more sophisticated algorithm for the Project HP-85 mini-computer. In January and February, the Subunit conducted a tractor cost survey in Beheira and Gharbia governorates. The survey was limited to a survey of agricultural cooperative records and recorded data for the major economic and operational variables including fuel consumption, repair and maintenance costs, annual hours of use, tractor types, models and makes currently used, lubricant consumption and other data related to plot size, distance between plots, field operating speeds and garage to plot distance.

These data were used to run the first HP-85 version of the model which lead to publication of Working Paper No. 1 entitled "Agricultural Cooperative Cost Survey in Beheira and Gharbia Governorates". Subsequent to the first cost survey, the Evaluation Subunit, at our request, conducted a broader survey of some 150 observations of both cooperative and privately owned tractors in the five Project priority governorates. The data gathered from this exercise permitted us to up-date and refine the preliminary

data base. This refinement was employed in the running of the second revised HP-85 tractor cost model which was used in preparation of Working Paper No. 5, "A Methodology for Evaluating Economic and Financial Costs of Tractor Operations in the Arab Republic of Egypt", published during the reporting period. This Working Paper is attached.

The revised model presented in Working Paper No. 5 differs from the procedure used in Paper No. 1 in that the revised version uses the concept of fixed and variable unit costs. The unit costs calculated are cost/hour and cost/horsepower-hour. Output is generated over a range of annual tractor use from 50 hours to 1,000 hours for cooperative tractors and from 100 hours to 1,420 hours for privately owned machines. This procedures permits the analyst to evaluate operating cost changes over a range of conditions for planning and machinery extension purposes. Both societal and on-farm cost/unit of time are generated by the model together with corresponding unit land area costs for the two categories. The model presented in Working Paper No. 5 also contains sensitivity routines for evaluating cost effects of changing fuel prices, interest rates, capital costs and useful life assumptions to assist planners in designing capital investment projects for agricultural mechanization. In addition, the cost sensitivity of important equipment use and management practices such as annual hours of operation, plot sizes and distances is also measured to provide a quantitative basis for machinery use recommendations targeted on operating cost minimization.

From the data base developed in the Project tractor cost surveys, revised preliminary estimates of hourly operating cost of the typical eastern block manufactured tractor comprising over 90% of the current tractor population in Egypt which were generated by the model are:

Table

Comparison of Societal and On-Farm Tractor Operating Costs in Egypt for Eastern Block Manufactured Tractors (LE/Hour Current)

Item	On-Farm	Societal
Interest/depreciation	0.94	1.18
Repairs	0.67	0.67
Lubricants	0.14	1.14
Energy	0.22	1.83
Labor	0.46	0.46
Total	2.43	5.28

Hydrocarbon fuel and interest rate subsidies account for the difference between the two estimates.

The model is highly sensitive to the following variables:

- capital cost escalation
- fuel price escalation
- implement width

It is moderately sensitive to:

- operating labor cost escalation
- useful life
- annual operating time
- distance between plots
- parallel foreign exchange rate fluctuations

And least sensitive to:

- interest rate changes
- plot size
- plot to garage distance

The cost functions generated by the model are power functions in the form:

$$y=ax^b$$

where: y = hourly cost
a = constant
x = annual hours of operation
b = exponent

Plots of the functions shown in Working Paper No. 5 and from the computer runs of the appendices indicate that cost minimization can be approached by:

- operating tractors not less than 900-1,000 hours/year
- working plot sizes of not less than 4 to 5 feddans
- garaging tractors not more than 500 to 1,000 meters from the initial working plots
- plot to plot distances not greater than 1,000 meters

At present, annual operating time optimums are being followed, but operators are not following model generated recommendations for plot size and garage to plot distances. The current practice is to base tractors from 2 to 5 kilometers from initial plot working areas and to treat plots of half to one feddan which are scattered over a large operating radius. The usual plot to plot distance is currently three to five kilometers. Area consolidation and adherence to the management practices cited above would contribute significantly to the goal of tractor operating cost minimization. These recommendations have already been provided to the Extension and Training Subproject.

Two further steps are required to finalize the cost model. A final phase of model construction is needed to include sub-routines for implementing hourly costing and for improvement of the method for maintenance and repair costing. The current version of the model expresses hourly maintenance costs as a percentage of the capital cost since the cost of spare parts moves in tandem with the cost of the entire machine. At present, this percentage has been calculated from the tractor cost survey data. However, we are not yet satisfied with this method as hourly maintenance costs used herein do not vary with the life of the machine. We have just received a publication from the University of Minnesota Department

of Agricultural Economics which provides maintenance and repair cost functions to generate escalating repair costs over the entire range of lifetime operating hours. This material is being reviewed and shall be incorporated into a final computerized cost accounting procedure for mechanized agricultural operations to be presented in the near future.

The final phase entails calibration of the computerized model to reflect actual field conditions which have been emperically evaluated. The method we shall employ is direct observation where enumerators from the Evaluation Subunit shall be assigned to follow randomly selected tractors around on their daily operations to measure and record required input variables. Dynamometers shall be used to measure fuel consumption under simulated lead conditions. The same procedure shall also be employed for obtaining data for the western manufactured tractors procured under project auspices. When these tasks have been completed, the Ministry will be provided with fully calibrated models for all tractor types and implements used in Egypt.

Project Local Currency Fund Management

Expenditure reports, cash need statements and foreign and local currency invoices were prepared for the Louis Berger technical assistance contract foreign and local currency funds.

Field visits were made to the Agricultural Development Banks in Beheira, Gharbia, Qalubia and Sharkia Governorates to review and inspect credit funds accounts for the Water Lifting Credit program and to provide additional advice and guidance concerning the fiscal administration of all project credit funds. It was found that separate files are being maintained by the governorate banks in accordance with fiscal accounting guidance previously given. The files examined were thoroughly inspected to varify compliance with AID and Government of Egypt accounting requirements. It was observed that the files are in good order and that they adequately meet all requirements.

There still remains an unresolved issue concerning the degree of guarantee acceptance by the banks for credit fund loans. The letters of understanding and subsequent amendments firmly establish the principal of repossession rights for loans covering machinery and shop equipment and tools. No other forms of guarantee or collateral are required. In our discussions with the banks, we have encountered some reluctance to waive land and other usual forms of guarantees. The bank personnel seem to feel that repossession rights are inadequate to insure timely and correct loan repayments. To resolve this issue, it is planned to call a meeting of the various governorate bank personnel participating in the program to discuss the issue of guarantees and collateral and to arrive at a commonly agreed upon position.

Another issue which has surfaced over the past few weeks is the question of accountability for Project procured commodities. The Ministry of Agriculture requires a property control system whereby procured commodities are logged in upon purchase and logged out to users upon signature of hand receipts. At the present time,

no such system exists within the project administrative structure. To correct this deficiency, the senior accounting advisor has reviewed requirements with Ministry property control staff and has designed a log form based upon these requirements. The control forms are now being filled out under the guidance of the Senior Accounting Advisor and Ministry property control personnel. Completion of these required forms is underway at the Project testing station in Alexandria and will be initiated on a project-wide basis. We have requested that the Ministry appoint and assign to the Project a full time property control officer to be responsible for administration of the system.

Credit Fund Administraton and Follow-up

The Subunit is providing continuous follow-up and administrative guidance to the governorate Agricultural Development Banks concerning the Project credit funds.

During the reporting period Account Number 1689 was opened at the Principal Bank for Development (PDAC) and the equivalent of $US 1,000,000 was deposited to this account from the initial USAID disbursement.

Based upon the continuing evaluation of credit fund activity, modification in guidelines has been made for the Water Lifting and Service Center Funds. These modifications are as follows:

a. Water Lifting Fund: To facilitate wide-spread utilization of this credit program, the maximum land holding eligible for loan receipt has been fixed at 10 feddans. Farmers already owning a pumpset are ineligible for a new loan. Farmers may only take out a loan for one pumpset.

   The payback period has been slightly restructured. Farmers holding from 5 to 10 feddans must make their loan repayments within 5 years. Farmers holding less than 5 feddans will have 7 years to repay.

   These changes, we believe, will permit wider distribution of credit fund proceeds and give priority to the smaller holders.

b. Service Center Credit Fund: Based upon a survey of perspective borrowers and in consultation with USAID, the following modifications have been made in the down payment requirements:

   For the village workshop loans, loans up to LE 10,000 have been exempted from any cash down payment. For workshop loans above this amount, a 2% down payment will be required.

   Service Center loans will be subjected to a 10% down payment requirement.

These changes have already been officially submitted to the PBDAC and governorate Agricultural Development Banks.

To date, fund disbursements are as follows:

	No. of Borrowers	Amount
Service Centers	0	-0-
Water Lifting	247	262,452.17
Machinery Introduction	0	-0-

Three service center loans applications totalling LE 607,000 have been approved and submitted to the banks in Beheira and Minia. In addition, one village workshop loan for LE 18,800 has been approved and submitted to the Beheira bank for processing.

A.1 PLANNING AND EVALUATION SUBPROJECT

A.1.2 Farm Management Survey Unit

Activity Report
October, 1982

Submitted by: M.I. Faltas
G.B. Stringer

Data collection continues in the three Governorates but is now in the process of winding down. A letter has been prepared to be distributed to the three Governorates. This letter cancels half of the enumerators at the end of November. The other half are canceled at the end of December. The supervisors are canceled at the end of January. In the final stages of data collection many of the data items will need to be collected off the farm at various Government bodies. It is for this reason that the personnel termination is being staggered.

Transliteration of the data for the third quarter is completed for Kalubiya and Gharbia. Beheira data will be finished by the 10th of November. The balance of the Beheira data will be collected as early as possible. This Governorate has had several different supervision groups from Cairo and as a result of varying instructions there are more queries from this Governorate than from the other two. We want to get as much of this work done as is possible while we have the enumerators on duty.

Payment has been made to the assistant enumerators during the last part of the month. Two hundred and six people were paid. The budget data as of the end of the month is as follows:

Total budget	L.E.	138,945.00
Amount spent to date		61,425.39
Balance left unspent	L.E.	77,519.61

We repeat our request to have this money transferred to the operation at Gebel Asfar as this operation will have operational expenses which must be met.

Mr. Youssef Abdel Naeam left the Farm Management group on 17 October, 1982.

Mower operations were inspected by the group during the month of October, in the three Governorates. A report of these inspections and recommendations had been delivered to Mr. Schantz.

A.1 PLANNING AND EVALUATION SUBPROJECT

A.1.2 Farm Management Survey Unit

Activity Report
November, 1982

Submitted by: M.I. Faltas
G.B. Stringer

As has been previously indicated we are in the process of winding down the field activity of the survey. For this reason we no longer need the two enumerators in each village. Thus one enumerator in each village was terminated as of the end of November. At this point we feel that the other enumerators will be terminated at the end of December. Data remaining to be collected at that time will be handled by the Supervisor of each Governorate. Data remaining will be in the form of crop receipts, debits owed, etc., mostly of a financial nature.

As we are terminating the enumerators we are also collecting their bicycles. This has turned out to be more difficult than had been foreseen. At present, we are instructed to turn over to Dr. Peter Reece, nine of the bicycles and to make arrangements to store the balance.

Transliteration of the data for the third quarter for all three Governorates has been completed in November. Work has started on the fourth quarter data from Beheira. This data should be completed during the last half of December. This will leave only the tail-end data for Beheira which we will try to get by that time so that this Governorate will be completed. Fourth quarter data from the other two Governorates will be picked up during December.

Work is proceeding on the next phase of our operations, which is the operation of a mechanized farm at Gebel Asfar and the transfer from this area to the villages of the new technology. It is felt that our work will be a follow-up on the first stages of mechanization as developed by Mr. Schantz. Equipment for this will go out for bid in early December. We hope for quick delivery so that we can be ready to plant some summer crops this coming year. The balance of the survey budget should be carried over to Gebel Asfar so that we will be able to carry on while making proper arrangements to cover this area of need. The amount remaining should be in the neighborhood of L.E. 70,000.

A.1 PLANNING AND EVALUATION SUBPROJECT

A.1.3 Evaluation Subunit

Activity Report
October, 1982

Submitted by: Peter Reiss

I. Evaluation Unit Workplan

A second version of the evaluation unit workplan has been submitted to the project management for approval. The period covered is from November, 1982 through October, 1983. The plan is organized by project component and discusses the activities to date and the proposed evaluation work. A strong emphasis in the workplan is on evaluating new and project-adapted equipment from trial tests on farmers' land, reviewing three on-going funds of the project (Service Center Credit, Water-lift Credit, and Applied Research), and examining the socioeconomic impact of the soil improvement activities in Middle Egypt for these are the most immediate implementation efforts. The workplan alsc proposes a reorganization of the Village Studies Program.

II. Village Studies Program

A. During the period

To date, the material from the Village Studies Program collected in the twenty-three project villages has been used for short reports and presentations. These first months of the program have been spent, in addition, on training team members and collecting and analyzing background material to be used for two purposes: information to project staff for their components and for the establishment of a data bank for later evaluation efforts.

The Program, then, is entering a new stage of work coinciding with the intervention of project personnel in the selected twenty-three villages. At one level is the anticipated production of a number of lengthy reports concerning the material which has been collected. On another level is the movement to impact studies.

While the closest scrutiny of project activities would require the continued presence of monitors in all twenty-three locations, it is still possible to monitor and evaluate project work with a smaller number of staff members. Project management has expressed concern about the permanent presence of large numbers of project staff in every village. Therefore, it is proposed, as part of the evaluation workplan, that the size of the Program be reduced. Coincidentally, the number of villages covered will be reduced. The workplan calls for the establishment of two teams for the Delta and Middle Egypt under the supervision of Dr. Abdeltawab El Yamani and Dr. Bahgat Abdelmaksoud. The monitors would be reduced in number from

twenty-three to nine, four of whom will be stationed in the four Minia villages where soil improvement activities are currently being undertaken.

During the period, the Program members have been occupied completing all previous work which includes systematizing the data.

B. Follow-up

A number of reports based on data collected through the Village Studies Program will be produced. These include a Project Villages Profile, a study of farmers' perceptions of changing soil and water conditions in Minia project villages, an evaluation of a wheat harvester in Minia, an examination of local investment patterns in the project villages.

III. Soil Improvement Activities

A. During the period

The Evaluation Advisor took part in the selection of the four demonstration basins in Minia with James McClung, Adel Orabi, Ahmed Fayyoumi, and Hassan El Banna. Information was collected by village monitors. In addition, the monitors contacted every farmer in the four basins and informed them of presentations which were given concerning the work to be done by the project.

B. Follow-up

The Minia team of monitors is beginning a socioeconomic study of the four Minia basins. The Evaluation Advisor expects to be in Minia at least one week a month to take part in this interviewing the farmers. We intend to look at the social and economic organization of the four basins, particularly how irrigation activities are presently carried out.

IV. Evaluation of Combine Harvesters in the Delta

A. During the period

At the request of Dr. Zakaria El Haddad, the Evaluation Unit has undertaken an evaluation of the operation of all combine harvesters in the Delta. Thus far, we have reviewed the Zmay in Sharqia, the Deutz in Gharbia, the small Taiwan and Yamer in Sharqia, and the John Deere in Damietta. Still remaining is a Deutz in Beheira. In each case we have interviewed the owner (public or private sector), the farmers on whose land it was used, drivers, and participating engineers. In addition, the Unit has played a role in the project's renting a John Deere combine 942 from the Pilot Farm of the Fariskur Dairy Project for our test trials in Beheira in rice land

B. Follow-up

Following each trip a report has been prepared in Arabic

and presented to the project management. Once the final trip to Beheira has been made, a report in English will be issued.

V. Training Programs

A. During the period

Mid-term evaluations of the training periods in Maamura and Sakha have been conducted by the Director of Evaluation.

B. Follow-up

The Training Component has requested that the Unit conduct an evaluation on a training program in Saadiine where there is concern about the usefulness of the session.

VI. Data Request

Information on agricultural wages and levels of emigration was given to a commercial attache in the French Embassy who had been referred to the Unit by Dr. Yehia Mohie Din, Undersecretary for Economics and Statistics.

Selection of Soil Improvement Demonstration Basins in Minia

With Jim McClung, Hassan El Banna, and Ahmed Fayyoumi, of the Soil Improvement Component, I visited four of the Minia project villages in order to make the final selection of the basins for the soil and topographical surveys. Following the analysis of these examinations, the basins may be selected as demonstration basins for soil improvement activities. This trip was conducted between 11 and 13 October.

We had previously made a visit to the areas to determine a small number of basins from which to choose. From this list, one basin in El Atlat, Beni Abeid, Beni Musa, and Birba El Kubra was chosen. Seila Gharbia was eliminated largely because of continuing water supply problems which are outside the project's ability to correct.

Monitors in the Minia team of the Villages Studies Program have already started collecting information about these basins in preparation for the soil improvement work. During the visit they provided me with the names of the landholde s in the basins and the size of their holdings. The following table indicates the area and number of landholders in each basin. At the end of this report is a breakdown of the sizes of landholdings.

AREA AND HOLDINGS IN THE BASINS SELECTED

Village	Basin Name	Area of Basin (F.)	No. of Holders
El Atlat	El Beyk	91	121
Beni Abeid	El Rafia	66^{8}	68
Beni Musa	Ali Pasha	48^{22}	68
Birba El Kubra	Abu Askar	57^{12}	50

The monitors in these four villages have been asked to visit each farmer in the basins and inform him of the planned discussions by members of the Soil Improvement Components. During our visit, we scheduled two presentations for this week: 20 October in Birba El Kubra and 21 October in Beni Musa. We have informed Mohamed El Gamal, Undersecretary of Agriculture, and Ali Saada, General Director, of the presentations in the villages and they are likely to attend. In addition, we scheduled a presentation in El Atlat for 2 November at 9:00 a.m. which will take place after the cotton in El Beyk has been collected. A presentation in Beni Abeid will be made during the same week but has not been fixed as of yet. All of these presentations have been arranged so that the current cotton or corn crop will have been harvested and the team may begin the surveying at once.

In each of the villages we have found the members of the agricultural cooperatives and the farmers to be very helpful and eager for the project's assistance. In El Atlat, we were told by the head of the agricultural cooperative that the farmers are prepared to work cooperatively with the project to the extent of planting the same crop in the basin. The project ought to consider this offer carefully and act on it appropriately.

It appears that the Soil Improvement Component, after the land-levelling, will do some limited plowing. It seems like a good opportunity for the Extension Component to coordinate its work with the Soil Improvement activities and complete the tillage and undertake planting in the basins. It ought to be remembered that the EWUP people in Minia have told us that although they prepared long irrigation furrows, farmers immediately shortened them seeing no usefulness. It is highly recommended that we integrate the soil improvement activities with the planting needs of the participating farmers. These basins might then serve as demonstration areas for Extension as well.

The table of landholdings on the following page has a certain significance for the project's soil improvement activities. The very heavy distribution of small holdings suggests that a great deal of coordination will have to be made with large numbers of farmers. Furthermore, the largest holdings exceed four feddans in only one case of the total 308. It is likely then that in these four basins there are few, if any, significant holders who hold sway over the community on the basis of their property. "Key farmers" who would be willing to assist the project will have to be determined from extensive conversations instead

A BREAKDOWN OF LANDHOLDING SIZES IN THE MINIA BASINS

Holding	Basin							
	El Beyk		El Rafia		Ali Pasha		Abu Askar	
	No.	%	No.	%	No.	%	No.	%
0 - less ½ F.	53	44	23	34	19	28	6	12
½ - less 1 F.	35	29	18	26	19	28	12	24
1 - less 1½ F.	18	15	15	22	28	41	15	29
1½ - 2 F.	8	6	7	10	1	1	8	16
2 - less 3 F.	5	4	2	3	1	1	9	18
3 - less 4 F.	2	2	2	3	0	--	1	2
4 - less 5 F.	0	--	0	--	0	--	0	--
5 - less 10 F.	0	--	1	1	0	--	0	--
more than 10 F.	0	--	0	--	0	--	0	--
Total	121		68		68		51	

(Data prepared by Raafat Lutfi)

A.1 PLANNING AND EVALUATION SUBPROJECT

A.1.3 Evaluation Subunit

Activity Report
November, 1982

Submitted by: Peter Reiss

I. Evaluation Unit Workplan

During the period, Dr. El Sahrigi met with members of the Evaluation Unit and approved the submitted workplan. The workplan, which covers the Unit's activities during a twelve month period, has a number of objectives: provide information to project components for implementation activities, evaluate component plans and activities, and investigate issues of importance related to agricultural mechanization in Egypt. The workplan also includes a budget to finance the work. This too was approved by Dr. El Sahrigi.

II. Village Studies Program

Following a year's effort by the Program supervisors and village researchers, the Program was terminated in its present form as of 30 November. However, a new structure for the Program is an integral part of the Evaluation Unit Workplan. As such, the Program will continue in a restricted form in a number of Project villages. Of the twenty-three implementation sites, nine will be chosen for intensive study. They will be selected to reflect the range of characteristics of the full number. Still, with the increasing activity of the Project in these areas, it will be necessary to visit the remaining villages. In addition, a number of control villages will be chosen as a way of monitoring project impact and changes due to other factors. These villages will be chosen from the seven non-Project villages used in the area-wide survey conducted by the Unit and on which the report "The State of Agricultural Mechanization in Egypt, Results of a Survey: 1982" is based.

III. Evaluation Unit Budget

As part of the Evaluation Unit Workplan, a budget for a year's operating expenses was approved by Dr. El Sahrigi and submitted to AID. The budget covers the costs of services and the cost of equipment to carry out the planned evaluation activities. With regard to personal services, nine village monitors, three field managers, and two supervising professors will be hired. In addition, a new position has been created for a Program Coordinator who will have primary responsibility for coordinating the work among the teams and between the teams and Cairo center. The budget also provides for car rental and for bicycle and motorcycle purchase. (Note: The Unit has acquired the needed number of bicycles through the Farm Management Survey making their purchase unnecessary.) The appropriation of money for transportation ought greatly to facilitate the work in evaluation because the difficulty involved in moving people around was the greatest problem during the first year of operation. The equipment to be purchased includes calculators for

village monitors and the staff in Cairo and two portable computers (Hewlwtt Packard 75C) to be installed in the Delta and the South. The HP-75 can interface with the Project's HP-85s so that information collected in the field can be recorded in that location with an initial analysis undertaken there before being made one data set in Cairo. This work is aimed at decentralizing responsibility, training local staff who have demonstrated a high initiative and capability, and making information available more quickly for use in planning and evaluating activities.

IV. Evaluation Staff Organization

Dr. Abdel Tawab El Yamani, Chairman of the Department of Agricultural Economics at Tanta University, Kafr El Sheikh has been appointed Chairman of the Evaluation Committee. Other members are Dr. Nabil Habashi of the Agricultural Economics Research Institute in the Ministry of Agriculture and Dr. Peter Reiss, Evaluation Advisor.

A.1 PLANNING AND EVALUATION SUBPROJECT

A.1.3 Evaluation Subunit

Activity Report
December, 1982

Submitted by: Peter Reiss

I. Evaluation Staff and Organization

At Dr. Abdel Tawab El Yamani's suggestion, an Executive Evaluation Committee has been formed with three members: Dr. El Yamani, Dr. Nabil Habashi, and Dr. Peter Reiss. The Executive Committee is responsible for the administration and supervision of all work in evaluation. In addition, an Evaluation Advisory Committee has been established which includes Dr. El Yamani, Dr. Habashi, and Dr. Reiss, and Dr. Bahgat Abdel Maksoud, supervisor of the Middle Egypt team, Dr. Mahmoud Mesbah, supervisor of the Beheira/Gharbia team, and an as yet unappointed supervisor of the Qalubia/Sharqia team, and the three Cairo counterparts: Nour El Din Nasr, Aiman El Tunsi, and Raafat Lutfi. Members of the team represent social and economic disciplines. The Advisory Committee is responsible for team/field supervision, data analysis and the writing of reports, however members are expected to form two groups in the design of research and analysis, etc. One will have a social bent; the other economic. They are expected to work together closely offering different perspectives in a single investigation.

II. Plan for Evaluation Activities during the coming months

The Executive Evaluation Committee has agreed to a plan of work for the coming months. Evaluation activities will consist of four separate activities: (1) publication and distribution of reports (2) case studies of specific mechanization activities, (3) evaluation of a particular Project component, (4) review of mechanization activities undertaken by another project or institution.

Concerning reports to be written, a series of Policy Papers based on the current reports issues by the Project will begin. The first will review the reports and working papers released by the Planning Unit to date. The policy paper will deal with the policy implications of these works. In addition, two working papers will be written based on information collected by the Village Studies Program: the labor situation in the Project villages and the dynamics of machinery ownership in the Project villages.

Three case studies of mechanization-related activities will be undertaken: an investigation of the economic and social organization of irrigation activities in three basins in Minia Governorate, a study of tractor costs and returns and time use, and an evaluation of grain drills and cotton stalk cutters distributed through the Project in a number of villages. The study of irrigation organization in Minia is undertaken at the request of the Soil Improvement Component and will be an integral part of its landlevelling and soil improvement activities. The case study will be done in

three of the four basins where it plans to work. The study is designed to help identify the problems encountered by farmers as part of the planning of Soil Improvement activities. A basic plan for the study was presented to the Soil Improvement Component and discussed. Data collection will begin in mid-January. The design is attached to this report. The tractor study will be done in cooperation with the Planning Unit which has already distributed a Working Paper No. 5. A meeting is planned for late January between the members of the Evaluation Committee and the Planning Unit to finalize the design. Working Paper No. 5 actually covers financial and economic costs, and certain members of the committee wished to expand it to include returns. In addition, the study will examine the organization and conduct of machinery rental systems, since farmers indicate that its present form is a major concern. The study of machinery distribution will be undertaken because it appears that villages have taken very divergent views on the equipment and are cooperating with the Project at very differnt levels.

A series of evaluations of project components will begin with a review and assessment of the progress of the Service Center Component. The evaluation will also try to identify the major points of difficulty and breakdown in the work. A number of interviews will be conducted including Project staff, Bank representatives, and prospective clients.

At Dr. El Sahrigi's request, the mechanization activities of other projects and organizations will be reviewed in an attempt to integrate mechanization activities and to learn from the work of others. The Unit has initially decided to select the Major Cereals Project because it has a component concerned with the mechanization of wheat growing.

III. Evaluation Unit Budget

AID has informed the Project that the budget for evaluation work has been approved. The money will be released from a local currency fund for implementation. As a result, members of the Village Studies Program will be hired during the coming month and equipment purchased.

IV. Working Paper No. 6: Project Villages Profile

The Unit has produced a paper which describes and analyzes the twenty-three implementation sites of the Project on the basis of landholding and cropping pattersn, access to services, labor, machinery and machinery services, and problems identified by local leaders. Among the points which emerged were the following:

1. Although there is a general imbalance in favor of small holdings in the Project villages, some villages, such as those in Beheira, have a sizeable proportion of middle-sized farmers with from three to five feddans. This is likely to reflect the workings of the Agrarian Reform redistribution of land.

2. Fully thirteen of the twenty-three villages have Agrarian Reform land. While many have only small amounts, six have

large proportions. The Project, then, must take care to work with the Agrarian Reform Cooperatives or alienate large segments of farmers from our work.

3. Project villages reflect the agricultural diversity of the country. In general, one finds a general expansion of gruit and vegetable cultivation during the past decade. An additional 4% of the land is now growing fruit and an additional 3% vegetables. Particularly high rates of increase are evident in Gharbia and Qalubia.

4. Villages were compared on the basis of their access to market and other services. It was suggested that the Project play a greater role in those villages which are already indigenously selected local centers and that the establishment or expansion of machinery services be strongly encouraged there.

5. While most attention has been given to emigration from rural areas out of Egypt, it is interesting to find that more than 40% of these village emigrants remain within the country. It is believed that remittances, in this case, are likely to be smaller and will have a diminished impact on the patterns of consumerism and investment.

6. There appeared to be no appreciable link between landholding patterns and emigration rates. However, it did seem that in those villages with greater access to land for their population, emigration rates were lower. Therefore, landholding patterns might only act as a factor discouraging movement out.

7. Increases in agricultural machinery have involved tractors and pumps. Increases in mechanization have been restricted at best. Tractorization has not occurred in villages with large landholdings, although small holdings do seem to be a factor discouraging an increase.

8. Few machine services are available in any of the Project villages; more workshops exist for traditional tools. Nor is there a strong connection between high levels of equipment and the presence of workshops, likely because the workshops serve large areas and need not depend upon the machinery available in a single village.

9. Labor and irrigation/drainage problems are most often cited by village leaders. They note that mechanization is inhibited by shortages in machinery and spare parts, but they surprisingly call for an improvement in the infrastructure to support mechanization rather than for the rapid infusion in more machinery.

V. Selection of Villages for Village Studies Program

Based on the information provided in the above working paper, nine villages have been selected for an intensive investigation of Project monitoring and impact to be conducted for the life of the

Project. The villages were chosen on the basis of the following characteristics: level of mechanization, cropping pattern, labor availability and rate of emigration, existing machinery services, extent of land under Agrarian Reform, landholding pattern, and activities of project components. The villages are El Atlat, Beni Abeid, and Birba El Kubra (Minia); Kanisa Damsheat and Qaliub Abiar (Gharbia); Desounes and Disia (Beheira); El Sadiine (Sharqia); and Belten (Qalubia).

VI. Management Training

Aiman El Tunsi and Raafat Lutfi, counterparts, will begin training in management principles, planning and evaluation with members of the Soil Improvement Component in mid-January.

A.2 Extension/Training subproject
Activities Report
October 1982

Submitted by: Fred Schantz, Ibrahim El Ghatas, Ahmed El Beheiri, Dr. Mamdouh El Baz, Samir Shawky, Salah Bakar, Gordon Stringer, Hussin Heiza, Moh. Abdel Aziz

SUMMARY:

Major events of the month are summarized below. Detailed reports of each subunit are found in appendixes A through G. Appendix H lists the expenditures for the subproject for the month.

1. The Machinery Management Extension and Training Subproject was reorganized during the month by the Project Director. An organization chart showing the new structure is found in appendix 1.

2. A one week course for project mechanization extension specialists was held at the Sakha Training Center Oct. 2 - 5. Ten village programs were presented by the Behera and Garbya Governorates specialists to project staff and the Sharkia/Qalubia/Minia specialists now completing their formal mechanization extension course.

3. Specifications were completed by the local manufacturing advisor for all of his program's needs for 1982. Procurement of the approved items was begun.

4. Three new courses were developed with the MOA General Department for Training and will begin in November at the Nubaria Training Center at Genaclease.

5. The first project demonstration/training equipment, 10 cotton stalk mowers, were procurred by the Project Procurement Committee, placed in the field, and began field operations in four project governorates.

6. Participant training activities included the screening/English testing of 50 academic candidates from the MOA. Also, 10 observation tour forms were completed (Course Information Sheets) and discussed with Project Management

7. Approval was obtained from project mamagement for a short term Demonstration/ Training Equipment Specialist and an Agricultural Engineering Extension Advisor to work with the extension/Training Staff.

8. Eleven meetings were attended and 8 field trips were taken during the month.

9. Seven Chevrolet Suburban vehicles were assigned during the month which solved the critical need for additional transportation in the field activities. As the project expands additional vehicles will be required, expecially in the field training activities.

DURING THE MONTH:

A major reorganization of the responsibilities of the Extension/Training subproject staff was completed during the month in order to clarify job responsibilities and functional relationships. As shown in Appendix 1, the subproject's overall direction now comes from the project coordinator with the extension/ Training coordinator acting in an advisory role as before. The Training Unit has been divided into In-Country and participant sections while the Extension into three sections (1.Behera/Garbya area 2. Sharkia/Qualibya area and 3. Minia area) with an Extension Officer and an assistant Extension officer assigned to each area. The two new Units of the new structure include the Rural Agricultural Mechanization Information Unit and the Demonstration/Training System Unit. More concentrated effort in project areas should result with this new structure.

Presentations given on Oct. 2-5 by the mechanization extension specialists from the Behera/Garbya area at the Sakha Training Center clearly demonstrated the need for the subproject's reorganization as they emphasized the need for area independence in order to meet the specialized needs of each village. Each area Extension Officer and assistant, can new focus on the specific needs in their area and are able to consult directly with project management without having to go through a bureaucratic network. The programs are now being implemented as the project procures equipment, funds, and other resources to support the efforts. When the programs are translated into English, they will be included in a report.

After considerable effort and a number of delays, three new courses-tractor operation, machinists, welder-were arranged with the MOA General Dep. of Training at their Nubaria Training Center located at Genaclease. Increased activities with this Center as well as their Sakha Training Center is part of an ongoing effort to

work within the existing MOA system. In this regard a large activity of technical training materials have been ordered for the department as well as a set of demonstration/training equipment requested by the Director General.

Mention also needs to be made of the ongoing cooperation between the Land Reform Training Center at Maamoura and the Project Training Unit. Several courses have been, and are being, carried out there, including tractor operation and a series of 3 mechanics courses. As with the MOA General Dept. of Training, the project has agreed to locate a set of demonstration/training equipment at Maamoura together with the same set of technical training materials now on order.

Concerning project field implementation activities, the first group of Demonstration/training equipment (cotton stalk or silage mowers) were placed in the Behera/Garbya area (7 units) and Sharkia/Qalubiya area (5 units). Although farmers demand for these units was slow the first week (begining 20 Oct.), the requests to use the units quickly outdid the equipment availability. A preliminary report on the mowers-especially the maintenance support problem - was drafted in conjunction with the financial planning unit and is being finalized as requested by Ministerial-level staff. The Preliminary report will be completed next month and a final report when the season ends in December.

The silage mower use in the field has raised a number of issues which need to be solved if the extension field implementation efforts are going to be successful. Although the Management System Requirements MEMO of Sept. 1982 outlines these basic needs, it does not deal with recently confronted problems in the field including the absence of the useable tractors to demonstrate project equipment, the timely flow of available but difficult to obtain funds for operation and equipment support, and the reluctance of some staff to follow recommended equipment operation and maintenance practices. These issues and problems are not very serious at this point with only a few implements in the field but will soon be when the large quantity of equipment is placed in the 23 project villages.

Participant training processing of 10 academic and 10 short-term observation tours has been temporarily delayed pending project management review of selected participants. It has been continually emphasized that the timely processing of the numerous candidates this month is necessary if both the academic and technical tours are to be completely processed in time to be carried out in 1983.

In order to effect the subproject's master plan to carry out numerous demonstrations and fully develop Village Programs, two agricultural engineering specialists have been approved by project management to work with the project's Extension/Training subproject. A short term Demonstration/Training Equipment

specialist, Mr. Mathew Peart, is due to arrive on Nov. 23 for two months and a long-term Ag. Engineering Extension Advisor, Mr. R. Engstron, is due in Jan.83 for a one year assignment. They will be under the direct supervision of the Extension/Training Coordinator and Project Coordinator.

Main field trips and meetings during the month included:

1. Three trips to Sakha Training Center to attend extension courses and encourage relationships between the Sakha/Qualibya Extension Officer and the mech. ext. specialists in training for this area. Unit the present time, the Sharkia/Qualibya Extension officer has had to give demonstrations and try to manage a field activities by himself which has caused a number of problems in the area and limited project implementation success. With the completion of the formal training of the specialists assigned to this area, the condition should improve as more men, equipment and other resources reach his project villages.

   Serious problems developed at the Sakha Training Center during the month involving administrative and financial matters which, combined with a lack of appropriate equipment with which to train the mechanization ext. specialists and poor staff moral, led to a project management decision to postpone the next village extension specialists course (for Behera/Garbya) from Nov.27, 1982 untill Feb. or March 1983. By that time it is hoped that the conditions at the Center will be more relaxed and sufficient equipment will be available to carry out appropriate training. As mentioned above, the project is placing a number of machines at the Center to assists in helping the situation.

2. Meetings were held with project management to discuss the subproject's reorganization which was presented to the subproject staff during the month.

3. Participated in a number of demonstrations/training sessions given by two German representatives of the silage mowers (Busatis) in four governorates. The Busatis dealer in Egypt, Diabex, furnished the project with a number of the free demonstrations as well as a percentage of fast moving spare parts necessary to keep the equipment working. The primary problem was locating suitable tractors in the villages which could properly operat the mowers.

