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EGYPTIAN AGRICULTURAL MECHANIZATION PROJECT

Contract Number 263-0031-HHC-01

ACTIVITY REPORT NUMBER 11

1 October 1983 - 31 December 1983

Submitted by

LOUIS BERGER INTERNATIONAL, INC.

100 Halstead Street

East Orange, New Jersey

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## 1.0 SUMMARY

Compared to the budgetary projections for this year (figure 1.1), Project expenditures are on schedule; 1) the overall/outgoing category exceeded expectations by 11 percent ( 61 percent budgeted vs. 72 percent actual); and 2) 38 percent expended/committed compared to an anticipated 35 percent. The committed funds are funds legally committed through bid awards and/or contracts. The reason for the increase in outgoing funds has been the initiation of IFB 83-03 with an estimated value of \$4.4 million.

Project procurement for the village demonstration and training program will involve 1360 units to support this effort. The current and anticipated 1984 status are compared as follows:

	On-site (1983)	Planned (1984)
1. General Equipment	70	241
2. Seedbed Preparation	82	209
3. Planting	43	142
4. Cultivation	4	142
5. Fertilization	1	15
6. Herbicide/Pesticide	1	56
7. Harvesting	79	185
8. Postharvest	0	41
9. Maintenance (units/sets)	23	120
Total	303	1057

Figure 1.2 summarizes the credit funds: the Service center Fund is oversubscribed if all applicants are processed; the Waterlift Fund has been 90 percent expended and an additional \$1.0 million requested; and the Machinery Introduction Fund has only 10 percent uncommitted.

Briefly, activity highlights were:

1. Planning and Evaluation:
  - a. The long-term berseem crop enterprise budget has been completed; some highlights are:
    - 1) The study is stratified into five farm size classes: 1) less than one feddan, 2) one to three feddans, 3) three to five feddans, 4) five to ten feddans, and 5) five to thirty-five feddans.
    - 2) On average, net income was LE 202 per feddan.

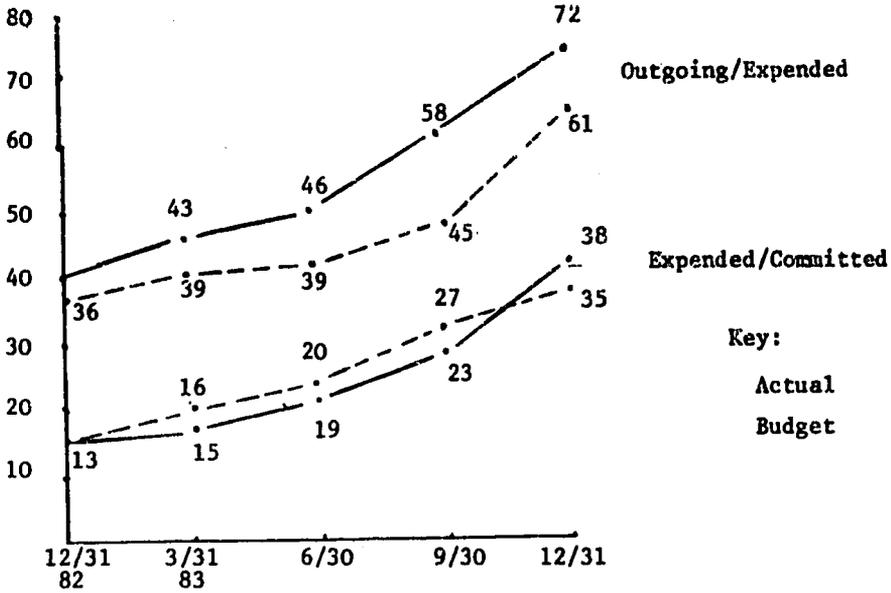


Figure 1.1 Comparison of budgeted and actual expenditures.

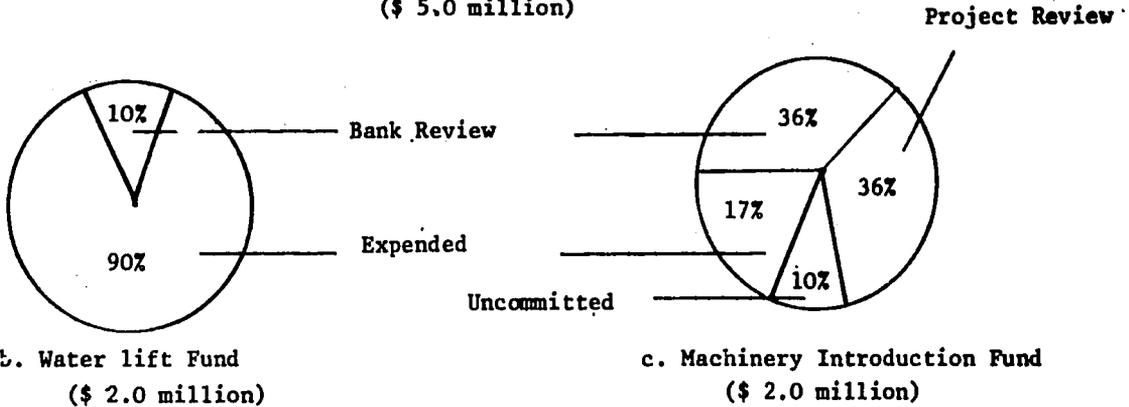
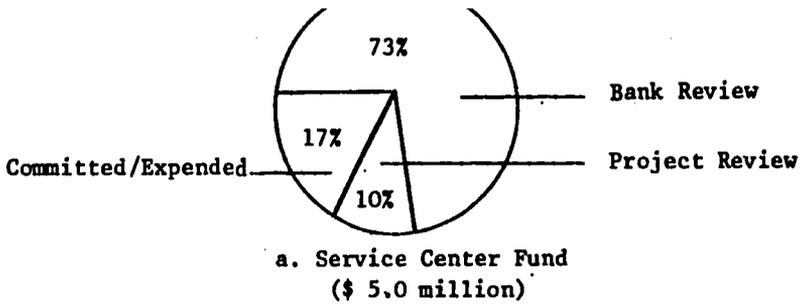


Figure 1.2 Credit Funds.

- 3) Long-term berseem is highly labor intensive requiring, on average, 479 person hours.
  - 4) The incidence of mechanization is low: seedbed preparation varied from 33 to 41 percent of the sample, and pumps for waterlifting varied from 32 to 60 percent.
  - 5) Sixty-four percent of the gross berseem income was from on-farm consumption while 34 percent was from cash sales.
- b. Completed Machinery Demonstration Evaluation Series #2: Wheat Cultivation -- Grain Drills, Mower-binders, and Combines. This evaluation focused on the following points: 1) traditional methods of planting wheat and observed changes from the introduction of the grain drill, 2) varietal influence on mechanization, 3) farmer preferences for harvesting: manual, mower-binders, and combines, 4) effect on labor-use patterns, and 5) observable advantages and disadvantages of these three machines (Annex B).

## 2. Research and Development

Finished data analysis and research reports for: 1) tillage tests with peanuts, cotton, and maize; 2) potato digging tests; and 3) maize planting and cultivating tests. And prepared a five-year projection of Egyptian research needs (Annex C).

## 3. Extension/Training:

- a. Extension: Project village extension activities were very active during this period: rice harvesting, cotton stalk cutting, landleveling, seedbed preparation, grain drill seeding of wheat and backhoe operations.

These field demonstrations involved 2,894 farmers and 336 demonstration sessions.

- b. Training: The training effort for this quarter involved the following activities:

1) In-country training at training centers involved 249 participants in 19 program sessions.

2) Training programs in Project villages, and other field sites, involved 6,314 participants in 740 course sessions.

- c. Cooperated with the Small Farmer Production Project developing a mechanization extension plan (Annex E).

A summary of implementation during this past period is as follows:

1. Planning and evaluation is proceeding with data collection and evaluation while data processing is progressing satisfactorily.
2. Extension is continuing to implement machinery extension activities in Project villages while integrating the delivery of demonstration/training equipment with village activities as scheduled.
3. Research and development is lagging in the area of applied research contracts while in-house research is on its new schedule.
4. Training is progressing very well with the in-country training programs, but lagging in the academic program due to the lack of qualified English language applicants. The observation study tours have been temporarily delayed until some participation issues are resolved.
5. The local manufacturing program is behind schedule partly because original expectations were optimistic and partly because of the lack of skilled drafting assistance. With the advent of the Machinery Development advisor, this latter point should be eased but not eliminated.
6. The land improvement program has been active in Minia concentrating upon training personnel and gaining farmer confidence as scheduled.
7. The service center/village workshop program is proceeding well at the Project-level, but bank processing has been slow. This is partly because of land registration problems and partly because the bank does not fully understand the soft-loan characteristics of the fund. However, the bank has processed the smaller machinery village workshop loans with reasonable speed.

Two positions have been filled during this quarter: Senior Accounting Advisor and Machinery Development Advisor. Except for the departure of the Farm Management Advisor, the Project is at its full complement of expatriate personnel. TDY support from Dr. M. Yousary Hamdy developed a proposed computer/data acquisition system for the Agricultural Mechanization Institute (Annex D).

## 2.0 PROJECT ACCOMPLISHMENTS

### 2.1 Planning and Evaluation

#### 2.1.1 Planning and Financial Unit

1. The Long-term Berseem crop enterprise budget has been completed; some highlights are:
  - a. The study is stratified into five farm size classes: 1) less than one feddan, 2) one to three feddans, 3) three to five feddans, 4) five to ten feddans, and 5) five to thirty-five feddans.
  - b. On average, net income was LE 202 per feddan.
  - c. Long-term berseem is highly labor intensive requiring, on average, 479 person hours.
  - d. The incidence of mechanization is low being restricted to seedbed preparation (33 to 41%), and pumps for waterlifting (32 to 60%).
  - e. On-farm consumption resulted in 64 percent of the gross income while 34 percent were cash sales.
2. Significant progress has been made in the statistical analysis and data collation of the farm management data:
  - a. Statistical processing has been completed for: maize, and rice while 50 percent of the cotton data has been processed.
  - b. Data collation has been completed for: onions, potatoes, tomatoes, short-term berseem, soybeans, cabbage, cucumbers, and forage maize.
3. Completed a rice yield survey that will be used to validate a forthcoming rice loss simulation report.
4. Started a network model for optimizing crop rotation system based upon optimal planting and harvest dates. Several anticipated outputs would be: 1) yield maximization through production scheduling, 2) mechanization targets based upon timeliness of operation, 3) a mechanization index to optimize yield, and 4) a financial and economic evaluation of these mechanization packages.
6. Computer software development has continued with a multiple regression program of 25 variables and a table look-up program, given a CDF.

### 2.1.2 Evaluation Unit

1. Completed machinery demonstration evaluation series #2: Wheat Cultivation -- Grain Drills, Mower-binders, and Combines. this evaluation focused on the following points: 1) traditional methods of planting wheat and observed changes from the introduction of the grain drill, 2) varietal influence on mechanization, 3) farmer preferences for harvesting: manual, mower-binders, and combines, 4) effect on labor-use patterns, and 5) observable advantages and disadvantages of these three machines.
2. Tractor cost and time-use study: data collection and collation is continuing.
3. Data coding is in-process on farmer adoption rates.

### 2.2 Research and Development Subproject

1. Prepared a five-year projection of Egyptian mechanization research needs (Annex C).
2. Peanut plots harvested in accordance with the prepared procedures and nuts sorted into: mature nuts, mature but faulty nuts, and immature nuts.
3. Cotton plots harvested at Saka.
4. Completed data analysis and research reports for: 1) tillage tests with peanuts, cotton, and maize; 2) potato digging tests; and 3) maize planting and cultivating tests.
5. Visited contract research sugar cane project at Kom Ombo:
  - a. Examined soil profiles to determine root penetration: no restrictive layers found below 40 cm.
  - b. But, where planting experiments were to be placed, soil compaction was evident in the first 40 cm.

### 2.3 Extension/Training Subproject

#### 2.3.1 Overall Activities

Support for the extension activities falls into two categories: personnel and equipment.

1. With extension mechanization specialists in each Project village, personnel training is completed, except for replacement specialists.
2. Equipment procurement from the United States is well under way with two IFB's in-process: 1) IFB 83-02 was bid and is now under evaluation (estimated value: \$3.6 million), and 2) specifications for IFB 83-03 was sent to USAID for processing ( estimated value: \$4.4 million).
3. Extension integration with the Land Improvement subproject is taking shape as training of extension personnel in the Land Improvement program proceeds.

#### 2.3.2 Extension Unit

1. Project village extension activities were very active during this period: rice harvesting, cotton stalk cutting, landleveling, seedbed preparation, grain drill seeding of wheat and backhoe operations.
2. These field demonstrations involved 2,894 farmers and 336 demonstration sessions.
3. The Project has 303 machinery units in Project villages with an anticipated 1057 additional equipment units in 1984, which table 2.0 summaries.
4. During this period, the Project held a three day workshop in Alexandria: the mechanization specialists from the Project villages reviewed 1983 activities and presented 1984 extension plans.

#### 2.3.3 Training Unit

1. The training effort for this quarter involved the following activities:
  - a. In-country training at training centers involved 249 participants in 19 program sessions.
  - b. Training programs in Project villages, and other field sites, involved 6,314 participants in 740 course sessions.
2. Participant overseas training involved 22 participants:
  - a. Observation study tours --- 19, two programs
  - b. Technical programs --- 2, two programs
  - c. Academic program --- 1, one program

#### 2.3.4 Extension Information Unit

1. Prepared mechanization extension bulletins for: 1) wheat,

TABLE 2.0. DEMONSTRATION/TRAINING EQUIPMENT:  
ON-SITE (1983) AND PLANNED (1984)

EQUIPMENT TYPE	QUANTITY	
	ON-SITE (1983)	PLANNED (1984)
1. GENERAL EQUIPMENT	70	241
2. SEEDBED PREPERATION	82	209
3. PLANTING	43	142
4. CULTIVATION	4	48
5. FERTILIZATION	1	15
6. HERBICIDE/PESTICIDE	1	56
7. HARVESTING	79	185
8. POSTHARVEST	0	41
9. MAINTENANCE (UNITS/SETS)	23	120
10. TOTAL	303	1057
11. GRAND TOTAL	1360	

- 2) cotton, and 3) maize.
2. Distributed 2100 tractor maintenance bulletins.
3. Prepared two T.V. programs: 1) cotton stalk cutting with mowers and rice harvesting on small holdings, and 2) landleveling and planting at Gabel Asfar.

#### 2.3.5 Gabel Asfar Demonstration/Training Unit

The major tasks at Gabel Asfar are three-fold: 1) field work, 2) shop development, and 3) canal and road work. Activities during this period concentrated on field and shop development:

1. Objective: prepare and plant 50 feddans.
2. Activities: landleveling, preirrigation, seedbed preparation, planting, and first irrigation.
3. This was accomplished except, because of inadequate land-leveling equipment, parts of the fields could not be properly watered.
4. Equipment was received, tested, and accepted.
5. The workshop area has been organized and is operating.

#### 2.4 Service Center/Village Workshop Subproject

Table 2.1 summarizes the status of the Service Center/Village Workshop Fund:

1. Fifty-eight percent of the first tranche (\$1.5 million) is in the committed/expended stage.
2. Seventy-two percent of the total fund (\$5.0 million) is under review at the banks.
3. Thirteen percent of the Fund is under review by the Project; if all commitments and funds in-process are approved, the Fund would be overdrawn by \$309,217.

#### 2.5 Land Improvement Subproject

1. IFB 83-01:
  - a. Tractors (Ford): in-country but not cleared through customs.
  - b. Implements (Allied): assembled in Alexandria.

TABLE 2.1 SERVICE CENTER/VILLAGE WORKSHOP LOANS IN-PROCESS AT GOVERNATE BANKS AND AT THE PROJECT LEVEL, 12/31/84.

CATEGORY	UNITS	EXPENDED	COMMITTED	LOAN VALUE
<b>A. COMMITTED/EXPENDED</b>				
1. SERVICE CENTERS	1	110000	140000	250000
2. VILLAGE WORKSHOPS	21	393970	82000	475970
3. SUBTOTAL	22	503970	222000	725970
<b>B. LOANS IN-PROCESS AT THE BANKS</b>				
1. SERVICE CENTERS	11			2404600
2. VILLAGE WORKSHOPS	22			613000
3. SUBTOTAL	33	0	0	3017600
<b>C. LOANS IN-PROCESS AT THE PROJECT</b>				
1. SERVICE CENTERS	1			250000
2. VILLAGE WORKSHOPS	19			422000
3. SUBTOTAL	20	0	0	672000
<b>D. TOTAL LOAN ACTIVITY</b>				
1. SERVICE CENTERS	13			2904600
2. VILLAGE WORKSHOPS	62			1510970
3. OVERALL TOTAL	75	503970	222000	4415570
(US\$ EQUIVALENT)	.83168			5309217

- c. Laser equipment (Spectraphysics): in-country and ready for installation when tractors are available.
2. Twenty-five landshapers delivered from Beheira Company to Minia.
3. Levelled 123 feddans in Kom Ombo during October for the Sugar Company as a part of their research program.
4. A two-week training program was implemented for Fayoum tractor drivers.
5. Spring workplan and implementation schedule prepared (section 4.0).

#### 2.6 Local Manufacturing Program

1. The principal effort has been the drafting of the final thresher drawings with the assistance of the Machinery Development Advisor.
2. Mainframe drawings have been completed so that construction of manufacturing prototypes can begin.
3. Attended the Second International Conference on Production Engineering, Design and Control in Alexandria: participated in a conference paper, "Farm Machinery Manufacturing: A Systems Approach".

### 3.0 FINANCIAL AND TECHNICAL LEVEL OF EFFORT

#### 3.1 Financial Level of Effort

Table 3.1 summarizes the Project's expenditure position as of December 31, 1984. The definition of the money flows are as follows:

1. Grant Agreement (column 1): Grant Agreement line item funding as periodically amended.
2. Line Item Balance (column 2): Uncommitted line item funds.
3. Funds Incoming/Available (column 3): Funds coming into the Project from USAID and cash in the bank.
4. In-process (column 4): Funds on the outgoing side of the pipeline where expenditures are in-process at the MOA, USAID, or PBDAC.
5. Funds Committed (column 5): Funds committed by contract or bid award.
6. Outgoing Pipeline (column 6): All funds on the outgoing side of the pipeline.
7. Funds Expended (column 7): Funds physically expended.
8. Outgoing Pipeline/Expended (column 8): The summation of outgoing and expended funds.

Seventy-two percent of the Grant is in the outgoing/expended category as compared to 58 percent at the end of the last reporting period. This increased activity is due mainly to an additional IFB procurement of approximately \$4.4 million, which is now in-process at the MOA. Also, it should be noted that \$1.0 million has been added to the Waterlifting Loan Fund and that the Applied Research Fund now has seven active research contracts totaling \$469,179. Of this amount, \$168,170 has been advanced to the researchers. But this is not reflected in the expended category until expenditure reports are received.

In addition, the uncommitted funds in the Grant Agreement line items has decreased from 33 percent to 18 percent. And 38 percent of the Grant is in the committed/expended category while our projected budget estimated 35 percent at this time in the Project's life.

TABLE 3.1 FINANCIAL LEVEL OF EFFORT: FOREIGN AND LOCAL CURRENCIES  
FROM 15 SEPTEMBER 1980 THROUGH 31 DECEMBER 1983

LINE ITEMS	(1) GRANT AGREEMENT	(2) LINE ITEM BALANCE (1-3-8)	(3) FUNDS IN-COMING/ AVAILABLE	(4) IN-PROCESS (AID, MOA, PBDAC)	(5) FUNDS COMMITTED	(6) OUTGOING PIPELINE (4+5)	(7) FUNDS EXPENDED	(8) OUTGOING PIPELINE/ EXPENDED
<b>A. FOREIGN CURRENCY</b>								
1. TECHNICAL ASSISTANCE	6424000	468382	0	413153	2102955	2516108	3439510	5955618
2. COMMODITIES	9133000	-396066	0	8000000	787968	8787968	741098	9529066
3. TRAINING	2023000	1197380	0	549246	0	549246	276374	825620
4. RESEARCH SUPPORT	1005000	798437	0	14104	0	14104	192459	206563
5. SPECIAL STUDIES/ EVALUATION	215000	202548	0	0	0	0	12452	12452
6. SUBTOTAL	18800000	2270681	0	8976503	2890923	11867426	4661893	16529319
<b>B. LOCAL CURRENCY</b>								
1. TECHNICAL ASSISTANCE	2302000	587102	5668	80467	644723	725190	984040	1709230
2. COMMODITIES	4000000	773080	1206622	0	0	0	2020299	2020299
3. TRAINING	1000000	331302	299650	0	0	0	369048	369048
4. VEHICLE OPERATING EXPENSE	100000	66065	6199	0	0	0	27735	27735
5. FACILITIES	70000	70000	0	0	0	0	0	0
6. CREDIT FUNDS								
A. SERVICE CENTER	5000000	-128319	627104	3628319	266930	3895248	605966	4501214
B. WATER LIFT	3000000	0	1190403	0	0	0	1809597	1809597
C. MACHINE INTRODUCTION	2000000	284528	655733	715472	0	715472	344267	1059739
D. UNCOMMITTED	1000000	1000000	0	0	0	0	0	0
7. RESEARCH SUPPORT	2000000	1177761	193731	0	469179	469179	159329	628509
8. SPECIAL STUDIES/ EVALUATION	728000	705907	4403	0	0	0	17689	17689
9. SUBTOTAL	21200000	4867426	4189513	4424258	1380832	5805090	6337971	12143061
<b>C. PROJECT TOTAL</b>	<b>40000000</b>	<b>7138107</b>	<b>4189513</b>	<b>13400761</b>	<b>4271755</b>	<b>17672516</b>	<b>10999864</b>	<b>28672380</b>
PERCENT		18		34	11	44	27	72

### 3.2 Technical Assistance Level of Effort

Two positions have been filled during this quarter: Senior Accounting Advisor and Machinery Development Advisor. Except for the departure of the Farm Management Advisor, the Project is at its full complement of expatriate personnel.

Table 3.2 compares the actual man-months with the anticipated man-months through this reporting period. The latter is based upon the Inception Report and technical assistance contract changes. The Project is slightly lagging in man-months, but this mainly reflects later expatriate starting dates than originally anticipated. In these cases, the man-months are recoverable, except for the Senior Accounting Advisor's position.

Thus, the contractor is reasonably close to the projected schedule having contributed 422 man-months as compared to 444 man-months at this time in the Project's life.

TABLE 3.2 LEVEL OF EFFORT: TECHNICAL STAFF FROM SEPTEMBER 15, 1980 THROUGH DECEMBER 31, 1983, IN MAN-MONTHS.

POSITION	(1) STARTING DATE DAY/MO/YR	(2) EFFORT TO DATE	(3) PROJECTED EFFORT	(4) CONTRACT EFFORT	(5) DIFFERENCE (2-3)
1. TEAM LEADER	4/10/80	39	39	60	0
2. PLANNING/EVALUATION ADVISOR	15/9/80	39	39	60	0
3. RESEARCH DIRECTOR	3/11/80	38	38	38	0
4. EVALUATION ADVISOR	7/12/80	37	37	58	0
5. EXTENSION ADVISOR	4/2/81	29	30	30	-1
6. FARM MANAGEMENT ADVISOR	15/4/81	30	31	36	-1
7. SERVICE CENTER ADVISOR	9/4/81	33	29	48	4
8. EQUIPMENT ADVISOR	7/5/81	32	32	48	0
9. SOIL IMPROVEMENT ADVISOR	13/7/81	30	30	36	0
10. TRAINING ADVISOR	9/9/81	28	29	36	-1
11. MACHINERY DEVELOPMENT ADVISOR	5/1/82	13	24	36	-11
12. LOCAL MANUFACTURING ADVISOR	3/2/82	23	24	36	-1
13. SI IRRIGATION ENGINEER	1/4/82	21	28	36	-7
14. SENIOR ACCOUNTING ADVISOR	1/11/82	10	14	36	-4
15. SHORT-TERM TECHNICAL ASSISTANCE		20	20	36	0
		422	444	630	-22

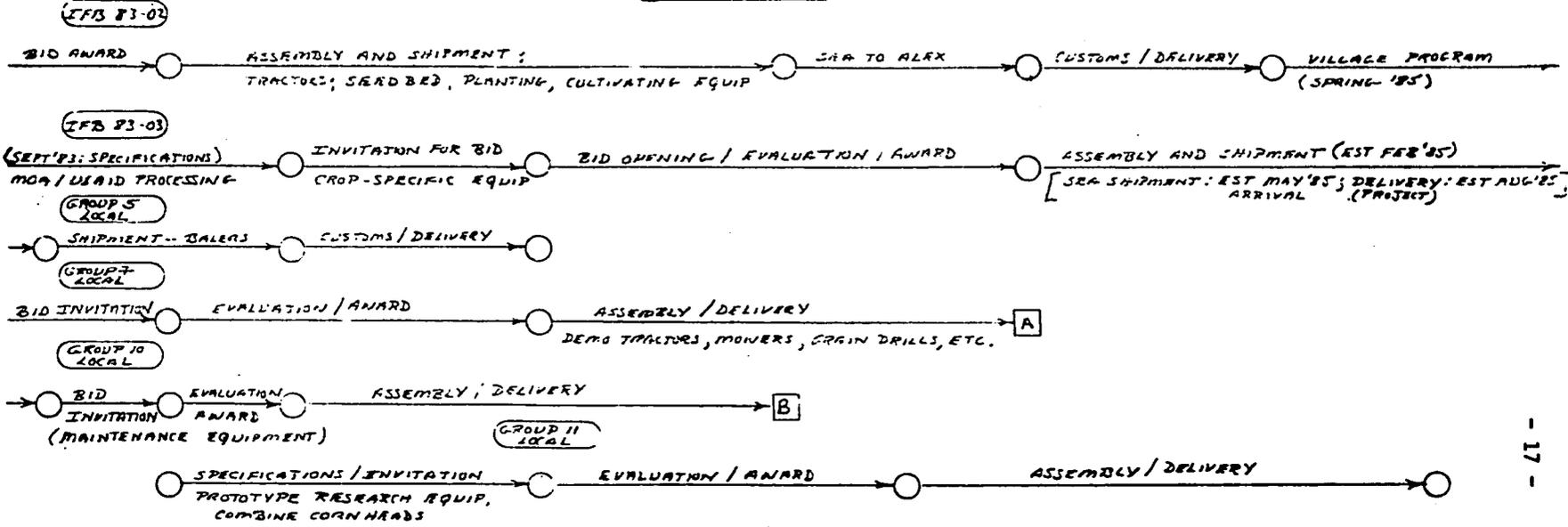
#### 4.0 IMPLEMENTION

Milestone implementation schedules have been prepared for the next six months for: extension (figure 4.1), research and development (figure 4.2), and land improvement (figure 4.3). The R/D program will be implemented through the Egyptian side of the Project with key TDY support from Dr. Reaves during this coming spring and fall.

A summary of implementation during this past period is as follows:

1. Planning and evaluation is proceeding with data collection and evaluation; data processing of progressing satisfactorily.
2. Extension is continuing to carryout machinery extension activities in Project villages and to integrate the delivery of demonstration/training equipment with village activities as scheduled.
3. Research and development is lagging in the area of applied research contracts while in-house research is on its new schedule.
4. Training is progressing very well with the in-country training programs, but lagging in the academic program due to the lack of qualified English language applicants. The observation study tours have been temporarily delayed until some participation issues are resolved.
5. The local manufacturing program is behind schedule partly because original expectations were optimistic and partly because of the lack of skilled drafting assistance. With the advent of the Machinery Development advisor, this latter point should be eased but not eliminated.
6. The land improvement program has been active in Minia concentrating upon training personnel and gaining farmer confidence as scheduled.
7. The service center/village workshop program is proceeding well at the Project-level, but bank processing has been slow. This is partly because of land registration problems and partly because the bank does not fully understand the soft-loan characteristics of the fund. However, the bank has processed the smaller machinery village workshop loans with reasonable speed.

PROCUREMENT



VILLAGE PROGRAM

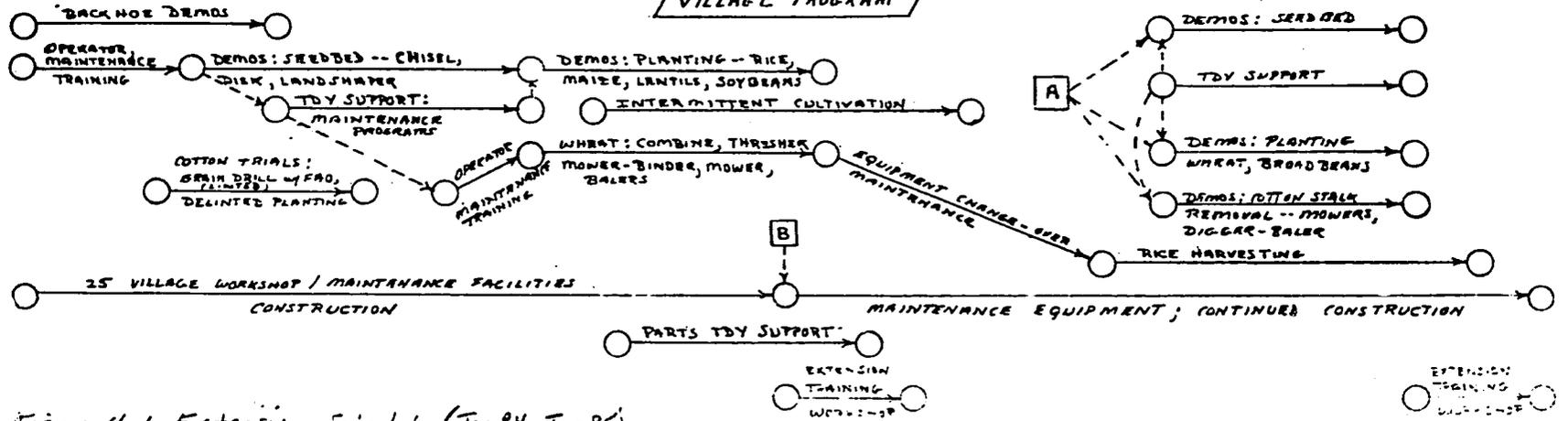
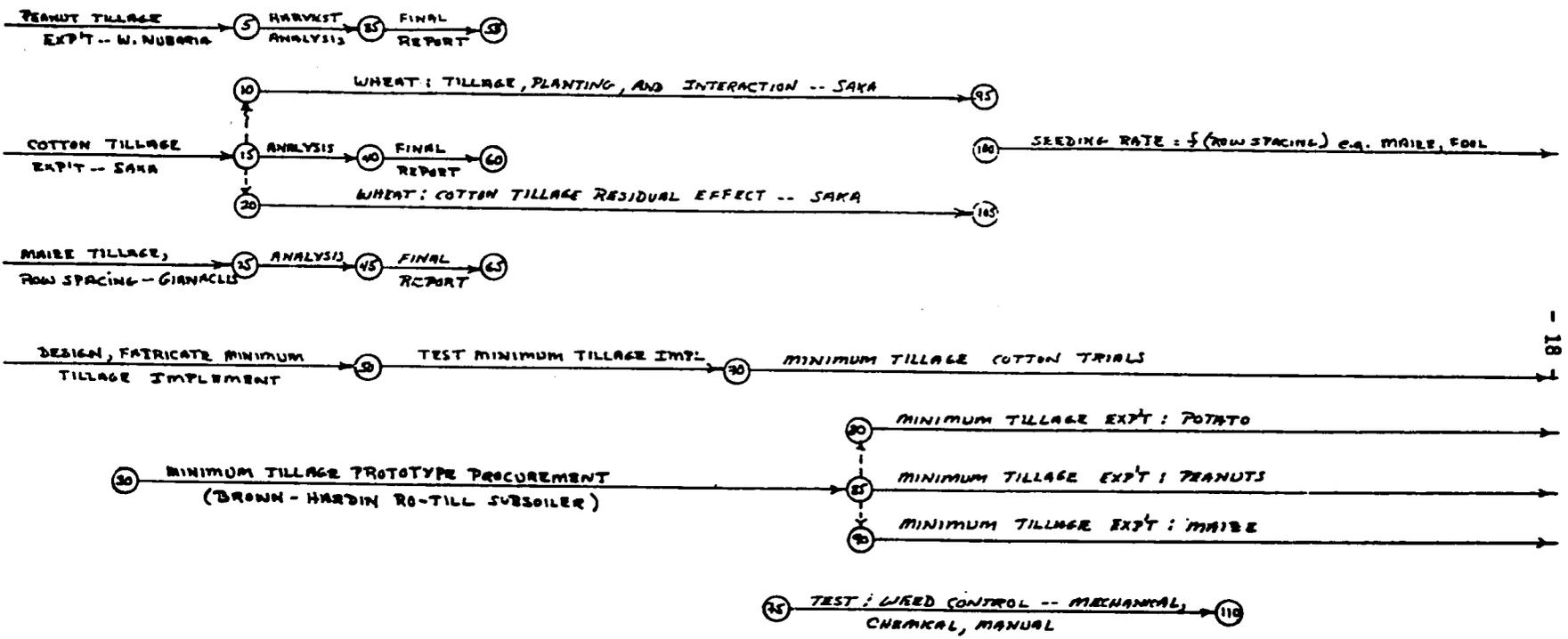


Figure 4.1 Extension Schedule (Jan 84 - Jan 85)

RESEARCH AND DEVELOPMENT PROGRAM

'83 OCT NOV DEC JAN FEB MAR APR MAY JUN JULY AUG SEPT

**IN-HOUSE**



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Figure 4.2 Research Schedule (Oct 83 - Sept 84).



## 5.0 NEXT QUARTER'S OBJECTIVES

### 5.1 Overall Objectives

1. Waterlifting Fund (\$3.0 million): start dispersing the last \$1.0 million.
2. IFB 83-02: complete bid evaluation, submit to USAID, and award bids.
3. IFB 83-03: advertise for stateside procurement.
4. Overall funding: 80 percent of the funds should be in the expended/outgoing category.

### 5.2 Planning and Evaluation

1. Finalize cotton report.
2. Complete statistical evaluation: 1) short-term berseem, 2) cotton, 3) rice, and 4) maize.
3. Finalize evaluation report on precision landleveling in two Minia basins.
4. Prepare evaluation report for rice mechanization.

### 5.3 Research and Development

Develop a Project working paper from the following reports:

1. Tillage tests with cotton on heavy clay soils at Saka Exprimment Station.
2. Tillage tests with peanuts at West Nubaria.
3. Tillage tests with maize on calcareous soil at Gianaclis.
4. Evaluation of three planting and cultivating methods with maize at Gianaclis.
5. Effects of maize row-spacing at Gianaclis.
6. Tests with the Kuxman potato digger.

#### 5.4 Extension/Training

1. Continued extension/training activities emphasizing field equipment maintenance.
2. Continued development of Project village workshops.
3. Draft 1983 Annual Report, 1984 Training Plan, and Machinery Management program.
4. Initiate local procurement for the following groups: Group 10 -- maintenance equipment, and Group 7 -- additional village equipment.

#### 5.5 Service Center/Village Workshops

1. Bank processing of two service centers.
2. Request second tranche, \$2.0 million, for the service center program.

#### 5.6 Land Improvement

1. Operationalize two of the three landleveling units in Minia.
2. Prepare for introducing landleveling demonstration program in Beni Suef governate.

#### 5.7 Local Manufacturing

1. Finalize all of the basic thresher drawings.
2. Start the thresher manufacturing prototype construction.

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**ANNEX A**

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**A.1 PLANNING AND EVALUATION SUBPROJECT**

**A. Planning and financial unit**

**A.1.2 Evaluation unit**

PLANNING AND EVALUATION UNIT  
Planning and Financial Group

DR GAISEI

Monthly Report: October, November, December 1983

Prepared by: Steven C. Shepley  
Zaki Helmy Zaki Wissa  
Nour El Din  
Mohammed Shoukry  
Raafat Lotfy Amin  
Mohammed Ibrahim

Summary

During the reporting period, significant progress was made in the statistical processing and collation of the Farm Management Data. A multi-governorate rice yield survey was completed and statistical analysis of the data performed. Further work in mechanization planning computer software was completed. Statistical and simulation models to predict crop losses of rice and cotton from variation in planting and harvest dates were prepared. Field visits to governorate level agricultural development banks were made to monitor progress of project credit funds, identify problems and provide advice and council to Bank officials on credit fund administration. Prepared a draft report on reducing rice grain losses through cropping calendar optimization and improving harvesting methods. Computerized data from the tractor cost survey for subsequent statistical analysis and tractor cost model calibration.

Farm Management Survey

Computerized statistical processing has been completed for the following crops: (1) long berseem; (2) wheat; (3) maize; (3) rice; and 50% of the cotton data. Collation has been completed for:

Onions  
Tomatoes  
Forage Maize  
Potatoes  
Short Berseem  
Soyabeans  
Cabbage  
Cucumber

There are currently six data analysts and computer operators working on the statistical processing and data analysis and work in proceeding satisfactorily. The newly arrived HP-86 hasn't yet become operational because of the slow procurement of the second disc drive and the failure of the Hewlett Packard dealer to furnish the HP-86 binary programs to work with the advanced statistics and regression analysis software. It is hoped that the disc drive and required binary program can be delivered in three weeks, after which data processing can be accelerated.

### Rice Yield Survey

To facilitate validation of an econometric model for prediction of rice grain losses, a multi-governorate rice yield survey was conducted in Behera, Gharbia and Sharkia governorates. The survey, consisting of 140 observations was conducted on randomly selected plots. The procedure used was as follows: (1) 15 rice fields were randomly selected in Behera and Sharkia. Only five fields were selected in Gharbia because of time and personnel constraints; (2) in each field, all rice plants in four randomly selected one meter plots were cut and hand threshed; (3) grain yields were weighed at site using a sensitive scale and their moisture content was determined using a hand held moisture meter; (4) the yield samples were adjusted to dry weight; (5) an analysis of variance was performed to determine whether there was a significant difference in the yields among the governorates surveyed; it was found that there was no statistical difference between the yield means of the three governorates. Thus, the survey data can be treated as a single sample.

The data are being used to validate the rice loss simulated models being developed to determine the optimum cropping calendar for rice and identify mechanization potential for production of that crop. The sample showed a mean yield of 1,899 kgs/feddan (adjusted to dry weight).

### Simulation models and regression analysis

A major objective of the Planning and Financial Sub-unit is to develop a network analysis for the crop rotation system in Egypt. This is accomplished through empirical determination of optimum planting and harvest dates for the major crops in the system. Once developed, the network analysis will provide quantitative predictions of crop production scheduling to maximize yields, identify operational targets for mechanization inputs and determine required machinery indices within each geographical area being served by the project to follow network activity dates according to the pre-determined optimum calendar

This important work began with an earlier study on the optimization of maize planting dates in a berseem maize rotation and is con-

tinuing with analytical work completed during the reporting period <sup>1/</sup> The unit has recently obtained experimental data relating cotton yields to planting dates and rice yields to planting and harvesting dates. From these data statistical regression models have been constructed for use in simulation modelling of losses associated with untimely operations. The results of this effort are summarized in Tables 1&2.

Table 1

Regression Models for Yield and Loss  
Prediction from Known Planting

Equation Format	Cotton <sup>1/</sup> Polynomial (4th <sup>o</sup> )	Cotton <sup>2/</sup> Same	Cotton <sup>3/</sup> Same
Table Definition (Y) Yield (kg/ha/f)	Same	Same	Same
Table Definition (X) Plant Date		Same	Same
Intercept	132.03	263.47	188.96
Coefficient	-156.44	-294.39	-226.22
Coefficient	70.49	123.71	101.42
Coefficient	13.68	- 22.65	-19.58
Coefficient	.96	1.52	1.37
Correlation	.96	.98	.94
Best x,y correlation	9.10	12.18	7.23
	.92	.96	.88
Ratio	11.90	21.30	7.50
Minimum y-value	5.66	5.97	5.74
Value at opt.	3/8	2/15	3/11
Degrees of Freedom	7	7	7

SOURCE: Experimental data provided by the Cotton Research Institute 1982-1983 (Derived)

1/ Nitrogen fertilizer rate of 30 kgs/feddan

2/ Nitrogen fertilizer rate of 45 kgs/feddan

3/ Nitrogen fertilizer rate of 60 kgs/feddan

Table 2

Regression Models for Rice Yield and Loss  
Prediction from Alternative Planting  
and Harvesting Dates and Harvesting  
Methods v

	<u>Yields</u>	<u>Losses</u>
Equation Format	2 <sup>0</sup> Polynomial	Exponential
Variable Definition(Y)	Yields in KGS/ Feddan	Losses as % of Pre-harvest yield
Variable Definition(X)	Planting Date	Harvest Date
y-intercept	-36830.37	7.029 x 10 <sup>-12</sup> (Traditional)
y-intercept		1.078 x 10 <sup>-14</sup> (Mower)
b coefficient	11097 17	2.077(Traditional)
b coefficient	-	2.591(Mower)
c coefficient	-796.18	-
x,y correlation	0.789	0.89(Traditional)
x,y correlation	-	0.87(Mower)
t-test x,y correlation.	4.02	5.27(Traditional)
t-test x,y correlation		4.67(Mower)
R <sup>2</sup>	0.93	0.94(Traditional)
R <sup>2</sup>		0.93(Mower)
Optimal y-value	1838.00	-
X-value at optimal y	June 29th	-
Degrees of Freedom		7

SOURCE: Computed from data provided from Abd El-Motaleb, Ismail Ahmed "Studies on Harvesting Machines under Local Conditions- A Study on the Optimum Periods for Harvesting Rice and Wheat Crops by Small Harvesters", Faculty of Agriculture, Tanta University, MSCE Thesis. 1982

In addition to the above regression models, the Sub-unit prepared a general simulation algorithm to simulate dependent variable output from empirical frequency distributions of the exogenous variable and from a least square model linking the exogenous and dependent variables. The algorithm has been programmed into the HP-85 mini computer and set to output a frequency distribution of the simulated condition, graph variable magnitudes of the dependent variable and the frequency of the simulated condition. Inputs required are class marks and the frequency distribution of the exogenous variable. This program has been used to simulate maize, rice and cotton losses in the Farm Management Study area. With final editing of the routine, it is planned to publish this material in Egypt and in the United States.

### Financial Management

Continuing efforts were made to monitor and follow-up on administration of the Project credit funds and procurement activities. The PBDAC head office together with offices of the Agricultural Development Banks in Qalubia, Beheira, Sharkia and Minia were visited for data collection purposes, progress reporting, and administrative guidance. During the period, the final disbursement from the original \$2,000,000 for the Water Lifting Credit Fund was processed through AID. Further guidance and assistance in Project commodity procurement was provided through arranging for AID legal office clearance of the combined local Invitation for Bid serving the Agricultural Mechanization and Small Farmer Production Projects.

### Computer Software

There was a continued effort to refine and up-grade statistical software used in Project mechanization planning. A multiple regression (linear and non-linear) program with data analysis and manipulation was prepared. The capacity of this new program will contain up to 25 variables with 60 observations.

A program was prepared for use in optimization analysis where polynomial functions are differentiated to the quadratic form from which real and imaginary roots can be calculated. The program can receive polynomials of any degree and will calculate descending order derivatives until the quadratic form is reached. Quadratic roots are then calculated and substituted into the original equation from which optimal y-values and x-values are calculated.

### Draft Report on Rice Crop Calendar Optimization

An analysis of rice production in the Farm Management Study area was conducted. Regression models from research experimental data, linking planting and harvesting dates and harvesting methods to yields were calculated and various losses were simulated. From this analytical framework, a comprehensive report was prepared to : (1) determine the optimum planting and harvesting dates for local variety rice; (2) evaluate the economic and financial income effects of alternative harvesting methods; and (3) provide recommendations for mechanization strategies related to rice harvesting. The report, which is now under final typing and publication, provides the following quantitative conclusions:

- the optimal transplanting period is June 24-June 30th ;
- the optimal harvesting period is October 23-October 27th;
- financial (on-farm) income benefits from following this optimal calendar range from £8.00 to £ 148 per feddan;
- social income (economic) effects from following this schedule include sectoral product increases from £ 14.00 to £ 263 per feddan;
- the internal financial return from using self-propelled mowers in rice harvesting ranges from 44% to 149% ;
- the internal economic return using mowers in place of manual harvesting techniques ranges from 32% to 181%;
- self-propelled combines, operated under optimal conditions of adequate field size, highly trained operators and sufficient back up maintenance support can realize financial returns of 33% and economic returns of 52% when used to harvest Egyptian rice;
- currently, the machines are being on fields that are too small, operators are poorly training and there is no back-up maintenance support. Under these prevailing conditions, financial returns of 7.6% and economic returns 9.24% make use of the combine impractical .

It was recommended that further research and testing be conducted to develop and extend the mower most suitable to Egyptian conditions for use in rice harvesting and that further demonstration of the combine be postponed until the deficiencies noted above are corrected.

EVALUATION UNIT

OCTOBER - DECEMBER 1983 ACTIVITY REPORT

SUBMITTED BY: Peter Reiss  
Aiman El Tunsi  
Raafat Lutfi

1. Reorganization of the Evaluation Advisory Committee

Dr. El Sahrigi reorganized the Evaluation Advisory Committee along the lines of the memo which is attached. It was felt that for greater productivity and efficiency, the Evaluation Advisor ought to assume coordinating responsibilities.

2. Machinery Demonstration Evaluation Series No. 2: Wheat Cultivation: Grain Drills, Mower-Binders, and Combines

An evaluation of three pieces of equipment used for wheat cultivation by the Machinery Extension and Training Component was distributed to Project management and staff during the period. A summary of the report follows:

Wheat is one of Egypt's most important crops. An estimated one-quarter of the agricultural land in the country is devoted to wheat cultivation each winter season. Only bersim and maize are more extensively grown. The importance of wheat is apparent in the Project's twenty-three villages: wheat is grown in all of them, from thirteen to thirty-six percent of their cultivated area. Mechanization of its operations offers great potential. At present only seedbed preparation, water-lift, and threshing are significantly mechanized.

In an attempt to encourage the use and purchase of a wider variety of machinery suitable for wheat cultivation, the Extension and Training Component of the Agricultural Mechanization Project demonstration grain drills (Galignani 1125 with a cutting width of 2.8 meters), mower-binders (Agostini MLP 140) and combines (Deutz-Fahr 980 self-propelled) during the winter season of 1982. The demonstrations were conducted on the land of farmers in Project and neighboring villages, often in large contiguous areas composed of many small holdings, sometimes on a single large holder's farm.

This evaluation focuses particularly on the following points: (1) traditional methods of planting wheat and observed changes with the introduction of a grain drill, (2) varieties of wheat presently grown and implications for the mechanization of the crop, (3) preferences of farmers for harvesting given a choice between manual labor, mowers, and combines, (4) suitability of combines for Egyptian agricultural conditions, (5) effect of agricultural machinery on patterns of labor use, and (6) after their first year of use, the observable advantages and disadvantages of the three machines demonstrated.

The information used in this evaluation was collected in nine villages in all four Project Delta governorates. It was collected from participating farmers in open-ended interviews during four extended field trips made throughout August 1983. In all, twenty-four farmers met with the evaluation team.

Before Project intervention, wheat was planted with any of three methods, characterized here as wet broadcasting, unplowed planting, and dry broadcasting. The choice of the method by the individual farmer was made on the basis of such diverse factors as tractor power availability, weather conditions, size of plot, and method of clearing the preceding crop from the field. Traditionally, the method of planting wheat was directly related to the constraints of removing cotton stalks from the ground. The land was flooded and the stalks pulled, given a chance to dry and broadcast with wheat. An alternative method involved recruiting large team of workers to scratch the soil with a small hoe and drop a few seeds which were then lightly covered. More recently, with the introduction of tractors for seedbed preparation, the method has shifted to dry broadcasting.

The reaction of farmers to the grain drill was generally very positive. When used properly, the farmers found that the wheat had a better stand, covering the field more evenly and being more uniform in height. Many noted that when using traditional methods, the wheat was often crowded in the field with bald spots scattered among the clumps. No change in germination rate or period was observed. The incidence of weeds was comparable to that in dry broadcasting. Estimations for the time required to drill one feddan varied from one hour to one and a half hours.

However, the misuse and distrust of the grain drill created certain problems. Farmers use from six to ten gela of grain for planting using traditional methods but were advised to use only five gela with the drill. Many were suspicious, and in one village in Charbia, farmers either added additional grain to the drill or entered the fields later and broadcast additional grain by hand. As a result, all of the wheat in the demonstration basin lodged and could not be harvested with the mower. While some regretted having sown more, many stated that they preferred a higher production through crowding than an even growth suitable for machine use. They reasoned that the labor saving through machine use did not offset the gain through a higher yield.

The most serious problem encountered had to do with scheduling of machinery in the Project villages. Apparently, village agents promised farmers that machinery would be made available at a certain time, and when its arrival was delayed encouraged them to wait. In some villages, farmers were delayed by six weeks.

For most farmers, the preferred variety of wheat is one which produces a tall plant with less grain. Newly introduced, high yield varieties (Giza 155 and Giza 157) have not won much favor because they emphasize grain production rather than straw, are darker in color, of different texture for breadmaking, and not as favored by animals. While many farmers suggested that their preferred variety is not suitable for machine use, it appears that with proper planting and fertilizer application, it can be harvested with mowers as well as the Giza wheat.

Farmers consider the harvesting of wheat to be a series of discrete operations rather than a single activity involving the cutting, collecting, loading, and carrying of the crop. Harvesting by hand requires careful management of labor. Given the competition for labor during a short period for wheat as

well as for other crops, it would seem that a viable alternative to manual labor would greatly ease the farmer's plight. It is surprising then that in the past, wheat harvesters have found little acceptance among farmers. Most have complained about the losses in straw because the machine cut the wheat too high off the ground.

Yet, farmers interviewed who had used the mower-binder were unanimous in their praise for the cutting action of the machine. The height was generally estimated to be between five and ten centimeters, although some farmers said it cut to within a few cm. Generally, it was felt that the mower did a better job than hired laborers because it cut the wheat at a uniform height while workers did not.

While scheduling problems persisted, with some mowers arriving four to six weeks late, a serious technical problem involved the binding mechanism of the machine. On only two occasions did the team meet farmers on whose land the binder had successfully worked. Most usually, the cord was not available. In any case, its expense must be considered as prohibitive. The binder works best with imported cord costing 13 L.E. a roll. Since the feddan requires one and a third rolls, the binding cost would be 17.50 L.E. Locally produced cord costs 5 L.E. a roll. At 7 L.E. per feddan it is still not a negligible amount.

One farmer who used the mower-binder had earlier purchased his own, a 14 hp. Italian-made self-propelled unit. He found the two to be similar in cutting action and time but preferred his own. His unit allowed for more flexibility for use and scheduling. The Project unit requires a tractor so that other activities, such as seedbed preparation for another crop or threshing, cannot be done at the same time. With his unit, he need not stagger his work. Another important difference is accessibility to the field. His unit may enter a field immediately and begin cutting. The Project's unit must first have the wheat along the edges of the field cut by hand, otherwise the grain would be lost. A neighbor who purchased an identical model uses it for custom work, charging 15 L.E. a feddan and has met with great success.

The negative reaction of the farmers to the use of the combine resulted from the absence of a bailer. Given the exaggerated importance placed on straw by farmers in Egypt, its absence was a major setback to the machinery demonstrations. Farmers interviewed who had combines work their land suffered severe straw losses although they did hire teams of workers to collect what straw they could. Losses were estimated to be as high as 50%. However, the combine was said to have done an excellent job on grain, with no losses or breakage. A second evaluation of the combine is advisable for next season, given the problems this year.

Despite the unevenness of the operation of the demonstration equipment, it is possible to discern some change in the yields of grain and straw when comparing pre-Project with Project production. In those areas where both a seed drill and a mower-binder were used on the same plot, there were frequently increases of two to three ardeb of grain and one to two haml of straw. Still, it is problematic that the demonstrations were so unstructured. Many farmers attribute the increases to differences in the amount or kind of fertilizer or grain used, rather than to the machinery.

Complicating the picture further, too frequently, seed drills and mower-binders or combines were not used on the same plot. Of the nine villages visited, in only three did drills and harvesters work the same field.

Based on this report, the following recommendations are made:

- (1) The improvement in yields and labor savings depend only in part upon agricultural machinery. Equipment must be considered to be an integral part of agricultural inputs. In some villages discussed here, demonstration equipment could not be used because of a misuse of other inputs or because farmers had their own ideas about what they wanted most. An important role is seen for the village mechanization extension agents to inform farmers about the implications of seed and fertilizer use.
- (2) Scheduling appears to have been one of the greatest problems faced during the last winter season. Many farmers delayed planting and harvesting by hand in the hope of using Project machinery. Extension agents ought to be told firmly that they are not to promise machinery delivery unless they are certain and not to encourage farmers to delay their work beyond a reasonable time.
- (3) The Project must accept some responsibility for disastrous effects on farmers' fields as a direct result of Project misuse or mismanagement. Not to do so, not only puts the farmers in an even more compromised position but also risks the Project's alienation. Some provision ought to be made for payment to farmers if yields are low due to Project involvement.
- (4) An attempt ought to be made to schedule different pieces of equipment for various operations for the same crop on the same field. Farmers were confused that they had used the seed drill but not the harvester as they had been promised.
- (5) It would be advisable to encourage farmers to keep seed variety and fertilizer amount and kind constant when using machinery for the first time so that the full effects can be observed. To do otherwise will lead the farmers to believe that machinery has played only a very minor role in yield increases.
- (6) A comparison of the Project P.T.O. mower-binder and a self-propelled unit reveals that certain advantages will be gained by using the latter: more flexibility in use and scheduling and easier access to fields. If harvesting activities are to be expanded by the Training and Extension Component, it may be desirable that the Project purchase some units for demonstration.
- (7) The binding mechanism of the mower-binder was not successful in the villages visited. It may be wiser to abandon its use in the future than expect farmers to pay exorbitant amounts for cord.
- (8) Several farmers suggested that the Project purchase and demonstrate small Japanese combines which cost roughly half the price of the Deutz-Fahr units purchased by the Project and may be more suitable to Egypt's agricultural conditions.

### 3. Field Visit to Gabal Asfar

With Fred Schantz, Jim McClung, and Gordon Stringer, the Evaluation Advisor made a field visit to the Project's demonstration mechanized farm in Gabal Asfar. The visit initiated a social evaluation of the effort.

### 4. Precision Landlevelling in Minia

The Evaluation Advisor accompanied by Mohamed Ghazi, his fieldwork counterpart, visited Abu Askar and El Biik basins in Minia, the first two basins levelled by the Soil Improvement Component. This trip follows an earlier visit to Minia during the maize growing season. Twelve farmers were interviewed in-depth in the two basins and information was collected from fifty farmers about furrow length, irrigation time, and production growing maize before and after landlevelling.