4. Attended a MOA mower demonstration in Sharkia (Behera Village) with the Research and Development advisors Dr. Carl Reares and Ray Beebe. The equipment was only briefly tested at Belbais and needs to be expanded in larger field operations tests. A visit was also made to the village of sadeen where a double-knifed mower was used in the field. Farmers were pleased of the timely cutting of the cotton. It was impossible to convince either the tractor operation or extension officers not to run the blade in. This practice combined with improper maintenance of the mower-especially the practice of welding the knife units instead of changing them with new rivits-will result in short equipment life.

   As shown in the village survey notes of Appendix J, several villages did not have the facilities of staff for receiving, storing or carrying for demo./training equipment. Although this problem has not yet been solved the equipment was delivered to the areas in order to be used during the short mowing season. Hopefully some of the conditions will improve before additional equipment reaches the field or little use can be expected from the equipment. Important to note in terms of the Project Implementation Plans is the fact that some of the equipment is being placed in areas outside of designated project villages for a variety of reasons. Although this practice is beneficial in that it should result in the equipment being fully utilized, the fact that it will be difficult to give it proper maintenance support and care since the project has no specialists training outside of project areas needs close examination.

5. One meeting was held with the Soil Improvement Subproject staff to discuss their training needs, plans and problems, Although the subproject managers formally requested a number of course for tractor operations, mechanics, etc. for 1982, the training unit has continually received conflicting requests for the courses training as well as cancellations which were not reported until after the courses were scheduled to begin. The result of the unorganized requests has been fatal to the recipient training centers who have lost a large amount of business due to unfilled requests. Since the responsibility of carrying out these courses falls on the training unit which cannot function if courses

requested are not filled with trainees, we have requested the soil improvement subproject to furnish us with the names of the trainees before scheduling courses in order to prevent future problems.

MAJOR PROBLEMS:

1. The flow of funds from the project to the field officers remains a critical problem especially during peak harvest/planting seasons. A great deal of production has been prevented due to the lack of funds to carry out activities.

   This problem is twofold. (1) Although continual requests have been made to increase the petty cash fund from LE 2000 to LE 5000 to facilitate cash needs, this has not yet been done. (2) Many of the field personnel are not returning their receipts for funds they have been advanced to date, but are continuing to draw additional funds, thus piling up outstanding advance amounts. Until they clear up their outstanding advances, no additional funds can be procurred by the financial unit.

2. Although a great deal of Audio/Visual equipment has been procurred by the information Unit Director, it is being stored in cars and at home due to the absence of a storage area and warehouseman which are critically needed.

3. The Extension/Training Subproject Office has become so crowded and noisy with typewriters and personnel from other units that it is now almost impossible to work in the room. Unless two secretaries are moved out and the desks rearranged so one can walk through the office without crawling over a chair or another person, the work of the staff will continue to be effected.

PLANS FOR NEXT MONTH

1. Continue planned extension and training coordination activities, especially cotton stalk mowing with silage mowers.

2. Procure additional demonstration/training equipment for field demonstrations, especially the land scraper and grain drills for wheat planting.

3. Prepare a comperhensive list of specifications for demonstration/training equipment to be placed in all 23 project villages.

4. Begin technical training courses at the Nubaria training Center for public and private trainees.

5. Secure approval of the numerous pending participant training programs and tours.

6. Orient the short term Project Demonstration/training equipment specialist to field activities.

7. Finalize a preliminary status report on silage mower use on cotton stalks.

MONTHLY ACTIVITIES OF THE RURAL AGRI.MECH. INFORMATION UNIT

PREPARED BY Dr Mamdouh El Baz, Director

For the Month of October 1982 DATE _____ 19

A. SUMMARY:

1. At Sakha Training Center

2. Field day at Sadyeen Sharkia with TV. to atten a demonstration on cutting cotton stalks mechanically.

3. Field day about using potatoe planter, at menoufya governorate

4. Delivering and starting distributing 5000 posters + 10.000 folders on irrgation loy-pumps

5. Preparing precise specifications, making bids and collecting offers to print 20,000 pocket calender, advertising about mechanization project.

6. Buying A.V. equipment for the unit and mostly for extension staff in 2 governorates.

B. PROBLEMS:

1. Lack of the proper administrative system for manipulating equipment

2. Lack of a safe and available storage place for very expensive A.V.Aids.

3.

C. PLANS FOR NEXT MONTH:

- Collecting bids to print the mechanization appoitment book
- Printing a bulletin about loans offered by the project.
- Delivering and distributing the mechanization extension signs on villages and fields.
- Printing materials for the appropriate technology Seminar.

(original signed by A. El Baz). 19

Signed Date

Dr M. El Baz 28,10,1982

APPENDIX A

MONTHLY ACTIVITIES OF THE ~~Mechanization Extension Model Unit~~ DEMONSTRATION/TRAINING SYSTEM UNIT

PREPARED BY Gordon Stringer

For the Month of October 1982 DATE _____ 19

A. SUMMARY:

1-Physically inspected and selected land to be used for Mechanization Extension Model farm at Gebel Asfar.

2-Set up list of equipment for use at the farm and for extension and received "in project" approval of the list.

3-Completed specifications of the equipment list.

4-Requested data from U.S. to spec out balance of the required equipment

5-Discussed with the Ministry of Agriculture and the Principal Secretary for Agriculture in Qualubiya Governate, the use of the land, shop building and office space at Gebel Asfar Farms.

6-Carried out farm survey data collection and payment of the assistant enumerators

B. PROBLEMS:

1. Need to expidite the LC process in order to not delay start of operations,

2. Need operational budget for farm/extension operations

3. Need Odulio on site 2 to 3 weeks prior to equipment arrival

C. PLANS FOR NEXT MONTH:

1-Complete specification list

2-Carfy out the Nov.-Dec. wind-down of the farm survey field work

3-Obtain approval of the equipment list from Dr. Ali Hossary

4-Put approved list out for bid

5-Arrange for secure storage of Mr. Coles tractors at G.A.F.

6-Set up co-ordination between Farm Management group and the G.A.F. on-site staff.

7-Prepare for ~~the~~ transfer of the farm Management activity to G.A.F. office.

Signed Date 19 82

APPENDIX B

MONTHLY ACTIVITIES OF THE Assistant Extension Officer-Beheira/Gharbya

PREPARED BY ~~Mohamad Abdel Aziz~~

For the Month of Oct. 1982 DATE _____ 19

A. SUMMARY:

- I delivered 10 Bosatis Mower and distributed at 4 at Sharkia 3 at Beheira, 3 at Gharbia, Three demonstration days with two German Eng. fromthe Company and trained our specialists how to use and adjust the mower, maintain, and operation.
- Plus weekly visits to the villages.
- I helped with the repairing of P.T.O. for one mower at Azab Besentway
- Folow up of water lifting pump
- Azab Besentway- Desnos El Gorn- Gharbia
- Kom El Naggar, Shabshir El Hessa, Qalub Abiar
- We had discussions with the specialists about wheat plots and rent of tractors.

B. PROBLEMS:

1. I had no car for 20 days this month
2. The specilaists at Gharbia have to go every day to the office to sign in the morning.
3. There is no transportation for specialists

C. PLANS FOR NEXT MONTH:

1. Receiving seed drill machine

   Receiving land leveler

   Receiving of furrow opener

   Planting wheat.

18 Sp. Ops/Mech.
4.0/5

Signed _____ Date _____ 19

M.Abdel Aziz

APPENDIX C

MONTHLY ACTIVITIES OF THE Beheira/Gharbia Extension Unit

PREPARED BY Ahmad Beheiri, Project Extension Officer

For the Month of October 19 82 DATE _____ 19

A. SUMMARY:

1. Attending English course at A.U.C.
2. Eng. M.Abdel Aziz had already moved 6 rear mounted mower from Mansoura to Ext. Village in Beheira, one at Desia, the second at Besentwai, the third one at to work at El Gorn and El Brawia. Also we distributed three machines at Kom El Naggar, Shapshir El Hessa, the the third at
3. We trained Ext. specialists on the spot such as
   - How to fit the mower with the tractor
   - Mower adjustment before operation
   - Daily Maintenance
4. The project approved our specialist to rent a tractor for machine operation
5. We had discussions with specialists about wheat plots.

B. PROBLEMS:

1. Some of the Extension Villages has no large areas for wheat plantation
2. We havent on hand tractors belonging to the project for demonstration.
3. We have a lack of hand tools.

C. PLANS FOR NEXT MONTH:

- Receiving seedbed preparation machines such as
  1. Land leveller
  2. Furrow opener
  3. Seed drills
  4. Establishing field training before wheat planting on the spot.

Signed _____ Date 11/11 19 82

APPENDIX C

AGRICULTURAL MECHANIZATION PROJECT

MONTHLY ACTIVITIES OF THE : Extension Officer-Sharkia/Qalubia

PREPARED BY : Salah Bakar

FOR THE MONTH OF : October 1982 DATE: Nov. 3, 1982

A. SUMMARY

- The televising of the Peanut digging in the attendance of Farmers, Engineers in Sharkia and a representative on behalf of the Governor.
- The preparation of Mower for cutting of cotton straws and transporting it to operational areas in El Saadyeen and Diar Benegm and Belbase.
- Televising of cotton mowing operation in the attandance of Dr El Haddad and Dr El Baz and a group of farmers and engineers at El Saadyeen Farm.
- A visit with Mr Schantz and Dr Reaves to El Sharkia Farms to inspect cotton mowers and to identfy some harvesting equipment
- We visited El Qalubia Governorate to set the program for the straw mower and its transportation to El Shamout Farm in preparation for its operation. In addi- to the training of workers on its maintaining and repair- ing.
- I visited with Mr Fred the Qalubia Farms and witnessed cotton mowers and followed up on the operation and maintenance process we were accompanied by the German expert..
- We carried on the process of repair and maintenance of mowing equipment at Sharkia and Qalubia.
- The purchase of a manual equipment to be used in the process of repair and maintenance and training.
- A visit to the sakha training with Mr Schantz, Mr Ibrahim El Ghatas to explain ways of using seed drill and wheat harvesting for trainees at the center
- The receiving of cotton mowers with the German expert of the Co in Mansoura. In addition to the training on maintenance and repair and operation for workers at Extension farms of the project.
- More awarness among farmers have increased towards these equipment and its spread in villages of Belbase- Minia El Kamh- Diar Benegm in Skarkis and Toukh and Banha, we also visited the undersecretary of Qalubia to set forth an ex- tension plan for these equipment, Mr Schantz attended. Operation has started in a 200 feddan area.

APPENDIX D

B. PROBLEMS

- Some tractors are not fit or suitable to operate these equipment due to the weakness of its hydraulic system

C. PLANS FOR NEXT MONTH

Field following up on Equipment till end of the season. frequent maintenance and repair to raise the efficeincy of these equipment. Training workers and farmers on the daily maintenance .

To set forth a plan for wheat cultivation.

Preparation of equipment for wheat crop and moving it to the area of work

Followup on the awareness of farmers and workers opnions on equipment especially after field demonstrations

SIGNED S. Baker

DATE 9/11/1982

APPENDIX D

MONTHLY ACTIVITIES OF THE IN-COUNTRY TRAINING UNIT

PREPARED BY Ibrahim El Ghatas - Training Officer

For the Month of October 1982 DATE _____ 19

A. SUMMARY:

1. Second Saadyeen Training Course for tractor driving started on October 2,1982 for 12 trainees.

-. Third Maamoura Course for Mechanic level 1 started on Ocotber 16,1982 for 15 trainees.

- Two training courses for rice transplanting conducted in Kallin Markaz- Kafr El Sheikh: The first started on Oct. 4 and the second on Oct. 19,1982. Both included 14 trainees.

- Letters were sent ot Beheira- Gharbia, soil improvement, service Centers - and Mr Salah Bakar to select candidates for the training courses: Tractor operators, welders and machinists.

B. PROBLEMS:

1. Visits and tours were paid:

a) Four tours were paid to Kafr El Sheikh to open the courses
2. of rice transplanting and to followup on Sakha Courses.
b) Visit to Saadyeen service station to followup the courses there.
3. c) Visit to Maamoura Center to open and followup on the course of mechanic level 1.

C. PLANS FOR NEXT MONTH:

Meetings were held :
- A meeting with Mrs Samira Khalil to agree on Mechanic level II.
- A meeting with the people in the training department to agree on the courses we will hold in Nubaria Center i.e Tractor driving, welders and machinists.

To conduct the following corses:
a) Mechanic level II in Maamoura on Nov. 27.1982
b) Machinist on Nov 20
c) Tractor operators on Nov. 13
d) Welders on Nov 13
Attend the closing session of extension specialists in Sakha Training Center on Nob 11.
Follow up on courses in the Training Centers.

SIGNED DATE

Ibrahim El Ghatas

APPENDIX E

AGRICULTURAL MECHANIZATION PROJECT

OCTOBER 1982 TRAINING SCHEDULE

DATE	TIME	LOCATION	COURSE NO.	COURSE TITLE	COMMENTS
MACHINERY MANAGEMENT EXTENSION					
31,July — 11,Nov.		Sakha Training Center	2EX16	Mechanization Extension: Village level	(6 Students)
31,July - 11,Nov.		"	2EX25b	Mechanization Extension: District Level	(13 Students)
Sep.-Oct		AUC	1Ex14	Intensive English	(1 Student)
2,Oct.- 15,Nov.		El Sardeen Training Station	2EX36b	Tractor Driving	12 Students
16,Oct. - 15,Dec.		Mamoura Training Center	2EX18C	Mechanic: level I	15 Students
Oct. 4-18		Kallin Research Station	2EX80B	Rice Transplanting	14 Students
Oct.19 - Nov.3		"	2EX80C	" "	14 Students
Oct.-Dec		Project Villages	2EX80d	Silage Mower Operation/ Maintenance	20 specialists and 40 tractor operators /mechanics
PLANNING AND EVALUATION					
Aug.-Nov		AUC	2PE5	Intensive English	(5 Students)
RESEARCH AND EVALUATION					
		- NONE -			
SOIL IMPROVEMENT					
Oct.-Nov		AUC	2Si11	Intensive English	1 Student
SERVICE CENTERS					
		- NONE -			
TRAINING					
Jun.-Dec		Behera Training Center	2LM1	Industrial Technology for Dev. I	(3 Students)
Oct.-Nov		AUC	2t10	Intensive English	3 Students

APPENDIX F

AGRICULTURAL MECHANIZATION PROJECT

MONTHLY ACTIVITIES OF THE : Participant Training Unit

PREPARED BY : Samir Showky

FOR THE MONTH OF : October 1982 DATE

A. SUMMARY :

- Village extention specialist seminar
- Testing the candidates for the academic training in English.
- Preparing for non academic training(observation tours)

B. PROGRESS :

a four days seminar for all extension specialists- 1st group from Beheira and Gharbia together with 2nd group from Minia/Qalubia and Sharkia was held in Sakha T.C. from second October to the 5th.

An English Screening test(ALIGU) for 50 of the academic candidates had been held in the AUC through the English language department in USAID.

A complete proposal for the observation tours is prepared and discussed with Dr Zakaria El Haddad and we started the stage for names collecting for this trip.

C. PROBLEMS

D. PLANS FOR NEXT MONTH

- More action in both of the academic and non academic participants training
- An interview for the academic candidates that score over 50 in the ALIGU test
- Processing the observation tours through training department in the USAID.

(Original Signed)

SIGNED DATE

APPENDIX G

[illegible]

AID GRANT NO 263-0401
MINISTRY OF AGRICULTURE
ARAB REPUBLIC OF EGYPT

FISCAL REPORT

TRAINING AND EXTENSION SUBUNIT

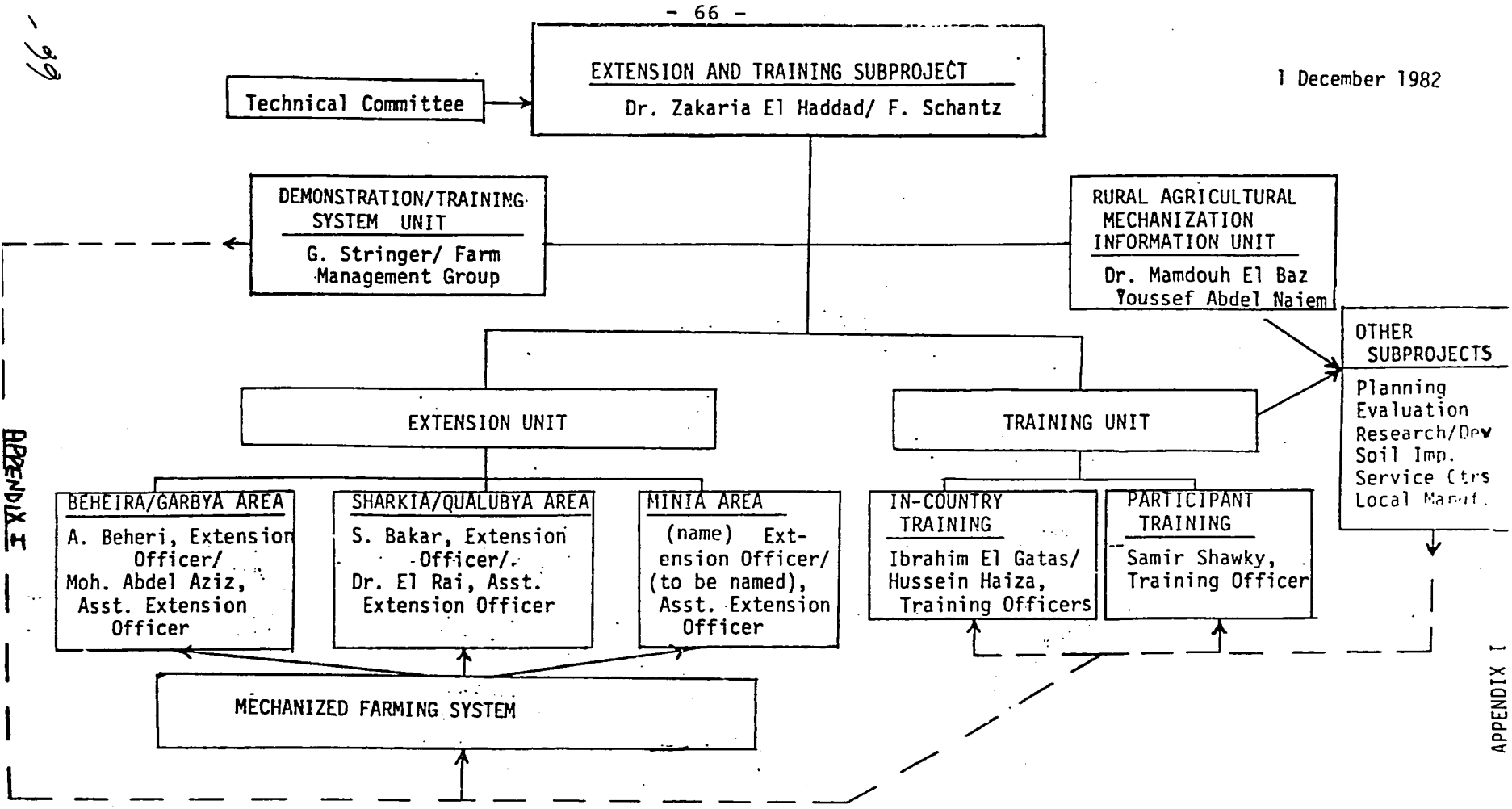
Month of October 1982

The following is a summary of the fiscal report No [illegible] local currency related to the referenced Training Subunit.

Line Item	Budget	Expenditure	Total to date
	LE	LE	LE
1. Instructors Fees :		4,302.000	
a) Workshop / Locational trainig			
b) Field demonstration			
c) Subtotal			
2. Equipment rental		224.000	
3. Petroleum, oils, lubs		—	
4. Training Aids		2,256.000	
5. Training Equipment		22,135.000	
6. Machine Operatori Fees		—	
7. Room / Board		465.000	
8. Transportation		249.500	
9. Expendable training materials		3,685.850	
10. Incidental Living Expenses		1,011.000	
11. Training center fees		8,865.000	
12. Administrative expenses		101.310	
Total		43,294.660	

SIGNED:

APPENDIX H



ORGANIZATION CHART OF THE
MACHINERY MANAGEMENT EXTENSION AND TRAINING SUBPROJECT

FIELD VISITS TO THE PROJECT VILLAGES IN THE BEHEIRA GOVERNORATE IN ORDER TO DETERMINE IF THE VILLAGES HAVE SUFFICIENT SHED OR STORAGE FACILITIES TO STORE THE DEMONSTRATION/TRAINING EQUIPMENT THIS SEASON

1. NOTES ON A VISIT TO EZAB BENTUAE with Mahmud on 22 Sept, 1982

Location: 15 klms east of Damahour; roads are ok and paved

Enumerators are usually around during the day

Demos: Over 137 feddans are available for wheat planting; 185 farmers are involved; 30 feddans have been chosen for wheat now; The farmers are also receptive to siphon irrigation according to Mahmud

Coop office: Good office area; large storage shop but full of phosphate fertilizer which will have to be removed to prevent rusting of the new equipment

Equipment: tractor, chisel, misc. Mechanic had oiled the chisel for storage which showed concern for the equipment

Extension advisors comments: Needs rice transplanters in his area in addition to other equipment listed in his Village Program

Other: Mahmud mentioned that the farmers in the area were very receptive to cooperative effort and are good farmers; they are also receptive to the siphon irrigation idea and thought Dr. El Gindy's irrigation demonstration was ok even if there were a few unavoidable problems during the demonstration.

APPENDIX J

2. NOTES ON A VISIT TO EL GORN with Helmi on 20 Sept. 1982

Location: 15 klms from Damahour (north). Road ok--main ag road borders the coop offices

Enumerators are usually there

Demo possibilities: Helmi said to see his program for details; some land has been chosen for wheat planting

Coop office: small place for possible workshop; need door to be put into one wall large enough to getequipment inside; another possibility is to use another storage area from a neighboring village (can be used for both El Gorn and El Darawia villages).

Equipment: 1 tractor; chisel plow, sprayers

Helmi's comments: Explained coop operation and introduced manager who was driving the tractor

Other: Need approval of funds to open a back wall to allow project equipment to enter and be locked up. Now the area is ok for only one or two pieces of equipment; no maintenance facilities nearby

3. NOTES OF A VISIT TO EL DARAWIA with Abu Salam on 22 Sept. 1982

Location: 20 klms up from Damahour 2 klms south of El Gorn
Roads -paved to coop but big bumps (speed) in road

Enumerators are usually present

Demos: 13 feddans ready for wheat planting; demo plot is about ½ klm from store across the ag road which may cause some problems; There is no storage area for equipment here; it is possible to store the machinery in a different village (Gardat) across the ag road although it does not have a gate at the coop shop enclosure.

Equipment: none with the coop but individual farmers in the area own tractors, etc. No maintenance facilities nearby

Abu Salam is interested in demostrating mostly 5 feddan areas

Other: 5 large farmers only in the village; the extension officer lives and commutes from Damahour

f. NOTES ON A VISIT TO DESUNES(DESMOUSE) with Morsi on 22 Sept. 1982

Location: Same road as Darawia down 5 klms; road ok

Enumerators usually present

Demos: has 30 feddans for demos of wheat planting but scattered over the area and some across the ag road (10,10,5,5 feddan plots) Has plans to demo some siphon irrigation and long furrow fields

Coop office: reasonable; large compound with storage areas

Equipment : sprayer only; farmers in the area have other equipment

Morsi: Very familiar with the area and farmers; commutes daily from Alexandoria ; has bed upstairs in coop office if necessary

Other: The area has small fields and diversified crops; implements working in the area would have to move around a lot into difficult areas to get into.

NOTES ON A VISIT TO DESYA with Moustafa on 22 Sept. 1982

Location: Near Ezab Bentae on the main road ; road is paved

Note: Moustafa was not present and notes were taken from Mr. Fouad, the Beheira governorate extension director who had attended the Sakha training center mechanization extension course with the other district specialists under his direction

Demos: 20 feddans for wheat planting have been selected

Coop office: same set up as the one at Desunes (Desmouse); No gate on the enclosed area which is fine for storing equipment. No equip- now exists at the coop; many private tractors are in the village.

Other: very open area with several crops

FIELD VISITS TO THE
PROJECT VILLAGES IN THE GHARBYA GOVERNORATE
IN ORDER TO DETERMINE IF THE VILLAGES HAVE SUFFICIENT
SHED OR STORAGE FACILITIES TO STORE THE DEMONSTRATION/TRAINING
EQUIPMENT

/. NOTES ON A VISIT TO SWEBSHEAR EL HESSA with Ahmed on 21 Sept. 1982

Location: Turn off ag road at Malta El Kobra to the right-9 klms Road is paved to the coop offices

Enumerators are usually present; evaluation enumerator was not there this day

Demos: 25 feddans are oked for wheat planting. Ahmed is still looking for 5 feddans near the road for demos

Coop office: very good; compound is fine for ag equip and sheds are present; Ahmed has people identified for operator/ mechanic and storekeeper

Equipment: 2 tractors; chisel plow, 2 sprayers

Ahmed's comments: he agreed with the coop manager that it is easier to collect larger areas of land in the summer for demos; one farmer left 100 feddans fallow due to labor problems. He also needs a backhoe for cleaning ditches badly.

2. NOTES ON A VISIT TO KAFR DIMA with Helmi (abou zeid) 20 Sept. 82

Location: Turn off above Tanta at about 12 klms-turn left on rr crossing and cross the canal. Road: paved and close to ag road. Helmi has the only motorcycle among the specialists.
Enumerators: present and also met Mahyer and Ismail from farm mang.

Demo possibilities: 1 feddan for long furrow irrigation; 4 for berseem

Coop office: large yard, shed--Helmi will discuss about storing equipment there; not sure yet. The coop manager was not considered the best by Moh.

Equipment: 2 tractors, 1 chisel

Extension advisor (Helmi) comments: No storage area yet; one of the farmer's buildings could be used but is 2 klms away; still looking and could be rented from the farmers. One farmer present said siphons won't work on clay soils--based on the field day failure he saw (Dr. El Gindy's). The farmer said we could use one of his feddans for a siphon experiment only if we pay for it if it fails as he saw before.

3. NOTES ON A VISIT TO KOME EL NAGGAR with Abd Zar on 21 Sept. 1982

Location: 30 klms above Tanta ; 5 klms outside Tanta, right to Basyum Road: mostly paved about 10 klms of dirt but ok. More remore that most villages bui in an open area

Enumerators are usually there

Demo possibilities: 20 feddans for wheat arranged

Coop office: Reasonable with sinking floors. Extension brouchers are posted; good storage area; very good area for equipment and a mechanic on duty with a small workshop--very organized and clean

Equipment: 2 tractors, chizel, threashers, ridger, sprayers. Has hand tools, also a major repair facility is 8 klms away

Extension advisor Abd Zar: Farm management people are looking for large demo plot by themselves; need to coordinate with him and others They want to help. Abd Zar lives nearby but has difficulity commuting

Other: Could use mobile service trailors; an well trained specialist

4. NOTES ON A VISIT TO KOLAD KALIBAR (Kalib) with AZIZ on 15 Sept. 1982

Location: north of Tanta on ag road up 25 klms to right turn at sign that says Alex 105 klms. Poor road but passable - 8 kilometers to village.

Village has project enumerators: 2 farm management and 1 evaluation who is never there. Aziz has chosen a 20 feddan area owned by 3 farmers to demo long furrow irrigation in the next 3 months. The main coop office has fair records and offices but no good place to store equipment--we found a shop/parts house spot but full of trash; also there is a small shed which may be ok for some of the equipment located some distance from the coop office which is inside the village compound

Equipment: coop has several pieces including tractors

Coop manager has equipment now which is used on the farms; he does not like the flail chopper idea but welcomes the silage mower

Aziz would like to use the coop manager as the village extension advisor

5. NOTES ON A VISIT TO KOMATEST DAMSHEAT with SAMI on 22 Sept. 1982

Location: Sakha training Center turnoff before Tanta or about 10 klms in; along road location of coop office. Roads paved and ok

Enumerators come every day.

Demos: have 2-25 feddan plots ready to plant wheat

Coop office: good offices; storage area in rear for basic equipment; No enclosed area shed but enclosed yard; coop staff said they would enclose an area for our equipment as necessary

Equipment: 1 Nasr tractor; motorized sprayers, chisel plow

Extension advisor Sami: The farm management group cause some problems by telling the farmers-coop they will establish a 100 feddan demo farm independent of the extension dept.

Coop manager agreed to personally help fix the sheds as necessary for equipment asap; he was very anxious to get more implements this season.

Sami would like to enroll in an English course and will write a request to Mohammed Abdel Aziz the area coordinator.

A.2 Extension/Training subproject

Activity Report

November 1982

Submitted by: Fred Schantz, Ibrahim El Ghatas, Ahmed El Beheiri, Dr.Mamdouh El Baz, Samir Shawky, Salah Bakar, Gordon Stringer, Hussin Heiza, Moh. Abdel Aziz

SUMMARY:

Major events of the month are summarized below. Detailed reports of each submit are found in Appendixes A through G. Appendix H lists the expenditures for the subproject for the month.

1. Three more types of demonstration/training equipment (10 seed drills, 10 land srapers, 10 ridgers) were placed in project villages and began field operations with the 10 silage mowers already in operation. The mowers cut an estimated 1200 feddans from when they began operations in late October 1982 and the seed drills approximately 450 feddans since they began planting on 25 Nov. Also, a wheat planting schedule was prepared and is found in Appendix 1.

2. The short term Demonstration/Training Equipment Specialist Mr. Matthew Peart arrived on 23 Nov. and began assisting the extension officers in field operations.

3. A field day was held at shiek Ahmed village to demonstrate mechanized farming to Behera Governorate farmers and project personnel. Proper used of a grain drill was the main topic presented.

4. Specification for a comprehensive list of demonstration/training equipment for project villages was proposed and submitted to project management for approval. It included 21 items for 236 pieces of equipment, some quantities of which were finalized by project management.

5. A silage (cotton stalk) mower status report was prepared for project management and was included as a preliminary report to the MOA on the preformance of these machines (see Appendix 1).

6. The water-lifting credit fund continued to flow to farmers as 262 pumps were purchased in October 82 by project village farmers. A specialized short course has been developed at the Sakha Training Center on irrigation

extension in order to train project specialists on this subproject.

7. Technical training courses (2) were begun at the Nubaria Training Center after several months of unavoidable delays. Included were one tractor operators course and one machinists course. The former planned third course for welders was cancelled by the Center at the last minute and several farmer trainees were returned home.

8. The second course for project mechanization extension specialists was completed at the Sakha Training Center on 11 November. With the 18 specialists returning to Sharkia, Qualibya and Minia areas, all 24 project villages now have project mechanization extension specialists working with the project areas extension staff (see Appendix K).

9. Several new courses were organized during the month (key farmers workshops, combine operation/maintenance, irrigation extension, rice transplanting) and are being finalized.

10. Participant training activities continued with the completion of screening 65 candidates for Academic study programs and preselection of observation study tours, candidates for 10 study tours. Details of these tours are found in Appendix G and, together with the academic programs candidates, are pending project management approval.

11. Nine meetings were attended and 12 field trips were taken during the month.

DURING THE MONTH:

Field implementation activities increased dramatically during the month with the arrival of seed drills, scrapers and ridgers to farm project governorates (all but Minia). Activities in the Minia area have been delayed pending the assignment of a Project Extension Officer to work in that area. In the other project governorates, hundreds of farmers were exposed to, and were receptive to mechanical cotton stalk harvesting, wheat planting and land leveling operations. The overwhelming response was primary due to the economic advantages of free demonstrations but also directly related to the absence of a labour force to carry out these operations. The lack of suitable or available tractors, operating funds, means of transporting equipment from one place to another and sufficiently trained personnel

slowed the operations considerably but did not stop the enthusiastic project and extension staff as well as farmers from getting the most out of the equipment.

Intense efforts by the extension and training subproject staff extended into the planning of a series of field days/demonstrations which will be held for farming populations from project areas begining Dec.4. Four two - week courses for 120 farmers will be held at the Sidi Bishr Training Center ant at several selected field sites where implementation activities are being effected.

Main field trips and meetings during the month included:

1. Two trips to the Sakha Training Center to deliver lectures to the mechanization extension specialists (group 2) on village program planning (one day) and to officially close the three month course.

2. Numerous field trips were taken with project area extension personnel to advise technically on the use of silage mowers and grain drills. Several units were misused due to poor tractor operators and support systems which should improve as experience is gained on the unfamiliar equipment. Also an inexplicable reluctance by many extension personnel to follow experienced technical advice continues to adversly affect otherwise successful demonstrations.

3. Two field trips were taken in order to examine rice combines (JD 942, D-F 980) harvesting in the field and recommendations were given to project management concerning the observed results and possibilities for using these machines.

4. Discussion were held in Alexandria with the Local manufacturing Advisor and counter-part concerning their training program. To date very few of the budgeted training aids/equipment/materials have been procured due to the work load on this unit's staff.

5. An important meeting was held on 2, November with two staff from the major cereals project. The mechanization project agreed to use its seed drills to plant at least 125 feddans of wheat in the MC test districts and the professional MC researchers agreed to assists our staff in advising farmers in properly fertilizin and cultivating their crops.

6. Meetings were also held in order to determine the specifications of demonstration/training equipment, especially that of seed planters and mower/binders (the last two items of the group 1 equipment list). Also a comperhensive list of demon. /train. equipment was completed (Group 2,3) in order to furnish all project villages with basic machines and implements in order to complete extension and training demonstrations.

7. Several field visits were taken with Mr. Julio, an Italian seed drill expert in order to properly inspect, adjust and train specialists on the recently acquained Gallanani seed drills.

MAJOR PROBLEMS:

1. The lack of funds for field demonstrations continues to hamper field activities.

2. A storage area and commodities procurement/record keeping officer is still critically needed.

3. The extension/training office continues at times to be an almost impossible place to work as the number of people increases and noisy secretarial staff becomes noiser. With the projected arrival of the new extension advisor in January who will need a desk located in the new office, immediate action to move the secretarial staff to another location needs to be taken.

4. The serious problem of proper equipment support for project demonstration, training equipment in project areas has become acute this month. This is due to the intense field efforts now in progress with silage mower and seed drills.

5. Some of the project demonstration/training equipment, mainly land scrapers received by the project, were not in proper working order. The responsible dealers were notified and are making the necessary repairs.

PLANS FOR NEXT MONTH:

1. Continue planned extension and training coordination activities, especially mechanized wheat planting with grain drills.

2. Procure and demonstrate additional equipment for field demonstrations, expecially the disc harrow and backhoe.

3. Secure approval of the numerous participant training programs and study tours (still pending project management approval).
4. Prepare a final report on silage mowers and seed drill use.
5. Participate in a disc mower demonstration on cotton stalks.
6. Distribute the Revised Participant Training Guide to all Project staff.
7. Review Behera/Garbya Village Programs following the receipt of the English translation.
8. Develop a Demonstration/Training Equipment Activities Chart and, with the Service Center Subproject, a Project Villages Demonstration/Training Equipment Maintenance Program.

AGRICULTURAL MECHANIZATION PROJECT

MONTHLY ACTIVITIES OF THE Rural Agric. Mech. Information Unit

PREPARED BY Dr. Mamdouh El Baz , Director

For the Month of November 1982 DATE 28.11.1982

A. SUMMARY : Attending the seminar held between the 13th and 20 Nov. about implementation of appropriate technology in Egyptian Rural Communities.

This seminar was covered by National Broadcast,T.V., 3 daily news-papers, and provided with 6 video-films, 8 collections of coloured slides, and 16 specialised bulletins.

2. R.T. to Behera Governorate to join a trial on using German Combine (FAHR Dent 2) on rice and baler of rice straw.
3. R.T. for 2 days of Sakha Training Center to examine orally extension engineering to be graduated on 11th Nov.
4. Delivering and starting distributing and fixing mechanization extension signs on villages and fields.
5. Delivering 20.000 copy of pocket calendre for the year 1983, belong to the project.

B. PROBLEMS :The same as former month

C. PLANS FOR NEXT MONTH :

- Collecting bids for the bulletin about loans offered by the project.
- Delivering and distributing the mechanization appointment book 1983.
- Organizing a training course to our extension officers about using A.V. delivered to them.

Signed Date

APPENDIX A

AGRICULTURAL MECHANIZATION PROJECT

MONTHLY ACTIVITIES OF THE Demonstration/Training System Unit

PREPARED BY Gorden Stringer

For the Month of November 1982 DATE _____ 19

A. SUMMARY :

See Monthly Report (attached)

B. PROBLEMS :

1. Operational budget source needed for farm/extension operations
2. Need mechanic and farm superintendent on site 2 to 3 weeks prior to equipment arrival
3.