They also attended a weekly meeting of the Minia monitoring team which is supervised by Dr. Bahgat Abdel Maksoud. The team is continuing to collect data about tractor costs and time use and is coding data on farmer adoption rates for another study.

### 5. Tractor Costs and Time Use

Aiman El Tunsy and Rafaat Lutfi are continuing to input the tractor data in the office computer. This is expected to be their responsibility for the next several months.

### 6. Follow-up

- a. Completion and distribution of report on precision landlevelling in two Minia basins.
- b. First committee meeting under the reorganization and delineation of responsibilities for next six months
- c. Preparation for evaluations of rice mechanized cultivation and Service Center Fund

The Evaluation Advisor was on leave from mid-October through November.

AGRICULTURAL MECHANIZATION PROJECT

A. I. D. Proj. NO. 269-0031

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 الميخنة الزراعية  
وزارة الزراعة المصرية - وكالة التنمية الأمريكية  
مركز الحاسر - مبنى الجمعية العامة للإصلاح الزراعي  
مستودع بريد ٢٤٦٦ - الدقي - جيزة ج ٢٠٠٤  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٣٦٤ - ٧٠٧٢٤٧

DATE Dec. 14, 1983 التاريخ

TO : Members of the Evaluation Advisory Committee

FROM : Dr. Ahmad F. El Sahriqi *A. F. El Sahriqi*  
Project Director

SUBJECT: Reorganization of the Evaluation Advisory Committee

In order to facilitate the work of the Evaluation Unit, I have decided to make the following changes in the organization and responsibilities of the Evaluation Advisory Committee, to take place immediately:

1. There will be no chairman of the committee, all members will have equal status.
2. Dr. Peter Reiss will serve to coordinate the work of the committee members over and above his advisory responsibilities.
3. Work will be distributed to committee members according to their interests, specifications, and location. Once work has been agreed to by the members, they are responsible for the study's design, the analysis of the data, and the drafting of a report.
4. The subjects for these evaluation reports appear in the accepted workplan of the unit although other topics will be considered.
5. Each report will take into account social, economic, and technical aspects. Groups working on these individual reports should reflect this diversity.
6. Deadlines will be set when the assignments are distributed and are expected to be honored.
7. There will be monthly committee meetings reviewing the progress of the work. There will be an exchange of views about the progress and problems of the work at these meetings.
8. Responsibility for the work, however, will be done by groups of committee members who will work independently.

9. Credit for authorship of the papers will be given only to those who have worked on the studies.
10. Mr. Ali Nashat will serve as evaluation consultant. He will prepare a monthly report of evaluation committee activities with Dr. Peter Reiss and will be asked to review reports and appraise them and write forwards for all reports explaining their significance for the Ministry of Agriculture, policy makers.

cc: Dr. D. Gaiser  
Dr. Z. El Hadad  
Mr. Ali Nashat  
Dr. P. Reiss  
file

**A.2 RESEARCH AND DEVELOPMENT SUBPROJECT**

November 1, 1983

October Activity Report - Carl A. Reaves **CAR**

PROGRESS : No progress was made on fabrication of 3-point hitch dynamometer adapter nor the spinning disk cotton stalk cutter. The special english course to prepare ten engineers for the ALIGU test was successfully started. The laser people came to Alex. and spent most of two weeks helping to install the R&D unit on the TW 30 tractor and the 14 foot leveler, gave a seminar to the station engineers on the laser capabilities and use, and took the unit to a University field one morning to demonstrate field procedures. Unfortunately the soil had not been tilled deep enough but it served the purpose of setting the equipment up for a desired slope. On the way back to the Tractor Test Station the support wheel shafts were damaged, but the laser people promised to come back once more to make sure all the engineers understand the uses of the laser and complete the field demonstration. The laser people have been very considerate because they had gone through this procedure once with the R&D unit at Sheikh Ahmed and we only payed for once with purchase of the unit.

Spent four days going to Kom Ombo with Mr. Naggar and Dr. Araby to consult with the principal investigator on the contract research project with sugar cane. A field trip report was sent to the Cairo Office but in general everything was progressing very satisfactorily, and it is the first contract project to make real progress. The principal investigator, Gad El-Karim, has plenty of engineers to conduct this research and we made only a few suggested changes in test procedures. For example we insisted that the quantity of seed buds planted per feddan be constant in tests for effect of row spacing and methods of planting although this will require considerable effort and time. Only one of three test areas needed subsoiling and they agreed to do this. All test areas had been leveled with lasers by the Soil

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Improvement Subproject.

Detailed procedures were written and the peanut samples were harvested. Hand separation into good nuts, mature faulty nuts, and immature nuts were started but not completed. Samples of the individual tests plots were put into plastic bags before drying and inadvertently left tied tightly for several days. Due to the high moisture content of the nuts heat developed and there was some deterioration, but it is not believed that test results were affected significantly. The first picking of cotton was completed, but the second and last picking will be made about the second week of November.

Wrote the engineer portion of the contract research project on drainage that is being co-prepared by personnel of the Ministry of Soil Salinity Lab. and engineers of the Tractor Test Station. Wrote R&D proposed activities for the remainder of the Project duration. Nazek has been requested to present a one hour seminar to Agricultural Engineering Graduate Students at Auburn University on past and future activities of R&D so I wrote a set of notes and mailed them to her.

Attended three meetings of the R&D Executive Committee. Fred Schantz attended one of these meetings and discussed problems that are encountered in the field by the Extension and Training Subproject. He also set priorities; as he sees them, on some items that need to be researched that will benefit the farmer. Fred said that he or some member of his group will in the future meet with the R&D committee on the third Thursday of each month.

Several attempts have been made to take photographs of equipment for the technical reports, but so far the posing, background, and/or exposure have not been satisfactory so another attempt will be made. Made a request to purchase a U.S. minimum tillage implement. An attempt was made to develop one at the Tractor Test Station but so far

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the proper components of fluted disks, coulters, springs, etc cannot be located locally. Also requested the purchase of a field equipment service van; it seems almost impossible to reach a remote test site with an adequate set of hand tools, spare parts, etc. And almost always there is a need during tests for a welding unit, grinder, drill, etc. Wrote for information from the U.S. on simple sugar cane harvesters that are adaptable for Egyptian conditions.

MAJOR ACTIVITIES FOR NOVEMBER: Complete the data analysis and technical reports on peanuts and cotton, harvest the maize plus analyze data, conduct thresher tests on maize, cut stalks, level, and plant wheat on the cotton test area in Sakha to observe residual tillage affects, install tests in Sakha with the laser equipment to determine the optimum soil slope for surface irrigation, in the Ganacelis area install tests to determine the optimum soil slope for surface irrigation and if possible plant fool beans on the same area to evaluate the effects of row spacing and/or plant population. Try to get the dynamometer adapter completed.

\* \* \*

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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. 268 Dokki - Giza, A.R.E.

704660 - 704720

704864 - 707247



مشروع الميكنة الزراعية  
وزارة الزراعة المصرية - وكالة التنمية الأمريكية  
الحدود الخامس - مبنى الجمعية العامة للإصلاح الزراعي

صندوق بريد ٢٥٦ - الدقى - جيزة ج. م. ج.

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DATE October 16, 1983

To : Dr. David Gasier ✓  
Team Leader / Project Technical Director

From : Carl A. Reaves *CAR*  
R&D Advisor

Subject : Visit to the contract research project on sugar cane  
in Kom-Ombo

Mr. Naggar and I left Alex. at 6:30 A.M. and drove to Cairo on Oct. 9, met Dr. Araby at the airport, and arrived at the Kom-Ombo Sugar Co. about 5 P.M. Dr. Gad El-Karim was in Cairo but returned to Kom-Ombo on Oct. 10. Monday was spent visiting and examining various sites on which the experiments will be located. Personnel of the Soil Improvement Subproject had/were leveling these areas with the aid of lasers. The soils were rather dry and there were no deep-cut areas in the leveling process so this operation should affect test results very little. Leveling had been completed on the area designated for crawler vs wheel tractor tests, so two trenches were opened to examine the soil profile. In both trenches soil structure was good to at least one meter deep and roots from previous sugar cane crop had proliferated this depth without any apparent stress. There was a layer of sand in one trench approximately 60 cm below the surface, but the cane roots had passed through the sand and developed normally in the soil at greater depths. It was recommended that subsoiling this area would be of little value to production of the succeeding crop.

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Two trenches were opened for a profile examination in a second area that had been designated for test on different methods of planting. A harder than normal condition existed in this soil to a maximum depth of 40 cm so Dr. Araby recommended that it be subsoiled to a depth of 45 cm. Plant roots of the previous crop seemed to have been stressed to a certain extent within the top 40 cm layer, but below the 40 cm depth they had developed normally. Soil samples were taken to determine if the bulk density of the top 40 cm was as high as it appeared to be.

Two trenches were opened in a third area for profile examinations, and <sup>the</sup> top 10-15 cm layer of soil was compacted some but this compaction will be eliminated with normal tillage operations, so subsoiling was not recommended.

Most of Tuesday was spent driving approximately 45 km to an area of land reclamation northeast of the high dam. The purpose of this visit was to observe the installation of irrigation and drainage channels plus land leveling operations. Mr. Gad El-Karim wanted to discuss the possibilities of conducting some cooperative reasearch with personnel of R&D plus the use of certain R&D equipment next Feb. and/or March.

Tuesday evening was spent with Naggar, Araby, Karim, and several research staff members of the sugarcane company discussing the contract research project. Several minor changes in individual experiments were agreed upon to better adapt tests to available equipment and to suit existing soil conditions. In general the research project is progressing well and the principal investigator has adequate staff as well as equipment to properly conduct the experiments. Following are comments on the individual experiments :

- I. Rubber tire vs steel track. After examination of the soil profile in two opened trenches subsoiling 60-70 cm deep in the row direction on a 10 m interval was deleted because there exists no restrictive drainage layers.

- II. Planting methods. Examinations of the soil profile showed that there exists a hard layer in the top 40 cm so the area will be subsoiled 45 cm deep. The subsoiling implement will contain two shanks with one shank located in the center of each rear tractor wheel track. Hence, the width between rear tractor wheels will be the spacing of subsoiling.
- III. Cane loaders. These tests will not be made for several months so there were no changes made in plans at this time.
- IV. Cultivating implements. There is not enough time available to import some of the equipment listed in the project. Substitution of cultivator implements that manipulate soil very similar to those listed were agreed upon.
- V. Distance between rows. After discussion of the capabilities of existing available equipment it was agreed to change row spacings from 60, 90, 120, and 150 cm to 75, 100, 125, and 150 cm. It was also deemed that 60 cm is too narrow from a practical standpoint for required sugarcane cultivations.

cc. Engr. Mohamed El Naggar  
Dr. Ahmed El Araby

Dec. 1, 1983

November Activity Report - Carl A. Reaves

PROGRESS: There was still no progress on fabrication of the 3-point hitch dynamometer adapter or the spinning disk cotton stalk cutter. Made arrangements to extend the special english course to prepare for ALIGU test for a period of two weeks. Continued processing data and samples for the peanut report. Completed harvesting cotton samples and started analysis of data. Took maize samples for moisture content and it was still too high for threshing. Wrote tests procedures to evaluate the Betashita thresher over a wide range of maize moisture content, plan to use maize from the Ganaclis experiments.

On Nov. 12 Mr. Naggar and I went to Sakha and visited the cotton experiment. Picking of cotton was finished on this day. Made an informal cooperative agreement with the farm manager to cut cotton stalks with rotary mower, conduct extensive leveling with the laser on the cotton area, plant wheat on the tillage plots to observe residual effects of tillage, and to establish tests on the 130 m width of cotton beside the tillage tests to determine the optimum slope for proper irrigation. We agreed to cut cotton stalks and to begin leveling with the laser equipment within 2 or 3 days. Failed to get leveling equipment to Sakha this month.

Went with Mr. Naggar to Ganaclis to see about using the 50 feddans where maize is to conduct further research. Discussed details with Dr. Shakshouk and wrote some letters but I'm not sure if we really accomplish anything or not. I have been assuming that the use of this land would be available to us and I have spent a lot of time designing numerous

experiments including irrigation, minimum tillage, plant population, etc. Attended three R&D Executive Committee Meetings

Went to Cairo on Nov. 25 and met with Drs. Sahrigi and Gaiser. Was informed that the Research Advisor position would be terminated effective Dec. 22, 1983 when I leave for the U.S. Spent the remainder of the month on getting information together, analysis of data, and writing six technical reports on research during 1983.

MAJOR ACTIVITIES FOR DECEMBER: Devote full time to completing the six technical reports, getting experiments established in Sakha, and if time permits design one chisel implement and one row crop cultivator that can be manufactured in Egypt.

December 20, 1983

December Activity Report - Carl A. Reaves

PROGRESS: Devoted almost fulltime to collecting yield data, sorting out all collected data, analyzing data, making tables and graphs, and writing technical reports on tillage tests with peanuts, cotton, and maize, plus tests of digging potatoes, plus tests of row spacing with maize, and tests on methods of planting and cultivating maize. I completed the writing of all six reports and gave the rough draft of the last one to the secretary on December 19. The secretary has completed typing approximately one-half of these reports and will complete the others during the week of December 24, 1983. Several attempts have been made to have acceptable photographs of the research equipment taken but so far very few have been satisfactory. Staff of Tractor Test Station will obtain good photographs, place them in the reports, and forward copies of completed reports to the Cairo office.

I did make detailed plans for installing tests on tillage area in Sakha with wheat. Plans were also made to install new tillage tests on an area adjacent to the cotton experiment in Sakha. A split plot design will be used with these tests to determine the relative effects of hand planting plus drill planting wheat. Made one trip to Sakha and discussed the details of these experiments with the field team leader, Metwally.

MAJOR ACTIVITIES FOR 1984: Try very hard to spend enough time fishing, golfing, and playing Duplicate bridge with my wife to become bored.

experiments including irrigation, minimum tillage, plant population, etc. Attended three R&D Executive Committee Meetings.

Went to Cairo on Nov. 25 and met with Drs. Sahrigi and Gaiser. Was informed that the Research Advisor position would be terminated effective Dec. 22, 1983 when I leave for the U.S. Spent the remainder of the month on getting information together, analysis of data, and writing six technical reports on research during 1983.

MAJOR ACTIVITIES FOR DECEMBER: Devote full time to completing the six technical reports, getting experiments established in Sakha, and if time permits design one chisel implement and one row crop cultivator that can be manufactured in Egypt.

**A.3 EXTENSION/TRAINING SUBPROJECT**

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

**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



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الدور الخامس - مبنى الجمعية العامة للإصلاح الزراعي

صندوق بريد ٢٥٦ - الدقي - جيزة ج ٢٠٠٤

٧٠٤٦٦٠ - ٧٠٤٧٢٠

٧٠٤٣٦٤ - ٧٠٧٢٤٧

DATE 13/11/1983 التاريخ

To : Dr. Zakaria El Haddad - Project Coordinator  
Dr. David Gaiser - Team Leader

From : The machinery Management Extension and Training Subproject  
Staff:

Fred Schantz  
Ibrahim El Ghattas  
Zaghloul S. El Sayed  
Hussein Heiza  
Salah Bakar  
Moh. Abd El Wahab

Roger Engstrom  
Ahmed El Beheri  
Moh. A. Aziz  
A. Hamid Soiden  
Abd Moniem Mohamed  
Essam Wasif

Dr. Mamdouh El Baz  
Gordon Stringer  
Paul Armstrong  
Maher Iskander

SUBJECT: October 1983 Monthly Report of the Machinery Management Extension and Training Subproject

SUMMARY:

Major events are summarized below and detailed reports of each unit are found in Annex A.1 through A.8. Annex A.8 lists the expenditures for the month.

Extension Activities

1. Demonstration/training sessions in various field locations increased this month (see annexes A.2.1 and A.2.2) as the fall harvest and preparation for winter crops continues. A total of 448 feddans were covered during approximately 70 demonstrations for 1418 farmers operators and field staff.
2. After five months of problems with the ICON company the four John Deere flexi-planters were received at the pretest village at Shiek Ahmed. The units were prepared ( one unit each ) for peanuts, beans, sorghum and maize. The seed plates were not completely delivered and the maize plates have been back ordered.

Although other dealers are finalizing their delivery orders, all have not yet delivered the promised spare parts due to their high customs costs and difficulty of custom clearance procedures. Also the absence of predelivery service quality has prevented most of the machinery from being ready to date.

3. The second large equipment order for extension equipment (IFB 83/03) was completed during the month, approved by two committees. It should be in final form for the project managements approval in early November.

The maintenance demo/trng. equipment order (Group 10) is under final revision and should be forwarded to the necessary committees in early Nov.

4. The first coordination meeting was held with the Research and Development subproject staff the Alexandria research station on 13 Oct. The extension effort/status was explained and plans were made for a monthly joint meeting the third thursday of each month. The next meeting is planned for 17 Nov.
5. The outline for a machinery management program was expanded and reviewed with the extension information director and other mechanization staff.
6. The 23 Mechanization Programs for Project villages were discussed with Project Management during the month (Annex A.1.1) and a workshop has been planned for the last week of December with the extension specialists. During this workshop the programs will be revised and updated.
7. The Extension Information Unit completed three extension pamphlets during the month, participated in field activities interviews with local weekly magazine reporter , and edited an article on wheat harvesting. A trip was made to the ICON company to collect a full set of John Deere-sponsored mechanized farming materials which were sent to the Nubaria training center at Ginaclease. The set includes instructor kits on most farming subjects as well as slides and films for classroom and field presentations.
8. The Gebel Asphar Demonstration/Training System Unit Operation smoothed out during the month with the arrival of a new farm advisor, Mr. Paul Armstrong. Since he over - lapped the departure of the farm advisor by one week, the continuity of the farms development has been assured. As presented in annex A.4.5, the plan to prepare land and plant at least one 50 feddan field this season is now in place. The extension advisor and extension/tr Coordinator will continue to assist/monintor the progress of the operations as necessary.
9. The Land (Soil) Improvement Extension Unit trainees (8) began the Sakha III course on Oct 1. The course will end on 15 Dec. When they will return to their areas to assist the land improvement unit staff to carry out basin leveling demonstrations. The unit carried out two demonstrations in Aug/Sept already for 70 feddans in Project areas as well as about 500 feddans in non-project areas. As these specialists return to the field, these figures should increase considerably.
10. The machinery Introduction Fund committee met during the month; (Annex A.5) under the direction of the new fund coordinator Mr. Mohamed Abd El Wahab who replaced Fouad Metri during the month.

### In-Country Training Activities

During the month ~~1565~~ trainees attended ~~13~~ new and continuing courses/sessions (annex A.6.1).

### Participant Training Activities

1. During the month ~~22~~ trainees attended ~~5~~ new and continuing courses/sessions (annex A.7-~~7.2~~)
2. Mr. Zaki Helmi was accepted for an MSc program in agricultural economics during the month. He was the fifth academic candidate to be accepted to date although only one participant is actually in progress.

### DURING THE MONTH

The highlight of the month was the long over due coordination meeting held with the Research and Development Unit. Although ongoing discussions and occasional exchanges of information has occurred in the past, this first of a series of joint effort meeting should serve to help link the two units. Discussed at length during the first meeting were a number of problems and concerns for both units and from this came a number of recommendations as follows:

1. The Extension/Training Unit would begin attending Research and Development meetings the last Thursday of each month.
2. Information compiled would be exchanged in the form of monthly reports, progress reports, evaluations, specifications, etc.
3. The Research and Development Unit would assign three engineers to work with the extension coordinators (3) in the field during peak seasons (Sept - Dec and March - May ).
4. During these seasons the research staff would examine the following primary problems requiring research investigation and written recommendations:
  - a) Rotatillers - what is recommended for use in Egyptian conditions, especially in regard to tractor - mounted units,
  - b) Rice farming - what method or methods are recommended for the mechanical farming of rice in Egypt including planting and harvesting methods,
  - c) Cotton planting - what is recommended for mechanical cotton seed planting in the Egypt and is it feasible to delint the seeds to be used in common planters, and
  - d) Silage mower modification - what modification can be made to adopt the silage mower used in Egypt to mow cotton stalks, etc., to function more effectively in a row crop condition.

An addition to the increased activity/Coordination between the extension and research units, there has been the growing awareness by all concerned of the slow development of the mechanization programs in Project villages. This has been due to some extent to the delay in translating the programs from Arabic to English which has now been completed. The primary problem, as mentioned in previous reports, has been the increasing shift of attention away from project areas to other areas in order to cover the numerous requests for mechanization all over Egypt. Unfortunately this has been adversely affecting the programs which require not only the staffing, equipment and maintenance support systems which have begun to be established, but also critically needed technical assistance which is

required to help establish the programs and set them in motion. Now that there appears to be a renewed interest in the programs which will produce the end results of the Project's efforts, it is possible - with intensive and timely technical assistance - that the programs will be well developed before the project terminates in 1985.

(CONT ON NEXT PAGE)

Meeting/Field Trips

- 1- Several meetings were held with staff from various subprojects to discuss/examine/develop the future plans for Gabel Asphar farm due to the resignation of the farm management advisor, Gordon Stringer.
- 2- Several meetings were held with the Project Technical Committee to review/revise/approve the specifications for IFB 83/03 equipment order. By the month's end the specs were still under revision due to disagreements/requests for clarifications by some members of the committee.
- 3- Two trips were taken to the Shieh Ahmed village to inspect the still in-completed assembly of 4 John Deere planters by the Icon company staff.
- 4- A trip was taken to Alexandria to attend the Research and Development's weekly meeting. Plans were finalized to meet with their staff the third Thursday of every month to coordinate Research and Extension/training activities.
- 5- A trip was made to the Icon company where a full set of John Deere training materials were purchased and transferred to the Nubaria Training Center.
- 6- Meetings were held with the Land Improvement staff to discuss/finalize Group 10 maintenance demonstration equipment to be used by both Subprojects.

PROBLEMS:

- 1- Fuel limitations during peak field activities period
- 2- Trying to cover demonstration/training equipment outside of Project areas.

PLANS FOR NEXT MONTH:

- 1- Continue Extension/Training activities.
- 2- Process procurement order IFB 83/03 and finalize Group 10 order for maintenance demonstration equipment.
- 3- Preirrigate/furrow-out/ plant Gebel Asphar farm field No.1.
- 4- Develop draft of a machinery management program for project areas.

cc. file

Monthly Report for October 1983

BY: Roger Engstrom, Extension Advisor

SUMMARY:

- 1- S.A. Combine finally was re-connected after many delays in Keys, Tools, schedules etc. and several saying it can not be reconnected.

Short rice was harvested in Sharkeya, Both Machines have good drivers and Engineers however they don't understand the chain tightener must be kept tight other wise the chain gets loose and breaks. Locally available chain has been used as Dentz does not have any. Straw walkers were repaired after someone plugged the machine, broke the chain and left it plugged with wet rotten rice for 3 or 4 days. Combines have been demonstrated in several places; top leveling augers are weak on all machines and will have to be strengthened and more flights added. Drivers have been instructed in all cases to un-load before rice is forced above the auger (about 60% of tank capacity). I don't know of serious problems with getting stuck but it would be nice to have rice tires. Spare parts are not here yet. No store; No parts system is parts I.D. Card, Index Card, Catalog, No Shelves/Bins No location. Cotton stalk mowers were started. Cotton stalk diggers were delivered but not tried yet. Tractor Problems, Disc plow demonstrated - every one was well satisfied. Disc Harrow was (a 180) Demonstrated. John Deere planters were assembled (More or less) by ICON after many trips and Trials. The frames, Markers, Chains phleys, lower lynch pins have been accepted.

One planter needs about for the stand. 3 need clevis for markers, 4 need top link pins cat. 2. No seed bottoms or plates have been accepted. No spare parts have been accepted we need to sort and inventory soon.

Note G.A. Farm is having the same problems with Icon; each machine is standing at the point of a problem. When we solve their problem they continue until another problem is encountered. We must push them for seeddrill and cornplanter at G.A.

It would be very nice to have balers behind the combines. Mower-binder are not used for Rice. Chinese Rice harvester works well for small farms. I still see seed bed preparation as a very time consuming and power/fuel consuming operation. Leveling is not done - only smoothing. If we are to level we need a laser system on own tractors. I suggest we concentrate with the areas leveled by Soil Improvement as soon as we get our machinery to those sites. Fuel for travel is also a limiting factor. Need corn heads for combines.

ANNEX A-1

Agricultural Mechanization Project  
Status Report Number 2 (October 1983)  
of the Mechanization Extension Programs in  
Project Villages

<u>Village No</u> <u>Pretest</u>	<u>Village</u> <u>Shiekh Ahmed</u>	<u>Status</u>
<u>(Behera Gov.)</u>		
1. Desya		
2. Ezab Besentwai		
<hr/>		
3. El Gorn		
4. El Darawah		
5. Dessounes		
<hr/>		
<u>(Garbya Gov.)</u>		
6. Shabshir El Hessa		1. Programs were discussed with Project Management
7. Keniset Damshit		
<hr/>		
8. Kom El Naggar		2. Plans finalized for extension workshop in late December.
<hr/>		
9. Kafr Dima		
10. Qalyb Abiar		3. Plans were made to physically visit inspect the status of each village development as it relates to its program
<hr/>		
<u>(Sharkia Gov.)</u>		
11. El Saadine		
12. El Teline		
<hr/>		
13. El Hessah		
<hr/>		
<u>(Qualibya Gov.)</u>		
14. El Shamout		
15. Magoul		
<hr/>		
16. Kafr El Hossafa		
17. Beltan		
18. El Hessah		
<hr/>		
<u>(MINIA Gov.)</u>		
19. El Atlat		
20. Seila El Gharbia		
<hr/>		
21. Beni Ibeid		
22. Beni Moussa		
23. El Birba El Kubra		

Agricultural Mechanization Project

MONTHLY ACTIVITIES OF THE Ext.officer  
 PREPARED BY Ahmed El Behery  
 For the Month of Oct. 1983

A. SUMMARY:

- We Attended Several meeting with the new Ext. staff at Sakha training center.
- Demonstrating the new disc plough at Kom hamada distráct in Behera Gov.
- We accompanied a group of students to shákk Ahmed Ext. village.
- We accompanied land Reform Director Mr. Hassan Hafez and Miss Samira Khalil to Garbia and Sharkia and Minia.
- We joined Extra expert~~see~~ to the location of combines.
- Several Visites to our Ext. village in Sharkia, Garbia, Minia, Behera.
- Distrbution the new Equipment ~~to~~ location~~s~~.

B. PROBLEMS ;

- 1- Shortage of Hand Tools
- 2- Shortage of Transportation for Ext. staff
- 3- Shortage of seeddrills

C. PLANS FOR NEXT MONTH:

- 1- Field days for Rice threshing the Harvesting
- 2- Demonstrating cotton digger and cotton pickup Baler.
- 3- Seedbed preparation for winter crops.

Monthly Report for October 1983

Mohamed Abdel Aziz, Behera / Garbya Extension Officer

Demonstration/Training Sessions

<u>MACHINE</u>	<u>VILLGE</u>	<u>No. of Feddans Covered</u>	<u>No. of Demos Given</u>	<u>No. Trainees Farmers/other</u>	
<u>Combine</u>	El Shiek Ahmed	25	4	80	4
<u>Silage Mower</u>	Qaleub Abibar	20	3	45	4
(Cotton stalks)	Shabshir El Hessa	15	4	410	8
<u>Backhoe (training)</u>	Garbya	-	5	120	15
<u>Land Scraper (Training)</u>	Behera	5	5	75	10
<u>Disc plow</u>	El Shieh Ahmed	2	4	60	10
		—	—	—	—
	<b>TOTAL:</b>	67	25	790	51
				<u>841</u>	

Annex A.2.1

Monthly Report for October 1983

A. Hamid Soidan, Sharkia/Qalubia Extension Officer

Demonstration/Training Sessions

<u>MACHINE</u>	<u>VILLAGE</u>	<u>No. of Feddans Covered</u>	<u>No. of Demos. Given</u>	<u>No. Trainees Farmers/other</u>	
<u>Combine(Rice)</u> <u>(Phillipine</u> <u>Variety)</u>	Taroot	70	6	6	4
	Dearb	69	5	5	4
	Safoor	40	2	2	2
	-	55	3	3	2
	Meet Abou Ali	39	2	2	2
<u>Silage</u> <u>Mower</u> <u>(Cotton</u> <u>Stalks)</u>	El Gosak	28	7	140	
	El Sadine	26	12	240	
	El Teline	34	8	160	
<u>Backhoe</u> <u>(Trng)</u>	El Teline	-	2	-	6
				557	20
	TOTAL :	381	47	577	

Annex A.2.2

Agricultural Mechanization Project

Monthly Activities of The Rural extension information responsible.

Prepared By Dr. A. Mamdouh El-Baz

For the Month of October 1983 Date 31. Oct. 1983

A. SUMMARY:

- At Icon company in Nasr City to handle educational extension materials, and delivering it to Noubaria training Centre.
- With participant of International agricultural centre in Sheik Ahmed Village.
- With a reporter From May Weekly journal at Mamoura training center and Mogoul extension village to recognize the project activities.
- Attending a trial of a newly bought (Marks Simon) machine for removing out cotton stalks and modilizing Soil. The trial has been carried out in Gharbia governorate and attended by numerous Key farmers and Director General of agriculture in Kalioubia Governorate.
- 3 extension specialised bulletins about mechanized operation in wheat, Cotton and Maize, already prepared and passed to the administrative unit for bidding.
- Editing an article about economics of using combines and harvesters in wheat on the monthly extension magazine Besides several short news about project activities in different media communication means.
- The car is in bad condition, but no liquid money for reparation.
- Guidance about harying clearing land for planting winter crops.

*Gebel Asfar*  
MONTHLY REPORT FOR OCTOBER 1983

7 October 1983

To: Dr. Ahmed F. El Sahrighi-Director Ag. Mechanization Projects  
Dr. David Gaiser-Mechanization Project Team Leader  
From Mr. Engstrom & Mr. Stringer  
Subject: Gebel Asfar

With regards the plan for Gebel Asfar development we should like to refer to GAF 83-25 dated 17 April 1983. This document is an update or earlier versions. Its basic concept is to turn Gebel Asfar into a productive mechanized farming operation. From an agricultural point of view as well as from an economic point of view Gebel Asfar has the potential to produce large quantities of certain crops and can make a profit while doing so if it is operated as a private sector operation.

From the standpoint of the mechanization project it would be prudent to restrain the development to fields 70, 91 and 92. This area which constitutes about 130 feddans can well serve as a training and demonstration area. (See map)

70			
71	81	91	101
72	82	92	

As suggested by the map there is a larger area to develop. However, to go farther than fields 70, 91 and 92 will require quite an effort on canal work. (See 83-25 for scope) This is probably more than the project should try to carry out.

- The major tasks that need to be carried out are listed below.
- 1-Field work-detailed list follows.
  - 2-Shop developed to handle farm needs
  - 3-Canal and road work

- 61 -

Field work tasks are:

1-Doze out trees

2-Doze out drains and ditches

3-Clean trash, rock and debris from the fields

4-Survey

5-Shred

6-Disc

7-Level

8-Rip

9-Disc

10-Furrow

11-Preirrigate

12-Split middles

13-Plant to moisture

Field 70 is at the Disc stage, field 91 and 92 are ready to level. Field 91 also must be surveyed as the field has just been cleared so that the transit can be used effectively.

Shop development tasks are:

1-Set up work benches

2-Set up parts storage areas

3-Install fencing

4-Set up an operational procedure which will include accounting, purchasing, supplies and the maintenance operations themselves for the shop. There is a fairly complete set of plans for the shop development. They are with Mr. Assar and he is quite capable of carrying them out.

Canal work that needs to be done is partially underway. A temporary ditch is being constructed to divert water. The canal that will supply fields 91 and 92 needs to be cleaned, banks rebuilt, drops installed and field turnout installed. There is also need for road undercrossings to be installed. This applies to canal No. 10. Plans have been drawn for the drops and turnouts.

The field tasks have been carried out under the direction of Mr. Faltas and he is well acquainted with all steps taken to date. He is a hard worker, a willing and eager learner and will be able to carry on the direction of this work along with my replacement.

The equipment on hand is built around the concept that the sewage will grow good fodder and field crops. Gebel Asfar is equipped, in part, to grow alfalfa or any type of hay, fava beans, soy beans and corn for silage and/or seed. This type of program would fit in well with an expansion of the present farm herd. Farm wagons and storage tanks are needed to complete this phase of the program.

Weeds are a problem at Gebel Asfar. The most reasonable program for control would be tillage and cropping patterns. There are areas where roundup would be helpful in controlling bermuda and bamboo as well as some of the other weeds. However, care must be taken with this chemical and a very tightly controlled training program should be undertaken in its use. Meanwhile tillage and cropping will limit the areas requiring use of expensive chemicals.

Gebel Asfar is too valuable an agricultural asset to be left in its present state. Once the phase 1 program has been accomplished the development should continue. There will be sewage in such a volume as to allow for a very large expansion of cropping into the desert areas. Egypt needs this potential food production. A program should be worked out that would accommodate what AMBRIC wants to do as well as what should be done from an Agricultural standpoint.

Maher Iskander Faltas has been involved with this work since the idea was first conceived. He has worked with the development of the idea, site selection, economic analysis, equipment selection and specifications, equipment ordering, equipment delivery and all the actual operations carried out on the land to date. In short he is thoroughly familiar with the concepts and activities associated with Gebel Asfar and its development.

Agricultural Mechanization Proj.

Monthly Activities Of The Gebel Ashar Farm  
Prepared By Paul Armstrong  
For the Month of October 1983

A. SUMMARY: There has been a concentrated effort to prepare the 50 feddans field, near the gorn, for crops. From Oct 20 to present the field has been disked, planed (twice), surveyed and partially pre-irrigated. Water for irrigation is supplied from the main canal along the field using the existing masonry outlets. The field has irrigated reasonably well and is divided into four sections.

The smaller grain drill and two threepoint mounted scrapers have now been officially received from John Deere. The row crop planter and other equipment are still not to be fully assembled. It is noted that the row crops planter will be required toward the end of November for planting the above field.

B. PROBLEMS:

- 1- There is a problem with diesel fuel contamination for the two JD tractors. A filter is being sought for the delivery pump from the barrels.
- 2- There is a desperate need for either a wagon or pick-up truck to transport tools, siphons, etc., from storage to the field back.
- 3- The booster pump delivered requires another screen for pumping from the main canal with untreated water. The pump was initially tried for supplying water for irrigations but the existing screen became plugged with grass floating in the water.

C. PLANS FOR NEXT MONTH:

For November the 50 feddan field will be planted with fava beans and possibly a small plot of another crop yet to be determined. This will require cultivation and irrigation. Another area of 80 feddans will be followed and canal work started while waiting for land levelling.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

**CULTURAL MECHANIZATION PROJECT**

**A. I. D. Proj. NO. 269 - 0091**

**EGYPTIAN MOA/USAID**

**5 th. Floor - Building of the**

**General Society For Land Reform**

**P. O. B. 258 Dekki - Giza, ARE.**

**704660 - 704720**

**704864 - 707247**



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الهدر الخامس - مبنى الجمعية العامة للإصلاح الزراعي

صندوق بريد ٢٥٦ - الدقي - جيزة ٢٠٠٤

٧٠٤٦٦٠ - ٧٠٤٧٢٠

٧٠٤٣٦٤ - ٧٠٧٢٤٧



DATE Oct.11,1983

التاريخ

TO : Dr.Ahmad El Sahrighi Project Director  
Dr.David Gaiser Project Technical Director

FROM : Erroll D.Coles Land Improvement Advisor

SUBJECT: Gabal Asfar Farm Development

1. Following the discussion between Dr.Gaiser, Roger Engstrom J.McClung, Fred Schantz and myself regarding the preparation of three fields, GAF 1,2 and 3, for planting by the 20 of November.
2. Firstly, there are a number of serious constraints that will have to be dealt with before that date:
  - a) The three fields will have to be levelled before surface irrigation can be used. The volume of earth to be moved is from 450 to 500 cubic meters per feddan for the slopes specified by Mr Gordon Stringer. Heavier equipment is needed to move this volume of earth than we have.-this volume falls into the lower limits of land forming.
  - b) A cursory examination of these soils indicate that the fertile top soil should be scraped off and stockpiled and the sub-soil levelled in the usual manner; when completed the top soil is spread over the area. Neither the equipment nor the time is available for this kind of operation;
  - c) A minor consideration is that the water may contain sludge(semi-solids) that may clog small bore sprinklers, However, large bore sprinklers are available that can be used to handle industrial effluents.

...2/..

ANNEX A.4.3

3. I would recommend using sprinkler methods on the 50 feddan G.A.F. 1 field. The whole area is very uneven and will involve earth volumes of 500 cubic meters of 1/1000 and downslope of 1/500. However, the whole field will have to be smoothed and smaller scrapers can be used for this purpose as a health hazard of the water. As far as can be ascertained a comprehensive analysis the water has not been conducted, particularly the biological aspect. If the bio-active levels are high and the helminthic content above acceptable levels then the water should not be applied by sprinkler irrigation, nor used by surface irrigation for many crops particularly fresh crops.
4. In the case of G.A.F 2 and G.A.F.3(38 and 36 feddan respectively). about 450 cubic meters of earth will have to be moved, using the same slope configurations. However, the volume of earth may be reduced by dividing the field into separate units and levelling it to the natural slope. Further calculations of the earth volume will be required.
5. A serious constraint to irrigation at Gabal Asfar
6. The action being taken is,
  - a) Dr.A.El Arabi will carry out a soil survey, collect soil and water samples, arrange for the analysis of the samples and measure soil intake rates.
  - b) The three fields have been topographically surveyed and we will have to look at alternative methods of levelling G.A.F2 and 3 in order to use surface irrigation methods
  - c) A sprinkler system is being designed for G.A.F 1 and local agents are being requested to submit data on the availability of equipment.

ANNEX A.4.4

Gabel Asphar Winter Crops Plan

Oct - Dec. 1983

1 Oct

15

1 Nov -

15

1 Dec.

Clear, triplane →

ditches in (20)  
pre-irrigate →

Reditch (23) →

Plant (28)  
Beans →

Plant (30)  
Bersim →

AGRICULTURAL MECHANIZATION PROJECT

A. I. D. Proj. NO. 289 - 0031  
EGYPTIAN MOA/USAID  
5 th. Floor - Building of the  
General Society For Land Reform  
P. O. B. 256 Dokki - Giza, ARE.  
704660 - 704720  
704964 - 707247



مشروع المكننة الزراعية  
وزارة الزراعة المصرية - وكالة التنمية الأمريكية  
الدور الخامس - مبنى الجمعية العامة للإصلاح الزراعي  
صندوق بريد ٢٥٦ - الدقي - جيزة ج ٢٠٠  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٩٦٤ - ٧٠٧٢٤٧

DATE OCT. 30 .1983

التاريخ

MINUTES OF THE  
13th CREDIT COMMITTEE MEETING FOR THE PURCHASE  
OF AGRICULTURAL MACHINERY

- The committee met on Sunday 30.10.1983 with all members present
- A purchase requisition for 18 rotatiller (14 HP) and the minutes of opening of bids for the 18 rotatillers were submitted before the committee. These rotatillers concerns the Qalubia Governorate and were previously approved in the amount of LE 20% of the surplus funds in the 11th committee meeting.

BEHEIRA GOVERNORATE

The following requests were examined

1. Mohamad Riyad El Brolos
2. Abdel Zaher Youssef
3. Mostafa Ahmad Mosbah
4. Mohamad Mokhtar Zayed
5. Saad Hassan Gab Allah
6. Abdel Hamid Zbdel Motemed Soliman
7. Mohamad Sayed Ahmad Korka

( for the purchase of a rotatiller (Gaspardo) one for each provided that the Behera Cooperative should be informed of the maintenance of machinery after being sold.

The request submitted by Ms Fathia Ahmad El Kafas concerning the purchase of a mower (Argentrio Italian) and the mower (Gaspardo) Italian was approved.

The request submitted by Mr Riyad Abdel Kader Gamqom concerning the purchase of a disc harrow (10 ft) was approved.

The following requests were approved 1) Taher El Masry Kasem El Masry 2) Aly Kamel Aly El Naqgar. for the purchase of the Rotatiller Argentrio (Italian) for each of them.

The request submitted by 1) Salem Salama El Sakhawy and 2) Shawky Saad Abdel Maksoud were postponed until catalogues are received.

The request submitted by Ms Rawhia Abdel Salam El Mohandess was refused due to the unsuitability of specifications (Chinese mower, and a backhoe (Record 14 HP)

EL MINIA GOVERNORATE

The following requests were postponed:

1) Mr Abdallah Tawfik Nassim 2) Mr Ibrahim Tohamy Ibrahim concerning the purchase of a rotatiller (Mab) 14 HP to enable him deliver the required catalogues.

EL SHARKIA GOVERNORATE

The following requests were approved:

1) Mr Khamis Youssef Metwally 2) Mr Abdel Atty Mohamad Youssef concerning the purchase of a mower (Gaspardo one for each of them).

Eng. Mohamad Abdel Wahab was instructed to follow up on the financial status of the five governorates, and be aware of the procedures taken by banks concerning the endorsement of requests, and funds spent to date and amounts remaining in each bank.

The examination and approval of recent requests are postponed at the present time till financial status are clear.

COMMITTEE MEMBERS



COMMITTEE RECTOR

Agricultural Mechanization Project

Monthly Activities Of The In. Country Unit

Prepared By Ibrahim El Ghattas

For the Month of October 1983

Date 2 Nov 1983

A. SUMMARY:- (See attached for complete summary)

<u>Machinery Management Extension &amp; training</u>	<u>No. of Trainees</u>
24 Sept - 5 Oct. 3EX44.4 - 2 Sakha Combine harvester op&Maint	19
24 Sept - 17 Nov. 3EX10.1 Mamoura - Local instentions	10
24 Sept - 10 Nov. 3 Ex30.2 Nubaria Mechanic II	8
Oct. 3EX44.1-2 Gabel Aspher Mechinary assembling	7
23 July - 17 Nov. 3EX30.1 Mamoura Mechanic II	11
8 Oct - 10 Nov. 3EX20.2 Mamoura Tractor operation	14
1 Oct - 12 Dec. 3EX14.1 Sakha Extension Specialists	15

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Land Improvement Subproject

8 Oct - 23 Oct 3Li8 Gabel Aspher Soil Survey and water analysis	4
22 Oct - 27 Oct } 3Li4.1-2 Fayoum Tractor driver	20
29 Oct - 3 Nov. }	

---

B. The other Subprojects : Nil

C. PLANS FOR NEXT MONTH:

The next courses will be held in Mamoura

1- Machinery level 1	15 trainees
2- Machinery level III	12 "
3- Tractor operator	6 "

Agricultural Mechanization Project

OCTOBER 1983 TRAINING SCHEDULE

<u>DATE/TIME</u>	<u>LOCATION</u>	<u>COURSE NO.</u>	<u>COURSE TITLE</u>	<u>TRAINEES</u>
<u>Machinery Management Extension Unit</u>				
23 J1 - 11 Nov	Maamoura TC	3EX20	Mechanic 1	13 -
24 Sept-5Oct	Sakha	3EX44.4	Combine op/maint.	19 -
3 Sept-4Oct	Phil/Thailand	3EX6	Ob/study tour	9 ✓
3 Sept-4Oct	" "	3EX7	" " "	10 ✓
24Sept-17Nov.	Maamoura TC	3EX10.1	Tractor operator/ Instructor	10 -
23 J1 -17Nov	"	3EX30.1	Mechanic II	11 -
8 Oct-10 Nov	"	3EX20.2	Tractor op.	14 -
24Sept-10 Nov	Nubaria T.C.	3EX30.2	Mech II	8 -
1 Oct-12 Dec.	Sakha T.C.	3EX14.1	Mech. Extension	15 -
October	Gebel Asphar	3EX44.5	Eg. Assembly	7
October	Project Villages	3EX37.16-21	Land leveling	85
October	Project Villages	3EX41.1-22	Rice harvesting	116
October	" "	3EX34.1-34	Mowing	1007
October	" "	3EX8.6-.13	Backhoeop.	141
October	" "	3EX44.6-10	Dics plowing	70
<u>Research and Development</u>				
7Aug83-6Feb	USA	3 RDI	Tech. trng.	1
7Aug83-6Feb84	USA	3 RD2	" "	1
<u>Planning and Evaluation</u>				
7J183-6Jan 85	USA	3PEI a	MSC: Ag Econ	1
<u>Land Improvement</u>				
8-23Oct	Gabel Asphar	3Li 8	Soil survey	4
22-27Oct	Fayoum	3Li 4.1	Tractor driving	10
29-3Nov	"	3Li 4.2	" "	10
<u>Local Manufacturing</u>				
8 Oct	Behera Co	3LMI.10	Grain thresher dev.	2
Oct	Behera Co	3LMI.10 a	Mechanical drawing	6

(83 In-c courses,  
5 Part. courses)

Total: 88 courses for  
1565 trainees

Agricultural Mechanization Project

Monthly Activities Of The Participant Training Unit  
Prepared By Hussein Heiza  
For the Month of October 1982

A. SUMMARY:

- 1- 10 trainees in English language training-start at Oct 31,1983.
- 2- One Candidate for academic training traveled to U.S.A. (Atef Abd El-Razek M.Sc Agri. Economics)(*Programmed from Aug 83 - Jan 85*)
- 3- Three candidates for academic training, the project recived USAID approval for their traviling
  - a- Nader Fawzi Msc. Agr. mechanization
  - b- Sohair Abd El-Rahman Msc. Rural Sociology
  - c- Zaki Helmi Msc. Agr. Economics
- 4- Four candidates for PHD and Ms.c degree are in processing as follows:-
  - a- Adel Mohamed El-Gohary PHD post harvisting
  - b- Aly Kamel Msc Information processing
  - c- Nabil Helmy Msc. Agr. Education
  - d- Ayman El-Moufty Msc. Agr. pro
- 5- Two candidates travelled to U.S.A. for a short term Technical participant for 6 months tour of Duty on computer and Research Technology.
  - a- Miss Nazek Abd El-Ghani
  - b- Mr Adel Ahmed Abdel-Hadi } (*Programmed from Aug 83 - Jan 84*)

PLANS FOR NEXT MONTH:

- Complete the ~~major~~ <sup>processing</sup> of
- a- Mr: Nader Fawzi
  - b- Miss: Sohair Abd El-Rahman
  - c- Mr: Zaki Helmi

**TRAINING ACTIVITIES UNDER THE  
AGRICULTURAL MECHANIZATION PROJECT  
DURING THE MONTHS OF JULY, AUGUST, SEPTEMBER, 1983**

<u>CIPANTS</u>	<u>PIO/P NUMBER</u>	<u>LENGTH &amp; DATES OF TRNG</u>	<u>COST</u>	<u>LOCATION OF TRAINING</u>
nominees were cancelled)	263-031-1-00443; GROUP#1	7.26.83 - 7 Weeks Prg	x \$36,075	Third Country Training Phillipines, Manila
	263-031-1-00444; GROUP#3	7.26.83 - 1 Month Program	\$68,700	Third country Training; 2 wks Manila (Phillipines & 2 wks Bangkok (Thailand)
	263-031-1-90557	7.31.83 - 1 Month Program	\$9,500	U.S. On Farm Water Management
	263-031-1-90544	7.15.83 - 2 months program	\$15,800	U.S. Short Term Observational Tour
	263-031-1-00429	7.31.83	\$54,450	U.S. Short Term Technical Tour
	263-031-1-00430	8.7.83 - 6 Months Program	\$21,500	U.S. OJT in USDA National Tillage Machinery Lab in Auburn, Alabama.
	263-031-1-00433	8.7.83 - 6 Months program	\$21,500	U.S. Training in Instrumentation and Technology
	263-031-1-90553	8.7.83 - 24 Months program	\$20,300	Masters' Degree in Agricultural Economics
ominees e cancelled)	263-031-1-00442 GROUP#2	8.9.83 - 2 wks program	\$36,300	Third Country Training; Bangkok, Thailand
	263-031-1-00452 GROUP#5	9.3.83 - 1 months program	\$73,450	Third Country Training' 2 wks Manila (Phillipines 2 wks Bangkok (Thailand)
minees cancelled)	263-031-1-00451 GROUP#6	9.3.83 - 1 Months program	\$56,500	Third Country Training; 2 wks Manila (Phillipines 2 wks Bangkok (Thailand)

(as reported by the USAID training  
officer October 1983)

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## memorandum

DATE: October 25, 1983

COPY TO  
ATTN OF:AGR/A: *Jeffery R. Lee*  
263-0031 Project Officer

SUBJECT:

Observational Training under the Agricultural  
Mechanization Project.

TO:

HRDC/EDU: Marvin Hurley

In the past several months, your staff and I have worked at an incredible pace trying to put into place a number of U.S. and Third Country Observational Training Programs-

This activity has been plagued by several unanticipated factors; the most recent being the order from the Minister of Agriculture placing a moratorium on all Observational Training activities.

Within the Mission this moratorium has caused several problems to you and your staff and in the Project, a shadow of indecision that has resulted in uncertainty with respect to the direction in which we should be moving abides.

The Office of Agriculture is attempting to get to the bottom of this, by discussing with the Project Director the MOA's training objectives and its plans through the life of the Project. However, at this time, all indications point to a program that will involve fewer trips for longer periods of time, in groups that will not necessarily coincide with participants that we have already processed.

Until the MOA has completed its review of its priorities in the Project's training program and a new direction has been identified, please cancel the following PIO/Ps:

1. PIO/P: 263-0031-1-00432
2. PIO/P: 263-0031-1-00434 ✓
3. PIO/P: 263-0031-1-00436
4. PIO/P: 263-0031-1-00438
5. PIO/P: 263-0031-1-00441
6. PIO/P: 263-0031-1-00445
7. PIO/P: 263-0031-1-00460
8. PIO/P: 263-0031-1-00464

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

ANNEX A.7.2



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 المكننة الزراعية  
وزارة الزراعة المصرية - وكالة التنمية الأمريكية  
لدر الحامس - مبنى الجمعية العامة للإصلاح الزراعي  
صندوق بريد ٢٥٦ - الدقي - جيزة ٢٠٠٤  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٣٦٤ - ٧٠٧٢٤٧

DATE 11 December 1983

التاريخ

TO: Dr. Zakaria El Haddad  
Project Coordinator

Dr. David Gaiser  
Team Leader

FROM: The Machinery Management Extension and Training Subproject Staff:

Fred Schantz	Roger Engstrom	Dr. Mamdouh El Baz
Ibrahim El Gatas	Ahmed El Beheri	Paul Armstrong
Zaghloul El Sayed	Moh. Abdel Aziz	Maher Iskander
Hussein Heiza	Aly Ibrahim Mohamed	Essam Wasif
Salah Bakar	A. Hamid Soiden	Moh. Abd El Wahab
	Mohiye El din Moh. Morsy	
	Abd Moniem Mohamed	

SUBJECT: NOVEMBER 1983 Monthly Report of the Machinery Management Extension and Training Subproject

I. SUMMARY:

Major events are summarized below and detailed reports of each unit are found in Annex A.1 through A.8. Annex A.8 lists the expenditures for the month.

A. Extension Activities

1. Demonstration/training activities were in full operation this month as the fall harvest of rice and cotton ended and the land preparation/planting of wheat, bersim and other crops began. Full reports on the winter seasons operations are being prepared and will be compiled in December when the operations slow down as they enter the slow winter period. To assist in the intensifying effort two new coordinators were added to the field staff: Aly Ibrahim Mohamed who will cover the Garbya governorate and Mohiye Moh. Eldin Morsy who will cover the Qualiubya governorate. All governorates now have a coordinator to ensure full coverage of the numerous machines arriving and planned for the five governorates.
2. Demonstration/training equipment order IFB 83-03 was sent to USAID for processing. The maintenance demonstration/training equipment order Group 10 was almost completed and will be finalized in December.
3. Most of Group 2 and 3 demonstration/training equipment was distributed to Project villages during the month in time to use for the fall crops. All 23 villages received critically needed grain drills for wheat planting demonstrations. Also, the long overdue and critically needed motorcycles (34-Suzuki model 125) were delivered to Shiek Ahmed village during the month. As soon as the predelivery service is completed, the clearing procedures are completed and they are registered, the specialists

will receive them for field activities.

6. Problems continue with the equipment dealers who have been slow in delivering equipment as agreed. Two companies have been put on "hold" until their predelivery service performance improves. This problem seriously affects future equipment orders since several companies with acceptable equipment are not providing adequate maintenance support.
7. The critically needed program for machinery management was delayed during the month due to other priorities such as demo/trng. equipment orders, Gabel Asphar farm development needs and the busy season's demands. Hopefully, a draft of the program can be completed in December.
8. The 23 Mechanization Programs for Project villages (Annex A.1.1.) were reviewed and all village specialists were requested to submit monthly update reports. The first ones for Oct/Nov. were received for all areas except Minia and are now being translated into English. The quarterly workshop has been finalized for the 27 - 29 of December when all programs/plans will be revised and updated. Also a unit file on each village has been established in the extension/training office under the supervision of Mr. Moh. Abd El Wahab who also is the Machinery Introduction Fund coordinator. All information developed on each village will now be kept in these files.
9. The extension information unit  
Continued its activities by attending the first formal extension system meeting in Egypt. Also produced were 2 TV programs, extension pamphlets and materials and three mechanization programs.
10. The Gebel Asphar Demonstration/Training System Unit continued operations with the seedbed preparation - bedding up and beginning of planting of 50 feddans of fava beans. The difficult problem of irrigating the unlevelled field presented numerous difficulties to the staff.
11. The Land/Soil Improvement Extension Unit Continued operations in the Minia area as the additional 8 extension trainees continued the Sokha III course on mechanization extension. The large amount of equipment to be used for land levelling arrived at Alexandria including tractors, levelers and laser units, and are now being prepared for delivery.
12. The Machinery Introduction Fund  
Continued to progress as 39.13% of the suballigated funds had been spent as of 30 Nov. (Annex A.5). Discussions were held concerning requesting additional funds as soon as the spent amount reaches 75%.

**B. In-Country Training Activities**

1. During the month 9467 trainees attended 420 new and continuing courses/sessions (Annex A.6.1).
2. Long discussions were held with Dr. Essam Ghais concerning the shifting of the Sakha Training Center away from the General Department of Training to another governmental department. Concern was expressed that without developed mechanization extension course which we jointly developed at Sakha future expansion of the extension effort would be jeopardized.

**C. Participant Training Activities**

1. During the month 3 trainees attended 3 new and continuing courses/sessions (Annex A.6.1.)
2. Continued administrative and bureaucratic delays have caused considerable concern as to whether or not approved candidates will be allowed to travel on time thus causing various programs to be cancelled.