C. PLANS FOR NEXT MONTH :

1- Carry on wind-down of the farm survey activities
2- Complete agreement on how we handle the land at GAF
3- Survey the land which was selected-Coles group
4- Finalize equipment bids

_____ 4 Dec. 1982

Signed

APPENDIX B

AGRICULTURAL MECHANIZATION PROJECT

MONTHLY ACTIVITIES OF THE BEHERA/GARBYA EXTENSION UNIT

PREPARED BY Ahmed Beheri, Extension Officer

For the Month of NOVEMBER 1982 DATE 19

A. SUMMARY :

1. I finished my English course at AUC on 11th of November.
2. We trained our specialist on the spot with mower
3. We received 5 Grain Drill and 5 Furrow openers, and land leveller from Tanta Motors Co. and three blades from Behera. Gov.
4. Eng. Abdel Aziz, he distributed the machines into our Ext. villages.
5. We adjusted the Grain Drill on the spots under supervision of Italian Techmachine from the factory.
6. We trained our specialist on the field with the seed drill.
7. We received to more land leveller to help our specialist for seedbed preparation.
8. We have agreement with Tanta Motors Co. to sharpine our knife.
9. We started planting on 24th of November at Asag Besentway village, on 26 we planted at desia, on 28th at El Shiek Ahmed.
11. Dr. Zakaria El Haddad, he provide us at El Shiek Ahmed Grain-drill from RLD to finish our plan om proper time, and we moved grain drill from Mansoura to El Shiek Ahmed.
12. We demonstrated different kindes of mowers.
13. We accompanied Mr. Matheno to our villages.

B. PROBLEMS : (See attached Sheet)

C. PLANS FOR NEXT MONTH :

1. Continue our field activities especially wheat planting.
2. Arrange a night meeting at our village during this month.
3. Adjust and mentaine the machine after operation
4. Storage the equipment at a proper place
5. Build a demonstration system.
6. We arrange two field days with the leader of farmers at training center.

Signed

Date

APPENDIX C

PROBLEMS :

1. The main problem during our activities is a lack of administration such as we received a lot of machines without inventory books.

2. We have not any hand tools at our villages.

3. We faced a shortage of financing to cover our field expenses.

4. We haven't enough number of seed drills to cover our wheat planting on proper time

5. We are facing a trouble with machines transportation.

6. Most of the tractor wasn't suitable to fit with our equipment.

7. We need to provide our extension specialist with papers and files.

AGRICULTURAL MECHANIZATION PROJECT

MONTHLY ACTIVITIES OF THE SHARKIA/QUALIBYA AREA EXTENSION OFFICER

PREPARED BY SALAH BAKAR

FOR THE MONTH OF NOVEMBER 1982 Date DEC. 11 1982

A. SUMMARY :

- Increasing working sites of machines for cutting cotton stalks with MR HARY for the villages of Sharkia and Qualibya Governorates to follow up the working operations.
- Making a maintenance for cutting machines knives (control operations).
- Transporting of machines from Pilbees Center (Al-Goush) and preparing it to work after its transportation from Dyarb-Negm.
- Transporting an Italian made stalks cutting machine to examine it from Tanta Company in the project villages.
- Receiving the machines from the companies for the project villages and distributing them on the project villages.
- Examining the machine of Company Moquet Mondeer with Mr. Fred and the representative of Icona Company in Food Security Company in Domiat
- Attendance of graduating procession of an instalment of students from Sakha Center , Agricultural Extension Syllabus, and among them leaders for Qualibya and Sharkia.
- Meeting with the leaders to facilate their task with the different departments with the attendance of heads of departments.
- Transporting of machines to the working sites in the villages . (Sharkia and Quaibya).
- Visiting the villages near to the project's villages to help farmers.
- A follow up for the operation of purchase of irrigation groups related to the project with the cultivators.
- Examining Mower(rice) machines with the attendance of Dr. Ahmed El-Sahreegy, Dr. Zakaria El Haddad, Mr. Fred and Gaiser and a group of Experiments Stations in Alexandria.
- A follow up of land preparation operations to cultivate them with operating machines.
- Meeting the Italian expert responsible for operating machines and discussing some points.
- Doing agricultural operations with operating machines, and 120 Fed. were cultivated from the date 1/12/82 in Sharkia and Qualibya Governorates in participation with cultiators and leaders.
- Cultivators begin to use operating machines.

B. PROBLEMS :

To find tractors to operate the machines related to the project,

for there is no tractors in the project's villages good for operating the machines and the result is the lose of time in looking for the suitable tractor.

C. PLANS FOR NEXT MONTH :

1. To prepare lands to cultivate them with the wheat crop,
2. To complete agricultural operations with machines
3. To spread these machines among farmers.
4. To participate with cultivators in the methods of preparing lands with modern methods and the suitable reform and with machines possessed by the farmers.
5. To train the farmers on how to use the agricultural machines.
6. To establish training syllabus for the cultivators in the villages to use machines S. Bakar.

APPENDIX D

AGRICULTURAL MECHANIZATION PROJECT

MONTHLY ACTIVITIES OF THE In-Country Training Unit

PREPARED BY Ibrahim El Gatas, Training Officer ,Hussen Helza

For the Month of NOVEMBER 1982 Date _____ 19

A. SUMMARY :

- Implementing the training course of tractor operators in Nubaria Center for 13 trainees on Nov. 13.1982.
- Implementing the training course for machinists for 10 trainees in Nubaria Center on Nov. 20,1982.
- Courses of rice transplantation:
  a) first for 14 trainees on Nov. 1,1982
  b) secong for 15 " " " 15,1982.
- Preparing for the training program of the key farmers to start on Dec. 4, 1982. No. of planned trainees is 120.
- Preparing for training program on maintaining and operating combine machine for 5 extension agents in North Tahrir Company.
- Attending the closing session of the training course of the extension specialists in Sakha Center held from July 31, through Nov. 11.1982.
- Implementing the training course of mechanic II in Mansoura Center for 15 trainees Nov. 27, 1982.

(Con. P. 2)

_____ _____ 19

Signed Date

APPENDIX E

AGRICULTURAL MECHANIZATION PROJECT

MONTHLY ACTIVITIES OF THE In- Country Training Officer

PREPARED BY Ibrahim El Gatas, HUSSEN HEIZA

FOR THE MONTH OF NOVEMBER 1982 DATE _____ 19

(Cont.)

B. VISITS :

- Visit to Mamboura Center
- Visit " Sidi Bishr " for preparing for key farmers program.
- Visit to the agricultural department in Kellin for following up Rice Transplantation courses.
- Visit to Nubaria Center
- " " Behera Company
- " " Sakha Center to attend the closing session.
- Visit to north Tahrir Company to arrange for the combine course.
- Attending the experiment of rice mower in Delengat.

C. PLANS FOR NEXT MONTH :

- Conducting two courses for key farmers at Sidi Bishr center Alex.
- Holding a course for 5 extension agents on combine at North Tahrir.
- Holding two courses for rice mechanical transplantation.
- Following up training courses.

_____ _____ 19

Signed Date

AGRICULTURAL MECHANIZATION PROJECT

NOVEMBER 1982 TRAINING SCHEDULE

DATE	TIME	LOCATION	COURSE NO.	COURSE TITLE	COMMENTS
MACHINERY MANAGEMENT EXTENSION					
31 July-11 Nov.		Sakha Training Center.	2EX16	Mechanization Extension: Village Level	(6 students)
31 July-11 Nov.		" "	2EX25b	Mechanization Extension: District Level	(13 students)
2 Oct.-15 Nov.		El Saadin Training Station	2EX36b	Tractor Driving	(12 students)
16 Oct.-15 Dec.		Mansoura Training Center.	2EX18c	Mechanic : Level 1	(15 students)
Oct. 19-3 Nov.		Kallin Research Station	2EX80c	Rice Transplanting	(14 students)
15 Nov.-Dec.		"	2EX80e	" "	15 students
Oct.-Dec.		Project Villages	2EX80d	Silage Mower Operation/Maintenance	(20 specialists, 40 tractor operators/mechanics)
13 Nov.-12 Jan.		Nubaria Training Center	2EX78	Tractor operation	(13 trainees)
20 Nov.-12 Jan.		"	2EX80f	Machinist	(10 trainees)
20 Nov.-12 Jan.		"	2EX80g	Welder	CANCELLED
LOCAL MANUFACTURING					
June-Dec		Behera Gov. T. Center	2LMI	Ind. Tech. for Dev. :I	(3 students)
PLANNING AND EVALUATION					
Aug.-Nov.		AUC	2PE5	Intensive English	(5 students)
RESEARCH AND DEVELOPMENT					
			— NONE —		
SOIL IMPROVEMENT					
Oct.-Nov.		AUC	2Sill	Intensive English	(1 student)
Nov. 27-Feb.26		Mansoura Farm Machinary Training Center	2Si8	Mechanic : Level 2	(7 students)

APPENDIX F

(Cont.)

DATE	TIME	LOCATION	COURSE NO.	COURSE TITLE	COMMENTS
SERVICE CENTERS					
Nov. - Feb.		Mamoura F.M. T. Center	2SC7	Mechanic : Level 2	(no students attended)
20 Nov.-12 Jan.		Nubaria T. Center	2SC2	Machinist	"
TRAINING					
Oct. Nov.		AUC	2T10	Intensive English	(3 students)

APPENDIX F

Monthly Report Nov. 1982
Participant Training
P.T Officer : Samir Shawky

1. Academic Training :

- Screening English test for the first group (65) finished.
- Candidates achieved 50 in the ALIGU are joining an English training course.
- A memo about the latest situation submitted to D. Zakaria - for the nomination of the interview Committee and to decideon the date of the interview.
- Second group of candidates (10) scheduled for the English test.

Title	No.	Action needed
Pass the English test over 50	17	interview
Condidates waiting for English test.	10	ALIGU test (6/12/1982)

- New advertisment is going to be prepared for more candidates for the remaining felowships.

11. Non Academic Training :

- Compete plan for short tern observation tours is prepared as per memo attached.
- Letters for M.O.A and land Reform has been sent for collecting names.
- Course information sheet has been prepared for eatch tour

111. English Training :

1. Courses ended as following

date	number of students
11/11/1982	3
18/11/1982	5
18/11/1982	2

2. Couses in implementation :-

Continuation	3 advanced
7/11/1982	1 T.dprip.
15/11/1982	4 intensive

APPENDIX G

28/11/1982	6	
29/11/1982	6	intensive

3. Number of students attend ALIGU test. 25

Plans for next month :

- Processing of the academic and non academic participants training .
  - Continuation for the English language training
  - Preparing anew advertisment for the remaining. felowships - just after the interview
  - As cooparation with the incountry training activites a tour around the training stations in Gharbia and Behera to identifiy these resource for runing a local course as in sadyeen.

Serial	Sub-project	Period of visit	Members of Group	Place of travel
7	Farming Management	4 weeks	- Representatives of Management Unit of the project. - Directors of the agr. affairs in the five governorates. Director General-Land Reform Authority. - Director General-agr. cooperation-Centeral Admin. for cooperation	
8	Training	4 weeks	- Project Training Unit representatives. - Ministry of Agricult-ure representatives - Training Centers. - Land Reform represen-tatives.	U.S.A.
9	Training	6 weeks	- Training Unit represent. - Training Centers repres. - Service Stations repres.	Some Devel-oping coun-tries.

Some primary communications were made to determine names of members of these groups. Please after reading, you may mention your opinion about the enclosed plan to make the other communications necessary for preparing these groups and the travel formalities - the present period is the most suitable period of the year for the travel of these groups from the point of view of the agricultural activities.

Dated on : 17.11.1982

External Training Responsible

Eng. Samir Shawki Mouslem

MEMORANDUM

TO BE PRESENTED

TO

DR. DIRECTOR GENERAL OF MECHANIZATION PROJECTS

BY DR.

GENERAL COORDINATOR OF MECHANIZATION PROJECTS

We hope to inform you that according to your directions regarding the Non-Academic-Extension Training (outside field visits for short terms) - and according to the need of different sub-projects and the external training plan, the following programs were designed :-

Serial	Sub-project	Period of visit	Members of Group	Place of travel
1-5	Extension	4 weeks	5 groups from Governorates of (Behera-Gharbya-Qualibya-Menia) each group consists of - 1 sub-project representative for exten. - 2 extension representatives from the project villages. - 7 from the progressive farmers in the Govern.	Some developing countries which have similar activities for the project activ. in general and particulary for the activities of every govern.
6	Extension	4 weeks	- The project Representative. - Agents of the syllabus chiefs of agric. sector in the five governorates.	U.S.A.
6	Extension	4 weeks	- Ext. Directors in the five governorates - Head of board of directors of Land Reform Authority. - Chief of the Central Administration for agric. cooperation.	

NOTE :
1. This letter was discussed with Dr. Zakaria and with Dr. Savarigi on 24 Nov. 1982. Action is pending.
2. Also discussed were 10 academic programs and names were submitted for approval.

25 Nov.82

AGRICULTURAL MECHANIZATION PROJECT

AID GRANT NO. 263-0031
MINISTRY OF AGRICULTURE
ARAB REPUBLIC OF EGYPT

NOVEMBER 82
FISCAL REPORT

TRAINING AND EXTENSION SUBUNIT

The following is a summary of the fiscal report No.
in Local Currency related to the referenced Training Subnuit.

Line Item	Budget	Expenditures	Total to date
	LE	LE	LE
1. Instructors Fees :			
a) Workshop/Locational training			
b) Field demonstration			
c) Subtotal			
2. Equipment rental			
3. Petroleum, oils, lubs			
4. Training Aids			
5. Training Equipment			
6. Machine Operation Fees			
7. Room/Board			
8. Transportation			
9. Expendable training materials			
10. Incidental Living Expenses			
11. Training Center fees			
12. Administration expenses			

	In.-Country Training :	29,633.00	
Total	Commod. :	15,000.00	(for silage mower)
	Total :	44,633.00	

APPENDIX H

APPENDIX I

Agricultural Mechanical Project

1982 Wheat Planting schedule

Governorate / Unit: Feddans	(Priority 1) Project Area	(Priority 1a) Major Cereals	Other	Comments
Behera (3) (3 drills - 2 days)	≠ Drills ≠ feddans / Village /40/400 - Shiek Ahmed /20/ 30 - Dessya /-0-/ 25 - El Gorn [645f] /-0-/ 30 - Darawia /-0-/ 30 - Desuses /80/120 - Ezab Sentwai	≠ Feddans/Village	(Sakha Training Center-25 f. ?)	
Garbya (2) (2drills-2days)	/20/ 70 - Kafr Dima /10/ 25 - A. Biar [210f] /12/ 25 - K. Damshit /0-/ 35 - Komme El Naggar /-0/ 55 - Shepshin Hessa	25 - Tanta dist. 25 - Kafr Zed Dist. 25 X 2 = [50f]		
Sharkia (3) (3 drills - 1 day)	/40/ 11 - Sardeen [15+f] /35/ 5 - Tiline /29/ ? - El Gosakolam	30/25 - Diab Nigm 25 - Bramey 25 - Heya 25 X 3 = [75f]	? - Kafr brage /10- Shobuk [(±100)]	
Qualibya (1) (1 drill-1 day)	/20/ 11 - Magol [± 50f] /20/ 12 - El Hessa /20/ ? - Shamut /30/ ? - Kafr El Hessa			
Other (1) reserve				10 drills at 100 f/day = 11 days
	TOTAL: [890 f]	TOTAL: [125 f]	TOTAL: [± 125f]	TOTAL: 11 40f

NOTES : plant approx. 10 feddans (f) per day or 100 f/drill/day

92.

FIELD VISITS TO THE PROJECT VILLAGES IN THE SHARKIA AND QUALIBYA GOVERNORATES TO DETERMINE CAPABILITIES OF COOPERATIVE OR OTHER FACILITY TO STORE/ HANDLE/MAINTAIN DEMONSTRATION/ TRAINING EQUIPMENT

SHARKIA GOVERNORATE (3 Villages)

1. El Gosak Village :

   a) Location: In district of Belbase

   b) Demonstration areas : two areas of 20 feddans for wheat planting

   c) Coop office : Very good; large area for storing equipment but in the open ; enclosed shops OK and large but doors need to be widened.

   d) Equipment : (not discussed)

   E) Mech. Specialist : Ibrahim Methes/Moh. El Naggar

   NOTES : First plot of 12 feddans planted in the Omda's fields. (wheat planting in progress).

2. El Teline Village :

   a) Location :North of Zagazig area.

   b) Demonstration areas : One 13 feddan plot planted near the village, 2 other of 20 each in process. 9 feddan planted in neighbouring village. Farmers reluctant to plant in village untill they see results of 13 feddan area.

   c) Coop Office : Near narrow road and difficult to get to.

   d) Mech. Sp. : Moustafa Saied - excellent extension officer, active

3. El Saadin Village :

   a) Location : On Cairo - Minia El Komp road

   b) Demonstration areas : one large farmer with 35 feddans and various plots for the MOA demons.

   c) Coop office : Not yet visited.
   Concentration has been with the MOA Mechanization Station in the area.

   d) Equipment : Several tractors and chisel plows located at the Station for rental to farmers.

APPENDIX J

QUALIBYA GOVERNORATE (5 villages)

1. El Shamout Village :

a) Location : Near agricultural road at bend between Cairo and Benha.

b) Demonstration areas : Several small areas possible.

c) Coop office : Large coop office with potental of storing equipment storekeeper, mechanic, etc. needed.

d) Equipment : (not noted)

E) Mech. Specialist : Nasser Zeidan

NOTE : Coop director asked for large incentive before he is going to cooperate with project activities.

2. Magoul Village : (Brief visit only)

Mech. Specialist : Abd Lateif

3. Kafr El Housaph Village :

a) Location : On agricultural road to Saadin road (back way).

b) Demonstration areas : One small area in the village, some small areas in nearby villages.

c) Coop office : Located accross narrow canal; inaccesable to most traffic ; Not a suitable area to store equipment.

d) Equipment : None noted

E) Mech. Specialist : Moh. Sabry
Very active specialist who asked why we are in such a small village. Several villages nearby where demons can be held.

4. Beltan Village :

a) Location : Near Benha on the way to Benha on agricultural road (left side)

b) Demonstration areas : Several small areas

c) Coop office : suitable for equip. storage if gate opening was widened; is not wide enough now to put a 3 meter seed drill through.

d) Equipment : None noted

e) Mech. Specialist : Moh. Marzouk. Very active with support from district specialist trained in his area (Sobhi Abdella).

NOTE : Several small plots spread out over a large area: one of the

characteristics of the Qualibya Gov. and problematic to effective mechanization operations.

5. El Hessa Village :

a) Location : Next to Shamout village near ag. road (right side) between Cairo and Benha.

b) Demonstration areas : Several small areas

c) Coop office : Located in village area and difficult to get to with equipment, but possible further examination needed.

d) Equipment : Not noted

e) Mech. Specialist : Hafez El Deeb.

23 November 1982

APPENDIX K

Agricultural Mechanization Project
Project Extension Specialists (1982)

Specialist	Project Village Responsibility (at present)	ACTUAL GOVERNORATE POSITION (X)		
		Village	District	Governorate
1. Moustafa AboAta	DESYA		X	-BEHERA- (Fuaad Shaban)
2. Mahmoud Sobeh	EZAB BESENTAWI		X -EL MAHOUDIA-	
3. Helmy Mahmoud	EL GORN		X	
4. Abd Salam Mahmoud	EL DARAWA		X	
5. Moursy Hasanein	DESUONSE		X -ABO HOMOS-	
6. Ahmed Beheri	SHIEK AHMED		-ETAY EL BAROUT-	
7. Ahmed Balal	SHABSHIR EL HASSA		X	-GARBYA-
. Sami Mahmoud Aly	KENISET DANSHIT		X -TANTA-	
. Adel Zaher	KOM EL NAGAR		-BASSYOUN- X	
. Aziz El Seid Gomaa	QULUB ABIAR		X	
. Helmy Abo Zeid	KAFR DIMA		X -KAFR EL ZAYAT-	
2. Taha Aly Yones	El SAADIUM	X		-SHARKIA-
3. Moustafa Saied	EL TELINE	X	-MINIA EL KAMH-	
4. Ibrahim Metkees (Mohamd El Naggar)	GOSKA (SALAM)	(X)	X -BELBASE-	
. Nasser Zeidan	EL SHAMOUT	X	(Ibrahim El Hady)	-QUALIBYA-
. Abd Lateif	MACOUL	X	-BANHA-	
. Moh. Sabry	KAFR EL HOUSAPH	X		
. Moh. Marzouk	BELTAN	X	(Sobhi Abdella)	
. Hafez El Deeb	El Hessa	X	-TOUKH-	
. Galal Abd El Wahhab	EL ATLAT	X		-MINIA-
1. Adaby Shebat	SEILA EL GHARBIA	X	(Hesmat Ahmed) -MATAY-	
2. Aswan Mokhtar	BENI ABEID	X		
3. Moustafa Abd El Hleem	BENI MOUSSA	X	(Abdel Moiz Aly)	
4. Abdel Moh. Nafd El Kad	ELBIRBA EL KUBRA	X	-ABOU KARKAS-	

بسم الله الرحمن الرحيم

AGRICULTURAL MECHANIZATION PROJECT
A. I. D. Proj. NO. 263 - 0031
EGYPTIAN MOA/USAID
5 th. Floor - Building of the
General Society For Land Reform
P. O. B. 256 Dokki - Giza, ARE.
704660 - 704720
704364 - 707247

مشروع الميكنة الزراعية
وزارة الزراعة المصرية - وكالة التنمية الأمريكية
الدور الخامس - مبنى الجمعية العامة للاصلاح الزراعى
صندوق بريد ٢٥٦ - الدقى - جيزة ج م ع
٧٠٤٦٦٠ - ٧٠٤٧٢٠
٧٠٤٣٦٤ - ٧٠٧٢٤٧

DATE 13 November 1982 التاريخ

SUBJECT ..... الموضوع

REF. No. ..... ATTACH ..... مرفقات ..... الرقم

TO: Dr. Ahmed El Sahrigi, Project Director
Dr. David Gaiser, Project Technical Director
Dr. Zakaria El Haddad, Project Coordinator

FROM: Fred Schantz, Extension and Training Coordinator

SUBJECT: BACKGROUND/STATUS REPORT on Project SILAGE MOWERS

The following is a background sketch and current status report on the silage mowers now being demonstrated in the Beheria/Garbya/Sharkia/Qualibya governorates to mow cotton stalks. The primary purpose of this report is to provide project management with the background information for selecting particular demonstration/training equipment without the input of extensive research and detailing the status--particularly the success or failure--of the equipment demonstrated and the problems faced.

BACKGROUND

In August 1982 the critical need for removing cotton stalks from the field was discussed since farmers would be picking their cotton and clearing their fields in Sept/Oct/November. The use of cotton shredders and choppers was explored but the absence of these machines and the reluctance of the farmers to have their stalks chopped to bits required another solution to be explored. Discussions with Dr. Nur of the Small Farmers Mechanization Project concerning his use of the silage mower in the field led to the possibility of using a similar mower in the project demonstrations.

A field trip was taken to follow up this possibility on Sept. 6, 1982 to Minofeya with Dr. Farok of the World Bank project to examine a new double-knifed silage mower (Busatis BM 1102--German made). It was a 3 point mounted unit with a 1.5 meter blade which folded down to the right side of the tractor to ground level. It could cut 3 to 4 rows of cotton stalks, depending on the row spacing in the field. Since no fields ready to mow at the time, a large amount of old cotton stalks were gathered and put through the unit's knives. It was obvious from the experiment that the sissor action of the mower was suitable for cutting stalks.

APPENDIX L

After returning to Cairo and discussing the experiment with Dr. Zakaria and Ali Kamel (of the USAID procurement unit), it was decided to contact several equipment dealers in order to acquired some mower units to be used in the upcoming fall season. The only dealer who had several units readily available was Djabex who had the same Busatis mowers which were demonstrated at Minofeya. The project therefore ordered several units (10) as per the specifications which were developed (MEMO of 9 Sept. 1982). The mowers were purchased in Oct. and placed in the field by the assistant Extension Officer for Beheira/Garbya on 12 October. Six mowers were sent to the Beheira/Garbya Mechanization Extension Spacialists and 3 to the Sharkia/Qualibya area. One additional unit had been previously picked up by the Sharkia/Qualibya Extension Officer and was yielding good results in the Sardeen village area.

PRESENT STATUS

Since the mowers have begun their demonstrations in the field (18 days), they have mowed approximately 500 feddans for about 100 farmers. When the demonstrations began it was difficult to find a field to mow due to reluctant farmers which quickly changed to an over-use situation where there were more farmers wanting the mower than equipment available. Since the demonstrations began many farmers have purchased or are going to purchase similar mowers as soon as they are available on the market. The low cost of mowing the cotton stalks in a shorter period of time were the two most often heard comments of these machines when compared to hand labor. While the first demonstrations were given free of charge, it was necessary to require the farmer wanting a plot mowed to furnish his own tractor and an operator to prevent problems of favortism and to help limit the number of users to a manageable level. Even then more farmers wanted to use the equipment than machines available.

To summarize a number of complex points concerning the machines, the following is designed to highlight the important items.

1. Preliminary results indicate that the double knife shearing action is somewhat more efficient that the single-knife-to-guide cutting action. This conclusion is supported by Dr. Nur who has used single knifed mowers and has begun to use double knifed units.

2. Although the blades can be purchased in 1.5/1.75/1.92 meter lenghts, the 1.5 meter is probably more suitable since the longer arms tend to bend easily when transported over long distances between fields and inside the rough irrigated fields.

3. Operating costs for the silage mowers vary from the two basic type of mowers: single knife and double knife. An estimation of these costs was presented to the Financial Planning Advisor in a memo of 9 Nov. 1982 in order to be fully analyzed in light of the farm management survey operations costs for agricultural operations.

4. The success of the mowers is in jeopardy at the present time due to the lack of two critical items: a) the lack of trained operators to properly operate the mowers above the ground and not in the dirt, and b) the absence of an organized preventative maintenance program by which the units are serviced and cared for properly. These problems are being dealt with by the Training Unit which has begun a number of operator and maintenance courses as well as by the area Extension Officers who are conduction on the spot practical training for the numerous operators using the equipment. The condition would be improved greatly if one

operator was assigned to each machine instead of changing him as the farming area changes. This point is being discussed and may soon be resolved. Also, the management system needs outlined in the MEMO of 6 Sept. 1982 are being put in to effect which will resolve most of the technical difficulities now facing the equipment use.

5. Careful research of the mowers is now required before the equipment can be fully analyzed in the Egyptian conditions. Until now the mowers have received only one field visit from the research team but closer ties are being established in order to obtain sufficient technical data.

   Other field research testing of the mowers is being carried out by the MOA (Dr. Hashish) and has encouraged the placement of two additional single knife mowers (with a moving guard) in the Beheira and Sharkia governorates in order to obtain more data concerning the advantage of this mower (Gespardo - Italian made) with the double-knifed Busatis.

As this report is made while the mowers are still in the field, a final report will be completed when they have completed the mowing operations. The Extension/Training monthly report which details the normal activities of the demonstration/training equipment as well as other actions taken by this staff, will also outline the monthly progress of the machines being used.

---

cc: Steve Shepley
file

A.2 Extension/Training subproject

Activity Report
December 1982

Submitted by : Fred Schantz, Dr. Mamdouh El Bax, Gordon Stringer, Dr. El Ansary, Ibrahim El Ghatas, Samir Shawky, Hussein Heiza, Ahmed El Beheiri, Salah Bakar, Moh.Abdel Aziz

SUMMARY

Major events of the month are summarized below, detailed reports of each subunit are found in Appendixes A through I. Appendix G lists the expenditures for the subproject for the month.

Extension Activities

1. Mechanized wheat planting with grain drills continued in December covering an estimated 326 feddans in 11 plots areas for 541 farmers. A preliminary wheat drill status report in Appendix 1, details these activities which were enthusiastically received. A final report on the mechanized wheat planting operation for 1982 will be prepared as soon as actual field notes from the mechanization extension specialists are gathered, translated and tabulated for all Project areas. Until that time estimates based only on Project staff observations are possible. This applies to all subsequent extension demonstrations.

2. Mechanized cotton stalk mowing also came to an end during the month during which approximately 200 feddans were mowed in 7 areas for 67 farmers.

3. Land leveling (smoothing) demonstrations were carried out in ten areas during the month and were limited primarily to the absence of suitable tractors with hydraulic cylinder remote valves to operate these implements.

4. Procurement of additional demonstration/training equipment continued through the month. Finalized were six seed planters and fifteen mower/binders which are ready to be delivered to the field. Additional equipment is still being processed, especially backhoes needed in January. A status

listing of demonstration/Training equipment in the field as of Dec 31 is found in Appendix B-2. Also the large amount of demonstration/training equipment for the Gabal El Asfar Demonstration/Training Station was approved and is being procurred.

5. Extension materials, films and posters continued to be developed during the month with mechanization extension signs being posted in 15 villages and a video film of the current condition at the Gabal El Asfar T./Demo. Station. A summary of extension achievements for June-Dec. 1982 is found in Appendix H (for the Rural Agricultural Information Unit of extension).

6. Cooperative efforts with the Research and Development Subproject as well as the Major Cereals group(EMCIP) continued throughout the month with various field day/demonstrations.

7. During the month Dr Ansary was assigned as the Extension Officer for the Qalubia Governorate and Mr Salah Bakar was transferred to other duties. Ahmad El Beheri took over the Sharkia governorate area responsibilities.

In-Country Training Activities

1. During the month 1359 trainees attended 13 new and continuing courses/ sessions for 4750 students/days (trainee for 1 day) of training (see Appendix E-2).

2. Intensive field efforts were begun during the month to identify trainees from project village for ongoing established mechanization courses as well as to assist the mechanization specialists to identify their training needs.

3. An outline for the 1983 Training Plan was completed and efforts to complete it were begun.

Participant Training Activities

1. The Revised Participant Training Guide of November 1982 was completed and distributed during the month.

2. Approval was given by the Project Director and Coordinator for processing to begin on 10 observation/study tours, 16 academic and 3 post-doctoral programs.

DURING THE MONTH

Field extension activities were reduced to a minimum during the month primarily due to cold weather and wet conditions. The winter wheat crop planting ended on December 12 and project equipment was stopped. Intensive efforts by the field staff and the short term specialist Mr Peart were then exerted in completing needed repairs of the equipment used during the fall season. Silage mowers and seed drills were "put to bed" in the four delta governorates where they will be used again next season.

Additional activities included doing wheat emergence population counts under the direction of the farm management survey staff and refining Project Village Programs now being implemented.

In addition to the intensive in-country training activities carried out during the month (Appendix E-2), and important decision was made by project management regarding participant training candidates. The 16 academic and 10 observation/study tours which were approved on 23 December are now being processed for implementation in 1983.

Eight field trips and 5 meetings during the month included:

1. Attending a disc mower demonstration at Sharkia governorate which mowed cotton stalks. Although the unit worked well it was very heave, complex and expensive to use for this operation. Plans were discussed to use it in sugar cane harvesting which should be more positive.
2. Attended two field days (at Shiekh Ahmed Village) for key farmers from project villages.
3. Held a meeting with Mr Snyder of the Service Center Subproject to discuss coop workshop development and the critical need of improved field maintenance capabilities of coop and local workshops which will attend the incoming demonstration/training equipment. Also discussed with Mr Sparrow was the possibility of equipping local tractors with a remote valve capability in order to be able to operate our remote cylinder equipment.
4. A meeting held on 23 December with Dr. El Sahrigi, Dr Zakaria El Haddad and Samir Shawky resulted in the begining of processing of Project participant

training candidates for numerous programs scheduled for 1982 which will now be carried out in 1983.

5. Several meetings were held on Project demonstration/training equipment procurement now in process.

MAJOR PROBLEMS

1. Problems continue from last month include: storage area, procurement officer and equipment support needs. The problem of noise in the office is partially solved and should be reasonable as soon as the secretaries corner is walled off.

PLANS FOR NEXT MONTH:

1. Continue planned extension and training coordination activities, especially backhoe operation and maintenance.
2. Assist Project mechanization extension specialists to finalize the Village Programs Workplans for Sharkia, Qalubia and Minia Governorates.
3. Complete an Annual Report of the 1982 extension and training subproject.
4. Draft the 1983 Training Plan.
5. Complete the In-Country Training third quarterly cash need statement for Feb/March/April 1983.
6. Draft a demonstration/Training equipment wall chart and secure approvals for all outstanding demonstration/training equipment orders.
7. Identify peanut farming equipment and specialists for the Project.
8. Finalize Group 2 and 3 of the extension demonstration/training equipment.

AGRICULTURAL MECHANIZATION PROJECTS

MONTHLY ACTIVITIES OF THE Rural Agric. Mech., Infor. Unit

PREPARED BY Dr. Mohamed El Baz, Director

FOR THE MONTH OF December 1982 DATE

A. SUMMARY : Spending 4 days in S. Sinai Governorate to investigate, the possibility of drip and sprinkler irrigation application.

- 2 R.T. to Behera Governorate, with national T.V.
- A R.T. to R & D Unit in Alex. to attend the test of the new rice thresher developed by the project.
- At Ismailia Governorate for 2 days to deliver a lecture at the Cooperative Training Center, and holding meetings with progressive farmers from project villages about agric. and mechanization
- Paying a visit to Gabal El Asfar to photograph the actual situation.
- At Kafr El Shiek for 2 days to photograph and televise excavator that work by remote control.
- Fixing 15 mechanization extension signs at villages and starting distributing other signs for demonstration fields.

P.T.O.

B. PROBLEMS :

1. Need to change the car with another provided with.....
2. Lack of some spare parts needed for the actual car, make it dangerous to travel with for long distances.
3.

C. PLANS FOR NEXT MONTH:

- Preparing a serie from 7 rounds, as contest about agricultural machines to be broadcasted weekly and along 2 months. Second contest from 13 rounds to be televised from April 1983 and along 3 months.
- Preparing the materials, provided with drafts and drawings, about rice transplanting.
- Collecting bids to print a bulletin about maintenance of tractors.
- Delivering and distributing 2000 mechanization appointment book 1983.
- Printing and distributing a specific bulletin about soft loans offered by the project,

(Original Signed by Dr. SPAR) 23/12 1982

Signed

APPENDIX A-1

- and start collecting bids for printing
- Determine specifications and collecting bids
  for our needs from A.V. equipment
  for Kalibia, Sharkia and Minia Governorates, and training units as well.
- Preparing and emission of one T.V. program and another one in broadcast , and publishing articles on one newspaper and 2 monthly magazines, all were about activities of the project.

MONTHLY REPORT: Demonstration/Training System Unit

PREPARED BY: Gordon Stringer, Director

For the Month of _____ 19 DATE _____ 19

A. SUMMARY:

See Monthly Report (attached)

B. PROBLEMS:

1. Operational budget source needed for the farm/extension operations

2. Will need the shop superintendent and farming superintendent "on-site" 1 to 2 weeks prior to equipment arrival. Arrival is about 1 March for first shipment
3. Need short term accountant/computer expert from Kern County to set up farm accounting system. Should come on site in later part of Feburary 1983

C. PLANS FOR NEXT MONTH:

1-Continue wind down of the farm survey activities
2-Do survey of the 260 feddans for leveling by Coles group
3-Complete arrangements for the shop superintendent, farm superintendent and short term accountant/computer specialist
4-Follow-up on equipment delivery schedules, 1st. arrival is expected about 1 March 83
5-Continue building relations with the present staff at G.A.F.
6-Meet and work out relations with the new man in charge of Gebel Asfar.

G P Stringer — 30 Dec 1982

Signed — Date

APPENDIX B-1.