**II. DURING THE MONTH**

- A. Primary attention was given during the month to processing demonstration/training equipment orders, planting the Gabel Asphar farm field No.1 and keeping the field demonstration/training efforts moving. Due to the absence of long requested short-term technical assistance and the demands on the existing technical staff to focus on equipment orders and Gabel Asphar development most field activities were held/directed by newly trained staff. While there was considerable activity the overall effectiveness and success of this fall's activities were severely affected. More well-planned and effective field extension activities would have been possible with less damage to equipment in and being delivered to the field if additional technically qualified staff would have been utilized. It is hoped this condition will improve as the spring season approaches and hundreds of new machines reach the hands of inexperienced field personnel.
- B. In order to prepare for the intensive new row-cropping farming demonstration/training sessions during the upcoming spring quarter, extension specialists were taken to the Gabel Asphar demonstration farm where they observed mechanized row-cropping operations. Similar equipment used there is being delivered to project villages at present. Also a planning workshop for all specialists is to be held the last week of December to help them organize/plan the Spring's activities.
- C. Meetings/field trips:
1. Two meetings were held with the Agrarian Reform Training Director, Mr. Sumira Kahlil and a German team of training experts. Discussed and reviewed was the progress/status of the Maamoura training center and future training centers in Egypt.

2. A training conference at the Ramses Hilton held by USAID training staff from Washington, D.C. and Cairo was attended with Mr. Jeff Lee, Project program officer. Discussed were subjects/problems related to participant training activities.
3. Numerous trips were taken to Gabel Asphar farm-during the week and Saturdays - to plan/discuss/assist/support the effort there.
4. A rice combine demonstration was held in Sharkia which was completely organized by the project extension staff there. It was well done and successful.
5. Visits were made to the Sakha Training Center and other areas in Kafr Shieh to examine various project-related activities in the area including extension personnel training, combine operations and the development of the rice mechanization training center near Kalin.
6. Numerous meetings were held with the committees and staff concerned with pending demonstration/training equipment procurement orders, bid evaluations and equipment reception.
7. The monthly research meeting was attended in Alexandria where possible cotton farming trials in the spring and other field activities/plans were discussed.
8. A joint meeting was held at the Shieh Ahmed pretest village by Dr. Zakaria El Haddad, project Coordinator, and the extension staff. Various types of rice harvesting, cotton stalk mowing, digging and baling equipment was examined and discussed. Also one unit of the Berky thresher was demonstrated and worked well in rice.
9. A trip/meeting was carried out on the 28th to the Barrage Training Center near Cairo where the possibility of a new machinery management course was discussed. Materials for the course were presented to the Center staff by project staff who expressed the possibility of beginning the course in Feb. 84. Further meetings on the subject are being scheduled.

### III. PROBLEMS

1. Ongoing fuel, staff and equipment shortages.

### IV . PLANS FOR NEXT MONTH

1. Continue extension/training activities with a focus on finishing fall wheat planting.
2. Finalize Group 10 Maintenance Demonstration/Training equipment and begin its processing.
3. Begin evaluation of the bids received for IFB 83/02 which were received on 21 November by the project and are still under administrative examination.

4. Complete Gebel Asphar field 1 activities including planting and irrigation.
5. Begin a draft of a machinery management program for project areas.
6. Continue work on the 1984 Training Plan.

Agricultural Mechanization Project

November 1983 Monthly Report

R. Engstrom, Extension Advisor

SUMMARY

1. Combines doing well, some usual problems is grease on slip clutches. Brake seals fuel line problems on one the self locking units would not lock, Resulting in loss of slip clutch pressure springs. Dirt on operators platform prevents brake peddle from fully returning resulting in pressure on Brake disc causing excess heat which damages seals. Fuel system needs to be redesigned with pump near the fuel tank. Cause of problems with air in fuel comes mainly from water trap and a braided pressure hose which is on the suction side. The hose collapses and splits allowing air to enter. It should be replaced with a section type hose. Bearings which have failed at very few hours of operation. I feel are installation faults. Auger in top of Bin needs More Flights to move grain away from head of elevator. Almost impossible to keep Drive chain Tight with existing Idler arrangement. When variable-speed Drive is available it is too bad we don't have the advantage of having it. Very nice field day in Sharkia. The farmer is to be commended for his management of the operation. The labour was always available, his little tractor and wagon kept the grain away from the combine, a very efficient system.

2. Looked at a local made Thresher at Tuk with Mr. Musa but it was not complete enough to judge. It uses bars rather than holes in the concave.

3. Cotton digger works on fields, where row spacing fits the tractor and machine. On moist soil row spacing is not so critical. Cotton stalk Baler works well with windrowed stalks also works well with corn stalks will not working Rice straw.

4. G/A Pre-irrigation shows leveling problems, also many stumps remain in soil. Need close supervision of cat operator; assembly of Machinery is very slow.

Agricultural Mechanization Project  
Status Report Number 3 (November 1983)  
of the Mechanization Extension Programs in Project  
Village

<u>Village No</u> <u>Pretest</u>	<u>Village</u> <u>Shiekh Ahmed</u>	<u>Status</u>
1. Desya		
2. Ezab Besentwai		
3. El Gorn		
4. El Darawah		
5. Dessounes		
6. Shabshir El Hessa		
7. Keniset Damshit		
8. Kom El Naggar		
9. Kafr Dima		
10. Qelyb Abiar		
11. El Saadine		
12. El Teline		
13. El Hessah		
14. El Shamout		
15. Magoul		
16. Kafr El Hossafa		
17. Beltan		
18. El Hessah		
19. El Atalat		
20. Seila El Gharbia		
21. Beni Ibeid		
22. Beni Moussa		
23. El Birba El Fabra		

1) Quarterly workshop scheduled for December 83 for Mechanization Extension Specialists to review revise and update program for 15 Oct. 83 to 15 Oct 84 season.

2) Villages Shabshir El Hessa (6) and El Darawah (4) visited and evaluated by Dr. Gaiser, et.al Report in preparation.

3) Eighteen villages reported on (1-18) by village specialists. Arabic version now being translated to English.

Agricultural Mechanization Project

Monthly Activities of the Ext. Officer

Prepared By Ahmed El-Behery

For the Month of November 1983

A. SUMMARY:

1. Several trips to Minia Governorate.
2. Harvesting field day at Mânia El Kamh in Sharkia Governorate.
3. Demonstrating chines Ripper for Rice Harvesting.
4. Demonstrating RID threshers at Shaik Ahmed village.
5. Demonstrating cotton digger and pick up Baller in Sharkia and Behera.
6. Following up combine harvester operation in project governorates.
7. Distrbuting Ext. machines.
8. Following cotton stalks machines cutting.

B. BROBLEMS:

1. Shortage of Tractors
2. Shortage of Hand tools.
3. Shortage of Transportation.

C. PLANS FOR NEXT MONTH:

1. Finish wheat planting
2. Set workshop at training center for Ext. staff.
3. Night meeting in each village with the farmer.

Agricultural Mechanization Project

Monthly Activities of The Sharkia & Qalubia  
Prepared By Abdel Hames Soidan  
For the Month of November 1983

A. SUMMARY:

- . Follow up for Rice field which we planted drilling to show harvesting with combine at Sharkia.
- . Training Course for 9 workers with Back Hoe at Tallen.
- . Cleaning for 2000 m at Sharkia.
- . Land levelling for 45 Feddans at Sharkia.
- . Mowing for 100 feddans at Sadeen an Taleen.
- . Demonstration for corn Shelling and cleaning machine at Sharkia.
- . Funds for 9 farmers to buy winter pumps at Sharkia
- . Mowing for 35 feddan cotton stems at Kafer El Hossafa.
- . Extension meeting at Kafr El Hossafa.
- . Land levelling at 25 feddan at Beltan.
- . Harvesting for 164 feddans Rice at Sharkia with combine.
- . Mowing for 40 feddan cotton at El Magool
- . Cleaning for 250 m at El Magool.

B. PROBLEMS:

- 1- No spare parts for combines.
- 2- No Tools.
- 3- No Tractors - Motorcycles

C. PLANS FOR NEXT MONTH:

- . Rice Harvesting
- . Field day for using combine in Rice harvesting at Sharkia
- . Mowing for cotton stems.
- . Land levelling for wheat Fields
- . Cleaning for canals.

Annex A.2.2.

REPORT ON HARVESTING PROCESSES BY  
USING THE COMBINE MACHINES IN THE GOVERNORATES  
KAFR EL SHAKEKH-GHARBIA-DEKAHLIA

KAFR EL SHEIKH GOVERNORATE :Research station in Sakha

1. The area of approximately 200 feddans of rice were harvested. (Mahalet Moussa- Sakha) in the period from 18 to 30. Immediate repair and maintenance for the machinery were carried out and all is now in good condition.
2. The transfer of 2 Rubber wheeled tractor and 2 two mowers, one new and the other is being repaired in the tractor experimental station. Of the Research Institute (Genaclis) one tractor with a mower was transferred. It was used in cotton stalk cutting after its trial and after being given temporarily to the farmer.
3. The followup on the combine present in Kafr El Shaikh were it was operating at Aryamoun.

EL GHARBIA GOVERNORATE: El Gemaiza, Agricultural Research Station

The followup & the mower were repaired and maintained, 30 feddans were harvested.

EL DAKAHLIA GOVERNORATE : Bani Obeid.

After the experimentation on the rice harvesting machine (2 feddans) it has been found that the land was not suited to the combine. It was used in another area after which will be transferred to Research farms at (El Gemaiza and Sakha) in accordance with the status of the other areas.

Starting the 7/11/1983 we are going to followup on all machinery to identify its suitability for operation and a report will be submitted.

Akra agent followed up on all the machinery but nothing new were added. Trying to contact the company to discuss matters together.

Salah Bakar

Annex A.2.4

**Agricultural Mechanization Project**

Please find attached the Report on the Combine with a letter from the Research Center at Kafr El Sheikh and also the maintenance report, for submission before Project Director, Dr. Ahmad El Sahriqi.

**Salah Bakar.**

Annex A.2.4.1

REPORT ON COMBINE EQUIPMENT IN  
(Kafr El Sheikh-ElGemaiza-Dakahlia)

1. After the transfer of the equipment present in El Pharonia, 3 machines were given in Sakha, one machine to Gemaiza, Research Station in Gharbia.
2. Repair and maintenance processes were carried out and the change of the threshing groups and preparing it for rice crop under the supervision of the project. Two of the units were changed and prepared during the training course held at the Sakha training center at that time for Extension Engineers. in the period from 24/9 to 4/10/1983 concerning combines. Some repairs were carried out with the help of Sakha Research Station workshops for example welding.
3. Research workers were trained to operate the above machines and maintain and repair it after which it was transferred to the farmers.
4. It has been agreed with agricultural supervisor on the date of harvesting on 15/10/1983. It was carried out actually on the previous date.
5. Complete control concerning the breakage or loss of grains in comparison to other machinery dealing with the same process. enclosed is the letter of the research center indicating the operation of these machines.
6. The rice cultivated area at Sakha 2900 feddan  
The rice cultivated area at Gemaiza 105 feddans.
7. Setting a date for harvesting at the Gemaiza center on Monday 24/10/83 all the above machinery were under the supervision of the Project Engineer also the engineers in the area with our followup and supervision..
8. I also prepared the combine present in Dakahlia (Bani Obeid), its operational date was set on 25/10. I carried all repairs of this equipment. There are also two more machines in Sharkia were prepared with the help of the American expatriate, it operational with harvesting the Philipines rice before moving to Kafr El Sheikh during the months 8/9
9. No remarks have been made by the German expert concerning the preparation of the machine.
10. The Sakha Farm supervisor requested another machine as per your instructions and will be transferred during this week that is on 26/10 but after maintenance and repair is carried out.

Amr A. Z. Y. Z

11. I purchased all equipment necessary and needed for the preparation in the shortest time possible before harvesting time.
12. The machine in Geraiza was not properly cared for which resulted into damage then caused its repair and replacement of some of its parts during the harvesting season.
13. The compiling of all areas during the wheat season in Research stations it also included Barley, Berseem besides wheat.
14. A weekly report will be submitted, on machinery and areas harvested.
15. No obstacles and the company supplying these machines should be asked to deliver spare parts for maintaining some of the above machinery.
16. Reference should be made to the Project before carrying on any repairs.
17. A memo concerning maintenance of all kinds were distributed. the memo is herewith attached.
18. The machine is not to be used as a thresher only but as a whole, as instructed by the company.

Salah Bakar

Annex A.2.4.2

DAILY REPORT  
COMBINE MODEL 980

FIRST: Engine(Motor)

1. Checking on the fuel( has to be a full tank)
2. Checking on hydraulic connections to prevent leakage ~~of gas~~
3. Engine oil checkup and filling it if necessary
4. Cleaning of upper air filter.
5. The checkup on engine ~~cooling fan~~ and cleaning it of the straw.

SECOND: Movement belts

1. Tension adjuster

THIRD: Harvesting and threshing

1. Checking on Knife screw indicator
2. Cleaning of the ball bearing of the beater
3. Checking of the lever apparatus
4. Checking the spiral level(12 mm.) provided the fingers are on the back.
5. Knife fingers checkup
6. Cleaning of vacuum between the removing all residues and straw through opening of side door
7. Opening of the stone box & cleaning its front.
8. The checkup on thresher gear to be sure its tight.
9. Check up on the side tension handles of thrshers.

FOURTH: Group of Crops

1. Cleaning of crop lever cover
2. Pulling of crop belt to be sure of non existance of reciproca-  
tion and opening of crop cover for cleaning.
3. Cleaning of air fan.
4. Making sure of the safety of inner spiral for crop storage  
either the upper or lower
5. The safety of the inner spiral of the Crop storage.

Annex A. 2.4.3

FIFTH: Sieve

1. Cleaning of crop sieve of any straw (Upper)
2. Cleaning of crop sorting (Lower) sieve by readjusting to be sure of the sieve lids are closed.
3. The upper sieve opening according to the kind of crop.
4. Lubricants safety
5. During the operation of any machine no abnormal noise should occur.

Annex A. 2. 4. 4

Agricultural Mechanization Project

Monthly Activities Of The Machinery Management Information Unit  
Prepared By Dr. Ahmed Mamdouh El-Baz  
For the Month of November 1983

A. SUMMARY:

- Participating for 3 days in celebrations and meetings held at the occasion of 30 anniversary of establishing formal extension system in Egypt.
- With Diplomatic personalities from the Chinese Embassy to Behera governorate to recognize their rice harvester.
- Preparing 2 T.V. Programs:
  - a- First, in Behera governorate about using 2 different kinds of cotton stalks mowers, and rice harvester for small holdings.
  - b- Second, in Gabel Asphar farm, about land levelling and planting.
- Finalizing bidding for printing 3 extension bulletins and procurement order now in process.
- Finalizing bidding for printing 500 copy from an agricultural pamphlet
- Sending 40 parcel each containing 100 copy from tractor maintenance bulletin to agri. sec. schools.
- Extension message about agri. mechanization through national broadcast, 3 times at 25 minutes.
- providing rural information department with 250 coloured slides, and writing of a films trip about small mechanization

B. PROBLEMS:

- Car still in extreme bad condition, and Maggar Service station needs more than month for reparation.
- Following up hand drafting on 30 extension sign for soil improvement unit
- Following up printing 3 extension bulletin.

AGRICULTURAL MECHANIZATION PROJECT  
MACHINERY INTRODUCTION CREDIT STATUS AS  
OF 30.11.1983

Area	Amount Allowed	% of total	Amount approved before the committee	Amount approved & in process with Bank			Amount spent			% of Amount allowed
				pers.	coop.	total	pers.	coop.	total	
Beheira	182556 100000 50000 <u>332556</u>	45.45	523067	127492	62844	190336	64240	101543	155783	45.84
Gharbia	114334	15.63	14424	-	30414	30414	34269	53498	87767	76.76
Qalubia	42954	5.87	-	39509	6680	46189	15000	-	15000	34.92
Sharkia	179397	24.52	105200	-	240000	240000	22320	-	22320	12.44
Minia	62439	8.53	51800	88105	-	88105	5450	-	5450	8.73
Others		-	30510	-	-	-	-	-	-	-
Total	731680	100		255106	339938	595044	131279	155041	286320	39.13

Annex A.5a

(6)

AGRICULTURAL MECHANIZATION PROJECT  
TYPE/NUMBER OF EQUIPMENT PURCHASED

AREA	Pres. or coop.	Silage mower	Scraper/ leveler	Mower	Disc harrow	Backhoe	Flax Thresh.	Thresher	Sprayer	Ridger	Fork	Loader	Cult.	Amount spent
Behera	per.	-	-	5	1	7	-	2	1	-	-	-	-	54240
	Co	22	15	-	-	11	-	-	-	-	-	-	-	101543
Gharbia	per		3							1	1	2	13	34269
	co	→ (details not yet available) →												53498
Qalubia	per.	-	-	-	-	-	1	-	-	-	-	-	-	15000
	co	-	-	-	-	-	-	-	-	-	-	-	-	-
Sharkia	per	-	-	-	-	-	-	-	-	-	-	1	1	22320
	co.	-	-	-	-	-	-	-	-	-	-	-	-	-
Minia	per	-	-	-	-	-	-	1	1	-	-	-	-	5450
	co	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL														286320

Annex A.56

Agricultural Mechanization Project

Monthly Activities Of The In-Country <sup>Training</sup> Unit

Prepared By Zaghloul El-Sayad

For the month of November 1983

Date 7 Dec. 1983

A. SUMMARY:

<u>Machinery Management Extension Training</u>		<u>No. of Trainees</u>
24 Sept - 17 Nov. 3EX 10.1	Mamoura Local instentions	10
24 Sept - 10 Nov. 3EX 30.2	Nubaria Mechanic Level II	8
23 July - 17 Nov. 3EX 30.1	Mamoura Mechanic Level II	11
8 Oct - 10 Nov. 3EX 20.0	Mamoura Tractor operation	14
1 Oct - 15 Dec. 3EX 14.1	Sakha Extension Specialists	15
12 Nov - 5 Jan. 3EX 12.2	Mamoura Mechanic Level I	15
12 Nov - 15 Dec. 3EX 20.3	" Tractor operator	14
29 Oct - 3 Nov. 3Li 4.2	Fayoum Tractor driver	10
26 Nov - 15 Dec. 3Li	Minia Field intructions in Land Levelling	5

B. PROBLEMS:

C. PLANS FOR NEXT MONTH:

3 Dec - 26 Jan. 2EX 79	Mamoura Mechanic Level III	12
24 Dec - Feb. 84	" Tractoroperator	15 Trainees
31 Dec - Feb. 84	" Mechanic I	15 Trainees
	Nubaria Tractoroperator	15 Trainees
17 Dec - 5 Jan. 84	El-Minia Field instruction in Land Levelling	5 Trainees

Agricultural Mechanization Project  
November 1983 Training Schedule

<u>Date/Time</u>	<u>Location</u>	<u>Course No.</u>	<u>Course Title</u>	<u>No. of Trainees</u>
<u>Machinery Management Extension Unit</u>				
23 J1 - 11 Nov	Maamoura T.C	3EX 20	Mechanic I	13
24 Sept-17 Nov	"	3EX 10.1	Tractor op.Inst	10
23 J1 - 17 Nov	"	3EX 30.1	Mech. II	11
8 Oct- 10 Nov	"	3EX 20.2	Tractor op.	14
12 Nov- 5 J1	"	3EX 12.2	Mechanic I	15
12 Nov- 15 Dec	"	3EX 20.3	Tractor Op.	14
24 Sept - 10 Nov	Nubaria T.C	3EX 30.2	Mechanic II	8
1 Oct - 15 Dec.	Sakha T.C	3EX 14.1	Mech. Extension	15
November	Project villages	3EX 37.22-105	Land Levelling	415
November	" "	3EX 41.23-26	Rice harvesting	100
November	" "	3EX 34.35-191	Cotton Stalk mowing	1721
November	" "	3EX 38.1-.83	Wheat planting (Drill)	823
November	" "	3EX 36.1-.3	Disc harrowing	25
November	" "	3EX 8.14-74	Backhoe operation	260

Research and Development

7 Aug 83 - 6 Feb 84	USA	3RD 1	Tech. Trng.	1
7 Aug 83 - 6 Feb 84	USA	3RD 2	Tech. Trng.	1

Planning and Evaluation

7 J1 83 - 6 Jan 85	USA	3PE1a	Msc: Ag. Econ	1
--------------------	-----	-------	---------------	---

Land Improvement

29 Oct - 3 Nov	Fayoum	3Li 4.2	Tractor driving	10
26 Nov - 15 Dec 84	Minia	3EX 37.106-107	Land levelling	5

Local Manufacturing

November	Behera Co.	3 LM 10.11	Grain Thresher	2
November	" "	3 LM 10 a	Mech. Drawing	6

Total: 3470

(400 In-c-courses for 3467.  
(3 part. courses for 3

Total :401 courses for for 3470  
3470 trainees

MONTHLY ACTIVITY OF THE: Participant Training Unit

PREPARED BY Hussein Heiza/Ibrahim El Gatas

FOR THE MONTH OF November 1983 DATE 18/12/1983

A. SUMMARY

1. 10 Trainees in English Language training start at Oct.31,1983 until December 9,1983.
2. One Candidate for academic training scheduled to travel to the USA on Dec. 18,1983 has been cancelled due to his existence abroad in USA.
3. Two candidates for academic training, are in progressing:
  1. Eng. Zaki Helmy MSc. Agri.Economics
  2. Ayman H.El Mofty MSc. Agri Production
4. Three candidates for PhD. and MSc degree are in processing as follows:
  - a- Adel Mohamad El Gohary PhD.Post Harvesting
  - b- Aly Kame1 MSc.formation processing
  - c- Nabil Helmy MSc. Agri. Education.
5. Two candidates travelled to USA for a short term Technical participant for 6 months tour of duty on computer and Research Technology.
  - a) Miss Nazek Abdel Ghani
  - b) Mr.Adel Ahmad Abdel Hadi Programed from Aug, 83 to Jan.84
6. One candidate for academic training tarvelled to USA (Atef Abdel Razek) MSc. Agri.Economic)

B. PROBLEMS

C: PLANS FOR NEXT MONTH

- Complete the processing of
- a) Mr. Zaki Helmi
  - b) Mr.Ayman H.El Mofty
  - c) Miss Sohair Abdel Rahman.

19

Signed

Date

ANNEX -A. 7.



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 المكننة الزراعية  
وزارة الزراعة المصرية - وكالة التنمية الأمريكية  
ورالحاس - مبنى الجمعية العامة للإصلاح الزراعي  
صندوق بريد ٢٥٦ - الدقي - جيزة ج ٢٠٠  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٣٦٤ - ٧٠٧٢٤٧

DATE 22/1/1984 تاريخ

To : Dr. Zakaria El Haddad  
Project Coordinator

✓ Dr. David Gaiser  
Team Leader

From : The Machinery Management Extension and Training Subproject Staff:

Fred Schantz	Roger Engstrom	Dr. Mamdouh El Baz
Ibrahim El Gatas	Almed El Beheri	Paul Armstrong
Zagloul El Sayed	Moh. Abdel Aziz	Maher Iskander
Hussein Heiza	Aly Ibrahim Mohamed	Essam Wasif
Salah Bakar	A. Hamid Soiden	Moh. Abd El Wahab
Moussa	Mohiye El din Mohamed	
	Abd Moniem Mohamed	

Subject : DECEMBER 1983 Monthly Report of the Machinery Management Extension and Training Subproject

1. SUMMARY:

Major events are summarized below and detailed reports of each unit are found in Annex A.1 through A. Annex A.8 lists the expenditures for the month.

A. Extension Activities

1- Demonstration/training field activities continued until the middle of the month when most field operations shut down for the winter. Final wheat planting was the primary field activity carried out and was done in 21 villages which had received grain drills. Arrangements were made to begin a series of field maintenance checks and night meetings about equipment care and mechanized farming practices (A.1z)

Also a list of the project village extension demonstration/training sessions is presented in Annex A.8. b. A total of 266 sessions were held for 1476 participants.

2- An extension plan for 1984 was completed with Project management outlining the demonstration/training equipment arrival schedule for the year, primary field activities and critical technical assistance and other implementation needs (Annex A.1i)

3- A three day extension workshop was held in Alexandria at the Sidi Beshar training center Dec. 27-29. The 1984 village mechanization extension plans were presented by specialists from all villages after each reviewed the results of their 1983 activities and problems (see Annex A.6e for report)

Also presented at the workshop were a review of the project's activities by Dr. Mandoush El Baz together with summaries about extension and training activities from the field extension officer Ahmed El Beheri and the project's training officer Ibrahim El Gatas. The Project Coordinator presented an overall picture and set a number of objectives for the group at the conclusion of the workshop.

During the workshop it was emphasized that each village needs to provide one mechanic, one tractor operator and one service truck driver for training during 1984. This is due to the arrival of equipment in the field which will require this staff. A formal letter is to be sent to each governorate requesting the names of these trainees.

4. The critically needed machinery management program was again delayed during the month due to continuing priorities at Gabel Asphar farm, equipment inspections and evaluations as well as the Christmas/New years holidays and the extension workshop, maybe next month.
5. Equipment deliveries continued during the month as equipment arrives in groups. As of 31 December 1983 a total of 184 units were reported at village sites. By the specialists (see Annex A./D). Including units at Gabel Asphar farm and at the pretest village at Shieh Ahmed the total number of units in the field is 303 with an additional 1057 units ordered during 1984 (Annex A.9).

Also the final processing was done for group 10 maintenance/demonstration equipment. Advertisement for group 10 and for the delayed local IFB (group 7) should be carried out next month.

Considerable time was spent during the month on evaluating the foreign equipment order IFB 83/02. The bids were received by the technical staff on 19 Dec. and will take 3-5 weeks to evaluate before final clearances can be requested. A extension staff member Eng. Mousse was added in order to assist in the bid evaluations. As a Project Equipment Technical Specialist he will handle all administrative procedures and assist in the technical evaluation of incoming project equipment.

6. The Gabel Asphar advisor, Mr. Paul Armstrong, returned to the USA. On 18 December and plans to return in February 1984. This required the extension advisor Mr. Roger Engstrom to spend a large percentage of the month at the farm and not in project villages which critically needed his attention, especially during wheat planting season. This situation will hopefully be resolved when the requested short-term specialists arrive in the spring as requested (Annex A./K and Annex A.L).
7. The Field Extension Unit with its

23 Mechanization Programs for project villages continue to develop and are now presented in summary form in English by the governmental project coordinators (Annex A.1c-h). The original copy in Arabic is being placed in the project village files which was arranged by Mr. Mo Abd El Wahab last month.

8. The Extension Information Unit Continued its activities during the month by attending extension meetings, field days and workshops. A television program on grain drilling and extension pamphlet distribution was among the various activities of this unit (Annex A.3)
9. The Gabel Asphar Demonstration/Training System Unit Continued Operations and development by planting fava beans (in long furrows), bersim and barley over a total 50 acre plot. Although the planting operations was not difficult, the absence of levelling before planting due to the lack of proper equipment resulted in portions of the field not receiving enough water. This has caused a percentage of the crop not to grow. (Annex A.2a and A.2b).
10. The Land (Soil) Improvement Extension Unit phased down operations in the Minia area due to the winter season. The large number of tractors and lazer units still in customs are being cleared to be used both in Minia and Beni Suef areas in the spring as well as in Gabel Asphar (4 units) in Jan/Feb 84. An additional 8 extension mechanization officers completed training during the month at the Sahha training center and have returned to Beni Suef (4) and the Fayoum (4) to assist the unit secure areas for leveling.
11. The Machinery Introduction Fund Continued to move as increasing numbers of farmers and cooperatives take out loans. As of December a total of 39 % of the total loan funds (LE 831,000) were distributed.