Agricultural Mechanization Project

PROJECT DEMONSTRATION/TRAINING EQUIPMENT LOCATION (as of 31 Dec. 1982)

Summary

NO.	Quantity	Equipment/Item	NO.	Quantity	Equipment
1.	1	Tractor	6.	11	Grain drill
2.	1	Chisel plow	7.	1	Cultivator
3.	1	Disc harrow	8.	12	Silage mower
4.	12	Land Scraper	9.	1	Backhoe
5.	10	Ridger	10.	1	Mower/binder

TOTALS: 51 UNITS OF 10 ITEMS

****

GOVERNORATE	EQUIPMENT No.	Quantity /	Item
BEHERA (20 units/ 9 items)	1.	1	Tractor
	2.	1	Chisel plow
	3.	1	Disc harrow
	4.	4	Land scraper
	5.	3	Grain drill
	6.	1	Cultivator
	7.	4	Silage mower
	8.	4	Ridger
	9.	1	Backhoe
GARBYA (13 units/4 items)	1.	4	Land scraper
	2.	2	Grain drill
	3.	3	Silage mower
	4.	4	Ridger
SHARKIA (14 units/ 5 items)	1.	3	Land scraper
	2.	4	Grain drill
	3.	4	Silage mower
	4.	2	Ridger
	5.	1	Mower/binder
QUALIBYA (4 units/4 items)	1.	1	Land scraper
	2.	2	Grain drill
	3.	1	Silage mower
MINIA (none)	--NONE--		

Appendix B-2

AGRICULTURAL MECHANIZATION PROJECT

MONTHLY ACTIVITIES OF THE Behera , Garbya Extension Unit

PREPARED BY Ahmed beheri, Extension Officer

For the month of _____ 19 DATE _____ 19

A. SUMMARY : 1. We finished wheat planting on 12th of December at our Ext. Village. We covered about 800 feddan in Behera & Garbya.

2. We extended our extension activities to a new area in Monufia on Quiaisna District at Kafr Bany Garian village. We demonstrated a complet set of wheat planting we planted 10 feddan as Ext. Field.

3. Our specialist they trained their tractor operators on the spot with grain drill.

4. According to the training programe at Sedi Posher, we carried out two field days with each group, we arranged the first visit at El Shiek Ahmed, the second one on each village in Behera or Garbya.

5. Mr. Mohamed Abd El Aziz and Mr. Matthewos are looking after Ext. Machinary at Ext. Village.

6. We had a good cooperation between R & D in Alex. and Extension efforts during wheat planting season. They demonstrated two machines for seed bed preparation. The first tool is ring roller the second one field plan.

7. R & D and Extension Staff we carried out a demonstration field for land leveling by different kinds of tools at El Shiekh Ahmed village.

8. We had a good cooperation with EMLIP Staff they accomplished us during wheat planting and they provide our extension staff with information about fertilizer application. After germentation we checked our field weekly.

9. We received the existing from thr Advertising Company.

PLAN FOR NEXT MONTH :

1. Arranging a night meeting at Ext. village to discuss our project activities.

2. Continue machinary services and storage it on proper store.

3. Rigeter Ext. Equipment on inventory list according to the Ministry regulations.

4. Build a ramp as a sample loading and unloading the project implement.

5. Continue field days activities according to the training plan.

6. Arranging a monthly meeting in each governorate with our Ext. Specialist to discuss Ext. Activities.

APPENDIX C

PROBLEMS :

1. The main problem is a lack of administration
2. A storage of hand tools
3. We faced a lot of problems during wheat planting about machines transportation & also loding and unloading from village to another. According this transportation, we have some machine it needs repair.
4. The major problem during this season operarion is the tractor rental and most of the tractors were available. is not suit to our machines, as a storage of double acting stibilizer, draft control, Front Ballest.
5. We need to provide the Ext. specialist with proper and files.
6. We need to name somebody as store-keeper in each village keeping our inventory list.

MONTHLY ACTIVITIES OF THE Demonstration/Training Equipment Specialist
PREPARED BY Matt Peart, Short term Specialist
For the Month of December 1982 DATE _____ 19

A. SUMMARY:

In the past month I have travelled extensively with our specialists in these governorates. Our main emphasis has been on the seed drills with wheat planting. During the early part of the month the silage mowers were observed cutting the remaining cotton stalks. At that time care and maintenance were stressed to our village engineers.

Below is a list of major points that were achieved:

1. attended 3 field days held in shiek ahmed for Behera and Garbya farmers.
2. Recommended hand tool needed by villages engineerd and regional specialists.
3. Attended demonstration of Kuhn mowers in Sharkia district
4. Recommendations were made concerning other implements needed in the villages.

B. PROBLEMS:

1. Lack of tools and engineers.
2. An easier way to move equipment is needed. Suggestions have been made such as trailers , looding ramps and 3 point hitch booms for lifting implements.
3. English training is needed for village engineers to help improve communications.

C. PLANS FOR NEXT MONTH:

Trips to all villages with these things to be done while there

1. check wheat and do population counts
2. repair seed drills for storage
3. repair silage mowers for storage
4. prepare booklet for village engineers to include operators and parts manuals for equipment present.
5. chart out locations of equipment in the villages.
6. prepare order for hand tools.

Matt Peart 12/25/82 19
Signed Date

AGRICULTURE MECHANIZATION PROJECT

MONTHLY ACTIVITIES OF THE: Sharkia/Qalubia Area Extension Unit

PREPARED BY : Salah Bakar

FOR THE MONTH OF : December 1982 DATE 31/12 1982

A. SUMMARY : Followup on wheat cultivation and sugar cane digging on 30.12.1982 in Minia El Kamh Markaz

El Saadyeen: 80 feddans Belbase Markaz

Al Tellin 35 Feddans: Diar Benegm Markaz

Belbase Markaz: El Attaryin 50 feddans.

- Cutting of cotton straw

Minia El Kamh Markaz - Diar Benegm Markaz

El Saadyeen 30 feddans

Belbase Markaz :
Besides Villages of the Qalubia Governorates, totaling 360 fed.

7 of the Farmer's leaders were sent to The Sidi Bishr Center.

Farmers acceptance to the Agricultural Machinery especially after the growing of mechanized plants.

PROBLEMS

1. Shortage in suitable tarctors for machinery operation
2. Waste of time in equipment transportation like seed planters
3. The unawareness of machinery operations due to its unavailability in Training Centers in which enumerators were trained.
3. The unavailability of the quantity needed of service machinery like ploughs and leveling equipment.

PLANS FOR NEXT MONTH

1. There were a plan set for training on the Cleaning equipment.
2. Repair and maintenance of machinery to see if it is fit for operation.

Signed DATE 1983

APPENDIX D

MONTHLY ACTIVITIES OF THE: In-Country Training Unit

PREPARED BY : Ibrahim El Ghatas

FOR THE MONTH OF: DECEMBER 1982 DATE January 20 1983

A. SUMMARY Courses held or in progress during the month:

COURSE	NO OF COURSE	NO OF TRAINEES	LOCATION
- Rice Transplantation	2	28	Kallin
- Key farmers	2	55	Sidi Bishr Ins
- Mechanic II	1	8	Maamoura Cente
- Machinist	1	8	Nubaria Center
- Local Manufacture	1	3.	Behera Company

VISTS PAID : To follow up, attend close and opening sessions:

- Kallin agri dept.
- Maamoura Center
- Nubaria Center
- Beheira Co.
- Sidi Bishr Institute
- South Tahrir Co
- Machinery Test station
- Shiekh Ahmad Village

B. PROBLEMS

1. The Vehicles
2.
3.

C. PLANS FOR NEXT MONTH

- 2 more courses for key farmers at Sidi Bishr will be held.
- Courses will be in progress
  - Machinist at Nubaria
  - Mechanic II at Maamoura
  - Local Manufacture at Beheira Cos
- Still one course for Rice Transplanting at Kallin.

Signed DATE

Appendix E,

AGRICULTURAL MECHANIZATION PROJECT

December 1982 Training Schedule

DATE	TIME	LOCATION	COURSE NO.	COURSE TITLE	COMMENTS
MACHINERY MANAGEMENT EXTENSION					
Oct.16 - Dec. 15		Maaoura Tr.Center	2EX18c	Mechanic: level 1	(15 students)
Nov 15 - Dec 2		Kallin Research Station	2EX80h	Rice Transplanting	(14 students)
Dec 3 - 18 Dec		" "	2EX80i	" "	(14 students)
Dec.(2 days)		Project Villages	2EX82	Silage Mower operation/maintenance	707 trainees (includes part of Nov. 82)
Dec.(2 days)		Project Villages	2EX83	Grain drill operation and maintenance	487 trainees
Dec.(2 days)		Project Villages	2EX61	Land preparation	20 trainees
Dec.1-15		Sidi Bishr Tr.Center	2EX80j	Mechanized Agri. theory &practice	55 farmers
Nov.13-Jan12		Nubaria Tr,Center	2EX78	Tractor Operation	(13 trainees)
Nov.20-Jan12		Nubaria Tr. Center	2EX80f	Machinist	(8 trainees)
LOCAL MANUFACTURING					
Jan - Dec		Behera Tr Center	2LM1	Tech.for dev. I.	(3 students)
PLANNING AND EVALUATION					
		- NONE -			
RESEARCH AND DEVELOPMENT					
		- NONE -			
SOIL IMPROVEMENT					
Nov.27-Feb26(83)		Maamoura Tr. Center	2Si8	Mechanic:Level 2	(8 students)
SERVICE CENTER					
		- NONE -			
TRAINING					
Dec. (ongoing)		AUC Cairo Office	2T10 2T11	English Language HP85 computer operation	(14 students) (1 student)

APPENDIX E-2

MONTH OF DECEMBER 1982
PARTICIPANT TRAINING

SUMMARY

1. The plan of the academic/nonacademic participant training, approved by the Project Director

2. New advertisment for the remaining fellowship is prepared

3, 16 candidates for academic training are nominated and they are being processed.

4. 3 candidates for the post Dr Degree are in process(English training).
   - A. El Arabi
   - Mabrouk
   - M. Shayboun

5. 11 trainees in English language training.

6. Last form of letters of the candidates of the observation tours is prepared and will be sent to the 5 Governorates. (12 tours x 10 persons) = 120

PROBLEMS

- Permanant tramsportation
- Training Officer in each governorate is needed to facilitate contact and work .

NEXT MONTH PLANS

- Processing the academic and non academic groups to contact the persons who are nominated for fellowships

---

SIGNED : Samir Showky, Participant training Officer

APPENDIX F

AGRICUL TURAL MECHANIZATION PROJECT

AID GRANT NO 263-003I
MINISTRY OF AGRICULTURE
ARAP REPUBLIC OF EGYPT

DESEMBER 1982

RISCAL REPORT

TRAING AND EXTENSION SUBUNIT

The following is a summary of the fiscal report No
in Local Currency related to the referenced Training Subunit.

Line Item		Budget	Expenditure	Total to date
		LE	LE	LE
I.	Instructors Fees;			4 00, —
2.	Equipment rental			30, —
3.	Petoleum, oils, lubs			54, 600
4.	Training Aids/ Equip			625a, 540
5.	Machine Operatori Fees			28, 250
6.	Room/Board			8 619, 900
7.	Transportation			3 401, 830
8.	Expendable training materials			696, 370
9.	Incidental Living Expenses			5772, —
IO.	Training Center fees			3a95, 040
II.	Adminstrative expenses			52a, 180
	Total			28,848,710

Expenditure of commodities: -0- for Dec. 82

APPENDIX G

Ahmed

Extension Achievements from June - to Dec. 1982

Since the assignment of the new extension system in June 1982, a new era of extension activities has been started, to cover various domaines, as follows:

1. Buying audio - visual aids for the central extension unit, to cover the most critically needed equipment.

2. Training 28 extension officer in 2 sessions, each lasts around 14 weeks. Trainees received practical and theoretical training about mechanizing agricultural operations, and related subjects.

3. Creation of an information committee includes members from T.V., broadcast and journalism.

4. Extensive mail - contact took place with agricultural cooperatives, 59 agr. secendary school and various governmental and non - governmental organs interest in agr culture, this is to make them more aquainted with activities and achievements of the project.

5. Quite a lot of agricultural machines have been purchased for training and extension demonstrations.

Besides, various and up - dated extension aids have been used, as follows :

As written material :

Extension unit edited, the machinery managements printed and distributed the following ~~matters~~ materials:

A) Posters (Coulored) :

1. 5000 copy about irrigation by long furrows and siphon tubes.
2. 5000 copy inviting farmers to replace Sakias with water pumps.

APPENDIX H

B) Folders (coulored) :

1. 20,000 copy about irrigation by long furrows and siphon tubes.
2. 10,000 copy to use water pumps instead of Sakias.
3. 200 copy (English and Arabic) about dates of agricultural operations in different crops.

C) Specific bulletins :

1. 100 copy (60 page) about the proper use of A.V. aids delivered by our extension officers

Soft l

-1000 copy, inclusive, and supplied ith all types of applications.

-5000 from each kind from different loans (4 applications).

3. 20,000 copy from pocket calendre that include same instructions about maintanence of tractors.
4. 2000 agenda for 1983, includes 42 pages (informative and advertising)
5. 50,000 copy, now under - printing about maintanece of tractors.

D) Extension signs :

A. 30 metalic, 2 x 1.5 meters for demonstration fields.

B. 23 me x 3 meter project villages.

TO contact mass - media:

A) Through national T.V. rural programs:

1. 30 minutes about mechanized rice transplanting diffused on 2 June 1982.
2. 28 minutes about maintaing tractors, on 14.6.1982.
3. 20 minutes about irrigation by long furrows and siphon tubes, on 9.8.82.
4. 16 minutes about mechanized water pumps in agriculture on 19.8.82.
5. 26 minutes about mechanical harveting, threshing and blowing of rice, on 12.9.82.
6. 12 minutes about mechanical harvest of ground-nut on ....
7. 20 minutes on mowing cotton stalks, on 12.10.1982.
8. 30 minutes, direct emission with minister of agriculture and director of mechanization projects on 20.10.82.
9. 30 minutes about seed-bed preparation and wheat drilling and soft loans, offered by the project, on 23.12.82.
10. under preporation now, a contest to be started from 1 st March and for 13 successive weeks, it will cover most activities of the mechanization project, and will distribute prizes, in kind, summed at 25000 L.E.

B) Through national broodcast:

We were able to send extension messages about various activities of the project, at least once a week for 7 minutes each. Besides, Dialogues and open discussions related to agricultural mechanization took place several times.

More-over, ~~educative~~ education contest composed of 6 series to be ~~emitted~~ broadcast twice a week from 17 ~~the~~ Jan. and till end of Feb.83

C) Through new-papers and public magazines:

We published news, articles related to the project, its achinevements, plans, activities, experimental results attained, and analysis of

some mechanized agricultural operations, in various papers; like:

1. al ahram
2. al akhbar
3. al gamhouria
4. agricultural cooperatives.
5. agricultural magazine.
6. monthly extension magazine.
7. foreign agricultural news bulletin.
8. Middle-east observer.

Video-tapes:

we were able to prepare 10 video-tapes, varys in its lengths according the situation. Most of these tapes still need monitoring, some special effects and sound introduction to be more attractive. Itcovers various subjects as follows:

1. Mechanical rice-transplanting.
2. Wheat harvet (with Etalian harvester).
3. Electrified water-pump.
4. Irrigation by long-furrows and siphon tubes (on corn,cotton, soya-bean and vegetables).
5. Mowing of cotton stallks.
6. Mechanical cultivation of potatoes.
7. Rice harvesting with german combine, and japanese one.
8. Seed-bed prepation and wheat drilling.
9. Gabal-asfar farm.
10. Camputarised excavator.

Beside, quite a number of extension meetings with farmers.

Obaque photographas & transparent slides:

More than 1.500 piece are now ready either for projection or enlargement. It covers all agricultural operations formerly mentioned, and consist a rich source for needed drafts in printed-matters. More-over a lot of pieces are ready but done in conventional way for comparative purpose.

In connection to this item, it is worthy to mention, that we provided our specialists in 2 governorates with essential photographig equipment to be used by themselves in extension purposes.

Field days and meetings:

From 1st of June till end of Dec. 1982, workers at the extension unit hold extensive number of meetings and field day with farmers, every where in project villages. personally I held 59meeting during this period (9 in June, 9 in July, 10 in August, 3 in Sept. 3 in Oct., 3 in nov.. and 7 in Dec.)

Confrences:

We attended 2 confrences :

1. "Introduction of appropriate agricultural technologies in Egypt," auspiced by the small scale agricultural activities project, held at the engineering department, Cairo university, between 13.11 and 20-11.82.
2. "Role of agricultural cooperatives in spreading out mechanization," auspiced by the Nauman association, in esmailia., between 14.12 and 16.12.82.

Dr. Mamdouh Khoz
16.1.1982

A.3 LOCAL MANUFACTURING PROGRAM

Activity Report
October, 1982

Submitted by: Richard Berky

I. Activities During the Month

A. Continuation of development efforts on the semi-mounted all crop threshing machine.

1. Greatly strengthened the capacity of the main drive from the tractor PTO by means of changing from one "B" section belt to two "C" section belts and adding on outboard chain tensioner mechanism.

2. Started fabrication of a much higher capacity drive using 3 "C" section of 3 "D" section belts featuring capability of a greater range cylinder speeds.

3. Started fabrication of adjustable speed pulleys and drives for the fan, the auger, and the eccentric shaft.

4. Rebalanced the 53^{o} helix cylinder to acceptable levels.

5. Designed, fabricated and tested a flywheel for the thresher.

6. Road tested, the licensed Beheira farm trailor and Blazer hitch by means of a rice procurement trip to Sakha.

   a. Safe speed empty 60 km/hr.
   b. Safe speed loaded 50 km/hr. Our estimate.
   c. Independent braking system to the rear trailor wheels would be an improvement, but not a necessity.

7. Fabricated and tested air direction baffles under the straw rack and over the grain screen with good results.

8. Converted machine for rice and made short run tests with good results. (infeeds over 3 TPH total crop).

9. Started fabrication of improved recutter and completed the heavy duty cylinders. (45 ø shafts).

10. Updated frame drawings and BOM's and released them to the shop.

11. Designed a complete set of internal and external work orders suitable for preproduction manufacture and justification of billings to MOA/AID.

12. Prepared and tested a standard chart for the manufacture of interchangeable key ways, shafts and hubs for project inspection and assembly. (Sample attached).

13. Moved most of the wheat and barley from the center to Beheira using Blazer and trailer.

14. Continued infeed capacity tests and observation of the distribution of material across straw rack.

15. Designed a uniform development test report form for threshing machine.

16. Contracted for 1½ feddans of rice and prepared storage area. Procured tarps.

17. Conducted many tests on new crop rice. Best results during month at 1100 kg/hr. and 11% losses of grain in straw. Design work initiated to reduce this below 5%.

18. Commenced fabrication of 5 new frames and one fan assembly.

19. Conducted a seminar and wrote a paper for extension meeting at Sakha.

20. Initiated action leading, I hope, to recruitment of two TDY experts to assist in training program.

21. Threshing demonstration, for UNIDO (Design Center group).

II. Implementation Problems and Suggested Remedial Actions

A. Implementation Problems

1. Administrative slowness from the Agricultural Mechanization Project and the domino effect that it has as it trickles from Cairo to Alex.

2. Slow pay for subcontractors and trainees.

3. Holding of the training program hostage to completion of threshing machine. Putting all eggs in one basket is demoralizing the troops. There is a distory of threshing machine development failure in Egypt already.

4. Typing, prompt, and translation facilities are a difficulty.

5. Procurement activities for threshing machine and particularly budgeted items for training program are far behind schedule and have long lead times.

6. Trainees feel forgotten and could use some ego building via the Agricultural Mechanization Project.

B. Remedial Actions Suggested

1. Request quarterly advance to Beheira of at least the recurring budgeting line items of 50% to allow prompt payment of living allowances, etc., emergency procurements, etc., from the proper funds for disbursement by Beheira Training Center according to established procedures but on time.

2. Initiate at least shop English training program for trainees and interested Beheira personnel ASAP.

3. Locate a crash course in Arabic language for the Manufacturing Advisor.

4. Get at least one TDY on board to help get things moving on the training program and provide second opinion and as fellow conferee to the Manufacturing advisor.

5. Some orientation directed towards Training Center counterparts, trainees and workers to convince them of the long term benefits to Egypt and how their activities tie into the overall program should be scheduled on a regular basis.

III. Activity fit with work plan

1. All activities of the month were within the scope of the work plan. Priorities are changed due to demands of thresher development. Whenever there is some slack, or for need of respite, we try to work in some additional items of the work plan on Ad. Hoc. basis.

IV. No changes in Work plan, only revising schedule and priorities according to expedience.

A.3 LOCAL MANUFACTURING PROGRAM

Activity Report
November and December, 1982

Submitted by: Richard Berky

Testing

Testing was continued into November, as weather permitted, on rice using the No. 1 machine. The results were moderately encouraging with no new problems occuring. The field test engineer was transferred to other Beheira duties with the exception of one day during this period. The No. 1 machine was fitted out for recutting then torn down for rice demonstration without testing in favor of a T.V. documentary (on rice threshing).

Pre-manufacturing

Drawings and bills of material were brought up-to-date as far as possible and a set of parts assembled for proof of fit was started. Where possible manufacture of parts for four more machines were undertaken.

An experimental weekly work schedule program* was instituted starting November 27, 1982. It showed promise until the first tasks were to shift into new groupings and tasks. At this point things got out of synchronization. It was planned that the tasks would be finished up during my absence, however when I returned everything was chaotic due to the demands of repairing the Giza sewer main. The program and system should be improved and could be useful if understood and backed by Beheira.

Problem Areas

Demoralizing working conditions including:

1. Continuous water on the assembly floor.
2. Borrowing of key workers and tools without prior consent and/or replacement.
3. Absenteeism.
4. Difficulty of delegation of authority through our workers or trainees.
5. Slow pay for trainees requiring monthly trips to Cairo and problems of use of budgeted funds.

Schedule attached

6. Misunderstanding of the training program.

7. Communications problems.

8. Interdepartmental competition for scarce resources which could be avoided by foresight.

9. Lack of full time properties, man and sweeper.

Conclusions:

There remains a lot of hard, demanding work to be completed on the thresher and everyone is waiting for someone else to go ahead on it. Most of it requires initiative and thinking.

We have been over ambitious to the extent of discouragement and have placed too many eggs in one basket.

The addition of a full time M.A. assistant would be welcome and timely. The same goes for some activity in the training area. It is our opinion that directing a small portion of our activities into some new areas as subjects of development training would be beneficial. These should be small in scope, self contained and capable of testing at any time of year locally. At the same time they should be of immediate interest to small manufacturers.

Several of the machines and their subcomponents listed in the Agricultural Mechanization work plan* would be suitable. Auger conveyor local manufacture and power take of shafts for local manufacture are being investigated as parts of the threshing machine, in this context.

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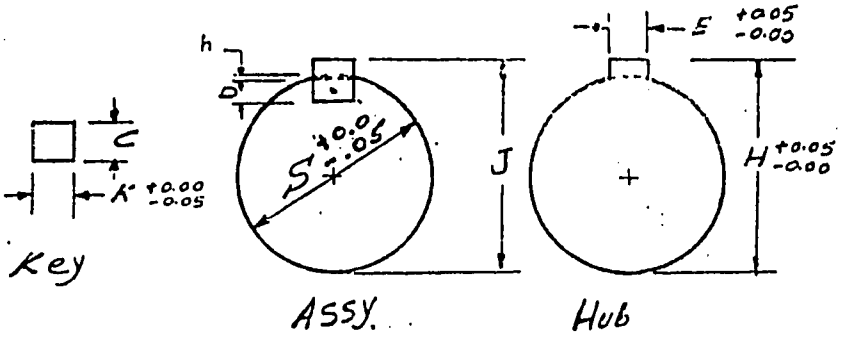
* Appendix B

Table For Square Keys M.V. Progra...



.25	K	E	h	H	J	C	M	D	F
25	6.35	6.35	0.41	27.765	27.765	6.35	24.59	3.175	6.35
50	6.35	6.35	0.339	32.835	32.835	6.35	26.985	3.175	6.35
75	6.35	6.35	0.290	37.885	37.885	6.35	34.71	3.175	6.35
0	6.35	6.35	0.253	42.912	42.912	6.35	39.746	3.175	6.35
5	6.35	6.35	0.225	47.949	47.949	6.35	44.775	3.175	6.35

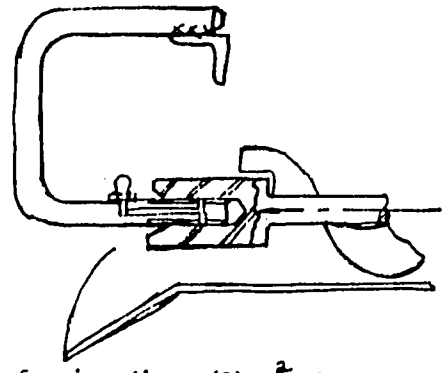
.3125	K	E	h	H	J	C	M	D	F
	7.9375	7.9375	0.646	28.321	28.321	7.9375	24.353	3.9687	7.9375
0	7.9375	7.9375	0.534	33.434	33.434	7.9375	29.465	3.9687	7.9375
5	7.9375	7.9375	0.455	38.512	38.512	7.9375	34.544	3.9687	7.9375
0	7.9375	7.9375	0.397	43.570	43.570	7.9375	39.602	3.9687	7.9375
	7.9375	7.9375	0.352	48.615	48.612	7.9375	44.647	3.9687	7.9375

.375	K	E	h	H	J	C	M	D	F
5	9.525	9.525	0.9429	28.819	28.819	9.525	24.057	4.762	9.525
50	9.525	9.525	0.776	33.986	33.986	9.525	29.223	4.762	9.525
75	9.525	9.525	0.660	39.102	39.102	9.525	34.339	4.762	9.525
00	9.525	9.525	0.575	44.187	44.187	9.525	39.424	4.762	9.525
25	9.525	9.525	0.509	49.252	49.252	9.525	44.490	4.762	9.525

Note: All DIMS. in MM.

WORK BREAKDOWN FOR WEEK OF 27-11-82

1. Overlay of piece of 25 mm ϕ shaft with brass welding rod after turning 11 " of length to 20 mmϕ. Re-machine the brass to 1" bearing fit in end of auger. Finally bend into a 6" x 6" x 6" U shape. Center the auger in the bottom of its trough, install the brass end into socket in auger shaft and weld other end of V to rear frame lower angle.

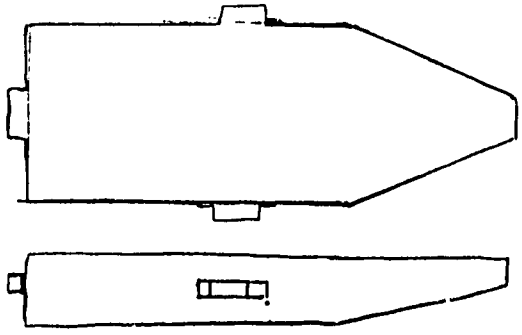


Mahmoud
Finished by Sunday
test in my presence
by pouring grain on
serve at a 2 ton/four tph
rate and 800 RPM on
cylinder.

2. Release 8" twin groove patterns for immediate (3) castings in aluminium. Fawzi to make the drawings for one 45ϕ bore and one 35ϕ bore according to ASAE standards and spacing according to the nature of the three groove "C" section steel pulley. Fawzi to follow machining to completion including set screws and keyway. I expect completion by Monday at the latest or overtime until finished of one 35ϕ bore pulley and one 45ϕ bore pulley.

3. Abdel Latif to fit new cover with 35ϕ infeed angle and replace feed table with a suitable platform using the same hinge holes. Make small 6mm grain cut-off plates and reinstall as before but use more weld. Add the missing part of the final grain cut-off made from 6mm plate. Breifly test this set up in my presence by Monday.

4. For Mohamed above build two metal grain trays which can be inserted under the auger to fill bags alternately.



con't

5. Adel/Ragab to order and fabricate all parts for heavy duty clutch and pulley including 35ø shaft as in the present machine. Obtain 35ø bearings and install assembly with lower portion complete by Monday on the new frame.

6. Mohssen / Said assemble and test mount both new cylinders in the new frame. That is, complete with new blower/recutters. Measure and order (9) new belts of correct lengths for both cylinder and cutter drive pulleys. Correct the slots for 45ø bearings and make proper shims to get cylinder located according to IRRI specs. x 1.333. Complete by Monday.

7. Mohssen - Make helical auger on new cylinders as on old cylinder except only two opposite per cylinder and overlap and single at the change of Helix angle. Finish by Tuesday.

8. Abdel Latif Ragab - Mount one of new heavy duty cylinders with recutter on the old machine and modify the concave and blower sheet to accomodate it.

9. Drawings and sketches-change records catch up - Said - Fawzi - Mohamed.

10. Modify the 35° entry cover for use with new cylinders-Mohssen / Abdel Latif. (Louvers).

11. Transfer clutch pulleys and belts to old machine and check with and without cover (Order ?).

12. Fabricate and install support plates etc. along with bias concave in the new frame.

13. Preliminary testing.

14. Revisions before fab. of (5) new machines.

15. Punch all frame holes 9 mm according to the pattern angles and center punched holes.

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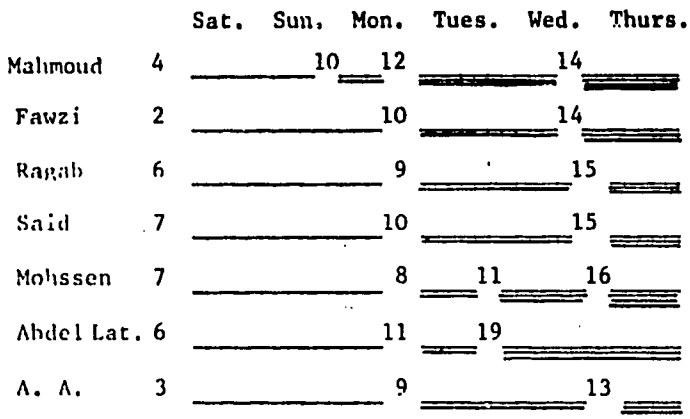

Starting Sun. 28 th
Hours are 7:45 AM
To 2:45 PM.
Prayers and lunch

Hussein - Supervisoryas Required
Berky - " " "

APPENDIX B NOV/DEC 82
PROGRESS REPORT

Local Manufacturing for Agricultural Machinery

Translation from Ag. Mech.Program

RKB 15/1/1983

There is no doubt that agricultural machinery manufacturing is facing some problems and constraints for which suitable solution must be found. These problems and constraints are :

1. Lack of adequate financing resources with suitable Interest rates.
2. The selection of suitable machinery, tested and proven under Egyptian conditions has not yet been made.
3. The provision for the training of the needed technical laborers has not been made.
4. The provision of raw materials in adequate quality, quantity, price and delivery schedules.
5. The marketing of the production within the real costs.

Therefore, we are recommending the following:

I. The selection of the machines which will be manufactured locally will be carried out through the research units. Development will be carried out those machines on which decisions of their need has not been finalized. As for the traditional machines which can be used (copied) without development we can start manufacturing them immediately. i.e. :

1. Front end loader
2. Harvester binder machine - semi mounted.
3. Ditchers.
4. Hydraulic cylinders.
5. Cereal storage equipment
6. Major spare parts needed for tractor and agricultural machinery repairs.

II. The provision of investment needed with the minimum interest rate - 6% as for food security projects.

III. The provision of suitable technical laborers through supporting training centers, specially equipped and staffed to provide suitable training.

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IV. The provision of the required materials either through local production or through import. It is proposed to exempt imported materials used for local manufacture from custom duties in the same manner as inputs needed for food security.

V. For the success of the farm machinery local manufacturing policy we suggest that a supreme committee should be formed under the chairmanship of his Excellency the Minister of state for Agriculture and Food Security and composed from representatives of the following institutions :

1. Ministry of Industry
2. Ministry of Military Production
3. Specialized Agency of the Ministry of Agriculture
4. Principal Bank for Development and Agricultural Credit.
5. Public and Private sector dealing with farm machinery local manufacturing
6. Cooperatives.

The Committee shall have the right of utilization of specialists and the formation of specialized subsiduary committees.

The following figure indicates the relations between the Research, Extension, local manufacturing agencies and their cooperations.

APPENDIX C - NOV/DEC 82 PROG. REPORT

THRESHER ASS'Y STATUS

WORK BREAKDOWN - THRESHER

RKB - 12-12-1982

Approx. Priority Task Description	Design	Trial Fabrication	Trial Assembly
1. Clutch Ass'y	90%	75%	50%
2. Eccentric, Con rod Bell Crank Etc.	75%	50%	10%
3. Auger Tooling	50%	--	--
4. Fan Housing W Shutter	80%	40%	--
5. Horizontal Auger	80%	75%	75%
6. P T O Ass'y	5%	--	--
7. Hitch Yoke (3 Pt.)	80%	75%	75%
8. Adjustable Stands	50%	--	--
9. Frame L H	90%	80%	70%
10. Frame RH	70%	10%	--
11. Upper Screen	90%	--	--
12. Lower Screen	--	-1	-2
13. Idlers	70%	70%	70%
14. Concave Upper	20%	--	--
15. Trail Wheel	60%	5%	--
16. Concave Lower	10%	20%	20%
17. Recutter	75%	80%	85%
18. Cylinder Ass'y L.H.	85%	80%	90%
19. Discharge Scroll, Fan	85%	50%	--
20. Power Feed System	--	--	--
21. RH Frame	80%	--	--
22. " Feed Table "	20%	--	--
23. Auger Extension W Bagger	5%	--	--
24. Cover Ass'y	50%	75%	60%
25. Auger R.H.	70%	5%	--
26. Cylinder R.H.	70%	--	--
27. Pulleys Belts	90%	80%	60%

A.4 RESEARCH AND DEVELOPMENT

A.4.1 Research Subunit

Activity Report
October, 1982

Submitted by: Carl A. Reaves
Samir Younis

Progress:

Very little progress was made on the spinning disk stalk cutter that was started in June. Have not received bids on list of steel and on list of nuts and bolts for a stock supply for the machine shop. Construction of the second soil sampler has not been started. Finally received parts for the Dodge pickup so it is back in operation. The RAU equipment was not delivered because customs had not been cleared.

Made two trips to Damanhour to select land area for the compaction tests and to observe the accomplished tillage for preparing the area. After the area was tilled it was flooded and left stand until it was dry enough to be tested. Wrote a list of tests and procedures to be used.

Wrote test procedures to be used for the rootcrop or potato digger when it is delivered. Wrote test plans for the thresher that was purchased from Israel. A team of three engineers has been assigned the responsibility for evaluating this machine with maize, and one preliminary test has been conducted. Received the Israeli equipment and devoted most of the last half of October assembling and becoming acquainted with it. Developed tests plans and procedures for the primary tillage tools.

Spent one day visiting demonstrations of cycle bar mowers for cutting cotton stalks in Saadeen. Observed one mower that Fred Schantz was demonstrating and four that the Ministry of Agriculture was testing. Attended four meetings of the R&D Executive Committee. Spent one-half day with the principal investigator discussing a proposed research project.

Major Activities for November:

Complete tests with the axial flow sheller for maize. Receive the potato digger and conduct tests with it. Write test plans and procedures for the secondary tillage equipment. Complete assembly of the Israeli equipment, adjust it for field tests and initiate tests on Desert land for both primary and secondary tillage equipment. Complete the spinning disk stalk cutter and test it in the field.

A.4 RESEARCH AND DEVELOPMENT

A.4.1 Research Subunit

Activity Report
November, 1982

Submitted by: Carl A. Reaves
Samir Younis

Progress:

Some progress was made on fabrication of the spinning disk cotton stalk chopper that was started in June. Fabrication of the second soil sampler was not started. Designed and got fabricated one drop-type penetrometer, which will be used for measuring resistance to penetration of soil until the Ames Dial-type are received. Assembly of the Israeli equipment was completed, and delivery plus assembly of the RAU equipment was completed. Tests on the axial flow thresher were started with maize. Unfortunately this thresher was delivered late in the maize season but it was possible to obtain an adequate quantity of grain plus cob and a small quantity of grain plus cob plus husk. This full cob was harvested too soon, as a result the moisture content was too high, so an attempt will be made to thresh at four different moisture levels as it dries out. The capacity of 4500 kg/hour was considered adequate, grain loss of less than two percent was very good, but grain damage of approximately 12 percent was too high. Most of this damage occured between the threshing auger and housing, apparently because there is too much clearance between the two components for this size grain and there is no built-in adjustment. We bought a second Camon binder during the month.

Spent three days in the Cairo office on finances and the R&D subproject review. Cooperated with Dr. Araby on the first series of measurements of soil compaction under tractor tires in the Damanhour area. These measurements were made at the highest moisture level so measurements will be made at three lower moisture levels as the soil dries out. Completed writing test plans for the secondary tillage tools.

Participated in four Executive Committee meetings during the month. The first two applied research projects have not been completely finalized but this should be accomplished in the near future. Spent considerable time developing an in-house work plan for the Executive Committee and for the R&D review.