B. In-Country Training Activities

1. During the month 1567 trainees attended 276 new and continuing courses/sessions (Annex A.6.b).
2. Among other numerous training activities during the month (Annex A.6.b) the third group of mechanization extension specialists (group Sakha III) completed training in Kafr El Shieh. With this group the Project villages, districts and governorates have trained extension staff for mechanization (except for Garbya, Sharkia, Qualiubia & Minia governorate level officers all of whom have had experiance in mechanization extension).
3. The 1984 Training Plan or Machinery Management Program drafts were not completed during the month due to equipment evaluations, bid evaluations and the extension workshop demands and holiday vacations.

C. Participant Training Activities

1. During the month 3 trainees attended 3 new and continuing courses/Sessions Annex A.6.1).
2. Two new candidates were approved for participant training during the month which have been accepted for academic programs starting in Jan.1984. The complex network which they have to overcome is now being dealt with in an attempt to place them on time. A third candidate for a MSc degree, Mrs. Sohair Abd El Rahman, who delayed her approved program until January 1984, cannot be located and reportedly recently had a baby and traveled to Saudia Arabic to join her husband.

### III - DURING THE MONTH

A. The highlight of the month was the mechanization extension workshop at Alexandria which was attended by the entire 55 extension and training field and office staff (25 project village extension specialists, 11 district specialists extension) 1 governorate specialist, 5 governorate coordinators, 1 field extension coordinator, 1 extension information director, 3 training officers plus 4 new mechanization extension officers from Beni Suef and 4 from the Fayoum (plus the advisors and some of the projects management staff) Discussed was the progress of the project and presented by the specialists were summaries of the 1982-3 field activities results and the mechanization programs for project villages for 1983-4 (15 Oct - 15 Oct).

An impressive show of organization and ability was demonstrated throughout the setting up and conducting of the workshop by all concerned. It was apparent that subsequent workshops which are planned for every 4 months can be effectively handled by the project staff without difficulty.

B. The growing urgent need for area technical advisors to support and train project counterpart coordinators became more clear during the workshop when most present requested increased assistance on the operation and especially maintenance procedures of equipment now reaching the field in greater numbers. Several units are now in need of maintenance and minor repairs with which the specialists are unfamiliar. The extension advisor's increasing attention on the Gabel Asphar farm and the extension/training coordinator's full time office work on reports and bid evaluations has prevented them from completing the critical field work which must be carried out if a graveyard of poorly maintained equipment is to be prevented. Requests have been made for additional temporary duty (TDY) technical assistance which will help solve this problem.

#### C. Other Meetings/field trips

- 1- Numerous field trips were taken to equipment dealers and the field to inspect newly arriving equipment from the Group 2 and 3 equipment order of December 1982.
- 2- Field trips were taken to the Gabel Asphar farm and to the Behera governorate to attend irrigation demonstrations and inspect equipment.
- 3- Three meetings were held with project management to design and discuss the 1984 extension commodities arrival and field activities schedules.
- 4- Two field trips were taken to Alexandria and the field to review training activities and needs.
- 5- Several meetings and considerable time was spent on extension and reviewing the IFB 83/02 bids.

**III - PROBLEMS**

- 1- Ongoing fuel limitations which limit field staff travel requirements.
- 2- to date a vehicle has not yet been placed in the Minia governorate for extension activities. One is desperately needed to cover the numerous machines now on location.

**IV - PLANS FOR NEXT MONTH**

- 1- Continue extension/training activities with an emphasis on maintenance for field equipment.
- 2- Secure approvals/advertise Group 10 maintenance demonstration equipment order and local IFB, Group 7 joint equipment order (with SFPP).
- 3- Complete evaluation of IFB 83/02 equipment order.
- 4- Try to draft the 1984 Training Plan, Machinery Management Program and 1983 Annual Report.

Agricultural Mechanization Project

Monthly Activities Of The Extension Advisor

Prepared By R. Engstrom  
For the Month of Dec. 1983

A. SUMMARY

Most of time spent of G.A. planting beans with ridger/planter in one unit - also used the Israeli air planter planting went well. Irrigation is a tremendous amount of unnecessary work due to land not being levelled - some is still dry - some too wet. We tried a small amount of lister planting however cultivating will need to be done by hand. Still do not have the rolling interrow cultivator in the field. Should work ok however. Seed bed preparing and unlevelled fields for berseem make irrigation extra difficult still a lot of roots in the soils causing some damage to equipment. Planting berseem with barley to complete the 50 feddan field.

Irrigation work is progressing; ditch and channels work ok but again extra work is required because of soil not being levelled; Fencing gate is small - 16 foot planter should be 18 ft for tool bar. Big land plane - Should put expandable gate.

B. PROBLEMS:

- 1- Dirty seed - ungraded seed, ( No problem with air planter) unlevelled land.
- 2- ICON assembly of equipment - each piece must be checked and adjusted.
- 3- Need more time to get machinery ready and in the field adjustment.

C. PLANS FOR NEXT MONTH:

G/A Interweed control; Herbicide; surveying of big field - canal plans - equipment canal, root removal - plowing of weeds to kill roots.  
Is it possible to obtain a moldboard plow?

Annex A.1a

Annex A.1a

Extension

Small amount of time spent in ext. activities due to extra work of G.A. and getting paper work for Reimbursement of Nov. expenses.

Wheat planting with seed Drill, went o.k. with some problems of damaged machines not being repaired and a couple not being serviced/checked until too late. In one case I am sure of the planter worked well in the beginning but as the seeding progressed some rows plugged and little or no seed came. I believe this to do dirty seed and not cleaning of seed box as well as in the shoe opener, still some damage to frames of machines-drivers not careful. We need care as well some to do a very poor job.

The most part wheat planting looks good however a major problem is still unlevelled land resulting in either A. extra work for the farmer to make small plots in order to control water or B. Too much (and too little ) water. Fertilizer use can be improved in many cases but is not a serious problem.

Still to be done is : Mower Repairs/Servicing/storage in order to be ready in order to be ready Mower/Binder " " " " or the next season Combine " " " " also need follow up with Deutz/Fahr to get the promised modifications/Repairs Seed Drill repairs/servicing/storage.

Agricultural Mechanization Project

December 1983 Summary of Mechanization Programs for Project Villa  
(Month)

<u>No.</u>	<u>Village</u>	<u>SUMMARY</u>
<u>BEHERA GOVERNORATE (7)</u>		
1.	<u>Desya:</u>	<ul style="list-style-type: none"><li>- Two farmer meetings</li><li>- Needs: Increasing water lifting fun</li><li>- Equipment demonstrations:</li></ul> <ul style="list-style-type: none"><li>- <u>Equipment on site:</u> land smoother, silage mower, ag. backhoe, ridger, hand tools set</li></ul>
2.	<u>Ezab Besentawi:</u>	<ul style="list-style-type: none"><li>- The extension specialist received agreement from the farmers to help the Project build the equipment storage shed.</li><li>- Equipment demonstrations;</li></ul> <ul style="list-style-type: none"><li>- <u>Equipment on site:</u> land smoother, silage mower, grain drill, 2-disc harrows, ag. backhoe, ridger, cultivator, mower-binder, hand tools set</li></ul>
3.	<u>El Gorn:</u>	<ul style="list-style-type: none"><li>- One farmer meeting</li><li>- Needs: Training course for key farmers</li><li>- Equipment demonstrations:</li></ul> <ul style="list-style-type: none"><li>- <u>Equipment on site:</u> land smoother, silage mower, grain drill, disc harrow, ag. backhoe, ridger, mower-binder, hand tools set</li></ul>
4.	<u>El Darawa:</u>	<ul style="list-style-type: none"><li>- Two farmer meetings</li><li>- Needs: training courses for key farmers and mechanics</li><li>- Equipment demonstrations:</li></ul> <ul style="list-style-type: none"><li>- <u>Equipment on site:</u> land smoother, silage mower grain drill, ridger, mower-binder, hand tool set</li></ul>

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5. Dessounes:

- One field day at the village which was attended by most project personnel
- 7 feddans of long furrow irrigation is present
- Equipment demonstrations:
  
- Equipment on site: land smoother, silage mower, grain drill, ag. backhoe, mower binder, hand tool set.

GARBYA GOVERNORATE (5)

---

6. Shabshir El Hessa:

- Two farmer meetings were held to discuss and explain the backhoe operation; discussed was the need to widen the road to allow safe transportation of the unit
- The store room is almost completed
- Needs: disc harrow
- Equipment demonstrations:
  
- Equipment on site: land smoother, silage mower, 2-grain drills, ag. backhoe, cultivator, mower binder, hand tool set.

---

7. Keniset Damshit:

- Mower/binder needs repair
- Plastic sheets are needed to cover machines
- Two farmer meetings were completed
- A budget is needed for maintenance
  
- Equipment demonstrations:
  
- Equipment on site: land smoother, grain drill, 2-disc harrows, ag. backhoe, ridger, mower binder, hand tools set

---

8. Kom El Nagar:

- Two farmers meetings were held on the seed drill and backhoe to explain the benefit of using these machines
- Needs: mechanic and training course for level one for 3 mechanics
- Equipment demonstrations:
  
- Equipment on site: 2-land smoothers, silage mower, grain drill, disc harrow, ag. backhoe, ridger, mower binder, hand tools set

Annex A.1.d

9. Kafr Dima:

- Machine demonstrations:

- Equipment on site: land smoother, grain drill, 2 disc harrows, ag. backhoe, ridger, mower binder, hand tools set

- Necessary maintenance has been made on the seed drill and it has been adjusted;
- A tractor driver and machanic have been trained on operational maintenance
- The seed drill has been operated at a rate of 50 kg per feddan
- Supervision is kept on the drill continuously.

10. Qulyb Abiar:

- Three farmer meetings
- 3 feddans with long furrow irrigation
- NEEDS: Mechanics training course level 2 for 3 mechanics; seed drill
- Machine demonstrations:

- Equipment on site: 2-land smoothers, silage mower, grain drill, disc harrow, ag. backhoe, ridger, mower binder, hand tools set

SHARKIA GOVERNORATE (3)

11. El Soadia:

- Machine demonstrations: 10 feddans for land smoothing and wheat planting with the grain drill; 8 feddans harvested with the combine (rice); No backhoe in the village for needed demonstrations. Maintenance is done on all machines.
- Equipment on site: land smoother, 3-silage mowers, grain drill, disc harrow, ag. backhoe, ridger, cultivator, mower binder, hand tools set, root blade, stalk baler
- Extension meeting planned for the 3rd to ~~explain~~ using the drill in order to prepare for the combine harvesting;
- Field day on 12th about rice harvesting with combine; training for one driver on cotton stalk digger and 2 grain drill drivers

12. El Teline:

- Machine demonstrations: 2000 m backhoe; 12 f wheat planting with grain drill; Maintenance on all machines; Extension meeting on wheat drilling on the 2 nd; Two field days on on wheat drilling and cleaning; Training 4 operators on

Annex A.I.e

grain drilling and 2 on backhoe operation;  
Preparation for extension meeting on 31st;  
Follow up wheat fields...

- Machines on site: land smoother, silage mower, grain drill, ag. backhoe, ridger, cultivator, mower binder, combine harvester, hand tools set, disc

---

13. El Gosak:

Equipment demonstrations: 65 fed of wheat with grain drill; 3000 m with backhoe; serviced grain drill and combine; trained 3 workers for backhoe, and 3 for combine; prepare for extension meeting on rice planting with grain drill

- Equipment on site: 2-land smoothers, silage mower, 2-grain drills, disc harrow, ag. backhoe, mower binder, hand tools set

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QUALIYA GOVERNORATE (5)

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14. El Shamsut:

- Equipment demonstrations: -0-
- Service for the machines; training course for some drivers in land smoothing; prepare for local leaders training.
- Equipment on site: 2- land smoothers, cultivator, hand tools set

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15. Magoul:

- Equipment demonstrations: 800 m of backhoe ditch cleaning; 3 field days on backhoes; prepare for an extension meeting on 24 Jan. ; train two workers on the backhoe; prepare for the local leaders training course at Sidi Beshr trng. center
- Equipment on site: land smoother, silage mower, grain drill, ag. backhoe, mower binder, hand tools set

---

16. Kafr El Hsafat:

- Equipment demonstrations: None
- Extension meeting with several farmers; maintenance for all machines; prepare for local leaders training course
- Equipment on site: 2-silage mowers, ag. backhoe, ridger, hand tools set

Annex A.1. f

17. Beltan:

- Machine demonstrations: 15 fed of wheat with drill; 150 m with backhoe; maintenance on all machines; extension meeting about backhoe; training for one backhoe operator

Note: the backhoe stopped because oil came out of the hydraulic ram.

- Machines on site: 2-land smoothers, silage mower, grain drill, disc harrow, ag. backhoe, 2-ridgers, mower binder, hand tools set

18. El Hessa:

- Machine demonstrations: 275 m with the backhoe; maintenance for the backhoe and silage mower; extension meeting on 17th and field day on the 30th about backhoe operation and its effects; training for three operators for the backhoe; follow up wheat fields.

- Machines on site: land smoother, ag. backhoe, mower binder, hand tools set.

MINIA GOVERNORATE (5)

19. El Atlat:

- A Meeting was held with farmers to discuss their implements with them (12/12)
- Machine demonstrations: 12 feddans by disc harrow; 300 meters by backhoe; 13 feddads cotton stalk mowing; 11 feddans by land smoothing; 12 feddans by grain drill(wheat).  
A tractor is badly needed to increase demos.
- Machines on site: land smoother, silage mower, grain drill, disc harrow, ag. backhoe, mower binder, hand tools set.

20. Seila El Gharbia:

- Two meetings were held with farmers after wheat planting and land smoothing; discussed was the importance of land leveling and its effect on yield and machinery
- A tractor is badly needed for demos.
- Machine demonstrations: 8 fed by disc harrow; 3,5 fed by land smoother; 500 meters by backhoe; 8 fed by grain drill.

Annex A.1.9

- Machines on site: land smoother, silage mower, grain drill, ag. backhoe, hand tools set

---

21. Beni Ibeid:

- A meeting was held with farmers to discuss using grain drill in planting small seeds and wheat
- A tractor is badly needed for demos.
- Machine demonstrations: 6 f for disc harrow; 36 f for silage mower in cotton stalks.
- Equipment on site: land smoother, silage mower, grain drill, ag. backhoe, combine harvester, hand tools set

---

22. Beni Moussa:

- Meetings were held with farmers to discuss with them the importance of using implements in agricultural practices
- A tractor is badly needed for demos.
- Equipment demonstrations: 500 m for the backhoe; 36 f for the silage mower in cotton stalks; 12 f land smoothing; assisted the land improvement unit in laser levelling 142 feddans in the area
- Equipment on site: land smoother, silage mower, grain drill, ag. backhoe, hand tools set

---

23. El Birba El Kubra:

- Leveling 6 feddans with the land smoother of Beni Ibeid
- A tractor is needed for demos.
- Equipment on site: land smoother, grain drill, silage mower, ag. backhoe, hand tools set

---

24. Shieh Ahmed:

- Machine demonstrations:  
tractor, 2-land smoothers,
- Equipment on site: silage mower, grain drill, disc harrow, 2-ag. backhoes, ridger, 4-seed planters, cultivator, mower binder, combine harvester, 2-disc plows, chisel plow, root blade, stalk baler,

---

25. Waked:

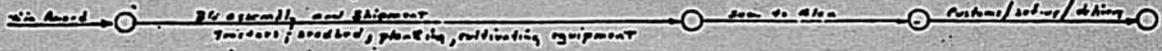
- Equipment demonstrations: 5-water pump sets, 34-motorcycles, coop workshop, equip. shed
- Equipment on site: grain drill, disc harrow, combine harvester

Annex A.1.h

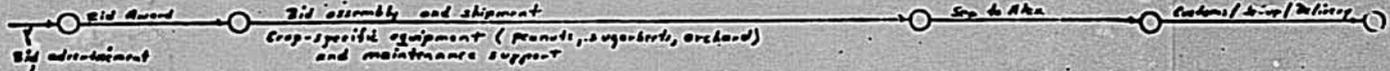
APR MAY JUN JUL AUG SEPT OCT NOV DEC

**EXTENSIVE  
COMMUNITY  
INVOLVEMENT**

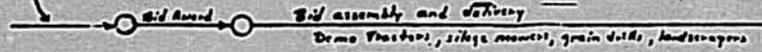
**IFB 22-02:**



**IFB 23-01:**

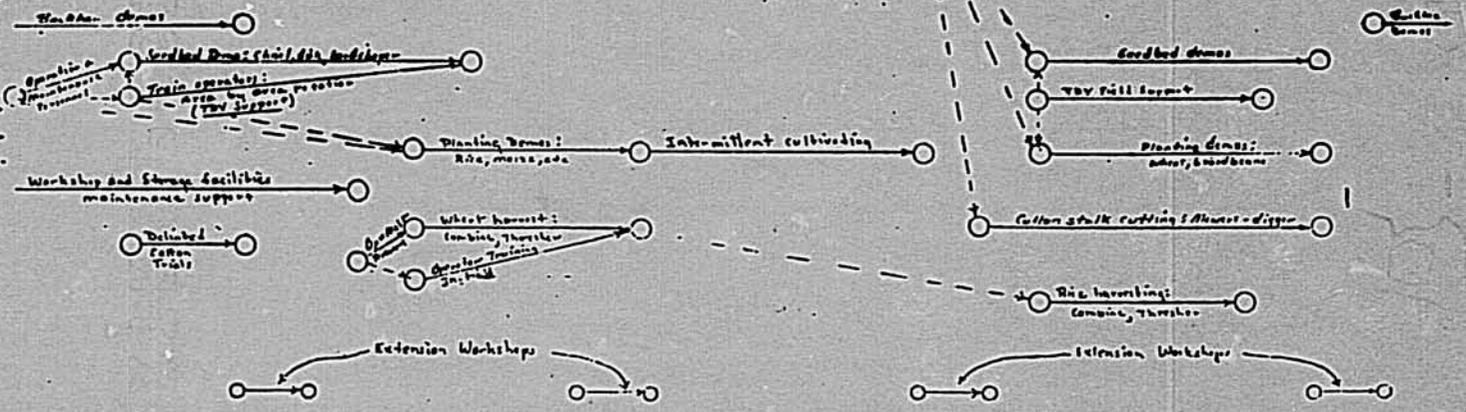


**Local Procurement:**



**PROJECT  
PALACE  
ACTIVITIES**

**Annex A.1.1**



1200

1200

EXTENTION TUESDAY  
WORKSHOPS/NIGHT MEETINGS

<u>Date/ Time</u>	<u>Location</u>	<u>Subject</u>	<u>Speakers</u>
10 Jan	Shapshir El Hessa (GARBYA)	Eng. Workshop Night Meeting	Extension staff
17 Jan	Ezab Hesentwai (BEHERA)	"	"
26 Jan	Beltan (Qalubia)	"	"
31 Jan	Teline (SHARKIA)	"	"
7 Feb	Selia (MINIA)	"	"
8 Feb	Beni Abait	"	"
15 Feb	Waked (BEHERA)	"	"
21 Feb	Ko set Dams it (GARBYA)		"

Annex A.1c

Annex A.1.i

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

**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

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الدور الخامس - مبنى الجمعية العامة للإصلاح الزراعي  
صندوق بريد ٢٥٦ - الدق - جيزة ج ٢٠  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٣٦٤ - ٧٠٧٢٤٧

27 December 1983

DATE \_\_\_\_\_ التاريخ

TO: Dr. David Gaiser, Team Leader / Dr. Zakaria El Haddad, Project Coordinator  
FROM: Fred Schantz, Extension and Training Coordinator  
SUBJECT: Critical Need for Temporary Duty (TDY) Equipment Specialists

This is a request for three temporary duty (TDY) equipment specialists to be located in the Project's north (Behera, Garbya gov.), central (Sharkia, Quailbya gov.), and south (Minia gov.) areas during the spring farming season (15 Feb. to 15 May 1984) and the fall season (15 Sept. to 15 Dec. 1984).

As mentioned in the past five monthly reports and in a pending letter to USAID dated in June 1983, these consultants will (1) help receive and settle the some 222 units of new equipment being delivered to Project villages, (2) train extension staff and farmers on their operation and maintenance and, (3) develop area program and periodic maintenance schedules and charts with the extension specialists.

It is important to note that without these short term technical experts to support our field effort during these critical equipment deliveries, the overall extension effort will be severely hampered and will probably result in a number of poorly maintained and therefore inoperable units after one or two seasons of use.

cc: Steven Shepley  
File

Annex A.I.K

بسم الله الرحمن الرحيم

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صندوق بريد ٢٥٦ - الدقي - ج ٢٠ ع  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٣٦٤ - ٧٠٧٢٤٧

DATE DEC. 20, 1983 التاريخ

TO : Dr. Zakaria El Haddad / Dr. David Gaiser  
Project Coordinator Team Leader

FROM : Fred Schantz  
Extension/Training Coordinator *Fred Schantz*

SUBJECT: TDY Need for Spare Parts of Project Demonstration  
Training Equipment

There is now a critical need for a two-month Temporary Duty (TDY) technical specialist to design and implement a spare parts system for the Project's demonstration/training equipment now being located at the Alexandria Research Station at Saba Heya. His duties would include developing a physical plan (shelving, cardex, location, etc.), staff requirements, a system for receiving/checking out parts and training selected personnel on the system as it is being set up. Trainees from project villages could be included in this process to learn and help organize the system.

It is important to act on this request as soon as possible since already there are combine spare parts lying on the floor without catalogue numbers. If more of the some \$2 million in spare parts being ordered are out on top of these, it will be impossible to know what is where.

cc: files

Annex A.1.L

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

**AGRICULTURAL MECHANIZATION PROJECT**

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صندوق بريد ٢٥٦ - الدقي - جيزة ٢٠٠٤  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٩٦٤ - ٧٠٧٢٤٧

DATE Dec. 21, 1983

TO : Dr. Zakaria El Haddad / Dr. David Gaiser  
Project Coordinator / Team Leader

FROM : Fred Schantz  
Extension/Training Coordinator

SUBJECT: Motorcycle Inspection and Status

Following a previous memo to you dated 15 November 1983 this is another status report on the 34 project motorcycles delivered to the Sheikh Ahmad village in November 1983.

Since our visit to inspect the motorcycles on 9 November 1983 as mentioned in the 15 November memo, we have traveled to Sheikh Ahmad twice and still were not able to technically clear all units. This has been due to the dealer's failure to meet us there on 5 Dec. 1983 and inability to complete all repairs on the units when they finally arrived as scheduled on 12 Dec. 1983 which was our third attempt to finalize the units.

At the present time, therefore, only three motorcycles require attention:

NO	UNIT NOS	PROBLEMS
1.	223361/ 162110	1. Headlight(bulb not working) 2. Taillight(bulb) not working 3. Right rear flasher brace nut missing 4. Front mud flap and screws missing 5. Small combination screwdriver in tool kit missing.
2.	223491/ 162071	1 Front mud flap and screws missing
3.	222277/ 162242	1. Noise in engine(knock) 2. Front mud flap and screws missing

NOTE: This unit should be

Annex A.I.m

If these problems can be solved all units can be received since the other 31 units are technically acceptable. It is critical to point out that when the specialists receive their unit, they need to complete the following:

1. Check and top-off all oil levels
2. Check tool set
3. Check lighting/electrical system
4. Check air in tires
5. Review operator/maintenance manual

An operator/maintenance course for all specialists is being scheduled before the cycles are distributed. The present plan is to take one unit to the extension workshop Dec. 27-29 and give the training there when all will be present. For this course we need all 34 operators/maintenance manuals and an instructor/mechanic from the dealer which we are requesting. Among several points which need to be covered is the importance of using special 2-stroke engine oil(2-t) in the automatic oiler and carrying out periodic servicing. As these units were delivered with regular engine oil for the initial break in period, it is critical that the recommended 2-t oil be used as soon as possible to prevent excessive carbon and /or other engine problems in the near future.

Annex A.I.n

Summary: GARBIA AREA by Marsi  
Kafr Dima

- Seed drill: - necessary maintenance has been made
- The distance between lines has been adjusted
  - A tractor driver and mechanic have been trained on operational Maintenance.
  - The seed drill has been operated in rate 50 Kg/Feddan wheat.
  - Supervising the operation all the time.

Agr. Mechanization Coop. in Gharbia:

- Seed drill: - assembling and adjusting
- Measuring the seed drill in rate of 50 Kg/F.
  - Explaining the method of operation and maintenance to the Coop. Staff.

Kensyet Dawshit

- Checking project machinery
- make necessary maintenance for the mower/binder and storage

PROBLEMS

- The two arms to bind a straw bundle in the mower-binder are broken.  
Tanta-motors has been informed for repairing.

Next Month

Inspecting all project machinery in Gharbia Gov.

Annex A.1.26

Agricultural Mechanization Project

Monthly Activities of the Ext. Officer

Prepared By Ahmed El-Behery

For the Month of December 1983

A. SUMMARY:

- 1- Following machinery distribution in our villages .
- 2- We travelled several times to Minia to help the engineers during wheat planting seasons.
- 3- Several Trips to Sharkia Checking combine operation during Rice Harvesting seasons.
- 4- We had field day at Desouh in about Homous Markas for long furrow irrigation.
5. Demonstrating cotton stalks pick up Bale<sup>r</sup>.
6. We held a workshop at Sedi Basher Training Center for three days with 46 engineers and Governorates coordinators.

B. PROBLEMS:

- 1- We received hand tools after the planting period.
- 2- Shortage of seed drill on the spot before the planting seasons.
- 3- Lack of maintenance and repair of the machines at the villages.

C. PLANS FOR NEXT MONTH:

- 1- Night meeting with the farmer at the villages.
- 2- Following up machinery distribution.
- 3- Motorcycle distribution
- 4- Machinery repair and maintenance.
- 5- Distributing machinery and small workshop to the villages.
- 6- Helping engineers for shed assembly.

Annex A.1.2.a

Subject Report for extension work in Minia :-

Monthly Report : December 1983

Coordinator : Hassan

Minia Governorate

1- Matay

- a) Elet labe: work in 12 feddan by disc harrow and drig 300 m by back Hoe and harvesting 13 feddan cottonstalks and levelling 11 feddan by land scraper and planting 12 fed wheat by seed drill meetings with farmer to extension them about implements. at 12/12/1983.

Problems : There is no tractor - storing machines

- b) Cyla El garbya:- Disc harrow 8 fed, backhoe 500 m silagmour 8 fed seed drill 3.5 fed land scraper 1975 fed. making meeting with farmers after planting wheat by seed drill. and meeting for levelling to extension the farmers about the imprtant of land levelling and its effect on the yeild & machinery.

Problems: there is no tractor

Abo korkas

- a) Beni Ebaid: Disc harrow 6 fed silage mower 36.25 fed making meeting with farmers about using seeddrill in planting wheat and smallseeds.

Problems: There is no tractor - storing machines.

- b) Beni Mousa: back hoe 500 m, silag mower 36 fed the levelling at Beni-mousa by using lizer ray implements 142 fed. Land scraper 12 fed making meeting with the farmers at their fields and at their sittings to Extension them about the important of using the implements in agricultu

Problems: There is no tractor - storing machines

- c) Berba : Levelling 6 fedan by land scraper of Beni ebaid.