Observed some field demonstrations of the Olypmia and Camon mowers plus the new Camon Binder. These demonstrations were conducted near Delengat in lodged rice that was over mature. Wrote a short report of my observations. Since I plan to take vacation during December, considerable time was spent with Samir and the engineer team leaders making detailed plans of tests, measurements, and test procedures for work that will be accomplished while I am away. This work will include primary tillage tests, secondary tillage tests, potato digging tests, continuation of maize shelling

tests, plus several items to be fabricated in the machine shop.

Major Activities for December:

Most of the month will be used as vacation, but I will return December 28th to help Jack Butler get situated and start work on the sprayer plus continue R&D activities.

Vacation:

I will be leaving Egypt for vacation on December 3rd and returning to Cairo on December 28, 1982. Present plans are to accompany Jack Butler to Alexandria on December 29th. I have discussed with Samir Younis and individual engineers involved in detail plenty of work to keep everyone busy until I return to Alexandria.

1. Primary tillage - We have located 15 feddans on the Alexandria University farm to start these tests, and Samir will supervise these closely and use it as part of his applied research project. The area has been divided into three parts of five feddans each (three replications). A split-plot design has been developed for six different implements, three depths, and three speeds (54 plots). Each of the 54 tests has been named, the plots numbered, and each test has been randomly selected for a particular plot. Measurements on both the machine and soil have been discussed thoroughly as well as test procedures. This work will require about two weeks.

2. Secondary tillage - a second area will be selected on the Alexandria University Farm for eight implements. A split block design similar to the one for primary implements will be used. Either the heavy disk harrow or moldboard plow will be used to prepare the area for these tests. A rough surface with large clods of soil will be needed. Hopefully a second group of engineers can conduct these tests simultaneously with the primary tests, but about three weeks will be required to complete this series.

3. Axial flow sheller - these tests on maize are progressing well; grain loss is very los (less than two percent), but damage is rather high at the thresher auger. We still have some full-cob maize that was harvested too wet. As this maize dries tests will be conducted at three or four different moisture contents.

4. Potato digger - two feddans of potatoes have been located on the Alexandria University Farm that will be ready to harvest in approximately one week. The adjustments and use of this machine have been thoroughly discussed with the responsible engineers. We have discussed in details tests and measurements to be made. This series of tests should require one week.

5. Work that has been given to the machine shop includes

fabrication of two more drop penetrometers, fabrication of an adapter for a new extended ring dynamometer, fabrication of one more soil sampler plus cutting 200 sample tubes, fabrication of one rotating soil sieve, and fabrication of two sets of hand shaking sieves. They are also still working on the spinning disk cotton stalk chopper and the static one that Beebe designed.

A.4 RESEARCH AND DEVELOPMENT

A.4.2 Machinery Development Subunit

Activity Report
November, 1982

Submitted by: R.A. Beebe

Visit to Deutz-Fahr Model M-980 Combine

On Saturday, November 3, 1982, Engineer Moussa Mohamed Soliman and I visited the above mentioned machine, located near Dalengat, on the Abo Wafia Farm to inspect it's pick-up reel.

Our finding were as follows:

A. Cutter-bar and Guards

1. The cutting width was found to be 3 meters.
2. Sickle sections are 7.6 cm, bottom serrated.
3. Regular guards are spaced 7.6 cm, center-to-center.
4. Lifter attachments were installed on approximately every 7th guard.
5. We were unable to determine the length of sickle stroke and cycles per minute.

B. Pick-up Reel

1. Diameter of tooth bar circle - 110.5 cm.
2. Number of tooth bars - 6
3. Tooth spacing on bar - 15.4 cm.
4. Diameter of tooth 4.7 mm.
5. Effective length of teeth - 24 cm. from center of tooth bar to tip of tooth.
6. Shape of tooth - outer 6 cm. portion angled at 20° to rearward of main portion.
7. Orientation of teeth - as found - main portion angled 15°-20° to rear of vertical. This angle is manually adjustable.
8. Location of reel axis - approximately 50 cm. ahead of a vertical line through the rear of the sickle sections, and approximately 95 cm. above horizontal from the bottom of the sickle sections, as we found it.

The fore-and-aft position of the reels' axis is adjustable through a range of 19 cm. forwards and 20 cm. rearwards of the "as found" position, and through a very wide range vertically, both adjustments attained hydraulically while operating.

9. Speed of reel rotation - adjustable "on the go" with a manual, crank-operated speed variator, readily reached from the operator's seat. The manufacturer recommends that the reel speed be adjusted to give an effective tooth tip speed of approximately 105% of the machine's forward velocity.

10. Orientation of teeth - the angular orientation of the teeth is controlled by a rotating control spider cooperating with a 9.5 cm. long crank on one end of each tooth bar. The control spider's axis of rotation is located eccentric to the reel's axis such that the angle of the teeth to the vertical remains essentially constant throughout the toogh bars' orbits.

Unfortunately, we were unable to see the machine in actual operation since the crop was too wet, and the machine was being altered to increase the cylinder's speed.

Based on these measurements and my observation during operation of the Olympia machine on Friday, November 12th, I plan to modify the pick-up reel prototype as follows:

1. Increase the length of reel support arms to permit positioning the reel approximately 40 cm. farther forward.

2. Modify the control cam to maintain the teeth vertical farther up on the rear of their orbit.

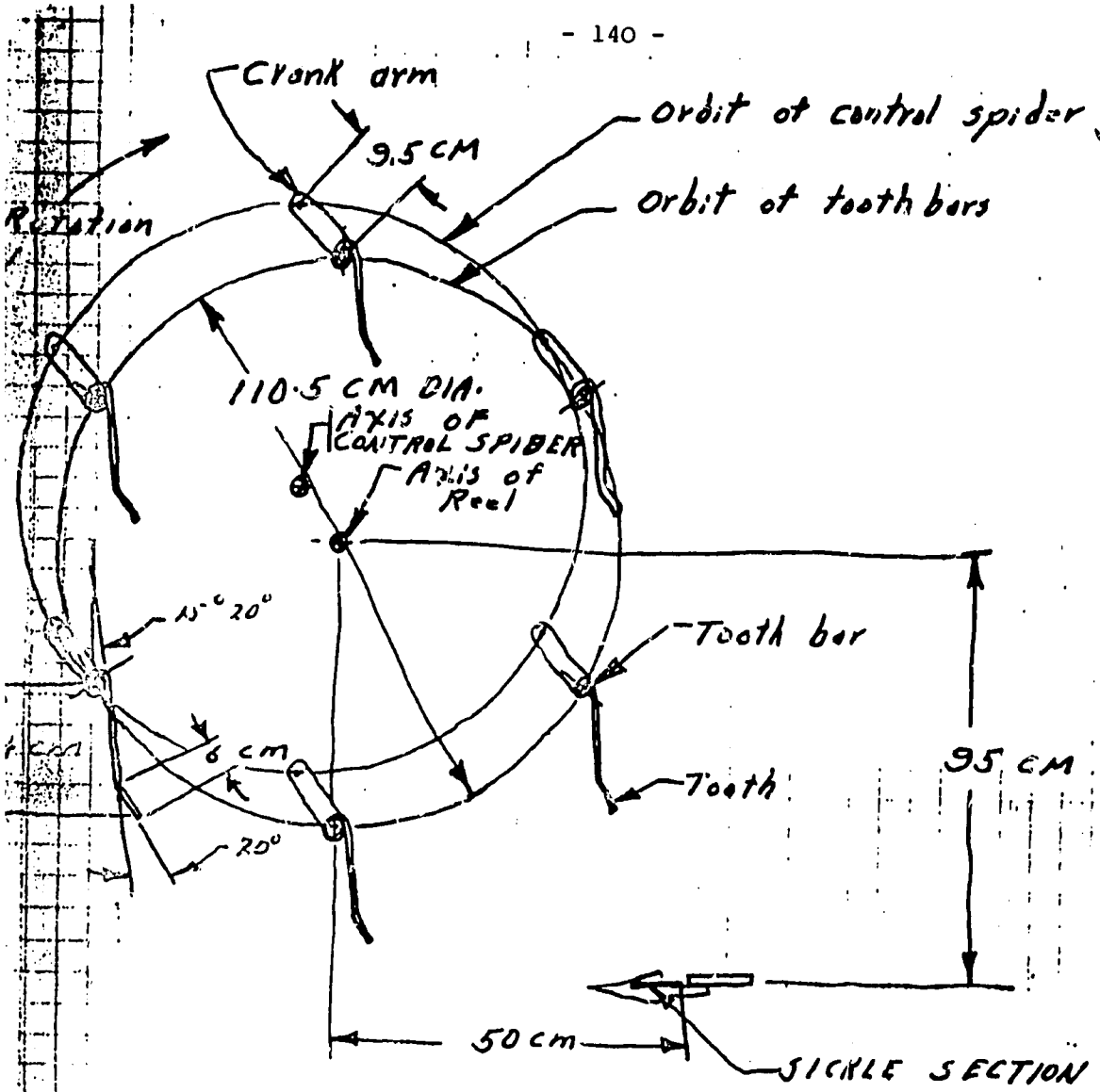
3. Revise the crop dividers to reduce crop entanglement in the reel toothbars and end plates.

4. Lengthen the teeth approximately 8 cm. and bend the tips to the rear to approximately the configuration of those on the Deutz-Fahr.

5. Remove the shielding around the wheel drive chains.

The above described changes will obviously have a detrimental effect on the balance and ease of operation of the prototype, which I plan to ignor for the time being.

I believe we will have these modification completed by November 18th, assuming we have no problems procuring a drive belt of the proper length.



Sketch of DEUTZ-FAHR PICK-UP REEL ON MODEL M 980 COMBINE

A.4 RESEARCH AND DEVELOPMENT

A.4.2 Machinery Development Subunit

Activity Report
October, 1982

Submitted by: R.A. Beebe

Initial Field Test - Modified Olympia Harvester with Pick-up Reel.

On October 30, 1982 the above machine was operated in a rice field located adjacent to the Agricultural Road, approximately 5 kilometers southeast of the Bacos R&D Station.

Due to early failure of the finel reel drive "V" belt pulley a complete evaluation of the performance of the prototype pick-up reel could not be obtained. The failure of the pulley was caused by porosity of the cast aluminium blank from which the part was machined.

Items noted prior to the pulley's failure were:

1. The cut material tended to carry over on the reel's teeth
2. The cut material appeared to be swept off the sickle-bar in a manner that improved the overall performance of the mower.
3. The modifications to the rear wheel steering linkage proved to be a significant improvement over the original design.
4. The weight distribution of the machine is such that it is difficult for operators to hold the sickle-bar down while cutting.

After the drive pulley failure the reel was raised to clear the crop and the machine operated a short time to evaluate the performance of the stub guards in this severely lodged crop. The crop appeared to be cut satisfactorily, but tended to carry on the sickle-bar and eventually prevent forward travel. The right hand drive wheel support then yielded outwards to the extent that its drive chain would not stay on the sprockets so testing was discontinued.

The machine will be repaired/modified as follows prior to additional testing:

1. The reel tooth bar control cam will be modified to improve the action of the teeth.
2. The failed pulley will be replaced or repaired.
3. The drive wheel supports will be straightened and reinforced.

4. The drive wheels will be moved rearwards to improve the machine's weight distribution.

5. Improved crop dividers will be added to prevent crop entangling in the toothbar control cam follower arms.

The modified Camon F10 binder was then operated in this field to compare the performance of its sickle-bar and guard combination with that of the Olympia.

The modifications to the Camon machine consisted of removing the binding mechanism and installing a new sickle drive mechanism, in effect converting the binder to a mower. The modifications were only partially completed, due to delays in obtaining material and lack of oxygen for the oxy-acetylene torch at the shop. Specifically, crop shielding for the sickle-bar drive and adequate crop dividers had not been installed, and the weight distribution of the machine had not been changed to compensate for the removal of the binding mechanism.

The Camon is equipped with conventional mower guards spaced at one-half the sickle section spacing, i.e., the sickle sections are 3 inches, center-to-center, and the guards are spaced 1½ inches, center-to-center. Due to an inadequate adjustment range of the new sickle-bar drive the register of the sickle bar with the guards at stroke end is approximately 3/16 inch off theoretical.

The Olympia is equipped with stub guards, spaced 2 inches, center-to-center, and its sickle sections are spaced 3 inches, center-to-center, thus it is not possible to adjust this machine to a correct register with its guards.

The crop consisted of clusters of 15 to 25 stems, spaced at 20 to 25 cm, on randomly oriented centers.

It was impossible to ascertain a statistically sound evaluation of the performance of the sickle-bar/guard combinations, but by visual observation of the stubble and crop I would rank their performance as follows:

1. Best - Olympia with pick-up reel.

2. Intermediate - Olympia without reel.

3. Poorest - Camon without reel.

A.4 RESEARCH AND DEVELOPMENT

A.4.2 Machinery Development Subunit

Activity Report
November, 1982

Submitted by: R.A. Beebe

Harvesting Machine Development

To continue with the development and testing of the pick-up reel, and the evaluation of the sickle-bar combinations, as outlined in Dr. Gaiser's Memo to me, dated September 14, 1982, I am concentrating on the design changes and repair work required to continue the field test.

A. Design changes and repair work on the Olympia consist of the following:

1. Repair of the failed final drive pulley for the pick-up reel.
2. Straightening and reinforcing the drive wheel supports.
3. Relocating the drive wheels to the rear to improve the weight distribution.
4. Modifying the tooth bar control cam to reduce the cut crops' carrying over the reel.
5. Adding crop dividers to eliminate crop entanglement in the reel cam followers.
6. Adding ballast to the front of the machine to improve control.

B. Modifications to the Camon F10 consist of:

1. Adding shielding over the sickle drive mechanism.
2. Adding swath control bars.
3. Installing the bat type reel and repairing same.

This work is preceding as rapidly as our facilities will permit. Major power outages and the inability to obtain oxygen for our oxy-acetylene torch for several days has delayed this work, but as of this writing I believe it will be completed on November 4th or 6th to the extent that we can continue our test work.

Small Grain Harvester

The Olympia and Camon machines with which we have worked to date have been unsatisfactory for several reasons, chiefly:

A. Insufficient clearance for cut crop through-feed.

B. No provision for pick-up reel required to harvest severely lodged crops.

C. Cost of twine makes binding uneconomical. (Debatable!).

D. Both machines require an unreasonable amount of operator effort and skill to operate.

E. The Camon has no provision for installing supplemental traction/wheels for operation in wet rice fields.

F. Neither machine provides adequate shields or guards to prevent mud and trash ingress in muddy conditions.

G. The Olympia's rear wheel steering linkage was very poorly designed.

H. The cutter bar on both machines is not located sufficiently for forward to allow tall crops to fall after cutting.

I. The binding mechanism on both machines in insufficiently robust to cope with Egyptian conditions/operators.

The "Proposed Design Specifications" that I circulated several weeks ago generally outlined a machine that will overcome the above listed shortcomings of the Olympia and Camon harvesters, with the following additions and/or amendments:

1. To overcome the objectionable operator effect described in item "D" above, the machine must be designed with a free-standing carrier vehicle on which the cutter-bar and pick-up reel are pivoted. Adequate ballast must be provided to ensure that the rear wheel maintains steering control with the cutter bar in transport position. Sufficient mechanical leverage assist springs must be provided to permit raising the cutter bar with reasonable operator effort, yet allow it to "float" over ground undulations.

2. The pick-up reel must be designed for easy "on-the-go" vertical and fore and aft adjustment to meet varying crop conditions. Reel teeth should be approximately 9 inches long, their trips to be inclined rearwards. The vertical or rotation of the teeth should be adjustable, but need not be adjusted "on-the-go".

3. Adequate mud and trash shielding must be provided for the final drive train and all wheel axles.

4. In the interest of design time and tooling economy it appears that the use of the engine and drive train from the Camon F10 would be preferable to designing and building an all-new drive train. Obviously, the

Camon people should be queried as to their willingness to supply these parts on an OEM basis early in the program.

5. The sickle bar and stub guards used on the Olympia should be supplied as regular equipment, and the "wobble-box" sickle drive used on the Olympia should be used on the new machine. Probably these components can and should be purchased from Olympia rather than tooled and produced locally.

6. The drive wheel tread width must be reduced, or the width of cut increased, sufficiently to provide clearance for supplemental traction/floatation wheels.

7. A larger wheel should be used to provide better floatation. The use of two rear wheels, auto-steered on a pivoting axle should be considered.

I intend to remain in Alexandria till approximately December 4, 1982 and would be willing to discuss the above in more detail if you so desire.

A.5 SERVICE CENTER/VILLAGE WORKSHOP

A.5.1 Service Center Subunit

Activity Report
October, 1982

Submitted by: G. Sparrow

We had further meetings and discussions this month with Diabex and Shoukry Engineering Co., who requested assistance in developing Service Centers in Aga and Nasr village, respectively.

Diabex purchased about 1-1/4 feddans eight kilometers south of Aga on the west side of the main road with a small sideroad running along its north boundary, which will make it an ideal location. It also has a supply of water and electricity. During our meeting, we reviewed the design of the center and its layout, the functions to be performed, and the staffing requirements and costings. We set another meeting for early in December to review the modification they intend making to the building. At the present rate of progress, we would hope to have this center finalized early in the new year.

Shoukry Engineering Company already owns a compound which is completely surround by a brick wall, which includes a number of suitable buildings. These will easily convert to serve our purpose, although quite a bit of repairs will be necessary, i.e., new roofs, floors, windows, doors and the proposed new development. Again, we have been surprised at the speed that the development has taken. We would estimate that this proposal will be concluded around the end of February.

We have tried to contact Saad Aquizy but understand that he is out of the country. However, the word is that he will submit a revised, scaled-down version of his original design on his return.

We met Hammamy Family with the hope of finalizing their proposal, but unfortunately they have decided to change the design of their service center. These new plans and costings will be proposed to us and should be available at the beginning of December, if there are no major changes in the costing, we will be ready to present this one this month.

The proposal submitted by Shiety Co. of Tanta has been reviewed, but we still have a few points we wish to be agreed upon before we can start this one up.

Dr. Zakaria arranged a meeting for us with Mr. Zeer, the representative of the National Food Security Company in Baliss, at the present time this company does not exist in this area, although it is a large national organization. After meeting Mr. Zeer at his home, and later discussing their requirements with the local manager of the MOA, it appeared that the land for the center belonged to the MOA. As we could not obtain any concrete information

from either Mr. Zeer or MOA, we suggested that they contact us again when they had collected more ideas of what they intended to do, rather than request a service center for which they did not have any plans.

Met with Abduo Khir Alla (Mohmoudia Motors). It would appear that they have overcome the problem of building the center with the Ministry of Irrigation, and now have their permission. However, the local unit has requested that they must now get clearance from another authority. We have been told that this is alright, but Mohmoudia Motors is awaiting the letter. The final stage will be waiting for the transfer of title of the land to be registered before the bank will officially approve the deal.

This has been a trying month, because of the relocation of the Service Center Subproject to Cairo, this move will mean that we will lose our current team of Egyptian staff, so have been tying the loose ends before the move.

With any luck, the next few months should prove to be very active. Unfortunately, there are too many parts involved in creating a Service Center of which we have no control or influence.

A.5 SERVICE CENTER/VILLAGE WORKSHOP

A.5.1 Service Center Subunit

Activity Report
November, 1982

Submitted by: G. Sparrow

This month we started operating from the Cairo office. At the beginning we did not have any counterparts which did create some difficulties until Morad Fawzy was assigned to us. We are also lacking in office facilities, i.e., desks and chairs, etc. These are coming in the near future.

Dr. Zakaria arranged a meeting for us with a Mr. Zeer of the National Food Security Co., which turned out to be very interesting, this meeting is covered in our field trip report.

We met Eng. Abdel Aziz Moussa, who visited us to discuss the possibility of developing a Service Center half-way between Tanta and Mahalla El Kubra. At the end of the meeting, he informed us that he was going abroad for about three months and would contact us on his return.

Said Aguizy spoke to us about his revised plans and proposal, but we had to point out to him that we could not finance the building only because this is not part of the terms and conditions of the letter of understanding. Later we learned that Dr. Saharigi has had several meetings with Said Aguizy.

Abdu Khir Alla of Mohmoudia Motors visited us in the office. It appears that they have overcome the Ministry of Irrigation Problem, but now the local unit has requested permission from another authority. This is in connection with new buildings (but not planning).

We visited Shoukry Engineering Co. in Nusra village in Kafr El Shiek who owned some large buildings that would lend themselves to conversion workshops, showroom, parts store, etc., easily. Some repairs would be required and additional building. Everything is located in a walled compound extending to about one feddan. We have produced a plan of remodeling the site which the client has accepted. They are getting estimates for the cost of repairs, machinery required, staffing, etc., for the next meeting.

We are preparing an application from Shiety Co. of Tanta and have most of the information required. But we will need possibly one or two meetings before we are in a position to finalize their proposal.

Since we have moved to Cairo the clients visit us rather than we visiting them. However, on several occasions the client has not kept the appointment for one reason or another. Prior to this change we did not experience this situation when we visited the client.

A.5 SERVICE CENTER/VILLAGE WORKSHOP

A.5.1 Service Center Subunit

Activity Report
December, 1982

Submitted by: G. Sparrow

Azmy came to the office with three bids for the construction of his service center in Beni Mazar. These have been evaluated and the result will be sent to the Bank, notifying them as to who was awarded the contract.

Dr. Abu Sabe informed me that Mr. Korra was now ready to meet us to discuss his proposal for a center on the desert road in Beheira 16 kilometers from Alexandria.

My counterpart was not available to attend the meeting with Mr. Korra, who had done considerable research for his project. Mr. Korra is going to submit the information we will require in order to complete the proposal.

We hopefully have had the final meeting with the Hammamy Family and are now in a position to conclude this application to be presented for Project approval before sending it to the Bank.

Now we have all the necessary information from Shiety Co., so that I can finalize their application. We have reviewed it with them, and it appears to be acceptable.

Said Aguizy visited the office to discuss his project with us. Dr. Saharigi had requested that Said Aguizy should use 60% of the loan money for tools and workshop equipment and 40% for the building.

Hammamy application is completed in the English version. We now need to prepare the Arabic version, but as of the end of the month nothing was forthcoming, so will present the English version for approval.

After nearly two months in the Cairo office, we are still awaiting our office furniture. The eight of us are fighting for working space on one table and one small desk. The translations required are not getting done and are piling up. We need to improve these support functions.

A.5 SERVICE CENTER/VILLAGE WORKSHOP

A.5.2 Village Workshop Subunit

Activity Report
October, 1982

Submitted by: R. Snyder
Eng. Wagdy Metry

Much of this month was spent on meetings with the coop group in Sharkia Governorate. Their overall plan seems to imply that they wish to build and equip three or four Service Centers with complete repair capabilities and ten or eleven small shops with a lesser degree of repair capability. In the various meetings, we have had with them, it has become obvious that the coop staff, for one reason or another have not completely visualized their need.

A few examples:

1. Except for a few, they have not yet identified building sites.

2. Managers/operators for these shops have not been selected.

3. It has not been determined whether these shops will work on private owned equipment or only coop equipment.

4. The coop group could not provide us with an equipment population for the area covered or an estimate of their purchases in the immediate future. This of course would be essential if we are to determine their needs to any degree of accuracy.

In any case we have befun to assemble a package of material that will assist them in putting a program together. It will include:

1. A building plan which could be made smaller or expanded without changing the basic design.

2. A compliment of tools and machinery for shops of five different sizes.

3. A staffing pattern to fit the five different shops mehtioned in "2" above.

4. A suggested repair and/or adjustment capability for the five shops mentioned in "2' and "3" above.

5. A sketch for building a machinery parking shed.

6. A sketch for building a machinery washing slab.

We were informed that the service center subproject would be moved to Cairo in the near future. We expect that the move to

Cairo and beginning with new personnel will set us back somewhat temporarily.

We wrote a letter requesting modification to the letter of understanding. If these changes are forthcoming I expect it will generate considerably more interest among our clients.

The requested changes were as follows:

1. Eliminate the 10% down payment for machinery.
2. Increase the grace period from 6 months to 1 year.
3. Eliminate the guarantee requirement for hand tools.
4. Increase the loan amount from 30,000 LE/unit to 50,000 L.E.

It was noted that our project was advertised in the Egyptian newspapers in September.

The terms and conditions mentioned in the add were to the best of our knowledge, inaccurate.

This indicates a need for better communications within our group. Anyone of us on the subproject or anyone in finance and planning could have been consulted for the accurate information.

Few field trips were made this month. However, several of the clients we have been working with have visited the office and we have begun writing machinery specifications IFBs' for three loans.

Survey of Random Villages (Gharbia Governorate)

On August 24th Engineer Wagdy Metry and Anwar Nada visited two random villages in Gharbia Governorate. This concludes our survey of random villages.

The first village visited was Kafr Dima village about five kilometers from Kafr El Zaiat Markaz. There are no repair facilities for farm machinery in this village. The supervisor of the coop said that he knew a man who might be interested in developing a small workshop. He promised to contact the mechanic, explain our project, and have him contact us if he is seriously interested. A small shop in this location would be very helpful to the local farmers.

The second village visited was Qelyb Abiar village. There is a small workshop there that works on farm machinery and repairs tires. The owner is employed by the Coop in this village. His shop is licensed in the name of his brother who is working in Saudi Arabia.

The brother, however, has given him a power of attorney so that he can conduct any business necessary for the shop.

On September 15th, we visited the random village of Kom El Naggar village - Basyum Markaz. This village has no repair facilities of any kind, or any mechanics living in or near the village. The chairman of the Coop says he doubts that anyone would be interested in developing a workshop in the village. They are approximately six kilometers from Basyum Markaz where most repair services are available. We do not plan to pursue workshop development any further in this location.

The second village visited this day was Keniset Damsheet village - Tanta Markaz. The chairman of the Coop had heard of our project and was anxious to have us meet an acquaintance (Ahmed Shahim), who was willing to develop a workshop in the village. We met Mr. Shahim for about two hours to discuss our project and his possible involvement. He has several pieces of land, the one best suited for a whorkshop, however, is agricultural land and he feels it would be impractical to use it as it would take too long to get a commercial permit for a workshop.

Mr. Shahim's home is in the center of the village and there is adequate space behind his house to build a resonable size shop. He suggests that if he can get a loan thru us that he will build on this site. He has had little or no experience in the mechanical repair services, but says that other members of his family have experience and that he will hire any other help needed. Further, he has asked that we help him by recommending the correct size building and a list of tools and equipment to make it a viable operation.

It was agreed that we would discuss this project with our executive committee and inform him of the results shortly after the holidays.

A.5 SERVICE CENTER/VILLAGE WORKSHOP

A.5.2 Village Workshop Subunit

Activity Report
November, 1982

Submitted by: R. Snyder
Eng. Wagdy Metry
Eng. Moussa Shafik

In November we worked out of Alexandria office thru the 18th of the month. Although Engs. Wagdy Metry and Anwar Nada had been told they would be transferred to R&D, Mr. Naggar allowed them to help me clean up some business in the area before my impending move to Cairo. Both were very disappointed about the transfer and having to leave the project.

Plans for the coop projects in Sharkia were completed and turned over to Dr. Saharigi and Dr. Zakaria on November 9th. If the Coop planners will look them over, the plans may give them some ideas to get them started. The plans include suggestions for buildings, staffing, repair capabilities and a suggested tool list for various size shops.

A little confusion about the assignment of a new counterpart early in the month. I was introduced to Morad Fawzi as my new counterpart, but that was not to be the case. Later in the month I found that my counterpart was to be Eng. Moussa Shafik.

We lost some time on the job this month due to my having to move my office to Cairo on November 15th and then my household on November 28th. This also involved trips to find and negotiate for a new flat.

Upon moving our office to Cairo, we found that we had only one office for both groups in our subproject. Further that there was only one desk, one table and two chairs for the four of us.

We were assured, however, that we would have furniture within ten days. Later in the month we did receive eight chairs. Four men have been added to our staff. We will need additional personnel in the near future, but I feel that this influx of manpower is a few months premature and they are not necessarily trained for this type project.

We made our first calls in Minia Governorate this month. The people in Minia seem to have more knowledge of our project than most places we have worked. We made seven visits to clients whose shops we have formerly visited and seven visits to new shops, some of which appear to be good prospects for future business. We have also had several persons visit our office to discuss loan possibilities and the status of loans already begun.

A.5 SERVICE CENTER/VILLAGE WORKSHOP

A.5.2 Village Workshop Subunit

Activity Report
December, 1982

Submitted by: R.E. Snyder

General:

December was the first full month that Eng. Moussa Shafik and myself have worked together. We have tried to schedule our time so that we would be in the office on Sunday and Thursday of each week and have Monday, Tuesday and Wednesday for field trips. It is necessary to set-up this routine so that our clients who wish to visit or call us will know when and where we can be reached.

Loan Activity:

The PBDAC in Beheira has approved three small shop loans to-date. We have provided the clients with IFB documents which list the machinery specifications and at least two have collected tenders and one has had our executive committee bid evaluation. At first, we were concerned because the bank wanted us to take possession of and deliver the checks. They have, however, agreed that the client could take a letter from the bank to the supplier instructing the supplier that his check was available at the bank, and he could collect it as soon as the commodities were delivered. Hopefully, this procedure will be acceptable to everyone.

We have had complaints from clients in Sharkia about PBDACS, requirement of guarantee on machinery loans. This of course is contrary to our terms and conditions. I'll not go into the details in this report as it was fully covered in a memo to Dr. Zakaria on December 22, 1982.

During the month we were able to assemble six new loan files for three clients in Qalubia and one each in Sharkia, Gharbia and Minia. The total L.E. value of these loans is approximately 300,000 L.E. Two of the loans exceed the 50,000 L.E. limit for small shops and are actually small service center operations.

Field trips this month consisted of twelve, repeat visits to clients we know from former contacts and eight visits to new shops, previously unknown to us.

The three young men assigned to our staff in November are being utilized in various ways. At times they deliver messages and/or documents to clients and PBDAC offices in other cities. Some have been sent to scout villages and cities to search for potential loan recipients. In some cases they have shown our clients where to find various types of machinery and tools in Cairo, and they are also doing marketing research at times. They do without any doubt, take some of the load off myself and Eng. Moussa.

Training:

We have had difficulty getting young men into training lately as the shopsare experiencing a heavy work load at this time of year. Of course they give their work first priority. At present we have a waiting list of 16 persons waiting for mechanical, machinist and welding training.

Problems:

At least one client has not been able to find a western origin lathe with the correct specification. The suppliers claim that Government import restrictions prevent them from importing these units until they have firm orders. This makes it difficult for the client because he is alloted X number of pounds in his loan, but the final price of the lathe cannot be determined until it arrives. There is also the problem of a two to four month wait for delivery.

Office space for our expanding group is already inadequate, and it will get worse as time goes on. At present it is impossible to discuss a clients financial business in private as it should be.

Office furniture has not been delivered as of this report, however, we are expecting it any day.

A.6 Land Improvement Subproject

Monthly Report - November
Land Improvement Sub-project

1. Basins Surveys Cum Demonstration Basins

During the first part of the month, a presentation was made to farmers in El Beek basin in El Atlat village. The farmers agreed to cooperate with the topographic survey. The farmers brought up two potential problems that they perceive in land leveling: (1) the movement of saline soils from isolated patches to an even spread over the farm and (2) the spread of weeds with the movement of soils. They are however willing to cooperate through the topographic surveys which were carried out by the SAO in cooperation with the

The topographic survey of Hodh Abou Askar, Birba El Khobra village was carried out from November 10 to November 14 . This basin is 57 feddan in size, as the large parts of the basin contained cotton stalks about 3 feet high taping work was impeded.

In El Beek Basin, El Atlat Village the topographic survey tools phase from November 14 to 21 . This basin is approximately 90 feddan in size. Approximately 20 feddan were planted to grapes and thus not surveyed. The area surveyed was about 70 feddan. During the course of the survey, the farmers asked many questions about why the project was undertaking. These activities were being undertaken and what the cost would be. These and other comments point to an increasing need for extension and moral sociological imputs directly related to soil improvement.

Plotting topographic maps, earthworks calculations and basin rehabilitation planning using the above data has begun.

2. Training:

Work of the training manual and the various courses to be given in soil improvement continued.

3. Relocation of Offices:

In Cairo, the Land Improvement Staff relocated to offices in the Executive Authority for land Improvement building in Giza. M.J.Mclung obtained office space in the Agircultural Department in Minya and is using this space as headquarters for field operations.

4. Work in Progress:

1. The analysis of the two topographic survey is currently underway.
2. Technical paper No. 2 is under review and will be printed shortly.
3. The staff is acclimatizing to their new offices, and work arrangements in Cairo and Minya.

Dr. A.A. Orabi
Mr. Ann Marei
Mr. A. El Fayoumi
Mr. H. El Banna
Mr. J. McClung

Land Improvement Sub-Project
(Minya Govenorate)
Monthly Report - December

1. Basin Survey - Demonstration Basins

Activities related to the basin program centered on plotting the survey data and preparing a status report.The data for each basin, Abou Asker and El Beek was plotted and was used to begin the development of land improvement plans. This has included redesign of meskas and land leveling. Arrangements were begun to undertake soil surveys in each of the basins.

The status report was compiled which covers the basin survey from the inception, with working paper No. 4 to Desember. The highlights of the report are :

1) Recconaissance visits to basins in the 5 project villages.
2) Selection of tentative survey basins.
3) Presentations to farmers to ellicit their cooperation in the basins.
4) Topographic surveys.
5) Surveys of meskas.
6) Processing of data.

This report has been presented to relevant project staff.

2. Training Programs :

A visit was made to Gabal Asfar farm was made to determine if it was a good site for an on - the - job - training for land leveling program. As there are 60 feddan currently abailible which require land leveling, the farm appeares to be a good prospect for use as a training area until land becomes clear in Minya in January February 1983. The land Improvement Sub-project has agreed to carry out topographic surveys of the area in January.

ANNEX B

EVALUATION UNIT WORKPLAN

Prepared by Peter Reiss

3 November 1982

TABLE OF CONTENTS

1.0 INTRODUCTION

This workplan is to cover evaluation activities during the twelve month period from November 1982 throuth October 1983. Evaluation activities on the Agricultural Mechanization Project primarily involve: (1) assessing mechanization impact and (2) monitoring implementation efforts and assessing Project impact. However, preceeding the direct intervention of the Project into selected sites, evaluation activities have focused on investigating the present agricultural conditions with the objective of comparing the initial situation with ones during and following Project activities. These investigations have served another purpose: they provided project staff with information with which to plan their work. For example, data on landlevelling and soil conditions, the use of saqias and pumps, and the machinery and workshop populations in Project governorates have been given to various components on request.

Since agriculture serves as a base upon which other sectors are often expanded, the development of the agricultural sector in the national economy is of utmost importance to the Egyptian government. Income drawn from agriculture has been used to stimulate and develop industrialization. In addition, the agricultural sector is the largest employer in Egypt so that monitoring employment patterns related to mechanization is essential.

Current estimates indicate that more than half of all Egyptians in the labor force are working in some agricultural activity. At the same time, serious labor shortages exist in agriculture with severe repercussions for timeliness of activities and levels of production. Some balance will have to be struck between the current shortage in available laborers and the possible future influx of returning emigrant workers as labor opportunities in the Gulf diminish. Consequently, and understanding of the dynamics of this vast and fluid labor pool is critical in formulating manpower policy, which agricultural mechanization has the potential to affect.

Evaluation activities are not, and will not be, confined to an examination of the Egyptian labor force. Since the Project's inception, the Evaluation Unit has provided information to the various components in the form of an area-wide mechanized farming survey; isolated studies in project areas on such topics as determining an appropriate schedule for soil improvement work, farmers' preferences and uses of water-lift devices, and farmers' perceptions of changing soil and water conditions on their land; established a system for collecting information on a time-series basis through a Village Studies Program in all twenty-five project villages; taken part in the planning and implementation of soil improvement activities with members of that component; and conducted various evaluations particularly in the area of Project training programs.

The following workplan is organized into sections by project component. In each section, there will be a discussion of the associated evaluation activities to date as well as the planned work to be done during the coming period. The project evaluation activities generally fall into the following cate-

gories: reviews of project introduced and adapted equipment based on test trials on farmers' land; assessments of Project-financed credit funds with particular attention to recipient acceptance and selection and fund structure; Project impact studies of extension, service center development, and soil improvement efforts; and studies supporting Project work in Planning.