Problems: There is no tractor

Coordinator of Minia

Hassan Abdel Razek

Annex A.1.2c-2

Agricultural Mechanization Project

Monthly Activities Of The Extension Work in Minia  
Prepared By Hassan Abdel Razak  
For the Month of December 1983

A. SUMMARY:

1- MATAY

Working with Disc harrow 12 Fed in Etlat and 8 Fed in Cyla Gharbya.  
Drilling 300 cm in wheat & 500 in by backhoe. Working 13 Fed, 8 Fed  
by silage mower, planting 12 Fed, 3.5 Fed by Seed planter in cyla &  
etlate wheat levelling 11 Fed & 19.2 Fed in Etlate & cyla. by land  
leveller Field day for planting in etlate 6/12 & in cyla 7/12/1983

2- Abo Kurkas

- Working 36.25 Feddan with silage mower cotton stalk harvesting in Beni Ibeit
- Working 500 m with back hoe in Beni Mousa
- Harvesting cotton stalks in Beni mousa 13-Fed
- Levelling 6 feddan in Berba by land leveller

B. Problems:

- 1- Tractors & Motocycles
- 2- Storing machines in Etlat, Beni Ebaid, Beni Mousa.
- 3- Land Leveller
- 4- There is no car for the coordinator to be able to arrive to the work and  
the villages.

C. PLANS FOR NEXT MONTH:

- 1- Meeting with farmers to extension them about the necessity of levelling of soil.
- 2- working with Back Hoe about 1000 m in every village.
- 3- preparing for soy bean planting by machines
- 4- Preparing for cotton planting
- 5- Etlat meeting 1/1/1984
- 6- Sylva El Garbya Meeting 5/1/1983.

Agricultural Mechanization Project

Monthly Activities Of The

Prepared By

For the Month of

A. SUMMARY:

I have 3 feddans winter onion in long furrow in Konaiest Damshet village and 3 feddans local bean in Ahoubra-kas village & 3 feddans winter onion in Kafr-Dima village.

That's in Gharbia governorate. I have too long furrow local bean in Dessouk village and two feddans winter onion too and 4 feddan winter onion in El-Shiekh Ahmed village.

B. PROBLEMS:

1. I haven't any problem except in convincing small farmers

C. PLANS FOR NEXT MONTH:

I prepared beans field cotton and maize that will be in summer crops in each villages in Behera and Gharbia Governorate.

Agricultural Mechanization Project

Monthly Activities Of The Extension and information Unit.

Prepared By Dr. Ahmed Mandouh El-Dar

For the Month of December 1983

SUMMARY

- At Dissounis village (Behera Governorate) to held an extension meeting with farmers and cooperatives members. Advertising about this meeting on weely cooperatives Journal.
- At Sakha training center to pass-out newly assigned extension officers in Fayoum and Beni-Suif.
- For 3 d ys in Alexandria in the quarterly workshop with extension specialists to revise plans and programs of villages for the year 83-84.
- Following up correcting and printing the agricultural manual.
- Sending 21 parcels each containing 100 copies of tractor maintenance bulletin to different extension directorates.
- In cooperation with agrarian reform preparing and T.V. program about planting wheat in Sharkia (Belbes)
- Preparing for the closing seminar about the achievement of the S.S.A.A. project. Supposed to be held from 21-26 January 1984.

PROBLEMS:

- No transportation (car) at very critical time
- Extreme need for storing place

C. PLANS FOR NEXT MONTH:

- Following up 3 extension bulletins; printing the agricultural almanac
- Attending the S.S.A.A. workshop.
- Start preparing for the Cairo International Fair.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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مشروع الميكنة الزراعية  
وزارة الزراعة المصرية وكالة التنمية الأمريكية  
الحدود الخامس - مبنى الجمعية العامة للإصلاح الزراعي  
صندوق بريد ٢٥٦ - الدقي - حيزة ج ٢٠  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٢٦٤ - ٧٠٧٢٤٧

DATE Jan 15, 1984 التاريخ

**GEBEL ASPHAR**  
**FARM MANAGEMENT ACTIVITY REPORT FOR THE**  
**MONTH OF NOV. 1983**

by **Maher Iskandar**

**FIRSTLY**

- Renting machinery from the Soil Amelioration Authority
- Machinery performance during Nov. was low due to equipment breakage besides project's preparation of the first field for planting winter crops. Operating hours were as follows:
  - a) Bulldozer: 18 hours of operation in cutting tree roots which were used as wind shields in field number one. The field was divided into four areas.
  - b) Digger loader : 12 hours of operation in pulling out the remains of irrigation siphons and cleaning parts of the main field canal.
  - c) Planter: 37 hours of operation in mowing field No 2(50 fed.) The subsoiler was used for cutting roots after pulling out of citrus trees.

**GENERAL REMARKS**

These equipment operated previously under the supervision of the officer appointed by the Soil Amelioration Authority, which caused differences in view points resulted into delay of work in the project.

**SECONDLY**

- Land leveller arrival delayed for reasons beyond our control the farm management unit tried to use equipment available at Gabal Asfar for land levelling depending on sight only, they carried out a testing irrigation to identify low and high spots after which a second levelling was carried out. In spite of all this effort the field still needed the land levelling equipment. to enable siphon irrigation.

ANNEX A.3a

### THIRDLY

- An area of 15 feddans were cultivated in field no 1 (50 feddans) in a period of approximately 403 hours, of fava beans. Irrigation started the second day of cultivation it lasted 8 days till 30.11.1983. Due to the shortage of irrigation water and unlevelled land, it was taken into consideration that irrigation should start at 8 am till 11 pm inspite of that the irrigation process was unstable causing the main obstacle in planting the remainder of the area.

### FOURTHLY

- We used siphons 4" and 3" in the irrigation of the main canal at El Hadarat area. We also installed siphons 2" and 1½" in agricultural rows, it proved unsuccessful. This led us in using the long canal irrigation system instead of siphons and was successful for ordinary surface irrigation. The reason led to instability of irrigation 1) unlevelled land and the length of irrigation line, it reached at times to 300 meters without the slope needed.

### FIFTH

- Machinery used for cultivation in area no(1)

The Farm Management unit carried all necessary procedures towards the supplier to assemble the machine in the field but was unsuccessful. The machine was delivered on 21/11/1983 but without necessary for. This caused the Project to purchase the above from Alexandria and was manufactured in our workshops and also the seed carriers (wooden) although the farm management received recently several that are useful for various other crops. We ordered several from the USA directly to enable us plant in time, winter crops, they were delivered on 1/12/1983, it is used currently in cultivation of Fava Beans.

- The reason for the delivery of the equipment without or seed carrier is that our plan is to assemble one machine that does all in one.
- Project Management on its part an Israeli machine from Alexandria to be in time for cultivation. In spite of all efforts exerted for its operation and utilization by the accompanying Engineer yet it was delivered in a very bad condition. The machine was not sealed resulting into rust- three buckets were broken. inspite of all this we were able to operate the above machine in the cultivation of 2 feddans, The following points were detected The machine breaks frequently especially the gears. At the beginning it was not lubricated. due to lack of time one cultivation was carried out at the present time.

Anwed A.3b

In comparison to John Deere's Machinery the above equipment can be considered weak and unsuitable.

## SIXTH

### - Machinery supply and delivery

ICON Company(John Deere

The following equipment were received during this month from John Deere

- Disc Harrow 6 ft Model 45 date 8/11/1983
- Disc Harrow 8 ft Model 65 date 8/11/1983
- Subsoiler Model 50 date 8/11/1983
- Small grain Planter: Model 8250 date 15/11/1983
- Small Grain Planter: Model 8350 date 21/11/1983
- Large Planter: Model 4 rows date 21/11/1983

All these machines has not been tried yet in the field except 1,2 and 3. Concerning the Large planter, it was delivered without and seed carriers.

Three boxes arrived in the field on 27/11/1983 besides 3 more boxes were present not opened in the farm. It contained besides 3 mowers that were not assembled. A sprayer of insecticide model 550 was also received on 7/12/1983.

## 2. EGCT COMPANY

- This company is supposed to have supplied Machinery and spare parts in the approximate amount of LE 14 million. They delivered only equipment in LE 19 Thousand Pounds. All indicators were that they will deliver in retail but not as wholesale.
- The process of supplying of workshop fence and amount deducted afterwards/LE 525,000 after settlement of the contract. This amount is needed in cash on 20/4/1983.
- No more machinery delivered in the amount of LE 10,000 instead its value is to be given to the Project on 3/8/1983.
- They apologized for delivery of remainder of equipment, their excuse was due to the change in specifications as per project letter no 2242 on 28/11/1983.
- Equipment at the Project premises that were not yet received by the responsible is steam cleaner. It is 380 volt and not 220

according to specifications and unconstructed fences. The Farm Management purchased 9 cubic feet of pebbles and 6 cf of sand the cement is available, all are ready for the Company representative

- The confusion in work was due or resulted from unsupplying of machinery needed. For example irrigation canal plugs, irrigation gates etc.

#### SEVEN

- Eng. Badawy Aly Ismail was assigned to work in Gabal Asfar. he works six days a week not five.

#### VISITS TO THE FARM

1. 31/10 Dr. David Gaiser, Project Technical Director visited the farm
2. 8/11 Dr. Ahmad El Sahrigi, Project Director, visited the farm and Dr. Gaiser.
3. On 22/11/1983 Dr. Zakaria El Haddad, Project Coordinator, also visited the farm.
4. On 23/11/1983 an Egyptian Television mission visited the farm
5. On 24/11/1984 Dr. Youssef Wally, Minister of State for Agriculture and Food Security visited the Farm.
6. On 27/11/1984 Video photographer from Alexandria visited the farm.
7. On 30/11/1984 Some Trainees were sent to the farm for training.
8. On Nov. 5, 12, 23, 24 Fred Schantz, Ext./Mng. Coord. visited the Farm.

#### EXPENDITURES AFFECTED WERE AS FOLLOWS TO 30/11/1983

- Incentives	LE 1014,000
- Stable and Office expenses	LE 1065,070
- Field Expenses	LE 14861,600
- <u>Training Expenses</u>	<u>LE 6554,795</u>

Total LE 23495,465

#### STORAGE PROCEDURES

- Farm Management supplies and machinery were stored officially in Gabal Asfar Workshops.
- No receipts of EGCT were received and their enclosures were stored in the total of LE 19,000. The rest of the machinery are not stored yet for the lack of receipts at the farm. We only receive machinery as for the receipt originals, the supplier send it to the procurement committee.
- Financial procedures between suppliers and procurement committee, the project is not responsible for except for storage procedures.

It is now requested that that receipts should be submitted to Gabal Asfar Administration for carrying on necessary procedures to store the machinery in Project stores.

Amy A. 3d

GEBEL ~~ASAP~~ REPORT ON  
ICON (John Deere Representative)

by Reger Engstrom

(Dec. 1983)

I have not spent Detailed time to examine all of the problems of each machine of G.A. but each of these have some work left before we can consider them.

1. Forage wagon

- A. Chains
- B. Hyd. Hose ends
- C. adjustment
- D. Running - test
- E. extra pelces

2. Baler.

- A. Spring on Tongue
- B. Rope
- C. Bale twine
- D. Running test

3. Rotary Mower (2)

- A. Hydraulic Hose and connectors
- B. One is missing Hyd cylinder other cylinder is exposed

I put dust caps in but from time to time they are removed. allowing dust to enter cylinder.

- C. Running test

4. Forage Harvester

- A. Hydraulic system
- B. Electrical system
- C. Tractor Mounted Monitor/control
- D. Hood deflector
- E. Pick up head is not yet Unpacked
- F. Running test

5. 6 row planter - (Not yet for enough along to know)

- A. Tool Bar missing. (1981. Required)

6. 4 Row planter 4. Herbicide/Insecticide Not assembled yet

- A. Fertilizer incorrectly assembled
- C. Loose Belts
- D. We are using units P.K.

7. Grain Drills (2)

Hydraulic markers not complete - is missing solenoid switch to allow each marker to be raised or lowered in dependently.

Amey A.3.1a

8. Combine. Not on form yet.

A. Platform : Not opened

B. Corn Head: Not opened

C. Damage un

9. Small tractor needs hydraulic hose and coupler to pressure side of hydraulic system.

Annex A.3.1b

**LAND (SOIL) IMPROVEMENT SUBPROJECT EXTENSION  
ACTIVITIES for the month of DECEMBER 1983:**

**(report in process)**

AGRICULTURAL MECHANIZATION PROJECT

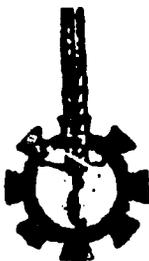
A. I. D. Proj. NO. 269 - 0031

EGYPTIAN MOA/USAID

5 th. Floor - Building of the  
General Society For Land Reforms  
P. O. B. 256 Dokki - Giza, A.R.E.

704660 - 704720

704864 - 707247



مشروع المكننة الزراعية  
وزارة الزراعة المصرية - وكالة التنمية الأمريكية  
لقدور الخامس - مبنى الجمعية العامة للإصلاح الزراعي  
صندوق بريد 256 - الدقي - جيزة ج ٢٠٠٤  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٨٦٤ - ٧٠٧٢٤٧

DATE Jan 9, 1984

التاريخ

MINUTES OF THE 14TH

CREDIT COMMITTEE MEETING FOR THE PURCHASE OF THE AGRICULTURAL MACHINERY

The meeting was held on Sunday 18/12/1983, guest members present were Dr. Zakaria El Haddad, Project Coordinator- Mr. S. Shepley. Mr. Roger Engstrom was not able to attend due to his presence on a Field trip. Also Eng. Zaki Helmy did not attend for he was getting ready for his academic study in the USA. Eng. Mohamad Ismail was present instead.

- Eng. Mohamad Ismail was welcomed as a new member of the committee taking over and carrying out all Mr Z. Helmy's duties.
- The committee examined the memorandum submitted by Eng Mohamad Abdel Wahab, Committee rector, concerning the distribution of total credit fund on all project governorates. They agreed on the distribution provided that funds are not to be transferred from one governorate to another unless the said governorate is informed. Also this transfer is not affected before the expenditure of 75% of the total previous funds allocated of the one million dollars. It was noted that LE 50000 was transferred from Minia to Behera by the Project Management since the last meeting due to the fact that the funds had not been used there.
- A suggestion was submitted for complying ~~to~~ requests of similar machinery and submitting it through a general tender through the bank of Agricultural Directorates. The following was pointed out.
  - The length of time for the submission of tender and procedures that follow. Also the unavailability of technical staff in banks to carry out this task causing the delay in delivery of machinery in the proper time for cultivation.
  - for these reasons and for encouraging farmers to obtain machinery, the committee sees that requests should be examined individually and separately after project approval.

--2/--

Annex A.5.a

- Requests for large numbers of machinery are to be re-examined later for obtaining more suitable prices and proposals.
- The sum of LE 30,000 of the allocated funds for Minia Governorate were withdrawn to be added to Gharbia Governorate funds. (The sum previously allocated for Minia was LE 62439 and for Gharbia LE 114334 and after the subtraction of the above sum the amount remaining for El Minia Governorate will be LE32439 and for Gharbia LE 144334) The Gharbia Governorate has expended the amount of LE 104209 of its allocated funds. The committee examined the financial status up to 30/11/1983 and the following was pointed out.
  - 1) Amounts expended upto 30/11/1983 for the purchase of Agricultural machinery of individuals are approximately LE 131279
  - 2) Amounts expended for cooperatives upto 30/11/1983 are approximately LE 155041  
The total of which is expended up to 30/11/1983 are LE 286320
  - 3) The number of machinery purchased up to 30/11/1983 are  
14 cultivators- 3 loaders- 24scraper- 1 fork- 1 ridger  
2 sprayers- 3 harvest.1 thresher- 32 diggers- 2 disc harrow  
5 mowers- 30 stalk cutters- 7 combine

The following requests were then examined.

#### EL BEHERA GOVERNORATE

The following requests were approved.

1. Mr. Wahid Hamid El Itriby for the purchase of a local backhoe and trailer(Argentrio).
2. Mr Fathy Abdel Naby Mobarak for the purchase of a mower(Gaspardo Italian)
3. Mr.Ahmad Ibrahim Aly for the purchase of a cultivator(Grillio Italia)
4. The cooperatives of Dest El Ashraf- Kom Hamada Markaz for the purchase of a backhoe(Argentrio)

#### EL SHARKIA GOVERNORATE

The request submitted by the cooperative for development of Animal Production for the purchase of Berseem and maize mowers were approved, Forage trailer loader, trailer for spreading of fertilizer and Loader(Bob cat) were also approved.

#### EL GHARBIA GOVERNORATE

The committee also approved the requested by Mr Abdel Shafy Ahmad Matar for the purchase of a backhoe(Italian Grillio 18 hp).

COMMITTEE MEMBERS



Annex A. 5 b

COMMITTEE RECTOR.

M. Abdel Wahab.

This memorandum is to be submitted before the Agricultural Equipment Committee, it concerns the distribution of funds allocated of credit of Agricultural Equipment.

1. Funds allocated for credit is \$2000000 that is equivalent to LE 1663360 on the basis that a dollar is = ,83168 piasters
2. 20% is allocated as a surplus which is equivalent to LE 332672
3. The amount of LE 30510 has been expended of the funds of Dakahlia Governorate.
4. The remaining sum needed for distribution is LE 1300178
5. The amounts distributed among governorates as per area cultivated as follows:

1. GOV.	CULT.AREA	RATE	PREV.FUND ALLOCATED. LE	SUM AFTER MODIFICATIO
BEHERA	621000	28,9	332566	375751
GHARBIA	388000	18,1	114334	235332
QALUBIA	146000	6,8	62954	88412
SHARKIA	611000	28,4	179397	369251
MINIA	383000	17,8	62439	231432
TOTAL	2149000	100	751690	1300178

The above is submitted for your consideration



Committee Rector

M. Abd El Wahab

Eng. Mohamad Abdel Wahab

Agricultural Mechanization project  
Machinery Introduction Credit Status  
As of 30.11.1983

Area	Amount Allowed	% of total	Amount Approved Before the Committee	Amount approved and in process with bank			Amount spent			% of Amount Allowed
				positioned	crd.	Total	paid	crd.	Total	
BEHERA	182556 100000 50000 332556	145.45	523067	127692	62844	190536	54240	101543	155783	46.84
GHANSIA	114334	15.63	14424	—	30414	30414	34269	53498	87767	76.76
QUALUBIA	42954	5.87	—	39509	6680	46189	15000	—	15000	34.92
SHARAKIA	179397	24.52	105200	—	24000	24000	22320	—	22320	12.44
MEDIA	62139	8.53	51800	88105	—	88105	5450	—	5450	8.73
OTHERS	—	—	30510	—	—	—	—	—	—	—
TOTAL	731680	100		255106	339938	595044	131279	155041	286370	39.13

Annex A-5d

Agricultural Mechanization Project

MONTHLY ACTIVITIES OF THE In. Country Unit

PREPARED BY Zaghloul El Sayegh

For the Month of December 198

DATE 16 Jan 1984

A. SUMMARY:

<u>Machinery Management Extension Training.</u>				<u>No. of Train</u>
1 Oct - 25 Dec.	3EX 14.1	Sakha	Extension Specialists	15
12 Nov - 5 Jan.	3EX 12.1	Mamoura	Mechanic Level I	13
12 Nov - 15 Dec.	3EX 20.3	"	Tractor operator	10
26 Nov - 15 Dec.	3Li	Minia	Field instructions in Land levelling	5
17 Dec - 5 Jan.84	3Li	Minia	"	5
3 Dec - 26 Jan.84	2EX 79	Mamoura	Mechanic Level III	10
24 Dec - 26 Jan.84	<del>3EX</del>	"	Tractor operator	11
7 Jan - 26 Jan.84	4Li	Minia	Field instructions in land levelling	5
28 Jan - 22 Mar.84	4Ex	Mamoura	Mechanic level I	15

Annex A.

ANNEX A.6.a

Agricultural Mechanization Project

December 1983

<u>Date/Time</u>	<u>Location</u>	<u>Course No.</u>	<u>Course Title</u>	<u>No. of Trainees</u>
<u>Machinery Management Extension/Training</u>				
1 Oct - 15 Dec.	<del>Sakhat</del> Center	3EX 14.1	Mech Extension	15
12 Nov - 5 Jan 84	Maamoura T.C	3EX 12.2	Mech I	13
12 Nov - 15 Dec.	"	3EX 20.3	Tractor op.	10
3 Dec - 26 Jan 84	"	2EX 79	Mechanic III	10
24 Dec - 26 Jan 84	"	3EX 20.4	Tractor op.	<u>11</u>
( field courses - extension )				
(December) <u>Project villages</u>				
	"	3EX37.105. .155	Land leveling	275
	"	3EX34.191- 201	Cotton stalk mowing	20
	"	3EX38.83- 149	Wheat planting	461
	"	3EX 36.3- .16	Disc harrowing	105
		3EX 8.74- 200	Backhoe operation Combine harvesting	540 20
27-29 Dec.	Sidi Beshher T.C.	3EX	Extension workshop	55
31 Oct - 9 Dec.	AUC	3T	English language	10
<u>Research and Development</u>				
7 Aug 83 - 6 Feb 84	USA	3RDI	Tech. Tring	1
7 Aug 83 - 6 Feb 84	USA	3R02	" "	
<u>Planning and Evaluation</u>				
7 J1 83 - 6 Jan 85	USA	3 PE/a	Msc.-Ag. Econ	1
<u>Land Emporvement</u>				
26 Nov . 15 Dec	Minia.	3EX 37.106.-107	Land Levelling	5
17 Dec - 5 Jan 84	"	3Li	"	5
<u>Local Manufacturing</u>				
December	Behera Co.	3LM 10.12	Grain Thresher	2
"	"	3LM 10 a	Mech. drawing	<u>6.</u>
<b>Total :</b> (276 In. Country Courses for 1562 trainees)				<u>1565</u>
(3 participant courses for 3 trainees)				
<b>Total :</b> 279 courses for 1565 trainees				

Annex A.6.b

SALAH BAKAR - TRAINING OFFICER

Report On

The achievements over the period Sept.24 through Dec.28,1983 in gov.Kafr El Sheikh, Gharbia and Dakahlia

First:

The Machines:

No.

- 3 - Deutz combine 980 Kafr El Shiekh - Re. St.
- 1 - " " " Gemazah
- 1 - " " " Beny Ebid - Dakahlia Farmers
- 2 - Tractors Ford 60, 120 HP Kafr El Shiekh
- 2 - Cotton sillage mower
- 2 - Grain drill
- 2 - Mowers Came from test station
- 2 - Tractors Nasr 60

Second:

Areas harvested, servied and planted in the farms as follows:

Sakha farm: Over the period Oct. 25 - Nov. 29 areas harvested:

<u>Sakha</u>	<u>area.J</u>	
	114	Rice
Karada	294	Rice
Misir	22	"
	<hr/>	
	430	Feddan

Manalet Mosah

Metel Dieha 110 "

Gemmeza The period Oct.26 - Nov.25

Korashia 102 Feddan

Beni Ibada - Dakahlia 12 Feddans

- The season why we did not complete the harvesting process is the land was unpro~~s~~itable for the machine and the small holding. That means the total rice area has been harvested during season 83 is 644 Feddan.

- The daily rate of operation was 4-5 Feddan as per the density of plants.
- Slight wrongs because of the operation; The reason why there were no wrongs is the supervision, maintenance and repairing in due time, and the good training of staff.
- No loss and no fraction in needs.

Third: The agricultural services include: Sillage mowing Tillage - planting

a- Sakha farm

- 178 Feddan mowing cotton Sillage
- 183 " planting wheat with grain drill.

b- Mahallet Mosa

- 132 Feddan cotton village mowing.
- 270 " planting wheat unit seed drill.
- Tillage 187 Feddan and 152 feddan second phase.

c- Gemmaza : Tillage 50 Fd up to Dec. 26

Next Month activity

- Necessary maintenance for combine in preparing for wheat harvesting will be done.
- A list of spare parts necessitated for combines specially those which are not available in store; i.e. the spare parts for engine.
- 220 F. in Gemmaza are now prepared to be planted cotton with the project tractors.
- Pooling machines to be inspected and repaired.

Agricultural Mechanization Project

Report on the Mechanization Extension Workshop

held at the Sidi Beshr Training Center

27 - 29 December 1983

The third mechanization extension workshop was held in Alexandria at the Sidi Beshr Training Center 27-29 December 1983. It was the 3rd project extension workshop since the project began and is planned for every four months in the future. The primary purpose of the workshop is to get all extension and training staff together to review progress and problems in mechanizing Egyptian villages, to allow project management to provide direction for the overall effort and to update project activities and plans to all concerned.

During this particular workshop the specialists from all 23 villages presented a review of their 1982-3 (15 Oct-15 Oct) extension programs and what their plans were for 1983-4. Number of demonstrations given, farmers trained and feddans covered were discussed by all with the strongest programs appearing in the Sharkia, Behera and Garbya governorates with the Qualibya and Minia areas following. While Minia received equipment only recently which has retarded their progress, it appeared that the activity in the Berka district of the Qualibya governorate was less than satisfactory since very few field days or demonstrations had been given there over the past year.

Major complaints centered around the lack of equipment support and transportation problems. The recent arrival of hand tools, sets and motorcycles should ease these problems although the greatest need was for technical assistance in the field which is badly needed. Many areas do not have sufficient operator manuals and parts catalogues for all units received and a list was made of the deficiencies in order to procure and furnish the ones in question. A series of "Tuesday Maintenance Checks" was scheduled for all areas during which each village would eventually be visited by the extension technical staff to examine, repair and or/discuss the equipment in each area.

Some of the common equipment problems mentioned included seed drills whose seed distribution shafts won't turn, fuel filter problems on the combine and breakage of the lightly built mower-binders; while many of these problems are due to the failure of the inexperienced staff to clean dirt and rust from the units after use, a review of the equipment was arranged to resolve the

Annex H.b.e

and other urgent problems.

Discussion was also held concerning the "ad hoe" use of equipment which was continually being moved from one area to another and usually come back damaged. Several Specialists had problems with farmers when they had arranged demonstrations on a particular unit which was taken by project staff to another area with little or no notice. It was emphasized that careful planning needs to be done in the future to present farming specialist farmers working relationships and the effectiveness of a complete demonstration.

One question that continually appeared was why project village areas were not purchasing equipment while areas outside were. It appeared that most specialists are not successfully or enthusiastically emphasizing the availability of the machinery introduction fund. Most were more interested in how many more machines they were going to receive for their village rather than how to convince farmers to take out a loan. It was pointed out that the first machine purchased by the coop at the Shiek Ahmed pretest village stood 2½ years after demonstrations began there which is how long it took them to seriously adopt the particular machine. Of the specialists who began working with the project it appeared that only one, Helmi Abd Zait, had resigned and taken a job in Saudi Arabia after completing extension and English training furnished by the project. During the workshop a motorcycle course was conducted by the technical advisor and operators manuals were distributed to the 23 village specialists who will receive them as soon as they are licensed by the Ministry.

It was recommended that all specialists conduct at least one monthly meeting with the farmers in their areas to review and discuss their extension program. Also required by the project management were monthly reports from all specialists which would be reviewed and checked periodically. Emphasized was the possibility that the specialists who were not active would have their equipment moved to other areas and incentive reduced. The incoming equipment list was announced and where it would be located would be determined by how well the current programs were carried out. In each district at least one key village would receive additional equipment and support providing satisfactory progress was noted.