Preceeding this discussion of project component evaluations there is a brief section which sets the methodological and conceptual contexts for the evaluation activities. I review the mandates for the Evaluation Unit as stated in the Project Paper and the types of data required to implement these mandates. The section continues with a discussion of the methodologies employed to collect the data as well as the structure of the data-collection effort.

The workplan concludes with a time frame for the evaluation activities under review and a list of anticipated reports which will be presented during the coming period.

2.0 EVALUATION METHODOLOGY

2.1 Review of Project Paper Mandates

According to the Project Paper, the Evaluation Unit has the following responsibilities:

1. Collection of necessary baseline data for project activities and mechanization efforts in general
2. Collection of information necessary to monitor project activities and effects
3. Establish a permanent, comprehensive system for collecting relevant information on a time-series basis
4. Conduct socioeconomic analyses of the effects of mechanization activities
5. Use these analyses as a basis for the preparation of policy and planning materials

2.2 Basic Evaluative Concepts to Implement Mandates

1. Unit to be monitored: Although not exclusively limited to such sites, most of the project implementation efforts will take place in the twenty-three randomly selected villages in five governorates. In addition to these villages, evaluation activities will be conducted in a smaller number of carefully chosen control villages against which project intervention may be compared.
2. Data to be collected will be used for assessing both mechanization impact and Project impact. Concerning mechanization impact, it will focus on economic costs and returns of actual machine use, machine time use, timeliness of operations, dynamics of the labor pool, nature of household investment, household decisions concerning the organization of labor, indigenous patterns of labor exchanges and associations. Concerning Project impact, data collection will concentrate on the immediate affects of outside intervention on service center organization and competance, on-farm water management, levels of adoption of innovative technologies, and accompanying changes in cropping patterns and production.

2.3 Data-collection Methods for Impact Assessment

1. Surveys. The Evaluation Unit has conducted a number of surveys, largely for the purpose of collecting baseline data about the current agricultural cropping patterns, extent of mechanized farming, labor availability, problems in acquiring and maintaining equipment, and present soil and water conditions. Information was collected both through the Mechanized Farming Survey and the Village Studies Program. Such

information is useful for giving us a picture of the situation at a specific point in time. However, such a method has clear limitations, particularly if used as the sole means for data-gathering on a long-term implementation effort. It is the role of evaluation not only to judge the successfulness of this project from a comparison of two isolated points in time, but also to monitor the activities of the many components and offer suggestions and assessments throughout its life. Furthermore, survey research, in itself, cannot present an understanding of the naturecr process of change and agricultural innovation, for it is, by nature, composed of discrete, pointed studies.

2. Time-series Information. The above limitations of surveys indicate why, in its wisdom, the Project Paper called for a comprehensive system for collecting information on a time-series basis. With the presence of a permanent, full-time Evaluation Unit on the Project, information can be continuously collected and analyzed throughout the life of the Project for the purpose of project enhancement and improved functioning. A data-collection structure has been established which allows for the gathering of time-series information: the Village Studies Program. Time-series research allows us to monitor regular, often slow, changes in a population, insitution, or activity which might otherwise go unnoticed or be misunderstood.

3. Case Studies. Still another methodology which will be used in evaluation is the case study, the intent of which is to understand the principles of operation of particular activities or organizations. These cases serve as exemplary models improve our understanding of similar units elsewhere. Examples of anticipated case studies to be examined by the Unit are the nature of the agricultural labor pool in selected villages, credit and capital availability, private sector involvement in the Service Center Credit Fund, on-farm use of a Project-adapted drum thresher, and the socioeconomic organization of Project demonstration basins in Minia.

2.4 Data-collection Structure: The Village Studies Program

1. Current Structure. The Evaluation Unit has established a training and data-collection structure, drawing upon people from a number of sources. Such a structure not only will improve the data-gathering and analysis abilities of the Ministry of Agriculture, but does provide timely information in the area of agricultural mechanization with which planning and policy decisions may be made. More specific to the Project, it acts as a monitoring unit for Project activities, with the objectives of examining Project impact as well as determining problem

points in implementation and playing a role in their rectification.

a. Program Organization. The Program is a joint effort of the Agricultural Mechanization Project, a local university professors, economists from governorate sampling offices under the Agricultural Economics Research Institute, agricultural engineers from governorate agricultural offices, and recent graduates of local colleges of agriculture. These individuals form five monitoring and evaluation teams in the five Project governorates. Each team is composed of a supervisor, a resident assistant, a liaison from the local agricultural office, and one monitor for each Project village.

b. Research and Monitoring Techniques. Initial work by the Program members centered on the pre-Project situation. In the early stages, this work was undertaken with questionnaires designed by the Evaluation Unit and the team supervisors. Questionnaires were selected as the method of data-collection because they are a more easily controllable device, particularly for largely inexperienced researchers. Studies to date have focused on the following topics: interviews with village leaders to determine agricultural and agricultural mechanization problems in Project villages, a machinery census focusing on credit and maintenance services in Project villages, labor availability and agricultural wage structure in Project villages, investment patterns in Project villages, and soil and water conditions in Minia Project villages. A shift away from the exclusive use of questionnaires to other methods, such as the case study, was inevitable. Village monitors live either in or near Project villages. Their continued presence in the villages enables them to gain a wealth of knowledge about village affairs and activities. If they were restricted to being questionnaire enumerators, much valuable information would be lost. Their own experience in agriculture, coupled with their residence in Project areas, is more likely to yield better and more useful information to the Project.

c. Training Activities. As part of the Village Studies Program there is a significant training component since an objective is to make the Program self-perpetuating so that it may continue in some form after the Project has been completed. An important part of the training is frequent and regular meetings of the governorate teams. Teams meet weekly to review the data collected, code, or analyze it, or prepare written reports, and all work is overseen by the team supervisor.

In addition, regularly-held program meetings are planned. The first, a two-week session, has already been held at the Cooperative Institute in Sidi Bisher, Alexandria. The workshop covered four main areas: data-collection and analytical techniques, issues in agricultural mechanization and rural development in Egypt, machinery basics, and a discussion of Project components by Egyptian counterparts. Research techniques focused on social and economic data concerning landless laborers, landholders, and emigrant workers which were collected immediately preceeding the workshop.

It is expected that Program training sessions will be held on a regular basis. The first session was designed to give monitors an overview of agricultural mechanization and Project plans and activities. In future sessions, data-collection and analysis will be the exclusive areas of concern. As the session in Sidi Bisher, discussions will focus on research and monitoring activities during the intervening periods.

2. Proposed Realignment. During the first year of its operation, the Program was used to collect background and baseline information about the twenty-three Project villages. With the second year of its existence comes a new responsibility: monitoring Project activities in the selected areas. Having now a data base for all twenty-three Project villages for evaluating future implementation, it is possible to reduce the size of the staff. While a continuation of the Program in its present form would, in fact, give us the most accurate and comprehensive picture, a streamlining of the Program may not necessarily threaten its ability to collect useful and reliable information for the Project. An important consideration is the careful selection of a small number of research sites which still reflect the variety and organization patterns existing in the full twenty-three sites.

   The following are recommendations for alterating the Village Studies Program while still preserving its integrity:

   a. The five governorate teams are to be collapsed into two: Middle Egypt and the Delta. Middle Egypt is designated a team name because the Soil Improvement Component, unlike the others on the Project, is mandated to work in Minia, Beni Suef, Assiout, and Fayyoum. In this case, it will be necessary to expand evaluation efforts to these three additional governorates. As in the past, the teams will meet at least once weekly under the supervision of a professor.

b. The total number of professors are to be reduced to two: Dr. Abdel Tawab El Yamani as supervisor of the Delta team and Dr. Bahgat Abdel Maksoud as supervisor of the Middle Egypt team.

c. At present, the sampling office of the five governorates have supplied the Program with governorate field managers who make frequent visits to the Project villages. With the decrease in the number of villages to be intensively monitored, it is no longer necessary to use the services of all five. Instead, the number is to be reduced to three: one in Middle Egypt (Mahmoud Ridi) who will manage Minia as well as the other locations and two in the Delta (Mohamed Ghazy and Samir Ibrahim). Mohamed Ghazy will be responsible for Gharbia, his home governorate, and the adjacent Beheira. Samir Ibrahim will cover his own Sharqia and neighboring Qalubia.

d. The five representatives of the Mudiriya El-Zeraa have proven to be very useful to the Program and to the Project, in general, for a variety of reasons: arranging visits to Project sites for all visitors, making introductions to governorate personnel, acting as a contact between the local agricultural offices and the Project, and assisting all Project staff from Cairo in the governorates. Therefore, it is strongly recommended that all five people be retained in the new organization.

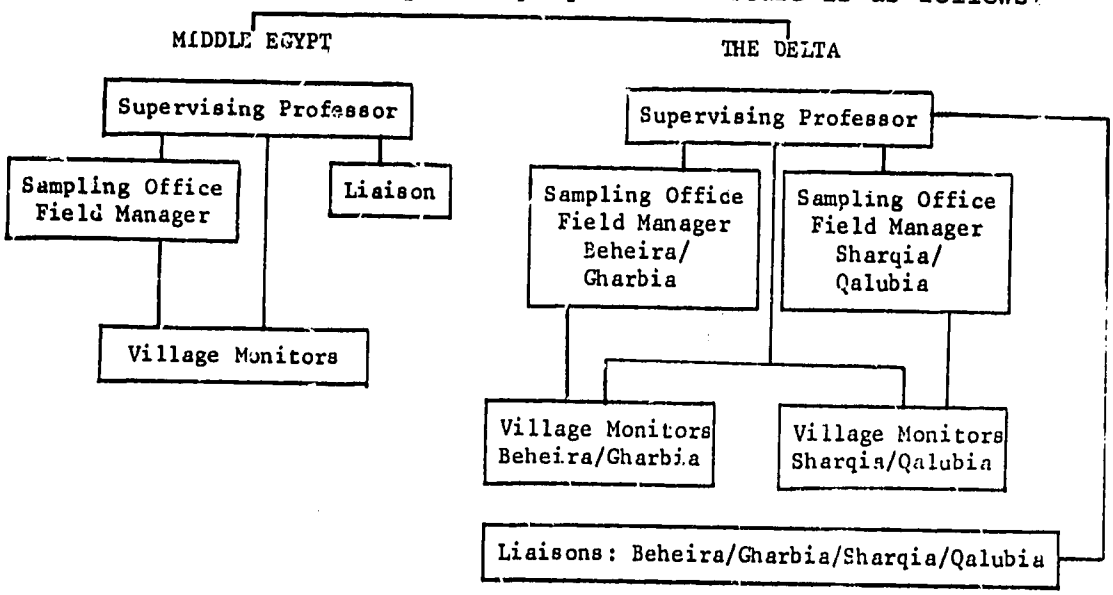
e. With a reduction in the number of villages to be monitored, there is, of course, an associated reduction in the number of monitors required. It is recommended that four of the five Minia monitors be retained and that five of the eighteen Delta monitors be kept. The four Minia researchers will continue to work in the four villages where the Soil Improvement Component has selected demonstration basins. The five villages in the Delta are to be in the following governorates by number: Beheira (1), Gharbia (2), Qalubia (1), and Sharqia (1).

f. As stated, nine of the Project's twenty-three villages will be intensively monitored. However, when specific Project activities are undertaken in the remaining fourteen villages, it may become necessary to cover them. Therefore, the nine monitors ought to be thought of as centered in one village while regularly visiting the others.

g. An important element in the monitoring and evaluation of Project impact is the selection of a number of control villages for comparative purposes. There already exists a group of seven

control villages which were selected for the Mechanized Farming Survey. From this survey, we already have a substantial body of information about mechanized agriculture. From this group, five villages will be chosen: Beheira (1), Gharbia (1), Qalubia (1), and Minia (2). Two villages will be selected in Minia, one in Matai and one in Abu Qurqas, because of the very different cropping patterns within the governorate.

Shown diagramatically, the proposed structure is as follows:



3. Current and Proposed Staff and Budget Needs

PROPOSED STAFF CHANGES IN PROGRAM

Position	Present No.	New Number
Team Supervisor	5	2
Ass't. Supervisor	1	0
Field Manager	5	3
Village Monitor	23	9
Gov. Liaison	5	5
Total	39	19

EFFECT OF PROPOSED STAFF CHANGES ON YEARLY BUDGET

Position	Current Salaries*	Proposed Change*
Supervisor	180 x 5 x 12 = 10,800	180 x 2 x 12 = 4,320
Asspt. Super.	75 x 1 x 12 = 900	0
Field Manager	80 x 5 x 12 = 4,800	80 x 3 x 12 = 2,100
Monitors:		
Ag. Eng.	70 x 13 x 12 = 10,920	70 x 7 x 12 = 5,080
Graduate	80 x 10 x 12 = 9,600	80 x 2 x 12 = 1,920
Liaison	35 x 5 x 12 = 2,100	35 x 5 x 12 = 2,100
Total	L.E. 39,120	L.E. 17,100

* Monthly salary x Number of positions x 12 mos. = Yr. Cost

3.0 EVALUATION ACTIVITIES

3.1 Mechanized Farming Survey

In keeping with a mandate in the Project Paper to arrange and conduct baseline studies for individual project components, as well as for overall mechanization in Egypt, an in-house survey was designed and conducted in four of the five Project governorates (Behaira, Ghariba, Qalubia, and Minia) by the Unit. A final report ("The State of Agricultural Mechanization in Egypt, Results of a Survey: 1982") has already been distributed to all Project staff and other interested parties.

In addition, to serving as a 1982 baseline study of mechanized farming practices, the study also provided each component with information to plan and carry out implementation activities. This information will be discussed in detail under each of the component sections below.

Specific areas of investigation included the following: present state of machinery use in land preparation, cultivation, irrigation, transportation, and other operations; market dynamics of machinery acquisition and custom services; farmers' experiences and preferences for machinery; availability.

At the first stage of survey design, members of the Project were interviewed to learn their data needs for planning and implementing the guidelines of the Project Paper. After the initial set of questionnaires was drafted, they were distributed to all Project members for their comments. A revised version was pretested in two villages in Charbia.

In all, three separate questionnaires were written for farmers, machine owners, and workshop owners and managers. The survey was conducted in ten villages in four of the five Project governorates. Of these ten villages, three are Project sites. Seven others were randomly selected as served as a control group. Villagers were selected on the basis of population size, presence or absence of agrarian reform land, and distance from district centers, as a gauge of availability of services.

Specific areas of investigation included the following: present state of machinery use in land preparation, cultivation, irrigation, transportation, and other operations; market dynamics of machinery acquisition and custom services; farmers' experiences and preferences for machinery; availability and organization of household and hired labor; success of government services, such as soil improvement and extension activities, reaching their designated recipients; and the nature of the relationship between machine owners and renters and between machine owners and mechanics.

The final report is composed of a lengthy analysis and many tables, correlations, and cross-tabulations. The latter are meant not only to support the written report

but also serve as a reference guide, in themselves, to be referred to during the course of the Project. However, due to the size and complexity of the final report, it seems advisable to submit a number of short papers based on the final report which are directed to specific component activities. In this way, the survey data and final report ought to be more approachable and useful.

3.2 Planning and Evaluation Component

1. Evaluation Activities to Date

a. Mechanized Farming Survey. The survey provides data concerning farmers' and workshop owners' experiences and preferences for credit with which to structure Project credit funds, a responsibility of the Planning Unit. It further discusses the present entent of mechanized farming in Project areas which should prove useful in designing plans for augmenting such work. For evaluation activities, the study provides information at one point in time, against which Project village work may be measured. In choosing a large number of non-Project villages, we have added a dimension to the evaluation activities. In the future, we shall return to these same villages to determine better the extent to which change in patterns of mechanized farming resulted from Project interventions or from other agents in our implementation sites.

b. Selection of Project Villages in Minia Governorate. Using random numbers, a list of villages was determined from which three villages in Abu Qurqas and two from Matai were to be chosen. A geographical cluster of villages was selected in the former which ought to facilitate extension and soil improvement demonstration activities, while the two villages in Matai exhibit the widespread problems of irrigation/drainage and access to services.

c. Establishment of Evaluation Advisory Committee.

d. Review of Literature on Agricultural Mechanization in Egypt. Forty-three reports and data-collection efforts were reviewed. Among the points which emerge from the review: particular emphasis has been given to determining the financial and economic costs of machine use, but there is yet to be an attempt to delineate a mechanization package suitable for particular crops or soil and water conditions. There is as yet an incomplete picture of the rural labor market, the dynamics of emigration and remittance use, and the security of the landless laborer. Nor has proper attention been given to the organization of already existing voluntary associations of farmers for attempts to mobilize farmers for development work.

e. Tractor Operating Costs from Cooperative Societies. At the request of the Planning Unit, village monitors in the Village Studies Program collected information on tractor costs of operation from agricultural cooperatives in the vicinity of the Project villages.

f. Project Villages Profile. In an effort to point out the similarities and differences among the twenty-three Project villages, the Evaluation Unit has collected and coded information through the Village Studies Program. The data concern landholdings, labor situation, cropping structure, availability of marketing and machine services, irrigation patterns, and existing agricultural machinery. A report is now being prepared for Project distribution. To be included in the report is additional information collected by village monitors from village leaders about problems in agriculture and agricultural mechanization in those villages. Information from the village profile for Gharbia and Beheira has already been distributed to district-level mechanization experts when they were in training at the Sakha Center.

g. Overview of Project Villages Labor Situation. Certainly one of the most crucial areas that will be monitored during the course of the Project is the labor situation and the affect of agricultural mechanization upon it. As an initial effort, village monitors in the Village Studies Program interviewed landless laborers, farmers, and emigrant workers to establish a pre-intervention picture.

2. Evaluation Activities Proposed

a. Data Request from the Planning Unit. Information critical to the linear programming model presented in the Inception Report will be collected concerning labor, machine power, and draft animal availability and capital constraints in Project villages.

b. Voluntary and Cooperative Farmer Associations. While it is highly unlikely that land tenure patterns will ever change to accommodate the efficient spread of agricultural mechanization, farmer associations might be encouraged for expanding development activities. Village monitors in the Project villages have already begun to collect instances of labor exchanges and cooperative activities. In order to mobilize farmers into such units, more information is required about the organization and dynamics of an already operating unit: the saqia group. Therefore, an investigation of this group is called for so that similarly oriented groups may be encouraged by the Project.

c. Access to Resources and Credit Availability. A critical issue in any development effort is, who is to benefit and who actually does benefit? So much of the distribution of benefits is decided by the agricultural credit system that a closer look at its structure and operation is in order, especially at the village level. This review will have implications for the various credit funds organized through the Project. Of concern is not widening the social and economic disparities in the villages.

3.3 Research and Development Component

1. Evaluation Activities to Date

a. Mechanized Farming Survey. The Research and Development Center in Alexandria is mandated in the Project Paper to identify research priorities and carry out field and laboratory investigations. The area survey provides data on the current state of mechanization with the objective of clarifying those areas and operations where such research ought to be undertaken. Furthermore, the survey provides information concerning what activities have suffered from labor shortages and thus which require more immediate attention.

b. Proposal for New Lands Research. A research proposal has been prepared for the Applied Research Fund which concerns the investigation of the experiences and willingness of landholders in the New Lands to manage and use machinery on a cooperative basis.

2. Evaluation Activities Proposed

a. Applied Research Fund Evaluation. The Research and Development Component has sizeable monies to fund independent research efforts in agricultural mechanization through universities and institutes. An evaluation of the fund will concentrate on the appropriateness of research topics, topic selection, general outside acquaintance with the fund, soundness of design and methods of research, assessment of its role in Project implementation, and contribution to agricultural mechanization in Egypt.

b. Training of a Research Center Sociologist. According to the Project Paper, a rural sociologist is proposed to be a member of the staff. Such an individual can increase the effectiveness of the Center by serving as a link between it and the farming community. The Evaluation Unit offers to undertake the training of this person.

c. Trial Tests on Farmers' Land. In the work of the Center the small Egyptian ought to be the central figure in the planning and testing stages of machine selection and adaptation. Utilizing a farming systems approach, farmer decision-making with regard to agricultural mechanization inputs must be understood and fed back into the work of the Center. Such points as machine use, costs and returns, introduced modifications, and preferred changes will be covered.

3.4 Machinery Extension Component

1. Evaluation Activities to Date

a. Mechanized Farming Survey. A significant part of the final report is devoted to an exploration of the present state of mechanized farming. In addition, there is a lengthy discussion of machine adoption and individual use. Questions were also asked about the operations of the Agricultural Extension Service in the Ministry of Agriculture: knowledge of the agent, information provided by the agent to the farmer, location and frequency of meetings with agents, and information concerning agricultural mechanization.

b. Saqia and Pump Preferences and Use in Qalubia. Dr. Zakaria El Haddad requested that saqia and pump preferences of farmers be examined. A report has been presented on the findings from Qalubia. It found that there was no noticeable movement towards using electricity for water-lift activities. Nor does a shift from saqia to pump use mean a decrease in animal holdings for farmers. In the vast majority of cases, stock number increased or remained the same. However, the construction of new dwellings does seem to play a role in determining draft animal holdings. This may have something to do with the management of household resources and work schedules rather than any constraints set by the style of the new houses themselves. Information for the study was collected by the Qalubia team.

c. Evaluation of Project Irrigation Brochures. At the request of Dr. Zakaria El Haddad, the Unit visited Project villages in Qalubia to discuss the appropriateness and intelligibility of two brochures with farmers. The brochures were found to be too wordy and unfocused, the photographs and drawings having little to do with the text, and the objectives unclear. Following our suggestions to Project management, new brochures were produced.

d. Combine Harvesters in the Delta. The Unit is presently conducting an evaluation of combines presently in use in the Delta. Thus far we have visited Gharbia to discuss the Deutz model with users, to Sharqia for Zmaj, Taiwan, and Yamer models, and to Damietta for the John Deere. A final trip is planned to Beheira. With each trip, a report is presented in Arabic. Once all of the trips have been made, a comprehensive report in English will be presented. The evaluation is being made at the request of Dr. Zakaria El Haddad, Project Coordinator. In a related effort, the Evaluation Advisor is in contact with the Pilot Farm Dairy Project in Damietta concerning the Agricultural Mechanization Project's rental of their John Deere 942 combine harvester for rice tests in Beheira.

e. Evaluation of a Wheat Harvester in Minia. Dr. Bahgat Abdelmaksoud, supervisor of the Minia team, is nearing completion of an evaluation of nine wheat harvesters now in Minia. A report to the Project will be made available in the near future.

f. Information to District-level Experts at Sakha. During the Sakha training session, the Component requested the Evaluation Unit to present background information about the Project villages in Beheira and Ghariba. Data in the form of charts and tables was given.

2. Evaluation Activities Proposed

a. Distribution of Machinery to Project Villages. The manner of distribution of a recommended set of agricultural equipment to project villages has continued to be an unsettled matter. At present, three possible strategies are being discussed: placement in the agricultural cooperatives, in project supported service centers, and with village machine owners. The monitors of the Village Studies Program will undertake a study to suggest which strategy or combination of strategies might be the most successful. Such a study would necessarily include discussions with machine renters about their preference and their opinions about the cooperatives and with machine owners to determine their interest in acquiring the machine and with what stipulations.

b. Water-lift Loan Fund for Small Landholders. Through the Project Paper, a fund has been established by which small landholders are capable of acquiring sole or shared ownership over water-lift devices. The Paper suggests that loan money be used for either small pumpsets or motors for saqias. Of interest are the possibilities

for alternate devices, the selection of participants for the program and whether they meet the initial guidelines, the soundness of the written stipulation that the loans be given to small holders and landless laborers, and the difference between the actual and the anticipated costs.

c. Tractor Time Use and Actual Costs and Returns. A full season study of tractors will be undertaken immediately under the Village Studies Program. The information on actual scheduling of privately owned tractors will be of use to the Planning Unit and complement its own studies based on cooperative figures. Regarding time use, such information will also be useful to the Ministry for planning activities and importation policy decisions.

d. Mobilization of Farmers for Project Activities. At the request of Dr. Zakaria El Haddad, the Evaluation Advisor will work with farmers encouraging them to cooperate with Project staff for implementation activities. This work will be done in cooperation with the Extension Component. The first area to be attempted is in Minia in soil improvement activities.

3.5 Training Component

1. Evaluation Activities to Date

a. Mechanized Farming Survey. The final report provides information on the perceived training needs of workshop owners and managers and the training experience and needs of machine operators.

b. Sakha Training Programs. The Unit has conducted repeated and regular evaluations of the training sessions in mechanization at the Sakha Training Center. The Unit has carried out beginning, mid-term, and final evaluations of the sessions and their participants.

c. Evaluation Workshop. As part of the training program for the Village Studies Program members, the Unit held a two week workshop in May 1982. During that period, Egyptian experts on the Project gathered to discuss the work. This plan is being used by the Training Component as a prototype for its own training sessions as a way of integrating the Project's components.

2. Evaluation Activities Proposed

a. Evaluation of Training Programs. The Unit will continue its regular monitoring of the training programs through the life of the Project. On occasion, the Unit has been asked to review particular programs because of internal problems. In such cases, visits will be undertaken.

b. Participant Training Fund. The Unit will evaluate the structure of the participant training program, the recruitment process for participants, the usefulness of the programs sought for agricultural mechanization in Egypt, and its keeping with the spirit of the Project.

3.6 Local Manufacturing

1. Evaluation Activity to Date

a. Mechanized Farming Survey. While the study was planned and conducted before the arrival of the Local Manufacturing Advisor, it does contain some information about the current manufacturing facilities of village workshops and nearby service centers.

2. Evaluation Activities Proposed

a. Local Manufacturing Facilities. The Unit proposes to continue the investigation of local facilities' ability to manufacture machine and implements produced or adapted by the Project.

b. Project-adapted Drum Thresher. The Unit intends to monitor fields of a drum thresher produced by the Local Manufacturing Advisor with the cooperation of the Beheira Company. At later stages, the Unit will examine the distribution of the thresher, system of purchasing and financing, the affect of the thresher on labor use in threshing activities, particularly in terms of costs and returns and reliance on hired and household labor.

3.7 Soil Improvement Component

1. Evaluation Activities to Date

a. Mechanized Farming Survey. Questions in the survey centered on the organization of canal cleaning operations, the understanding of the farmers of the use of gypsum, the amount of gypsum now used, farmers' familiarity with and the actual activities of the Soil Improvement Organization, and current landlevelling and subsoiling practices.

b. Selection of Project Demonstration Basins. With member ofthe Soil Improvement Component, the Unit played a role in choosing the basins in which surveying will be conducted. Information was collected on visits and from village monitors in the selection process. The basins were chosen on the basis of size, soil and water conditions, presence of permanent crops, and irrigation plan. The Minia team members played an important part in assembling farmers from the basins for presentations given by Component staff.

c. Changing Soil and Water Conditions in Minia. Based on information collected in the Minia Project villages the Evaluation Advisor and Dr. Bahgat Abdelmaksoud presented a paper at the First National Conference on Land Degradation in February 1982.

d. Scheduling Landlevelling Activities in Minia. At the request of Dr. Zakaria El Haddad, the Evaluation Advisor visited the Minia project villages to discuss with farmers the establishment of a landlevelling schedule in the governorate. A report was presented which suggested doing the landlevelling between 15 December and 15 March and between 15 May and 15 July. However, this leaves most of the year unworked. It was recommended that soil improvement activities be done on the old lands near the reclaimed areas which are suffering from improper drainage and levelling problems.

2. Evaluation Activities Proposed

a. Evaluation of the Soil Amelioration Organization. Although the SAO has claimed to have worked several thousand feddans in the Central Delta, the extent and successfulness of their operations are still in dispute. An evaluation will be undertaken in the areas where they have worked to assess the delivery of services, affect on soil quality, and affect on productivity.

b. Socioeconomic Study of Minia Basin Irrigation. The Soil Improvement Component has requested that the Unit undertake a study of the demonstration basins in Minia as part of their design and implementation work.

c. Socioeconomic Impact Studies. The Unit will conduct regular monitoring of the soil improvement work in Minia and other Middle Egypt governorates. This will likely entail the residence of the Evaluation Advisor in the South for one week to ten days a month during the next several months.

3.8 Service Center/Village Workshop Component

1. Evaluation Activities to Date

a. Mechanized Farming Survey. An important part of the survey was an examination of the organization of the village workshop. The final report considers the characteristics of workshops and owners, the labor force used, the tools and equipment available, the repairs and parts offered, and the ability to produce new pieces. Case studies of workshops focused on the "shade tree" mechanic as well as workshops of different sizes.

b. Machinery Census. The Unit has furnished information concerning the number of machines and status of workshops in Project governorates.

c. Submissions of Names of Candidates for Project Loans. Through field trips to Project villages and from members of the Village Studies Program, the Unit has submitted names of people who are presently owners of workshops and would like to expand their operations or are currently in the process of starting such shops.

d. Existing Workshop Facilities in Project Areas. The Unit is collating the coding information collected by village monitors on the existing service facilities in Project areas in the five governorates. In addition, in those areas where there are no shops, information was collected concerning where machine owners do go in the vicinity. Since the Project need not necessarily finance the establishment of workshops in Project villages only, an understanding of where the present services do exist will help the Component determine where loans ought to be made.

e. Maintenance and Repair Problems of Machine Owners. Village monitors have conducted interviews with all machine owners in the Project villages in order to learn farmers' problems with machine care and credit. A report will be presented shortly on the findings.

2. Evaluation Activities Proposed

a. Private Sector Involvement in the Credit Fund. At issue is the willingness of the private sector to participate in the credit fund. There is some evidence of a hesitancy to take part. The Unit intends, through interviews with representatives of the sector and of the banks, to attempt an explanation of this situation, if it is the case.

b. Service Center Credit Fund. The Component has established a credit fund for creating or expanding machinery services in the governorates. An evaluation of the credit will focus on the structure of the loan system, the selection of participants and their locations, and the appropriateness of loans made to them. Later examinations will focus on the successfulness of their operations, the actual costs compared with the anticipated costs, the affect on machinery services in the project areas, and the indirect affect on agricultural production, such as on timeliness of operations.

4.0 SUMMARY AND CONCLUSIONS

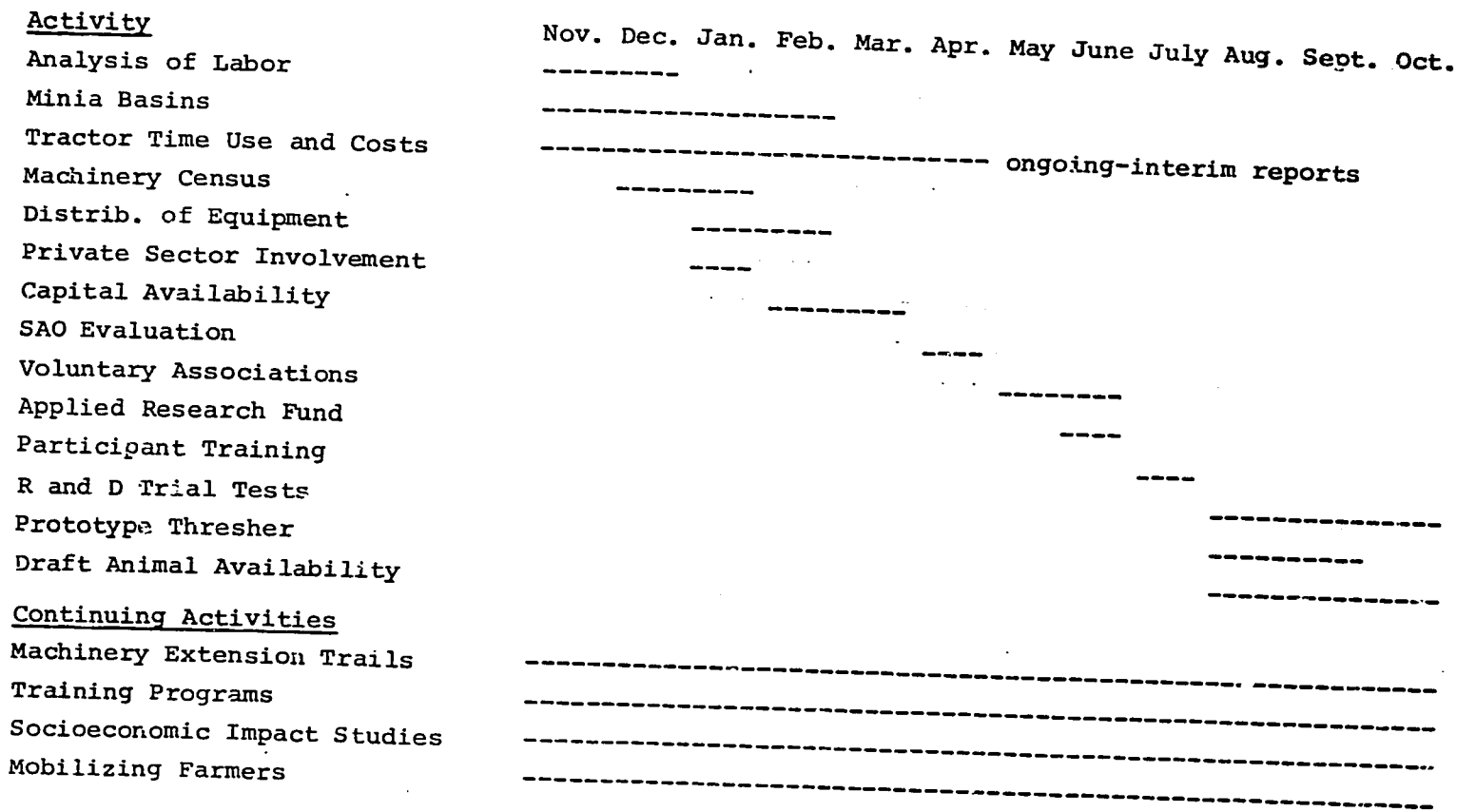
The foregoing workplan is in keeping with the explicitly stated guidelines and the spirit of the Project Paper with regard to evaluation activities. Baseline data about the Project implementation sites have been collected and already distributed in various forms. A series of reports are soon to be issued. In addition, a comprehensive structure has been established through which relevant information about agricultural mechanization and Project efforts has been and will be collected on a time-series basis.

Proposed evaluation activities, as well as those to date, have been discussed by Project component. They are as diverse as the Project itself: reviewing Project-financed credit and research funds, regular evaluations of training programs, socioeconomic impact studies, examinations of labor conditions and credit availability. This work seeks not only to assess Project efforts but also to serve as a basis for which policy and planning decisions can be made by the Ministry of Agriculture.

5.0 ANTICIPATED REPORTS

	Submission Dates
Planning and Evaluation	
Project Villages Profile	November
Agricultural Labor in Project Villages	December
Review of Mechanization Literature	December
Capital and Credit Availability	May
Voluntary Farmer Associations: Saqia Group	August
Draft Animal Availability and Use	October
Papers based on Mechanized Farming Survey	At regular intervals
Research and Development	
Applied Research Fund Evaluation	June
Service Center Development	
Private Sector Involvement in Fund	January
Service Center Credit Fund	April
Machinery Extension	
Combine Harvesters in the Delta	December
Wheat Harvesters in Minia	December
Water-lift Credit Fund Evaluation	February
Distribution of Equipment to Villages	March
Tractor Time Use	June
Training	
Training Programs	At regular intervals
Participant Training Program Evaluation	July
Soil Improvement	
Changing Soil and Water Conditions in Minia	November
Socioeconomic Organization of Minia Basins	February
Soil Amelioration Organization Evaluation	April
Local Manufacturing	
Prototype Thresher Evaluation	September

6.0 PROJECTED TIME FRAME FOR EVALUATION ACTIVITIES



ANNEX C

ECONOMICS OF CUTTING COTTON STALKS WITH SILAGE MOWERS

(A Preliminary Report)

Prepared by: The Planning and Evaluation Unit
The Extension Unit
Agricultural Mechanization Project

ECONOMICS OF CUTTING COTTON STALKS WITH SILAGE MOWERS (A Preliminary Report)

BACKGROUND

Farmers currently use hand labor to cut cotton stalks as part of their land preparation for the following crop. This activity is highly labor intensive requiring from 28 to 44 man-hours per feddan.

At the present time, the marginal product value of agricultural labor during peak demand is currently 46 piasters per hour and represents considerable cash outlay for farmers growing cotton as most of the labor requirement must be met through outside hiring.

In recognition of this critical need to assist farmers find a lower cost alternative to removing cotton stalks, the Agricultural Mechanization Project staff has been conducting field trials and demonstrations of suitable mechanical equipment. In August 1982, discussions were held with farmers in Beheira/Gharbia/Sharkia/Qalubia Governorates to assess their interests in using mechanical equipment for cotton stalk removal during the up-coming September through November period. The use of cotton shredders and choppers was explored but the absence of these machines and the reluctance of farmers to have their stalks chopped to bits required another solution. Further discussions were held with Engineer Mahmoud Nour of the Small Scale Mechanization Project concerning his use of silage mowers. This discussion led to the possibility of using similar equipment in Project field demonstrations.

A field trip was made to Manofia Governorate with Dr. Farouk of the World Bank Project to examine the possibility of using a new double knifed silage mower (Busatis BM 1102--German made) in our field trials. The unit examined was a three point mounted unit with a 1.5 meter blade which folds down from the right side of the tractor to ground level. It was found that the machine could cut 3 to 4 rows of cotton stalks, depending on the row spacing in the field. Since no stalks were ready for cutting at that time, a large quantity of old stalks were gathered and put through the unit's knives. It was readily apparent from the experiment that the scissor action of this type of mower was suitable for cutting stalks.

Upon completion of this visit and after discussing the results of the experiment with Dr. Zakaria El Haddad, Coordinator for Mechanization Projects, it was decided to contact equipment dealers to explore the possibility of acquiring some units for demonstration during the upcoming fall cutting season. The only dealer having units in stock was DIABEX, who markets the same type of Busatis mowers that were demonstrated in Manoufia. Ten units were purchased in October and placed in the field by the Project's Extension specialists. Six mowers were sent to Beheira and Gharbia and three to Sharkia and Qalubia. One additional unit had been previously picked up by the Sharkia/Qalubia Extension Officer and was yielding favorable results in the Saideen Village area.

PRESENT STATUS

Since the mowers commenced their demonstrations in the field (18 days), they mowed approximately 500 feddans for about 100 farmers. In the beginning, there was reluctance on the part of farmers to participate, but after they were able to witness the first couple of demonstrations, the situation changed and there were more farmers willing to participate than there were machines to provide service. Since the demonstrations began, many farmers have already purchased or are in the process of purchasing similar mowers as they become available on the market. The lower cost of mowing cotton stalks and shorter operations time as compared with traditional labor intensive methods were the most often heard comments from those participating. While the first demonstrations were given free of charge, it soon became necessary to require farmers wanting to use the equipment to supply their own tractors and operators to alleviate charges of favoritism and to help limit the number of users to a manageable level. Even then, there were more willing participants than there were machines available.

To summarize a number of complex points concerning the machines, the following general comments are designed to highlight important technical considerations.

1. Preliminary results indicate that the double knife shearing action is somewhat more efficient than a single knife-to-guide cutting action. This conclusion is supported by the Small Scale Mechanization Project which has used both types of units and expresses a clear technical preference for the double knife machine.

2. Although the blade can be purchased in 1.5, 1.75 and 1.92 meter lengths, the 1.5 meter blade appears to be more suitable since the longer arms tend to bend easily when transported over long distances between fields and inside the rough irrigated fields.

3. Operating and ownership costs for the silage mowers vary according to the two basic types available: single knife and double knife. The costs and returns from using these two alternatives are evaluated in subsequent sections of this report.

4. The success of the mowers is not as favorable as could be possible due to the absence of two critical items: (a) the lack of trained operators to properly operate the mowers above the ground without running the blades into the dirt, and (b) the absence of an organized and preventive maintenance program by which the units are serviced and cared for properly. These problems are being addressed by the Project Training Unit which has initiated a number of operator and maintenance courses. In addition the area Extension Officers are also conducting on-the-job training activities during the course of the demonstrations.

5. Further research and testing of the mowers is required to determine long term suitability of the equipment under local operating conditions. Up to the present, there

has been one visit from the Project research staff. Further work is needed to evaluate to determine what modifications, if any, may be required.

ECONOMIC CONSIDERATIONS

The principal impact of labor intensive to mechanized cotton stalk removal is the enhancement of labor productivity, thereby reducing on-farm and societal costs of this factor of production. As noted, the range of labor inputs required for the labor intensive method is 28 to 44 man-hours per feddan for the traditional method; this figure is dramatically reduced for the mechanical method to 1.5 hours in the case of the double blade mower and to 2 man-hours per feddan for the single blade unit. The mean cost of agricultural labor for the cotton stalk removal operation taken from the Project's Farm Management survey is 46 piasters per hour. Thus, the technological transfer for mechanical methods should result in significantly lower labor costs and reduce operating time, thereby permitting faster turn around between crops, improved cropping calendar optimization and positive income effects. Against the beneficial effects resulting from this particular technological transfer must be weighed the on-farm and societal costs of hydrocarbon fuels, lubricants, maintenance and interest and depreciation of the capital investments required.

The cost saving effects of mechanized cotton stalk removal have been evaluated from emperical data gathered to date from a variety of sources including Project tractor cost accounting models, data gathered from initial phases of the Project's mower trials and demonstrations and from the on-going Farm Management survey. The effects of cropping calendar optimization have not been quantified herein as these values are awaiting conclusion of scheduled Project research activities. Income generations from turn around and cropping calendar optimization should be included in subsequent analyses.

The foregoing analysis of the economics of mechanized cotton stalk removal should, thus, be considered as a partial analysis dealing exclusively with cost savings pending availability of quantitative data needed for evaluation of the totality of all phenomenon generated by the technological adaptation under consideration.

The response of farmers to the initial trials of the silage mowers suggests good awareness of the cost savings and timeliness of mechanized stalk removal. The following paragraphs attempt to provide a quantitative measure of these savings.

The operating and capitalization costs of the two types of mowers under evaluation are summarized in Table 1, below. These data have been provided by the Project Extension Unit from limited trials and manufacturer's and suppliers technical specifications.

Table 1

Capital and Operating Costs of Silage Mowers (LE 1982)		
Item	Double Knife	Single Knife
1. Capital Cost	1,500	1,500
2. Hours/Fed.	1.5	2
3. Horsepower Required 1/	31.9	31.9
4. Operating Hours/Season	270	270
5. Maintenance 2/ Per Year Avg.	171	111

These data have been incorporated into a computerized mower cost accounting model. The model processes fixed and variable costs over discrete units of time. Fixed costs include the costs of ownership (i.e. interest and depreciation, taxes and levies, etc.) and any other costs incurred independently of equipment use. Variable costs include all running costs associated with depreciation and maintenance. The concept of unit costs have been employed. This is simply the summation of aggregate fixed and variable costs divided by total hours of operation multiplied by observed field efficiencies from the Extension trials.3/ The same analytical method has been employed in the evaluation of tractor operating costs to power the mower units.3/

1/ 60 HP tractor operating under partial load. From University of Nebraska Tests on heavy clay soil.

2/ Includes knives, belts, lubricants, welding, bolts, blade filing, etc. Blades to be sharpened 5 times after each 50 hours of operation and changed at 250 hours.

3/ For a detailed description to the quantitative methodology used in the cost evaluations, refer to the following publications of the Project Planning and Evaluation Unit:

a. "Agricultural Cooperative Tractor Cost Survey in Beheira and Gharbia Governorates", Shepley et al, Agricultural Mechanization Project, Working Paper, No. 1, April, 1982.

b. "Comparative Societal and On-Farm Costs of Irrigation Water Lifting in the Arab Republic of Egypt", Wissa et al, Agricultural Mechanization Project, Working Paper, No. 1, September, 1982.

The tractor and mower cost accountings have been evaluated from the farmer-producer (micro) and societal (macro) perspectives. The literature commonly calls the former "financial analysis" while the latter is usually termed "economic analysis". The difference between these two perspectives is attributed to prevailing subsidies on hydrocarbon fuel, foreign exchange and credit applicable to the micro costing but not applicable to the societal costing analysis. In the case of the former, we are interested in showing the relative costs of mechanical stalk cutting in Egypt while for the latter, we are concerned with the costs to Egypt.

The computer output of the costs analysis from both the financial and economic perspectives are included in the appendix broken out by the various cost components. This output is summarized below in Table 2.

Table 2

Comparative Costs of Silage Mower Operations
(LE 1982/Fed.

	Double Blade		Single Blade	
	Financial	Economic	Financial	Economic
Tractor Power	3.70	8.27	4.93	11.03
Mower Operations	2.07	2.74	1.96	2.65
	5.77	11.01	6.89	13.68

From the analysis, it would appear that the double blade mower is the lower cost alternative. Although the mower costs are higher for this option because of the higher investment costs, the fact that this mower can treat one feddan in 1½ hours instead of two hours for the second alternative makes it the cheapest option.

On-farm cutting costs using traditional labor intensive methods have been evaluated from the Project's Farm Management survey in Beheira, Gharbia and Qalubia Governorates. The survey which is scheduled to be completed at the end of December is being conducted in five randomly selected cooperative areas within the respective governorates. From among this random cooperative area selection, a total of 14 farms were randomly selected in each area according to the following stratification:

	Description	Number of Farms
1.	Farm size less than 1 feddan	4
2.	Farm size 1 to less than 3 feddans	4
3.	Farm size from 3 to less than 5 fed.	2
4.	Farm size from 5 to less than 10 fed.	2
5.	Farm size above 10 feddans	2
	Total	14 per cooperative equals 210 farms for the survey in 3 governorates.

To gather data for cotton stalk cutting by traditional methods, representatives of the Planning and Evaluation unit visited the three governorates on November 9th and 10th. Actual recordings from the enumerator's field records were collected for the manual stalk cutting operation. In Qalubia, stalks had been cut on 100% of the survey sample fields while in Beheira 30% of the sample field have been cut. In Gharbia, the percentage cut was found to be 48%.

Data were collected from all of the survey farms planted to cotton which had been cut and for which cost information was available. Mean costs and cutting time/feddan are provided in Table 3.

Table 3

Manual Cotton Stalk Cutting Costs and Cutting Time Per Feddan from Farm Management Survey Sample (LE/Fed 1982)		
	Cutting Time (Man-Hours)	Cost/Feddan (LE)
Beheira	28	12.69
Gharbia	24	12.58
Qalubia	44 *	18.92

It is noted that the labor input for Qalubia is considerably higher than for the other two governorates. It was observed that there is a higher incidence of child labor use in that governorate as adult labor is pulled into the contiguous Cairo labor market. The Qalubia labor input data will be examined more closely for further refinement when all of the data have been collated.

Mean values for these three governorates are 32 man-hours/feddan and 14.73 LE/feddan respectively.

The costs of the labor intensive and mechanical alternative are compared below.

Table 4

Comparative Costs of Cotton Stalk Removal Alternatives		
Method	Financial	Economic
Manual	14.73	14.73
Double Blade	5.77	11.01
Savings	8.96	3.72
Single Blade	6.89	13.68
Savings	7.84	1.05

Cost savings accrued through substitution of manual cutting operations by mechanical mowing represent net societal as well as on-farm benefits. To evaluate the viability of this technological adaptation, the method used is the internal rate of return, defined as the discount rate at which the present value of the cash flow stream is equal to zero and expressed mathematically as:

$$\frac{(B_t - C_t)}{(1+i)^n} = 0$$

where:

B_t = annual benefit stream

C_t = annual cost stream

t = 1, 2.....nth year

i = discount rate

The benefit stream is the difference between annual operating cost/feddan for the labor intensive cutting methods and the operating costs for the mechanical mowers. Investment costs of the mowers represent the front and negative cash flow. The investment cost of the various mower alternatives are prorated over the effective land area which they can serve. For the double bladed mower, the per feddan cost is thus derived as: 270 hrs/yr/1.5 hrs/fed. 180 feddans. The prorated investment is, then: 1500/180= LE 8.33/fed. For the single blade mower, the area capacity is 270/2 = 135 feddan and the cost is 1150/135 = 8.52 LE.

The calculated internal rates of return are summarized in the table below.

Table 5

Internal Rates of Return from Mechanized Cotton Stalk Cutting		
	Financial IRR	Economic IRR
Single Blade Mower	91.00%	3.99%
Double Blade Mower	107.49%	43.45%

From this partial analysis, it would appear that there are substantial micro and macro advantages from adoption of the mechanized technology for cotton stalk cutting. From the on-farm perspective both the single and double blade option would appear desirable. From the economic or societal perspective, the double blade mower is clearly well above the acceptance range assuming an opportunity cost of capital of 15%, currently used by the Central Bank and various international lending and development agencies. As the single blade mower is well below the presumed acceptance range, there is question whether this alternative should or can be recommended.

At this atage of the evaluation it would appear that the double blade mower is clearly the preferred option since both its financial and economic rates of return seem to be considerably more than adequate.

A P P E N D I X

TRACTOR OPERATIONS COSTS FOR COTTON STALK REMOVAL
TYPE: DOUBLE BLADE MOWER
ECONOMIC ANALYSIS
(LE/1982)

HOURS	FIXED COSTS	REPAIRS	OIL & GREASE	ENERGY	MISCELLANEOUS	LABOUR	TOTAL COSTS	COSTS/HOUR	COSTS/FED.
40	1320.04	27.00	44.25	70.85	10.99	16.67	1489.81	37.25	55.87
80	1320.04	54.00	88.51	141.70	21.98	33.34	1659.57	20.74	31.12
120	1320.04	81.00	132.76	212.54	32.98	50.00	1829.33	15.24	22.87
160	1320.04	108.00	177.02	283.39	43.97	66.67	1999.10	12.49	18.74
200	1320.04	135.00	221.27	354.24	54.96	83.34	2168.86	10.84	16.27
240	1320.04	162.00	265.53	425.09	65.95	100.01	2338.62	9.74	14.62
280	1320.04	189.00	309.78	495.94	76.95	116.68	2508.38	8.96	13.44
320	1320.04	216.00	354.04	566.78	87.94	133.34	2678.15	8.37	12.55
360	1320.04	243.00	398.29	637.63	98.93	150.01	2847.91	7.91	11.87
400	1320.04	270.00	442.55	708.48	109.92	166.68	3017.67	7.54	11.32
440	1320.04	297.00	486.80	799.33	120.91	183.35	3187.44	7.24	10.87
480	1320.04	324.00	531.06	850.17	131.91	200.02	3357.20	6.99	10.49
520	1320.04	351.00	575.31	921.02	142.90	216.68	3526.96	6.78	10.17
560	1320.04	378.00	619.57	991.87	153.89	233.35	3696.72	6.60	9.98
600	1320.04	405.00	663.82	1062.72	164.88	250.02	3866.49	6.44	9.67
640	1320.04	432.00	708.08	1133.57	175.87	266.69	4036.25	6.31	9.46
680	1320.04	459.00	752.33	1204.41	186.87	383.36	4206.01	6.19	9.28
720	1320.04	486.00	796.59	1275.26	197.86	300.02	4375.78	6.08	9.12
760	1320.04	513.00	840.84	1346.11	208.85	316.69	4545.54	5.98	8.97
800	1320.04	540.00	885.10	1416.96	219.84	333.36	4715.30	5.89	8.84
840	1320.04	567.00	929.35	1487.81	230.84	350.03	4885.06	5.82	8.72
880	1320.04	594.00	973.61	1558.65	241.83	366.70	5054.83	5.74	8.62
920	1320.04	621.00	1017.86	1629.50	252.82	383.36	5224.59	5.68	8.52
960	1320.04	648.00	1062.12	1700.35	263.81	400.03	5394.35	5.62	8.43
1000	1320.04	675.00	1106.37	1771.20	274.80	416.70	5564.12	5.56	8.35
1040	1320.04	702.00	1150.63	1842.05	285.80	433.37	5733.88	5.51	8.27

TRACTOR OPERATIONS COSTS FOR COTTON STALK REMOVAL
TYPE: SINGLE BLADE MOWER
ECONOMIC ANALYSIS
(LE/1982)

HOURS	FIXED COSTS	REPAIRS	OIL & GREASE	ENERGY	MISCELLANEOUS	LABOUR	TOTAL COSTS	COSTS/HOUR	COSTS/FED.
40	1320.04	27.00	44.25	70.85	10.99	16.67	1489.81	37.25	74.49
80	1320.04	54.00	88.51	141.70	21.98	33.34	1659.57	20.74	41.49
120	1320.04	81.00	132.76	212.54	32.98	50.00	1829.33	15.24	30.49
160	1320.04	108.00	177.02	283.39	43.97	66.67	1999.10	12.49	24.99
200	1320.04	135.00	221.27	354.24	54.96	83.34	2168.86	10.84	21.69
240	1320.04	162.00	265.53	425.09	65.95	100.01	2338.62	9.74	19.49
280	1320.04	189.00	309.78	495.94	76.95	116.68	2508.38	8.96	17.92
320	1320.04	216.00	354.04	566.78	87.94	133.34	2678.15	8.37	16.74
360	1320.04	243.00	398.29	637.63	98.93	150.01	2847.91	7.91	15.82
400	1320.04	270.00	442.55	708.48	109.92	166.68	3017.67	7.54	15.09
440	1320.04	297.00	486.80	799.33	120.91	183.35	3187.44	7.24	14.49
480	1320.04	324.00	531.06	850.17	131.91	200.02	3357.20	6.99	13.99
520	1320.04	351.00	575.31	921.02	142.90	216.68	3526.96	6.78	13.57
560	1320.04	378.00	619.57	991.87	153.89	233.35	3696.72	6.60	13.20
600	1320.04	405.00	663.82	1062.72	164.88	250.02	3866.49	6.44	12.89
640	1320.04	432.00	708.08	1133.57	175.87	266.69	4036.25	6.31	12.61
680	1320.04	459.00	752.33	1204.41	186.87	283.36	4206.01	6.19	12.37
720	1320.04	486.00	796.59	1275.26	197.86	300.02	4375.78	6.08	12.15
760	1320.04	513.00	840.84	1346.11	208.85	316.69	4545.54	5.98	11.96
800	1320.04	540.00	885.10	1416.96	219.84	333.36	4715.30	5.89	11.79
840	1320.04	567.00	929.35	1487.81	230.84	350.03	4885.06	5.82	11.63
880	1320.04	594.00	973.61	1558.65	241.83	366.70	5054.83	5.74	11.49
920	1320.04	621.00	1017.86	1629.50	252.82	383.36	5224.59	5.68	11.36
960	1320.04	648.00	1062.12	1700.35	263.81	400.03	5394.35	5.62	11.24
1000	1320.04	675.00	1106.37	1771.20	274.80	416.70	5564.12	5.56	11.13
1040	1320.04	702.00	1150.63	1842.05	285.80	433.37	5733.88	5.51	11.03

TRACTOR OPERATIONS COSTS FOR COTTON STALK REMOVAL
TYPE: DOUBLE BLADE MOWER
FINANCIAL ANALYSIS
(LE/1982)

HOURS	FIXED COSTS	DEPRECIATION	REPAIRS	OIL & GREASE	ENERGY	MISCELLANEOUS	LABOUR	TOTAL COSTS	COSTS/HOUR	COSTS/FED.
40	264	27	27.00	5.31	8.51	3.90	16.67	352.39	8.81	13.21
80	264	54	54.00	10.63	17.01	7.80	33.34	440.77	5.51	8.26
120	264	81	81.00	15.94	25.52	11.70	50.00	529.16	4.41	6.61
160	264	108	108.00	21.25	34.03	15.59	66.67	617.55	3.86	5.79
200	264	135	135.00	26.57	42.53	19.49	83.34	705.93	3.53	5.29
240	264	162	162.00	31.88	51.04	23.39	100.01	794.32	3.31	4.96
280	264	189	189.00	37.20	59.55	27.29	116.68	882.71	3.15	4.73
320	264	216	216.00	42.51	68.05	31.19	133.34	971.09	3.03	4.55
360	264	243	243.00	47.82	76.56	35.09	150.01	1059.48	2.94	4.41
400	264	270	270.00	53.14	85.07	38.90	166.68	1147.87	2.87	4.30
440	264	297	297.00	58.45	93.57	42.88	183.35	1236.25	2.81	4.21
480	264	324	324.00	63.76	102.08	46.78	200.02	1324.64	2.76	4.14
520	264	351	351.00	69.08	110.59	50.68	216.68.	1413.03	2.72	4.08
560	264	378	378.00	74.39	119.09	54.58	233.35	1501.41	2.68	4.02
600	264	405	405.00	79.70	127.60	58.48	250.02	1589.80	2.65	3.97
640	264	432	432.00	85.02	136.11	62.37	266.69	1678.19	2.62	3.93
680	264	459	459.00	90.33	144.61	66.27	283.36	1766.57	2.60	3.90
720	264	486	486.00	95.65	153.12	70.17	300.02	1854.96	2.58	3.86
760	264	513	513.00	100.96	161.63	74.07	316.69	1943.35	2.56	3.84
800	264	540	540.00	106.27	170.13	77.97	333.36	2031.73	2.54	3.81
840	264	567	567.00	111.59	178.64	81.87	350.03	2120.12	2.52	3.79
880	264	594	594.00	116.90	187.15	85.76	366.70	2208.51	2.51	3.76
920	264	621	621.00	122.21	195.65	89.66	383.36	2296.89	2.50	3.74
960	264	648	648.00	127.53	204.16	93.56	400.03	2385.28	2.48	3.73
1000	264	675	675.00	132.84	212.67	97.46	416.70	2473.67	2.47	3.71
1040	264	702	702.00	138.16	221.17	101.36	433.37	2562.05	2.46	3.70

TRACTOR OPERATIONS COSTS FOR COTTON STALK REMOVAL
TYPE: SINGLE BLADE MOWER
FINANCIAL ANALYSIS
(LE/1982)

HOURS	FIXED COSTS	DEPRECIATION	REPAIRS	OIL & GREASE	ENERGY	MISCELLANEOUS	LABOUR	TOTAL COSTS	COSTS/HOUR	COSTS/FED.
40	264	27	27.00	5.31	8.51	3.90	16.67	352.39	8.81	17.62
80	264	54	54.00	10.63	17.01	7.80	33.34	440.77	5.51	11.02
120	264	81	81.00	15.94	25.52	11.70	50.00	529.16	4.41	8.82
160	264	108	108.00	21.25	34.03	15.59	66.67	617.55	3.86	7.72
200	264	135	135.00	26.57	42.53	19.49	83.34	705.93	3.53	7.06
240	264	162	162.00	31.88	51.04	23.39	100.01	794.32	3.31	6.62
280	264	189	189.00	37.20	59.55	27.29	116.68	882.71	3.15	6.31
320	264	216	216.00	42.51	68.05	31.19	133.34	971.09	3.03	6.07
360	264	243	243.00	47.82	76.56	35.09	150.01	1059.48	2.94	5.89
400	264	270	270.00	53.14	85.07	38.98	166.68	1147.87	2.87	5.74
440	264	297	297.00	58.45	93.57	42.80	183.35	1236.25	2.81	5.62
480	264	324	324.00	63.76	102.08	46.78	200.02	1324.64	2.76	5.52
520	264	351	351.00	69.08	110.59	50.68	216.68	1413.03	2.72	5.43
560	264	378	378.00	74.39	119.09	54.58	233.35	1501.41	2.68	5.36
600	264	405	405.00	79.70	127.60	58.48	250.02	1589.80	2.65	5.30
640	264	432	432.00	85.02	136.11	62.37	266.69	1678.19	2.62	5.24
680	264	459	459.00	90.33	144.61	66.27	283.36	1766.57	2.60	5.20
720	264	486	486.00	95.65	153.12	70.17	300.02	1854.96	2.58	5.15
760	264	513	513.00	100.96	161.63	74.07	316.69	1943.35	2.56	5.11
800	264	540	540.00	106.27	170.13	77.97	333.36	2031.73	2.54	5.08
840	264	567	567.00	111.59	178.64	81.87	350.03	2120.12	2.52	5.05
880	264	594	594.00	116.90	187.15	85.76	366.70	2208.51	2.51	5.02
920	264	621	621.00	122.21	195.65	89.66	383.36	2296.89	2.50	4.99
960	264	648	648.00	127.53	204.16	93.56	400.03	2385.28	2.48	4.97
1000	264	675	675.00	132.84	212.67	97.46	416.70	2473.67	2.47	4.95
1040	264	702	702.00	138.16	221.17	101.36	433.37	2562.05	2.46	4.93

OPERATING AND OWNERSHIP COSTS
OF POWER OPERATIONS FOR
COTTON STALK REMOVAL

TYPE: DOUBLE BLADE

	FINANCIAL					ECONOMIC			
HOURS	INTEREST	DEPRECIATION	MAINTENANCE	COST/HOUR	COST/WEEKDAY	FIXED COSTS	MAINTENANCE	COST/HOUR	COST/WEEKDAY
10	44.00	5.00	6.33	7.73	11.60	321.30	6.33	32.77	49.16
15	44.00	7.50	9.50	5.38	8.36	321.30	9.50	22.46	33.69
20	44.00	10.00	12.67	4.48	6.65	321.30	12.67	16.78	25.05
25	44.00	12.50	15.83	3.79	5.66	321.30	15.83	13.49	20.23
30	44.00	15.00	19.00	3.33	5.00	321.30	19.00	11.25	16.82
35	44.00	17.50	22.17	3.02	4.53	321.30	22.17	9.62	14.72
40	44.00	20.00	25.33	2.78	4.18	321.30	25.33	8.47	13.00
45	44.00	22.50	28.50	2.60	3.98	321.30	28.50	7.70	11.66
50	44.00	25.00	31.67	2.45	3.68	321.30	31.67	7.05	10.59
55	44.00	27.50	34.83	2.33	3.50	321.30	34.83	6.48	9.71
60	44.00	30.00	38.00	2.23	3.35	321.30	38.00	5.99	8.98
65	44.00	32.50	41.17	2.15	3.22	321.30	41.17	5.58	8.37
70	44.00	35.00	44.33	2.08	3.11	321.30	44.33	5.22	7.86
75	44.00	37.50	47.50	2.01	3.02	321.30	47.50	4.92	7.38
80	44.00	40.00	50.67	1.96	2.94	321.30	50.67	4.65	6.98
85	44.00	42.50	53.83	1.91	2.86	321.30	53.83	4.41	6.62
90	44.00	45.00	57.00	1.87	2.80	321.30	57.00	4.20	6.31
95	44.00	47.50	60.17	1.83	2.74	321.30	60.17	4.02	6.02
100	44.00	50.00	63.33	1.79	2.69	321.30	63.33	3.85	5.77
105	44.00	52.50	66.50	1.76	2.64	321.30	66.50	3.69	5.54
110	44.00	55.00	69.67	1.73	2.60	321.30	69.67	3.55	5.33
115	44.00	57.50	72.83	1.71	2.56	321.30	72.83	3.43	5.14
120	44.00	60.00	76.00	1.69	2.53	321.30	76.00	3.31	4.97
125	44.00	62.50	79.17	1.68	2.49	321.30	79.17	3.20	4.81
130	44.00	65.00	82.33	1.66	2.46	321.30	82.33	3.11	4.66
135	44.00	67.50	85.50	1.64	2.43	321.30	85.50	3.01	4.52
140	44.00	70.00	88.67	1.62	2.41	321.30	88.67	2.93	4.39
145	44.00	72.50	91.83	1.61	2.38	321.30	91.83	2.85	4.27
150	44.00	75.00	95.00	1.59	2.36	321.30	95.00	2.78	4.16
155	44.00	77.50	98.17	1.58	2.34	321.30	98.17	2.71	4.06
160	44.00	80.00	101.33	1.56	2.32	321.30	101.33	2.64	3.96
165	44.00	82.50	104.50	1.55	2.30	321.30	104.50	2.58	3.87
170	44.00	85.00	107.67	1.53	2.28	321.30	107.67	2.52	3.79
175	44.00	87.50	110.83	1.52	2.26	321.30	110.83	2.47	3.70
180	44.00	90.00	114.00	1.51	2.25	321.30	114.00	2.42	3.63
185	44.00	92.50	117.17	1.50	2.24	321.30	117.17	2.37	3.56
190	44.00	95.00	120.33	1.48	2.22	321.30	120.33	2.32	3.49
195	44.00	97.50	123.50	1.47	2.21	321.30	123.50	2.28	3.42
200	44.00	100.00	126.67	1.46	2.20	321.30	126.67	2.24	3.36
205	44.00	102.50	129.83	1.46	2.18	321.30	129.83	2.20	3.30
210	44.00	105.00	133.00	1.45	2.17	321.30	133.00	2.16	3.25
215	44.00	107.50	136.17	1.44	2.16	321.30	136.17	2.13	3.19
220	44.00	110.00	139.33	1.43	2.15	321.30	139.33	2.09	3.14
225	44.00	112.50	142.50	1.43	2.14	321.30	142.50	2.06	3.09
230	44.00	115.00	145.67	1.42	2.13	321.30	145.67	2.03	3.05
235	44.00	117.50	148.83	1.41	2.12	321.30	148.83	2.00	3.00
240	44.00	120.00	152.00	1.41	2.11	321.30	152.00	1.97	2.96
245	44.00	122.50	155.17	1.40	2.10	321.30	155.17	1.93	2.92
250	44.00	125.00	158.33	1.40	2.10	321.30	158.33	1.92	2.88
255	44.00	127.50	161.50	1.39	2.09	321.30	161.50	1.89	2.84
260	44.00	130.00	164.67	1.39	2.08	321.30	164.67	1.87	2.80
265	44.00	132.50	167.83	1.38	2.07	321.30	167.83	1.85	2.77
270	44.00	135.00	171.00	1.38	2.07	321.30	171.00	1.82	2.74

OPERATING AND OWNERSHIP COSTS
OF HOUSE OPERATIONS FOR
COTTON STALK REMOVAL

TYPE: SINGLE BLADE

FINANCIAL

HOURS	INTEREST	DEPRECIATION	MAINTENANCE	COST/HOUR	COST/ACRE
10	38.68	3.03	4.11	5.05	11.71
15	38.68	5.73	4.17	8.36	6.50
20	38.68	7.67	8.22	3.32	4.63
25	38.68	9.58	10.28	2.80	3.90
30	38.68	11.50	12.33	2.48	3.46
35	38.68	13.42	14.39	2.24	3.12
40	38.68	15.33	16.44	2.06	2.87
45	38.68	17.25	18.50	1.92	2.68
50	38.68	19.17	20.56	1.81	2.51
55	38.68	21.08	22.61	1.71	2.38
60	38.68	23.00	24.67	1.64	2.28
65	38.68	24.92	26.72	1.57	2.19
70	38.68	26.83	28.78	1.52	2.12
75	38.68	28.75	30.83	1.47	2.04
80	38.68	30.67	32.89	1.43	1.99
85	38.68	32.58	34.94	1.39	1.93
90	38.68	34.50	37.00	1.36	1.89
95	38.68	36.42	39.06	1.33	1.85
100	38.68	38.33	41.11	1.30	1.81
105	38.68	40.25	43.17	1.28	1.78
110	38.68	42.17	45.22	1.25	1.74
115	38.68	44.08	47.28	1.23	1.71
120	38.68	46.00	49.33	1.22	1.69
125	38.68	47.92	51.39	1.20	1.66
130	38.68	49.83	53.44	1.18	1.64
135	38.68	51.75	55.50	1.17	1.62
140	38.68	53.67	57.56	1.16	1.61
145	38.68	55.58	59.61	1.14	1.59
150	38.68	57.50	61.67	1.13	1.57
155	38.68	59.42	63.72	1.12	1.56
160	38.68	61.33	65.78	1.11	1.54
165	38.68	63.25	67.83	1.10	1.53
170	38.68	65.17	69.89	1.09	1.51
175	38.68	67.08	71.94	1.08	1.50
180	38.68	69.00	74.00	1.07	1.49
185	38.68	70.92	76.06	1.07	1.48
190	38.68	72.83	78.11	1.06	1.47
195	38.68	74.75	80.17	1.05	1.46
200	38.68	76.67	82.22	1.05	1.45
205	38.68	78.58	84.28	1.04	1.44
210	38.68	80.50	86.33	1.04	1.43
215	38.68	82.42	88.39	1.03	1.42
220	38.68	84.33	90.44	1.02	1.41
225	38.68	86.25	92.50	1.02	1.41
230	38.68	88.17	94.56	1.01	1.40
235	38.68	90.08	96.61	1.01	1.39
240	38.68	92.00	98.67	1.01	1.39
245	38.68	93.92	100.72	1.00	1.38
250	38.68	95.83	102.78	1.00	1.38
255	38.68	97.75	104.83	.99	1.37
260	38.68	99.67	106.89	.99	1.37
265	38.68	101.58	108.94	.99	1.36
270	38.68	103.50	111.00	.98	1.36

ECONOMIC

FIXED COSTS	MAINTENANCE	COST/HOUR	COST/ACRE
246.39	4.11	25.05	50.10
246.39	6.17	16.84	33.67
246.39	8.22	12.73	25.46
246.39	10.28	10.27	20.53
246.39	12.33	8.62	17.25
246.39	14.39	7.45	14.90
246.39	16.44	6.57	13.14
246.39	18.50	5.89	11.77
246.39	20.56	5.34	10.68
246.39	22.61	4.89	9.78
246.39	24.67	4.52	9.04
246.39	26.72	4.20	8.40
246.39	28.78	3.93	7.86
246.39	30.83	3.70	7.39
246.39	32.89	3.49	6.98
246.39	34.94	3.31	6.62
246.39	37.00	3.15	6.30
246.39	39.06	3.00	6.01
246.39	41.11	2.88	5.75
246.39	43.17	2.76	5.52
246.39	45.22	2.65	5.30
246.39	47.28	2.55	5.11
246.39	49.33	2.46	4.93
246.39	51.39	2.38	4.76
246.39	53.44	2.31	4.61
246.39	55.50	2.24	4.47
246.39	57.56	2.17	4.34
246.39	59.61	2.11	4.22
246.39	61.67	2.05	4.11
246.39	63.72	2.00	4.00
246.39	65.78	1.95	3.90
246.39	67.83	1.90	3.81
246.39	69.89	1.86	3.72
246.39	71.94	1.82	3.64
246.39	74.00	1.78	3.56
246.39	76.06	1.74	3.49
246.39	78.11	1.71	3.42
246.39	80.17	1.67	3.35
246.39	82.22	1.64	3.29
246.39	84.28	1.61	3.23
246.39	86.33	1.58	3.17
246.39	88.39	1.56	3.11
246.39	90.44	1.53	3.06
246.39	92.50	1.51	3.01
246.39	94.56	1.48	2.96
246.39	96.61	1.46	2.92
246.39	98.67	1.44	2.88
246.39	100.72	1.42	2.83
246.39	102.78	1.40	2.79
246.39	104.83	1.38	2.75
246.39	106.89	1.36	2.72
246.39	108.94	1.34	2.68
246.39	111.00	1.32	2.65

ECONOMIC IRR FROM CUTTING COTTON STALKS
BY DOUBLE BLADE MOWER

IRR

PERIOD	CASH FLOW
0	-8.33
1	3.72
2	3.72
3	3.72
4	3.72
5	3.72
6	3.72
7	3.72
8	3.72
9	3.72
10	3.72

IRR

PERIODIC IRR = 43.447 %
ANNUAL IRR = 434.473 %

FINANCIAL IRR FROM CUTTING COTTON STALKS
BY DOUBLE BLADE MOWER

IRR

PERIOD	CASH FLOW
0	-8.33
1	8.96
2	8.96
3	8.96
4	8.96
5	8.96
6	8.96
7	8.96
8	8.96
9	8.96
10	8.96

IRR

PERIODIC IRR = 107.490 %
ANNUAL IRR = 1074.783 %

ECONOMIC IRR FROM CUTTING COTTON STALKS
BY SINGLE BLADE MOWER

IRR

PERIOD	CASH FLOW
0	-0.00
1	1.05
2	1.05
3	1.05
4	1.05
5	1.05
6	1.05
7	1.05
8	1.05
9	1.05
10	1.05

IRR

PERIODIC IRR = 3.998 %
ANNUAL IRR = 39.916 %

FINANCIAL IRR FROM CUTTING COTTON STALKS
BY SINGLE MOWER

IRR

PERIOD	CASH FLOW
0	-0.00
1	7.04
2	7.04
3	7.04
4	7.04
5	7.04
6	7.04
7	7.04
8	7.04
9	7.04
10	7.04

IRR

PERIODIC IRR = 91.000 %
ANNUAL IRR = 918.820 %

ANNEX D

PRESENTATION/DISCUSSION - LOCAL MANUFACTURING
FOR THE AGRICULTURAL MECHANIZATION WORKSHOP
SAKHA TRAINING CENTER, KAFR EL SHEIKH

Prepared by Mr. Richard Berky
October 5, 1982

PRESENTATION/DISCUSSION - LOCAL MANUFACTURING
FOR THE AGRICULTURAL MECHANIZATION WORKSHOP
SAKHA TRAINING CENTER, KAFR EL SHEIKH

As the Agricultural Mechanization Project was originally set up, there were no strong natural linkages between it and the extension and training programs. Therefore the decision was made to initially integrate it into the training program with the expectation that in the due course suitable linkages to other sub-project would develop. The implementation of the Manufacturing Advisor was delayed 6 months and in a bide to catch up, a side project in product research and development was undertaken.

This side project was the development of a more sophisticated threshing machine capable of wide spread local manufacture in Egypt. The purpose was to determine what sort of training program and training center were suitable to rapid introduction of suitable new products and manufacturing know how to the small manufacturers.

We decided on trying a three phase approach, starting by upgrading Beheira Companies workshop to include a training center in research and development of suitable agricultural implements with the understanding that the new designs would be freely available to the small manufacturers and that special attention would be paid to modifying designs to allow economical, labor intensive manufacture. The second phase was a program of learning together by problem solving. This included trainees, Beheira engineers, and workers possessing the special skills required for higher levels of farm machinery production.

The third phase will be the extension of the know how developed to the existing small manufacturers and assistance in establishing new interprises in farm tool manufacturing. It is still too early to evaluate our initial decision, but we are making minor changes in direction and timing as are required. As local manufacturing becomes prevalent in Egypt there will be very important linkages between manufacturing and extension. There is always a bias towards imported machinery and a reluctancy to change on the part of farmers and manufacturers alike. If local manufacturing is to compete it will be on the basis of quick reaction to farmers needs and provision of good customer service and relations with local financial institutions. In these areas extension workers can provide an important linkage between farm and factory.

Recently, a test engineer formally reported very low capacities on an experimental machine. Merely providing new instructions and training in proper feeding more than doubled the rate of production. Normal machine adjustments resultsed in a 300% capacity increase and some minor modifications and rework of a defective part resulted in a 500% increase over the reported value. This happened in a friendly test facility. When this machine is finally sold in quantity this same scenario will be repeated in every new area and new crop usage. This is why extension workers must maintain close ties with local manufacturers. This same type of situation happens often in developed countries and the manufacturers go to great expense to prevent it from happening. The above

experience was probably a good training exercise and only damaged several egos but if repeated at a later date would be very damaging to an entire program. This can be prevented if the basics of field test and machine adjustment are included in the extension trainingprogram and new machinery is introducted to extension workers prior to general sales.

To round out our introduction to the small manufacturers program we have handed out reports and photographs covering the first two phases of the program and brought along some of the trainees to participate in the discussions to follow. We invite suggestions on means of exchanging inputs with extension personnel and farmers from the earliest practical date.

At this point there may be a few of you and we hope only a few, who arey saying why get involved in local manufacture at all? We can import what we need and thus guarantee good qualtiy. Therefore we will list the advantages to Egypt the local manufacture.

1. There is intense competition for foreign exchange and import licenses and the farmer is not situated to receive his share. Further foreign exchange expended for raw materials and semi-finished components stretch foreign exchange and allow faster development.
2. Promotes more rapid extension of know how directly to the users.
3. Provides outlet for increased productivity in the Egyptian raw material and basic industries.
4. Allows tailored designs fitting the needs of existing arming systems.
5. Assures better service and repair parts back up.
6. Provides local employment in manufacturing and other services related to mechanization.
7. Slows the movement of population from farm to city.

How will extension workers be involved in the development of local manufacture? Their major input will be in making farmers aware of available machinery and in assistance in designing farming systems based on the appropriate mixture of locally manufactured equipment. Another important involvement of extension workers will be in the selection and trial of new machines in new crops and recommendations to manufacturers for machine improvements size of manufacturing schedules, etc., and finally as liaison between manufacturers and farmers concerning their changing requirements for spare parts and new machines.

It is too early in the program to go into great details as it is certain that in the course of program development many features will need to be abandoned and new features added as benefits of experience.

In preparation for the discussion period let us refer to the report of testing of the semi-mounted axial flow thresher and the local training program. First, they both are admittedly behind

schedule but on the positive side they are both ambitious programs and are continuously contributing to our understanding of the mechanization developmental problems even by the nature of the delays.

Now a brief introduction to our threshing machine project. Historically threshing machines have been manufactured in Egypt since about 1960 and less than 500 sold in a normal year. There are minor design variations between various manufacturers but all are copies of a Beheira designed machine. By current state of the art standards, the machine is costly to build in terms of weight, materials and labor content. However, it can be built with very low levels of investment, simple tools and unskilled labor for these reasons in spite of many shortcomings this threshing machine is becoming more popular largely because of the increased farm labor costs.

The machine is normally used for wheat and barley but is not practically for rice. It is normally driven by means of a flat belt from a 60 hp tractor. A common system of operation is to prepare a long window of unthreshed grain. The machine is fed from the window and the straw is stacked into an offset window behind the machine and the grain is raked out from between and bagged. A normal crew consists of about 11 men.

Although the machine can be hand fed by two men fast enough to produce 600-700 kg. per hour of wheat in average conditions in actual practice the machine and tractor must be shut down and moved every 30 minutes so that average production is usually below 400 kg. per hour. The price of the machine including a 15 meter long flat belt is about 850 L.E. Separation and cleaning is very good with good operations and the straw is finely chopped thus enhancing its digestability.

It has been established that in moderately high production the cost of machinery is approximately proportional to its manufacturing costs. On this basis it was felt that it should be possible to manufacture a lighter more productive machine for about the same cost. It is probably that the profit margin on the current machine is to low to support a suitable sales and service organization along with continuous research and development efforts needed to compete with imports in the case of a sizable market development. This was taken into account in our design targets.

Enough testing has been completed to give a fair picture of the final specifications of the new machine and to compare it with the current production machines.

COMPARISON

	Specifications	Old Machine	New Machine
1.	Tractor power	40 hp	60 hp
2.	Max. grain output	700 kg/hr.	1000 kg/hr.
3.	Size of normal crew	11 men	4 men
4.	Sustained grain output	450 kg/hr.	900 kg/hr.
5.	Weight	kg.	kg.

COMPARISONS (Cont'd)

	Specifications	Old Machine	New Machine
6.	Manufactured Cost	800 L.E.	1500 L.E.
7.	Average Straw	7 cm.	6 cm.
8.	Wagon loader for straw	no	yes
9.	Bagging attachment	no	yes
10.	All crop threshing capability	no	yes
11.	Transport speed	7 km/hr.	30 km/hr.
12.	Special tractor requirements	Belt pulley	PTO and 3 point hitch
13.	Selling price	950 L.E.	2000 L.E.
14.	Automatic separation	no	yes
15.	Automatic cleaning	no	yes
16.	Estimated economic machine life	For ever	5000 hours

NEW OR SPECIAL FEATURES OF NOTE

1. Semi-mounted on ASAE standard 3 point hitch.
2. Trailing wheel for high speed transport with safety.
3. Modern axial flow cylinder concave system.
4. Quickly replaceable spikes and rasp bars for different crops.
5. Separate adjustable speed blower with 360° loading shute.
6. Optional recutting.
7. Adjustable concave clearance.
8. Replaceable screens for different crop conditions.

ECONOMIC SIGNIFICANCE

The new machine will be capable of moving quickly from one location to another and quickly setting. This eliminates the problem of scheduling a large crew and completing transportation ahead of time. It also can be used to replace or augment traditional systems of threshing with no requirement for investment in other equipment. This will make it attractive for customer operators and allow them to compete in a much larger geographic area.

FUTURE WORK

Aside from the detail work required to reach all the design specifications, there remains the work of extending manufacturing capability to several small manufacturers at strategic locations.

The next order of business will be to develop a cutting, curing, transport system suitable to the threshing machine and the small scattered fields to be harvested.

After development of the total system we should have a system which is more economical then combining, baling and feed grinding as is popular in Europe.

It should be noted that in the late 1930's in the United States, one buck rake could be used to transport cured crop directly from stocks or windows rapidly enough to serve a threshing machine of this size when fields were up to one Km. distance from the threshing machine.

Work on systems of cutting and curing are under development and evaluation within the research sub-project. We propose to build a buck rake and run some total system trials next summer. After this we hope that the manufacturing Advisor Sub-project will ease out of research and development emphasis and concentrate on training, problems of manufacturing, local spare parts manufacture and encouragement of more private sector investment in manufacturing.

The emphasis in our training program is to involve the skilled non-engineers in the development process by training engineers in the required hands on and management skills required to teach skilled workers, set up men and foremen with new, more effective skills and management techniques. To this end recent engineering graduates are being trained in doing basic machine operations, i.e. welding, sheet metal layout, lathe operation, measuring inspection, etc. They are also being tutored in shop English in preparation for a year of practical training in the United States. There is emphasis on procurement and familiarization with the type of low investment tools suitable to small manufacturers as well as management skills such as reporting, engineering record keeping, cost and value analysis, investment opportunity evaluation, prototype building, field and laboratory testing. The program will become clearer as we observe the progress of the three trainees involved in the program so far and can be modified accordingly before we take on a group of twelve trainees.

At this point we would suggest a brief recess during which you are invited to write out general questions of interest to the entire group. Three of the trainees are here and can discuss the program from their viewpoint. Technical questions can be discussed privately at the end of the session but in the interest of the majority keep technical questions off the floor.

ANNEX E
A RESEARCH DESIGN FOR INVESTIGATING THE SOCIOECONOMIC ORGANIZATION OF THE MINIA DEMONSTRATION BASINS

A RESEARCH DESIGN FOR INVESTIGATING THE SOCIOECONOMIC ORGANIZATION OF THE MINIA DEMONSTRATION BASINS

In our meeting last week, we agreed that the Evaluation Unit would work closely with the Soil Improvement Component in the planning, implementation, and monitoring of Project landlevelling and irrigation improvement activities in the Minia demonstration basins.

Our initial work involved the selection of potential basins in the Project villages in Minia. Four tentative basins in four villages were chosen and presentations and surveying undertaken by the Component have already begun. During the period of time I expect to visit El Atlat and Birba El Kubra to meet with farmers from the basins and discuss with them their assessment of the presentations and Project plans to work on their land.

The research design proposed here is a continuation of that work. It is intended to assist us in developing an overview of the agricultural and irrigation systems with the further objective of enabling us to identify related problems which will have to be addressed in our implementation efforts. The identification of those problems, as well as an understanding of the dynamics of irrigation in the basins, is the second stage of our work.

I. Related Work to Date

With the assistance of the village monitors working with the Evaluation Unit, we have obtained a general overview of the problems with soil and water in the five villages. This information will be incorporated into the report entitled Project Villages Profile, to be issued shortly. In addition, we have collected the names and holdings of each of the basins under consideration.

II. Proposed Work to be Undertaken Immediately

The acquisition of new funds has enabled the Unit to reestablish the Village Studies Program in a number of areas in the near future. It is proposed that village monitors be placed in three of the Project villages: El Atlat, Beni Abeid, and Birba El Kubra. At the early stages of research, three basins will be investigated. The first activity of the monitors will be to draft a detailed map of the three basins delineating the individual plots of farmers. By determining their location within the basins we are able to select a number of farmers who will be interviewed.

III. Research Methodology

A number of farmers in each of the basins will be approached and interviewed in depth. They will be chosen to represent the range of holdings and conditions in the basins. For example, large, medium, and small holders will be selected as will be those who have land at the head and tail and intervening points along the irrigation canal(s). It is not anticipated that the number of people interviewed will exceed ten.

Interviews with farmers are to be conducted over a period of time. It is not intended that the information be collected at one long sitting. Instead, a number of visits are planned, in part, to make the farmer more comfortable and, in part, to intensify the relationship between the monitor and the farmer. Most of the information required may be gathered from interviews, but some will require the monitor to accompany the farmer to his land in the basin, such as for observing irrigation techniques. Some of the information may also be gathered through interactions with others, such as with hired laborers, members of the farmers' households or even other farmers who have adjoining plots in the basins.

Depending upon their inclination to relay information, it is proposed that the farmers be thought of as a permanent group to be monitored throughout the course of the Project work in these areas.

The following section outlines the research interests to be investigated.

IV. Research Interests

A. Land Tenure

1. Size of holding or holdings in basin.
2. Location in basin.
3. Position along mesqa.
4. Way in which the land was acquired: inheritance, purchase.
5. History of regular shifts in rights to land:
   a. Role of Agrarian Reform.
   b. Purchases, reasons.
   c. Cooperative records or oral recollections of land holding sizes over a long period of time to determine the degree of fragmentation.
6. Location of land in other basins or in other villages. Methods of acquisition. Size of holdings.

B. Land Use

1. Crops grown and amount of land devoted to each at present.
2. Pattern during past three agricultural years.
3. Reasons for selection of these crops. Crop rotation.
4. Marked changes in cropping pattern since High Dam.
5. If farmer has land elsewhere, crops grown.
   a. Reasons for differences: crop rotation; soil and water conditions; household needs; cash needs.
   b. Assess difference between this land and land elsewhere.

C. Farming Techniques

1. Seedbed preparation.
   a. Tillage type.
   b. Number of passes during each method.
   c. Other activities: scraping, levelling.
   d. Desired seedbed condition and changes over time.
   e. Timeliness: optimal dates and actual dates.
   f. Labor required: household and hired.
   g. Supporting irrigation activities.
2. Soil additions and applications
   a. Fertilizer applied: Variety
      Method of application.
      Amount used.
      Source(s).
      Amount recommended by Coop
      Amount desired.
      Changes in amount or perceived need.
   b. Gypsum application: Amount.
      Source
      Noticed affects
      Understanding of purpose.
   c. Times of application.
   d. Methods of incorporation.
3. Seed selection and use.
   a. Source
   b. Rates
   c. Dates
   d. Quality
   e. Amount
   f. Cost
   g. Methods
   h. Depth
   i. Conditions of seedbed
   j. Machinery used.
   k. Time and labor involved
   l. Changes in techniques or varieties over time.
   m. Existing variety of selection
   n. Freedom to select varieties
   o. Differences in varieties grown here and elsewhere and reasons.

4. Control Activities.

   a. Weed Control:
      - Preplanting treatment
      - Mechanical cultivation: methods
      - Dates
      - Number of times
      - Labor used
      - Cost of hired labor
      - Effectiveness

   b. Pest Control:
      - Amount used for each variety
      - Number of spray
      - Cost of sprays
      - Equipment supplier (private, coop)
      - Time and labor, cost
      - Effectiveness

   c. Disease Control:
      - Kind
      - Control measures
      - Cost
      - Effectiveness
      - Changes in occurrence

   d. Rodent Control:
      - Measures taken
      - Costs
      - Amount used
      - Recent government intervention
      - Changes in situation over time
      - Effectiveness of measures
      - Extent of destruction
      - Cooperative measures

   e. Other crop damage:
      - Kind
      - Control
      - Cost
      - Effectiveness

5. Irrigation Techniques

   a. Methods employed:
      - Furrow
      - Basin
      - Changes since High Dam
      - Source of information

   b. Number of applications for each crop

   c. Dates of application

   d. Irrigation cycles

   e. Problems with water delivery to field.

   f. Water application:
      - Amount received
      - Time available for each
      - Runoff.

   g. Condition of canals:
      - Maintenance
      - Changes in design since High Dam
      - Responsibilities
      - Cost
      - Occurrence

h. Drainage facilities: Type
Changes in design
Maintenance
Frequency
Costs
Labor used
Cooperative activities

i. Night and day irrigations: frequency and reasons.

j. Method of irrigation: Equipment used
Cost
Frequency
Shifts from one to another
Labor requirements
Introduction of machinery
Associated design changes.

k. Disputes: Positional problems.
Water distribution inequities.
Formal and informal settlement procedures.
Recurring conflicts: Individuals
Situations
Places in basins.

6. Harvesting
   a. Dates
   b. Methods
   c. Costs
   d. Labor use
   e. Threshing and winnowing: Method
   Cost
   Labor involvement

7. Access to fields
   a. Road system
   b. Maintenance and construction

8. Yields
   a. Storage facilities: Capacity
   Amount stored
   Amount sold
   Losses estimated and reasons.

ANNEX F
EXTENSION/TRAINING REPORTS

PRELIMINARY WHEAT DRILL STATUS REPORT

SECTION A: BACKGROUND SKETCH

The decision to demonstrate mechanical wheat planting came primarily from the positive results of using a grain drill at the pretest village of Sheikh Ahmad. In the fall of 1981 several receptive farmers allowed the Project to demonstrate a Gallignani 1125, 2.8 meter wide drill following good results from leveling (smoothing) the same area with a demonstration land scraper borrowed from Beheira Company. When questioned in the summer of 1982 following the wheat harvest the same farmers offered more land for demonstrations clearly indicating their willingness to mechanize this operation. Their primary reasons given for preferring mechanized wheat planting were that it increased their yields by an average of 600 kg. per feddans which brought them more profit and their wheat was planted faster with less labor.

Based on these reports as well as a number of requests from farmers in other Project villages for assistance in solving their labor shortage problem, the Project made inquiries to several companies in order to purchase a number of seed drills for demonstration in the Project villages. The only company with several in stock (Tanta Motors) was chosen as the supplier since they had the drills available which had been successfully tested at Sheikh Ahmad village. Ten units were ordered with the intention of placing one in each of the 10 Project villages in Beheira and Gharbya governorates. The Project had formerly trained mechanization extension specialists in these areas who were qualified to assist Project staff, and cooperative farmers, to conduct a number of demonstrations in their areas.

When the seed drills were procured in November, 1982, Project Management decided to place five of them in the Beheira/Gharbya area and five in the Sharkia/Qalubia area. This was done in order to provide four of the five Project Governorates with demonstration/training equipment for mechanical wheat planting. Although the mechanization extension specialists in Sharkia/Qalubia area had just completed their formal training at the Sakha Training Center, it was determined that with sufficient technical assistance from Project Technicians, they would be able to conduct successful demonstrations. Also numerous farmers and governmental officers were continually requesting assistance in mechanized farming, including wheat planting.

SECTION B: CURRENT STATUS

Now that the grain drills have stopped working in the field (as of 20 December), they are being examined and serviced to prepare them for next planting season. As the wheat grows the extension specialists will work with the survey personnel in determining the plant emergence population of mechanically planted wheat with that of the traditionally hard broadcasting method. Also harvest yields will be compared in the summer when the wheat is harvested.

Rough estimates of the number of mechanical wheat planting demonstrations, number of feddans planted and number of farmers involved are listed below. As the exact data is gathered from the field extension staff and translated, a complete report will be prepared.

ESTIMATED MECHANICAL WHEAT PLANTING FIGURES (1982)

Area	No. of Demonstrations	No. of Farmers	No. of Feddans
Beheira	15	300	460
Gharbya	4	40	82
Sharkia	7	60	140
Qalubia	9	67	94
Minia	-0-	-0-	-0-
Total	35	467	776

In summary, the following main points are presented:

1. While double disc openers were a strong consideration for the heavier soils, the shoe openers have worked well as long as the seedbed is properly prepared. It is recommended, however, that in order to better cover the seed a light drag chain replace the stiff iron fingers now following the drill. Chains will pull the soil over the seed while the fingers tend to dig up the seed.

2. A major problem mentioned in other reports concerns the storage of the drills. Most of the cooperative storage areas doors are not wide enough for a 2.8 meter drill to inside. It is necessary, therefore, to widen the door openings to three meters before proper storage can take place. Also a canopy roof needs to be built in most areas to protect the equipment from rain and weathering.

3. As any planting operation must be done accurately for best results considerably more time is needed for tractor operators to gain experience on the drills. For good results it is important at least for the next two seasons and even longer, for a qualified, trained specialist to oversee all planting operations to ensure correct planting and safe equipment use.

   An example of what can happen without such supervision occurred in Mansoura when rice was planted there in 1982. When a new project grain drill was returned from the area to the Project pretest village at Sheikh Ahmad after only one planting season, the main frame was bent, it was covered with dirt and mud, a three point linkage pin was broken and welded and the drill lid cover was bent. Although the drill is still usable it appears to be 8 years old instead of one.

Again, a final report with detailed data from the field will be presented as soon as it is available.

SECTION C: BASIC INFORMATION

QUESTION NUMBER

1. The Grain drill is a Gallignani brand model 1125 (rear mounted). Grain box capacity 320 kg; weight including hoe furrowers: 500 kgs; tyres: 500-15, rubber type.

2. Capital Cost: L.E. 3,650.000

3. Useful life in Egypt: 10 years (with proper supervision)

4. Annual hours/year of operation:

   a. Wheat: 6 hrs/day x 15 days = 90 hours

   b. Rice: 6 hrs/day x 10 days = 60 hours

   c. Other crops (berseem, barley)
   6 hrs/day x 20 days = 120 hours

   Total 270 hours/year

5. Field capacity

   a. Wheat: 2 feddans/hour

   b. Other crops: (not yet tested).

6. Plot sizes: vary from 1 feddan in Qalubia to 120 feddans in Beheira governorate (Ezab Besentwai).

7. Distance between plots planted: (Not yet determined)
   NOTE: At present we have to transport the drills by truck or tractor from one village to another, one district to another, and in some cases, one governorate to another. This is due to the limited number of drills we have (10) to cover Project villages (19 in the Delta) and other assorted (willing) village plots. We have ordered enough drills to locate one in each Project village for the 1983 wheat crop (to be planted in November/December 1983), which will greatly reduce the distance/areas now covered by the drills. When these arrive, we will be normally stay within a village area. More than one drill will be necessary in some villages depending on the area to be planted in the limited recommended days to plant wheat (5-15 days).

8. Working implement width:

   a. Sowing width: 279.5 cm.

   b. No. of rows: 21

   c. Row spacing: 13.3 cm.

9. Distance between implement staging area and first plot: (not yet determined - see number 7 above).

10. Additional Land Treatment activities required for mechanical planting:

    a. Seedbed preparation: 1 additional chisel plowing, 1 additional discing, 1 additional pass for the seed drill (3 additional passes total).
    NOTE: Traditional method: 1 chisel plowing and 1 smoothing pass.

    b. Time/feddan: (Not yet determined)
    NOTE: Chisel plowing and discing are about 1 hour each; wheat drilling half an hour.

11. Capital cost of implements used in Item 10:

    a. Chisel plow: L.E. 400

    b. Disc harrow: (Not yet determined)

    c. Land scraper: L.E. 890

12. Transportation costs: (Not yet determined)

13. Garage/Storage costs of implements: (Not yet determined)
    NOTE: Normally the village coop. or farmer involved does not charge storage costs for demonstrations. This will probably change as coops/farmers purchase their own equipment.

14. Estimate annual maintenance/repair costs (L.E.):

Year	Est. Cost/year	No. of years	Total
1-3	100	3	LE 300
3-6	200	3	600
6-10	300	4	1200
			LE 2100

15. Plant population density for treated fields: (Not yet determined).
    NOTE: This will be calculated as the present crop is growing (in December, 1982 - January, 1983).

16. Yields in metric tons/feddan: (Not yet determined).
    NOTE: This will be done when the present crop is harvesting in the spring of 1983. Verbal reports from the Sheikh Ahmad village farmers who used 9 drill in 1981 indicate an average increase in wheat production of approximately 4 ardabs (1 ardab wheat = approximately 150 kg.) or an average of 600 kg/feddans.

BACKGROUND/STATUS REPORT ON PROJECT SILAGE MOWERS

The following is a background sketch and current status report on the silage mowers now being demonstrated in the Beheira/Gharbya/Sharkia/Qalubia governorates to mow cotton stalks. The primary purpose of this report is to provide project management with the background information for selecting particular demonstration/training equipment without the input of extensive research and detailing the status--particularly the success or failure-- of the equipment demonstrated and the problems faced.

BACKGROUND

In August, 1982 the critical need for removing cotton stalks from the field was discussed since farmers would be picking their cotton and clearing their fields in September/October/November. The use of cotton shredders and choppers was explored but the absence of these machines and the reluctance of the farmers to have their stalks chopped to bits required another solution to be explored. Discussions with Dr. Nur of the Small Farmers Mechanization Project concerning his use of the silage mower in the field led to the possibility of using a similar mower in the project demonstrations.

A field trip was taken to follow up this possibility on September 6, 1982 to Minoueya with Dr. Farouk of the World Bank project to examine a new double-knifed silage mower (Busatis BM 1102--German made). It was a 3 point mounted unit with a 1.5 meter blade which folded down to the right side of the tractor to ground level. It could cut 3 to 4 rows of cotton stalks, depending on the row spacing in the field. Since no fields were ready to mow at the time, a large amount of old cotton stalks were gathered and put through the unit's knives. It was obvious from the experiment that the scissor action of the mower was suitable for cutting stalks.

After returning to Cairo and discussing the experiment with Dr. Zakaria and Ali Kamel (of the USAID procurement unit), it was decided to contact several equipment dealers in order to acquire some mower units to be used in the upcoming fall season. The only dealer who had several units readily available was DIABEX who had the same Busatis mowers which were demonstrated at Minoueya. The project therefore ordered several units (10) as per the specifications which were developed (MEMO of September 9, 1982). The mowers were purchased in October and placed in the field by the assistant Extension Officer for Beheira/Gharbya on October 12th. Six mowers were sent to the Beheira/Gharbya Mechanization Extension Specialists and three to the Sharkia/Qalubia area. One additional unit had been previously picked up by the Sharkia/Qalubia Extension Officer and was yielding good results in the Sardeen village area.

PRESENT STATUS

Since the mowers have begun their demonstrations in the field (18 days), they have mowed approximately 500 feddans for about 100 farmers. When the demonstrations began it was difficult

to find a field to mow due to reluctant farmers which quickly changed to an over-use situation where there were more farmers wanting the mower than equipment availabe. Since the demonstrations began many farmers have purchased or are going to purchase similar mowers as soon as they are available on the market. The low cost of mowing the cotton stalks in a shorter period of time were the two most often heard comments of these machines when compared to hand labor. While the first demonstrations were given free of charge, it was necessary to require the farmer wanting a plot mowed to furnish his own tractor and an operator to prevent problems of favortism and to help limit the number of users to a manageable level. Even then more farmers wanted to use the equipment than machines available.

To summarize a number of complex points concerning the machines, the following is designed to highlight the important items.

1. Preliminary results indicate that the double knife shearing action is somewhat more efficient than the single-knife-to-guide cutting action. This conclusion is supported by Dr. Nur who has used single knifed mowers and has begun to use double knifed units.

2. Although the blades can be purchased in 1.5, 1.75, 1.92 meter lengths, the 1.5 meter is probably more suitable since the longer arms tend to bend easily when transported over long distances between fields and inside the rough irrigated fields.

3. Operating costs for the silage mowers vary from the two basic type of mowers: single knife and double knife. An estimation of these costs was presented to the Financial Planning Advisor in a memo of November 9, 1982, in order to be fully analyzed in light of the farm management survey operations costs for agricultural operations.

4. The success of the mowers is in jeopardy at the present time due to the lack of two critical items: (a) the lack of trained operators to properly operate the mowers above the ground and not in the dirt, and (b) the absence of an organized preventative maintenance program by which the units are serviced and cared for properly. These problems are being dealt with by the Training Unit which has begun a number of operator and maintenance courses as well as by the area Extension Officers who are conducting on the spot practical training for the numerous operators using the equipment. The condition would be improved greatly if one operator was assigned to each machine instead of changing him as the farming area changes. This point is being discussed and may soon be resolved. Also, the management system needs outlined in the MEMO of September 6, 1982 are being put into effect which will resolve most of the technical difficulties now facing the equipment use.

5. Careful research of the mowers is now required before the equipment can be fully analyzed in the Egyptian conditions. Until now the mowers have received only one

field visit from the research team but closer ties are being established in order to obtain sufficient technical data.

Other field research testing of the mowers is being carried out by the MOA (Dr. Hashish) and has encouraged the placement of two additional single knife mowers (with a moving guard) in the Beheira and Sharkia governorates in order to obtain more data concerning the advantage of this mower (Gespardo - Italian made) with the double-knifed Busatis.

As this report is made while the mowers are still in the field, a final report will be completed when they have completed the mowing operations. The Extension/Training monthly report which details the normal activities of the demonstration/training equipment as well as other actions taken by this staff, will also outline the monthly progress ofthe machines being used.

TRAINING WORKSHOP FOR PROJECT VILLAGE FARMERS

The attached translation is a schedule for a series of workshops for key farmers from the Project villages. The training sessions are aimed at informing and orienting the farmers to the Project activities, goals and design. Speakers have been programmed for each of the subprojects to participate in the sessions which all are welcome to attend.

Time Program for Rural Leaders
Syllabus
from Project Leaders

Day & Date	Subject	Time From	Time To	Lecturer
Saturday Dec. 4 Dec. 18 Jan. 1 Jan. 15	Launching of the Syllabus & explaining its goals.	10:00	11:00	Dr. Zakaria El Haddad Dr. Mamdouh El Baz Eng. Ibrahim El Gatas
	Definition of the Mechanization projects.			
	Introduction for Extension activities of the project.	11:30	12:00	Dr. Mamdouh El Baz Eng. Ibrahim El Gatas
	Introduction for external & internal training activity.	12:30	1:30	Eng. Samir Shawky
Sunday Dec. 5 Dec. 19 Jan. 2 Jan. 16	Definition of the Mechanization projects.			
	Introduction for Planning Unit and Credit System in the project.	9:00	10:00	Eng. Zaki Helmi
	Introduction for activity of Farming Administration Unit.	10:00	11:00	Eng. Maher Eskander
	Introduction for activity of Service Centers Unit.	11:30	12:30	Eng. Moraad Allah Moh. Fawzi
	Introduction for sub-project activities for soil improvement.	12:30	1:30	Eng. Adel Orabi
Monday Dec. 6 Dec. 20 Jan. 3 Jan. 17	Problems of Agriculture in Egypt:	9:00	1:00	
	a. Theoritical lecture			Eng. Ali Youssef Seada (Agricultural Affairs Manager, Minia)
	b. Workshop of students			
	c. Discussion of results of workshop study			Eng. Samir Shawky

Day & Date	Subject	Time From	Time To	Lecturer
Tuesday Dec. 7 Dec. 21	Field Visit (1) for a site of work sites of the project in the Governorate of Beheira of Gharbya.	9:00	1:00	Eng. Ahmed El Beheri
	Exposure of a cinematic film about the Agricultural Mechanization.	5:00	6:00	Eng. Mohamed Abel Aziz
Wednesday Dec. 8 Dec. 22 Jan. 5 Jan. 19	Importance of modifications & development of methods & techniques of actual irrigation and presentation of recent methods.	9:00	11:00	Dr. Abdel Ghani El Gendi Dr. Mohamed El Ansary
Thursday Dec. 9 Dec. 23 Jan. 6 Jan. 20	Field Visit (2) to the Governorate of Kafr El Sheak. a. Irrigation Project b. Rice Mechanization project, Kelin.	9:00	2:00	
Saturday Dec. 11 Dec. 25 Jan. 8 Jan. 22	Agricultural Mechanization a. Problems of Mechanization in Egypt.	9:00	11:00	Dr. Zakaria El Haddad
	b. Mechanization Policy in Egypt.	11:30	1:30	Dr. Ahmed El Sahregy
Sunday Dec. 12 Dec. 26 Jan. 9 Jan. 23	Agricultural Machines Field Visit (3) to Maamoura Center to recognize the methods and techniques of training in the center.	9:00	1:00	Eng. Abdel Salam El Wekeel (El Maamoura Training Center Manager)
Monday Dec. 13 Dec. 27 Jan. 10 Jan. 24	Field Visit (4) to Al Beheira Company and Research Station to recognize the ways of Agric. Machines industrialization & the possibilities of the company and local industrialization unit activity.			Eng. Mohammed El Naggar Eng. Abdel El Salam El Geesh (Beheira Company)
Tuesday Dec 14 Dec. 28	Visit (5) to Garb El Nubarya Co. to recognize the using of agric. machines in modern Agri.	9:00	11:00	Eng. Esam Khalil (Head of the Board of Directors, Gharb El Nubaria)
	A lecture about the importance of mechanization in Egyptian Agriculture.	11:00	1:00	

Day & Date	Subject	Time From	Time To	Lecturer
Wednesday Dec. 15 Dec. 29 Jan. 12 Jan. 26	Visit (6) to a site of project work sites in the Governorate of Beheira or Gharbya.	9:00	2:00	Eng. Ahmed El Beheri Eng. Mohamed Abdel Aziz
	Exposure of Evaluation Unit Activity - Evaluation of the Syllabus.	4:00	6:00	Eng. Mour El Din Nasr
Thursday Dec. 16 Dec. 30 Jan. 13 Jan. 27	Seminar of recommendations, conclusions of the syllabus	9:00	12:00	Dr. Zakaria El Haddad Dr. Mamdouh El Baz Eng. Ibrahim El Gatas

ANNEX G
TRAINING OF MANUFACTURING OF FARM MACHINERY

TRAINING OF MANUFACTURING OF FARM MACHINERY

Trainees:

They are fresh graduates of one of the following:

a. Agricultural Engineering

b. Mechanical Engineering

c. Production Engineering

Training Period:

It is planned to be about two years, divided for the first group of trainees as follows:

a. Six month local training.

b. One year training in the United States.

c. Six month application under supervision when back home.

First Phase Program:

The period of six months is started by two weeks orientation on the basic manufacturing processes. This is followed by tutoring on some essential topics, besides a program of training by doing; through taking part of an actual life project of development, designing, setting-up manufacturing processes, and supervising the execution of producing a prototype for a certain farm machinery.

I. **Orientation Training:**

Objective:

It is not intended to acquire any degree of hand skill, but rather acquire proper methodology of each process.

Duration:

Two weeks, about 12 working days.

Procedure:

Trainee spends ample time in practicing (hand working) on every basic process, to attain full appreciation and knowledge of the proper way of carrying out such processes. This covers:

1. Fitting; filing flat su-faces, square planes, marking off, sawing, chiseling.
2. Welding; gas and electric, cutting choice of electrodes, and choice of nozzles.
3. Forging; heating, forming, heat treatment.
4. Press work and sheet metal work.
5. Machining; turning, drilling, milling, grinding.
6. Measurements; vernier caliper, micrometer.

II. Tutoring:

Trainee receives tutoring in some topics. This is carried out parallel, that is every topic is extended over the first period of the training. These topics are as follows (without any sequencial order):

1. English Language: (40 hours)
   - American spoken.
   - Engineering terminology.
   - Situational dialogues.
2. Report Writing: (40 hours)
   - Constituents of a report
   - Problem analysis.
   - Introduction and objective
   - Conclusions and objective
   - Illustrations
   - Appendices
3. Workers Supervision: (40 hours)
   - Human aspects
   - Leadership
   - Work division, allocation, evaluation
   - Incentives
   - Communications
   - Follow up.
   - Delegation of responsibility
4. Technological Refreshing: (80 hours)
   - Heat treatment
   - Materials; properties, machinability and formability.
   - Machining time
   - Tool; standards and special tools
   - Measurements and metric system
   - Coordination design phase with manufacturing
   - Sketching
   - Economics
   - Foundry
5. Pedagogy: (40 hours)
   - Simplification of information
   - Aids of information conveyance
   - Adults training and adults psychology
   - Teaching technique

6. Agricultural Machinery: (40 hours)

This covers the information about fundamental agricultural machinery. The constituents are concerned with:

- the principle of function
- the basic features of design, parts material
- the performance and the effecting parameters
- testing of the machine

III. On-The-Job (Project):

Trainee takes part, under supervision of the expert, in actual work of developing and manufacturing a prototype of a certain machine. He will be trained on:

- Design for manufacture, drawing, sketching, dimensioning, etc.
- Constructing material lists for the manufacture of parts.
- Preparation of work orders.
- Supervision of manufacturing processes.
- Work planning the sense of work division on workers to be carried out in parallel and coordinating between different events to insure fulfilling the objective.
- Training on dismantling and assembling of different machinery, with the objective of getting acquainted with the intricacies of the machine parts.
- Getting acquainted on in-plant consultancy, that is building up his ability to assess technical difficulties and take proper decisions towards them.

Second Phase:

A detailed training program should be designed in coordination with the firm in the United States for the year of training period. Of course, the lines of the first phase shall be considered as input for the second phase program.

Third Phase:

This will be constructed after the second phase is planned.