The workshop ended with a plan to meet again in April or May after wheat harvesting to review/discuss the spring season activities and next fall's plans

Annex A.6.f

Agricultural Mechanization Project

Monthly Activities Of The Participant training Unit

Prepared By Hussein Heiza

For The Month Of December 1983

DATE 25-12-1983

A. SUMMARY:

A - Non-Academic Training

- 1- 10 trainees in English language training started at Oct.31,1983 until Dec. 9,1983.
- 2- An English Screening test (Aligu) for 12 of the non academic candidates had been held in the AUC through the English Language department in USAID.
- 3- Two candidates are in the USA for a short term Technical participant for 6 months tour of duty on computer and Research Technology.
  - a- Miss. Nazek Abdel Ghani (Programed from Aug, 83 to Feb 6,1984)
  - b- Mr. Adel Ahmed Adel Hadi

B. Academic Training

- 1- One candidate for academic training are in the USA (Atef Abdel Razed) MSC. Agri.Economic.
- 2- Three candidates for academic training are in processing:
  - a- Eng: Zaki Helmy \_\_\_\_\_ Msc. Agri Economics
  - b- Aymen H.El- Mofty \_\_\_\_\_ Msc. Agri. production
  - c- Miss. Sohairj Abd El-Rahman \_\_\_\_\_ Msc. Rural Sociology
- 3- Three Candidates for PhD. And Msc. degree are in processing as follows:
  - a- Adel Mohamed El Gohary \_\_\_\_\_ PhD. post Harvesting
  - b- Aly Kamel \_\_\_\_\_ Msc. formation processing
  - c- Nabil Helmy \_\_\_\_\_ Msc. Agri. Education

C. PLANS FOR NEXT MONTH:

Complete the processing of:

- a- Mr. Zaki Helmi
- b- Mr. Ayman Helmi
- c- Miss Sohair Abd El-Rahman

**FISCAL REPORT**  
**OF THE TRAINING AND EXTENSION SUBPROJECT**  
 for the MONTH of December 31 1983

The following is a summary of the fiscal report No. \_\_\_\_\_ in Local Currency (L.E.) related to the referenced Training and Extension Subproject.

<u>LINE ITEM</u>	<u>BUDGET</u>	<u>EXPENDITURE</u>	<u>BALANCE</u>	<u>QUARTER BALANCE</u>
1. Instructors Fees	_____	<u>132.00</u>	_____	_____
2. Equipmental Rental	_____	<u>7235.75</u>	_____	_____
3. Petroleum, Oils, Lubricants	_____	<u>32.25</u>	_____	_____
4. Training Aids, Equipment	_____	<u>42.50</u>	_____	_____
5. Machine Operator Fees	_____	<u>- 0 -</u>	_____	_____
6. Room/Board	_____	<u>2084.90</u>	_____	_____
7. Transportation	_____	<u>251.00</u>	_____	_____
8. Expendable Training Materials	_____	<u>82.35</u>	_____	_____
9. Incidental Living Expenses	_____	<u>2232.00</u>	_____	_____
10. Training Center Fees	_____	<u>2962.50</u>	_____	_____
11. Administrative Expenses	_____	<u>3054.45</u>	_____	_____
<b>TOTALS:</b> (Receipts)	_____	<u>18109.70</u>	_____	_____
Outstanding Petty Cash/Checks:	_____	<u>19200.00</u>	_____	_____
<b>GRAND TOTAL:</b>	_____	<u>37,309.70</u>	_____	_____

\*\*\*\*\*

DEMONSTRATION/TRAINING-EQUIPMENT : 110,245.500  
(COMMODITIES)

Ahmed  
 (finance) 9/11  
(date)

Agricultural Mechanization Project

SUMMARY OF  
Demonstration/Training Equipment On-Site (1983)  
and Planning (1984)

<u>Type of Equipment</u>	<u>No. of Units</u>	
	<u>On-Side</u> <u>(1983)</u>	<u>Planned</u> <u>(1984)</u>
A. General Equipment	70	241
B. Seed Bed Preparation Equipment	82	209
C. Planting Equipment	43	142
D. Cultivation Equipment	4	48
E. Fertilizing Equipment	1	15
F. Weed/Insert Control Equipment	1	56
G. Harvesting Equipment	79	185
H. Post-harvesting Equipment	-0-	41
I. Maintenance Equipment (units/Sets)	23	120
	<hr/>	<hr/>
Total :	303	1057
	<hr/>	<hr/>

**Grand Total** : **1360**

Agricultural Mechanization Project

10 Jan

Project Demonstration/Training Equipment  
Status (1983) and Plans (1984)

<u>No</u>	<u>Machine type</u>	<u>on-Site</u> <u>(as of 31Dec.83)</u>	<u>Planned</u> <u>(for 1984)</u>
<b>A. GENERAL EQUIPMENT</b>			
1.	Tractor (20-30 HP/PTO)	-	25
2.	Tractor (60-75 HP/PTO)	1	83
3.	Tractor (80-90 HP/PTO) high ground clearance)	-	15
4.	Tractor, 4x4, 110-120 HP/PTO)	-	10
5.	Tractor (75-85 HP/PTO/4x4)	1	-
6.	Tractor (120-130 HP/PTO/4x4)	1	-
7.	Tractor (75-85 HP/PTO, 4x4)	1	-
8.	Motorcycles (Suzuki 125)	34	-
9.	Orchard Wagon	-	25
10.	Water pump set	5	-
11.	Agricultural backhoe	23	-
12.	Rear mounted tractor blade	1	30
13.	Buldozer	-	1
14.	Elevator Scraper	-	1
15.	Motor grader	-	1
16.	Ditcher	1	17
17.	Post hole digger	1	-
18.	Cultipacher	1	-
19.	Orchard pruning equipment	-	25 sets
Subtotal:		70	241
<b>B. SEED BED PREPARATION EQUIPMENT</b>			
20.	Chisel plow	6	6
21.	Land leveler	28	50
22.	Disc harrow (trailed)	14	-
23.	Mounted disc harrow	3	-
24.	Ridger/bedder	25	41

Annex A.9b

25. Disc plow	2	-
26. Spike tooth harrow	1	30
27. Manure spreader	-	30
28. Roller harrow	-	15
29. Subsoiler	-	15
30. Disc ridger	1	15
31. Power mulcher/bedder	1	-
32. Incorporator	-	3
33. Lazer unit	-	4
34. Land (tri) plane	1	-
	<hr/>	<hr/>
Subtotal	82	209

C. PLANTING EQUIPMENT

35. Row crop unit seed planter	8	44
36. Grain drill	25	94
37. Rice transplanter	10	-0-
38. Plateless planter	-	2
39. Vegetable transplanter	-	2
	<hr/>	<hr/>
Subtotal	43	142

D. CULTIVATION EQUIPMENT

40. Row crop cultivator	4	45
41. Sugar beet thinner	-	3
	<hr/>	<hr/>
Subtotal	4	48

E. FERTILIZING EQUIPMENT

42. Tow-behind Chemical fertilizer spreader	1	15
	<hr/>	<hr/>
Subtotal	1	15

F. WEED/INSECT CONTROL EQUIPMENT

43. Liquid Spray Rig (trailed)	1	41
44. Tractor mounted liquid spray rig	-	15
	<hr/>	<hr/>
Subtotal	1	56

G. HARVESTING EQUIPMENT

45. Mower/binder	30	-
46. Flail chopper/shredder	1	-
47. Silage Mower	29	176
48. Combine harvester	12	-
49. Peanut digger	-	3
50. Root blade	2	-
51. Forage harvester	1	-
52. Forage wagon	1	-
53. wheel rake	1	-
54. Rotary cutter	2	-
55. Peanut combine	1	3
56. Sugar beet harvester	-	3
	<hr/>	<hr/>
Subtotal	79	185

H. POST-HARVESTING EQUIPMENT

57. Chopper - grinder	-	5
58. Baler / Bay)	-	11
59. Rotary mower/Orchard)	-	26
	<hr/>	<hr/>
Subtotal	- 0-	41

I. MAINTENANCE EQUIPMENT

60. Service truck (large)	-	6
61. Mobile workshop (small)	-	40
62. Hand tool set	23	-
63. Small tools	-	(sets)
64. Misc farm shop items	(misc)	
65. Spare parts	( for all units )	
66. Air compressor	-	32
67. Lubrication equipment	-	21 units
68. Arc welding sets	-	21 units
	<hr/>	<hr/>
Subtotal :	23	120

Amey A.9d

DEMONSTRATION/TRAINING TRAINING SESSIONS during <u>DECEMBER</u> 19 <u>63</u> (during) for <u>ALL AREAS</u> (area) by _____ (name)		1. TRACTOR	2. LAND SMOOTHER	3. SILAGE MOWER	4. GRAIN DRILL	5. DISC HARROW	6. AGRI. BACKHOE	7. RIDGER	8. SEED PLANTER	9. CULTIVATOR	10. MOWER/ BINDER	11. COMBINE HARVESTER
I. <u>BEHERA GOV. (SOUTH)</u> El Mansouria District 1 - Bahig 2 - El Mansouria 3 - Abou Mansour 4 - El Corn 5 - El Karamah 6 - Bahig		1	2	1	1	1	2	1	4	1	1	1
II. <u>SHARQIA GOV. (SOUTH)</u> Yamto District 6 - Bahahir El Hessa 7 - Mansour Bahahir 8 - Bahahir District 9 - Bah El Hagar 10 - Bah El Zayat District 11 - Bah Dima 12 - Bah Bahir		-	-	-	-	-	-	-	-	-	-	-
III. <u>SHARQIA GOV. (NORTH)</u> Bahig District 13 - El Bahig 14 - El Bahig 15 - El Bahig 16 - Bahig District 17 - El Bahig 18 - El Bahig 19 - El Bahig		-	-	-	-	-	-	-	-	-	-	-
IV. <u>SHARQIA GOV. (WEST)</u> Bahig District 20 - El Bahig 21 - Bahig District 22 - Bahig District 23 - El Bahig		-	-	-	-	-	-	-	-	-	-	-
V. <u>KAFR EL SHEIKH GOV.</u> 1. Sakha		-	-	-	-	-	-	-	-	-	-	4
VI. <u>BAHARIYA GOV.</u> (BEHERA GOV. SOUTH)		-	-	-	2	-	-	-	-	-	-	1

ANNEX A/D

DEMONSTRATION/TRAINING TRAINING SESSIONS during <u>DECEMBER 1983</u> (during) for <u>ALL AREAS</u> (area) by _____ (name)		12. DISC PLOW	13. CHISEL PLOW	14. ROOT BLADE	15. STALK BALER	16. PUMP SET	17. EQUIPMENT SHED	18. COOP WORKSHOP	19. HAND TOOLS SET	20. MOTORCYCLE	21.	22.
I. BENHA GOVERNORATE (11/12/83)		2	/	/	/	5	/	/	/	34		
1. El Mahoudia District												
- El Mahoudia												
- El Mahoudia												
2. Abou Hanna District (11/12/83)												
- El Corn												
- El Darawah												
- Dassoones												
II. GHARBA GOVERNORATE												
1. Yanto District												
- Shabshir El Hessa												
- Haniot Banihit												
2. Bassyoun District												
- Kom El Moger												
3. Kafir El Zayat District												
- Kafir Bimo												
- Qalyb Abiar												
SHARKIA GOVERNORATE												
1. Minia El Kanh District												
- El Saadyne												
- El Teline												
2. Belbase District		1										
- El Goh												
QALUBIA GOVERNORATE												
1. Banha District												
- El Shamout												
- Magoul												
2. Youkh District												
- Kafir El Hossafa												
- Beltan												
- El Hossah												
IV. MINIA GOVERNORATE												
1. Matay District												
- El Atilat												
- Seila El Charbia												
2. Abou Karkar District												
- Beni Ibeid												
- Beni Housse												
- El Birba El Kubra												

ANNEX A: 105

**A.4 SERVICE CENTER/VILLAGE WORKSHOP SUBPROJECT**

**A.4.1 Service center program**

**A.4.2 Village workshop program**

Monthly Report

Oct. 1983

Service Centre Development Subproject

Submitted by: Graham G Sparrow. (Subproject Technical Director).

Last month we discovered that the PBDAC had circulated a letter to it's branch banks stating that any loan must be secured with a 100% guaranty, if it's value exceeded LE25,000. This is not in the terms and conditions as layed out in the letter of understanding between the Ministry of Agriculture and the U.S.AID.

A meeting was held on the 4th October 1983 in the FOA building attended by personel from the branch banks, Cairo Central Bank (PBDAC) and project staff. the purpose of the meeting was to review the current status of applications in the banks and to resolve the guaranty problem, although the meeting was all in arabic, we were informed that everything was now alright. We have now discovered that nothing has changed. However, later in the month the problem of guaranties raised it's head once again. The terms and conditions state that for a Service Centre, the land on which it will stand must be put up as collateral, regardless of it's value, to the bank as a security. the bank however is afraid, because in some cases the first phase of payment to the client for construction will or can be greater than the value the bank has placed on the land. Nowhere in the terms and conditions is it mentioned that the bank is to value the land, only that the bank holds it as a security. the question the bank asks, is that should the client stop his project for one reason or another after receiving the first payment, then the land value would not cover the first stage payment to the client, in such a case the bank believes that it would have to contribute the differance from it's own funds.

while preparing this report we have had our latest client arrive complaining that the bank in Demanhur has requested that they submit four faddens as a guaranty, although this is only verbal at the present time.

This month two applications for Service Centre's were finalised, but only one was submitted to the bank, apparently someone disliked the way the technical report and the letter to the executive committee were written, these have now been rewritten three times in arabic and translated into English, which still retains the same contents but the "grammer" is questionable.

The members of the Service Centre Subproject keep hearing rumours about the various banks approving client applications for a loan, but nothing official is forthcoming, since we were instructed to hand over the follow up of all loans to Mr Abou El Ella (who is no longer working with the project) and not to concern ourselves with this part of the operation. We are to say the least, very much in the dark, as to what is happening. while on the subject of banks I have heard a rumour that all loans have been suspended in Qalubia for the time being, is this true, if so, it would be helpful to know what is happening, before we do something which is "wrong".

We had meetings with five new clients this month, one from Sharkia, one in Gharbia, two in behera and one in Qalubia

A visit to the Service Centre at Beni Masar in Minia, was made to inspect the progress of construction and a generator which the client wishes to be considered as part of his contribution.

While on the return journey we stopped at Beni Suef to visit our client Mr Rahga and were delighted that the bank has approved his application for a loan, when the bank will take his land as security after this particular application has been approved by U.S.AID as it is outside the projects working area.

We have received some tenders on behalf of Mr Azmy. (Beni Mazar Service Centre) for machinery and equipment, but unfortunately there is not enough as yet to make any decisions on.

Current Status of Service Centre Credit Fund.

<u>Service Centres</u>	<u>Loan Value</u>	<u>Amount Expanded</u>
1. Centre under construction.	250,000	95,000
10. Applications at the Bank.	2,136,600	
8. applications in progress.	<u>1,375,000</u>	
Total value of Loans	3,761,600	
<u>Village Workshops</u>		
13. Loans completed		326,897
8. Loans approved-nomoney spent	153,400	
20. Loans waiting bank approval	383,500	
9. Applications at project level	<u>235,000</u>	
Village shops	1,198,797	
Service Centres	<u>3,761,600</u>	
	4,960,397	

Monthly Report

Date: Nov 83.

Submitted by : Graham G Sparrow.

Service Centre Development Subproject.

We have this month submitted to the bank in Damanhor another application for a small Service Centre in El Delengat, Bahera, Gov'n. On one of our visits to this bank we were informed by their legal department that the bank must have a 100% guaranty for the full amount of any service centre loan, the reason given for this was to cover the family's interest, in case the client died before the expiration of the 20 year term. On our return to the office I reported this to Eng. Morad Hawzy, as I had noticed that representatives from the central bank were visiting the projects office and thought that this point may be clarified. My understanding is that this was not mentioned, but Abou Khir Alla's problem was discussed, the present situation is that he has paid a sum of money for a piece of land from the Agrarian Reform but can not obtain the necessary documents from them, so that he can register the land in order to satisfy the banks procedures. at the present time the bank has his house as a guaranty valued at 60,000LE. It has been proposed that the bank advance him money to start construction of his Service Centre to the value of the guaranty. I personally would advise against this, as I can foresee that once this money has been expended he would not be able to complete his project due to the lack of financing, as it is, it has taken him two years to get this far and I feel that it could take at least another year before he was able to complete all the documentation to the satisfaction of the bank, Quite simply he would have forfeited his home for an incomplete centre that he could not use and, I do not think we should agree to put anyone into that kind of situation.

With regards to the other applications in the bank at the present time, I feel that we should adopt the attitude of seeing is believing.

We have in the past been told by our Egyptian staff that this application or that one has been approved by the bank, only to discover later that this is not the case in point.

In considering the progress to date, and the number of Service Centre applications lodged at the various banks, and the amount of time taken before the bank is in a position to approve them, with the amount of time left in the contract I believe it would be very difficult to complete all the centres by that time, even if we were fortunate enough to receive the banks approval for all of them by the end of next month.

While we are still working on new applications to submit to the bank, it is fair to say that the momentum has slowed down somewhat. However, this will pick up again as soon as we get one or two approvals from the bank.

We have had a number of meetings with the banks and clients who have applications in the bank to assess what can be done to speed up this part of the operation, at the present time one more new application has been submitted to the bank this month bring the total to eleven, with the possibility of another one early in December. the service centre under construction at Beni Mazar is not included in the foregoing figures.

Memo

To : Dr. W.Gaiser  
From : Graham G. Sparrow

(Service Centre Subproject)

Dated: 17th October 1983.

Subject: Inflationary Costs.

In the early part of 1982, when we started our estimates for developing Service Centers, we did not realise that the banking and legal process would take so long for an application to be accepted.

We have had applications lodged with the bank since June 1982, which makes it now nearly eighteen months. Since that time the cost of machinery and equipment has risen almost 100% (e.g. the military lathe made in Egypt was at that time about L.E.5700 today its L.E.10.000 the same can be said for machinery that has been imported into Egypt.

The situation has now arisen whereby it is impossible for a client to purchase the machinery and equipment that was originally planned for the Service Center at current inflated prices. This will no doubt affect almost every application to some degree. The Project may be able to only furnish part of the machinery and equipment necessary, which will put a constraint on the service center operations and could prevent the clients from generating sufficient income to meet their commitments.

It is our opinion that due to the time lapse involved some system should be introduced to protect and safeguard the Service Center development programme. Otherwise, we will be knowingly committing the clients to an embarrassing financial situation.

Monthly Report

Date; Dec 83.

Submitted by : Graham G Sparrow.

Service Centre Development Subproject.

Again, this month we were able to submit to the bank in Behera Governorate another application for a Service Centre, to be erected in Kom Hamada markus.

It would appear that Dr Sharigi wishes the bank to accept more responsibility, in deciding what a client can purchase and approve it, thereby releasing the project from this responsibility, this would be done by a committee from the bank consisting of both technical and financial elements.

As I have mentioned before, that there is a number of applications in the final stages of approval, most of the problems appear to be concerned with the land registration. For example, Hammamy's lawyer claims that their documentation is correct, but the banks legal department claims the reverse, so this situation is now going to be presented to the bank's head office to pass it's judgement, this of course all takes time to resolve.

Another client Shoukry Company has lodged a letter of guarantee which is renewable annually, for the full amount of their loan(LE250,000). We have not yet been able to establish why, anyway the receiving bank has refused to accept this document, as it appears that the client hand delivered it himself to the bank, as this is so, the bank insists on investigating if it is valid or not, although it has been signed and stamped by the issuing bank.

We had two meetings this month with C.E.C. and it appears that the problem over the building shares has been resolved, the client informed us that he has

paid for the shares but is awaiting the share certificate to submit to the bank before they will approve his application. The second meeting was to assist him in selecting the actual machines and tools etc, he will purchase when his loan is approved.

I was on leave from the 23rd Dec thru to 1st Jan 84 inclusive and had requested some repairs and maintenance be done on my vehicle whilst I was away. This had not been completed on my return.

The subproject visited Mr. Mahgub in Beylia, in Kafr El Shielk, it is our opinion that he will be unable to satisfy the bank with the land guaranty. If that is the case, he will cancel his application for a loan.

I think that it should be said that I'm not the only one on the Service Center Subproject that feels current administrative procedure inhibit our progress and at the same time tend to remove all decision making from the subproject as a whole.

This month Mr Azmy's bid evaluation for machinery was approved by the subproject and submitted to the bank, this involved a little over L.E. 93,000.

Mr Zoomer informed us that the Giza bank wants to reduce part of his building loan from 20 years to 10 years. This again will be referred to the head office of the bank in Cairo. Again, this indicates that the banks are trying to enforce their own conditions rather than the terms and conditions of the letter of Understanding, which were approved by the Ministry of Agriculture, U.S.AID and the PBDAC (Cairo).

*Dr. Gaiser*

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TO : Engr. Morad Fawzi  
FROM : Robert E. Snyder *R.E. Snyder*  
DATE : 6 January 1984  
SUBJECT : ACTIVITY REPORT (END OF YEAR 1983)

The difficulties experienced in getting this project started are well known. Therefore, there is no need to reiterate the previous problems finding qualified personnel, problems with the banks, determining acceptable terms and conditions for the loans, etc.

The first small shop loan was finally completed in January 1983 for a total value of LE 12,636.00. During the year, an additional seventeen (17) loans were completed, making a total of eighteen (18), for a total value of LE 393,970.00. For details of these loans, i.e. clients' names, dates of loans, locations, amounts, etc., see attachment A of this report. It could be called a modest success at best.

There are several reasons for the slow progress of this project, some of which are as follows:

- A. Although all of the Egyptian counterpart personnel I have worked with have been competent and hard-working individuals, each time we had a change in personnel, it set us back somewhat while the new man was being indoctrinated. The change of duty station from Alexandria to Cairo also cost us time in relocating and finding new team members.
- B. At one point (February 1983) we were directed to expand our project to include all the governorates. After making a concentrated effort for two months in Beni Suef, Kafr El Sheik and Asyut, it was decided that these areas were in fact still out of bounds and that we should cease our activities there. Although the effort was wasted as far as this particular subject is concerned, we did acquire considerable knowledge of the shops and shop owners in these areas. This will be very valuable information for the field teams when work commences there in the future, as it surely must.
- C. We continue to have problems with some of the banks. With few exceptions, these small problems eventually get solved. The fact remains however, that with all the meetings we have had with these people, and the many letters written on the subject, it is inexcusable that at this late date, we still do not have a uniform workable system.

\*\* 1 \*\*

- D. I feel that management very often makes decisions concerning our project without any input from either myself or my counterpart. Further, management does so without realizing how the project will be affected by those decisions in the long run. This of course keeps our staff in a state of confusion which causes a very negative effect on the morale of the entire group.

From the locations of the various completed loans, it is obvious that Behera, Minia and Garbia have been our most successful areas of operation. Problems with the bank in Sharkia have so far prevented us from making any loans in that governorate. A misunderstanding with the bank in Qalubia concerning the bank's responsibility toward fraudulent clients has curtailed activity there. Although Giza governorate was opened to us, I do not expect significant activity there, as most people in Giza seem content to get their service in and on the outer edges of Cairo.

I expect that progress in the future will remain on about the same level as at present, unless some significant changes are incorporated. I shall list those most likely to be helpful:

- A. We need to clarify our relationship with the banks. Their responsibility as relates to our project is still in question. I would suggest that banks that will not cooperate with the project be officially deleted from our are of operation, so that no more time is wasted in those governorates.
- B. Our Support Staff in the Cairo office should be increased. Some of the additional personnel I would suggest are the following:
- 1 Clerk Typist/File Clerk
  - 1 Mechanical Engineer  
(For inspection of machinery and specification-writing)
  - 1 Mechanical Engineer  
(For field work)
  - 1 Mechanical Technician  
(To work with the field engineer)

I have noted that when the field crew is diverted from it's normal functions to inspecting machinery, filling out countless forms, etc., it noticeably lowers the productivity of the entire group.

I feel that it is very wrong to involve additional personnel in the project unless they could be an asset. Too often, people think they are supporting the project

when they actually become an unnecessary meddlesome burden to the project. We need more people to make it easier and simpler to do our work, instead of those dreaming up new regulations that hamper our normal progress.

- C. In the event we find it necessary to delete Sharkia and/or Qalubia from our areas of operation, we should immediately consider having Beni Suef, Kair El Sheik and Asyut made available to the project. Considerable research has already been done in these areas, and they should prove productive very quickly.
- D. I would suggest that authority over the project be delegated down to the lowest level possible. This would give the entire group more flexibility. It would also avoid having to approach upper level management with minor problems which they have no time for, and cannot possibly be fully informed of. It would also let upper management know in a very brief time who among their subordinates are capable of advancing to positions of more responsibility.

Any element of the above is viable only if sufficient office space, furniture and transportation are made available and the persons made responsible are given sufficient authority to manage their segment on the project.

I am favorably impressed by the success of those loans that have been completed. In follow-up visits we have been informed by our clients that due to the addition of new machinery and tools, their income has improved markedly. In one case, the client claimed that his income has increased 80% in just three months. The average seems to be about 40% increase. Considering the fact that none had had their machinery for more than four months, it is a remarkable improvement. It would appear that the increases are due mainly because having new and additional machinery, these shops attract new customers whom previously they could not service. There are also many cases where the shops can now produce more precision work, negating the need to send work out to other shops which very often are in other cities/towns.

I believe that given a chance, this project will make a noticeable impact on the quantity and quality of work turned out by the small workshops in Egypt. I expect that as new and more sophisticated farm machinery and implements are introduced into the Egyptian market, we will receive requests to purchase testing and service equipment to fill those needs:

Attached are copies of some of our follow-up progress reports. (See Attachment B).

Month of December

## Service Centers and Small Workshops Loans

First: Service centers Jan. 1, 1984

## 1. Loans approved by the bank

No.	Name	Approval Date	Location	Value
	A. Azmy	11/1/1983	Bani-Nagar, Helwan	250,000

The client has got 110,000 L.E. from the building loan.

## 2. Loans under investigation at the bank

No.	Name	Delivery Date	Location	Value
1	M. E. Hamam	11-1-1983	Abou-Homos - Behera	195,000
	Abdoh Ali Khair-Allah	20/6/1983	Mahadia - Behera	200,000
2	Saad El-Egizy	16/2/1983	Kalub - Ghalbia	250,000
1	Shoukry Co.	1/3/1983	Nasr-el-Kayt El-Shakh	250,000
2	Diabex Co.	16/5/1983	Aga - Dakahlia	250,000
5	Mohamed Rashwan El-Zawar	27/2/1983	Embaba - Giza	224,600
2	Ragaa Abd El-Rahim	10/6/1983	Bani-Suf - Beni-Suf	250,000
3	Construction Equipments Co.	6/7/1983	Kaf El-Dawar - Behera	250,000
7	Saad Mohamed Saad	20/10/1983	Dahiget - Behera	160,000
2	Mrs. Magdah	13/11/1983	El-Saff - Giza	125,000
	Mohamed Abd El-Fattah Harhal	4/12/1983	Kom Hamada - Behera	250,000
Total				2,404,600

## 3. Loans at project level

No.	Name	Application Date	Location	Value
1	Kamal Korrah	11/9/83	El-Nobana - Behera	250,000
2	Mohamed Khalil El-Gazzar	1/12/83	Katara - Gharbia	
Total				250,000

Service centers total L.E. 2,904,600

Developed workshops.

Name	Delivering Date	Location	Value L.E.
Ibrahim Atergia	18/1/83	Delingat-Behera	1263
Hassan Shalaby	15/13/1983	Damanhour-Behera	1880.
Mohamed Kohla	9/3/1983	Delingat-Behera	8815
Youssef Hassan Emarah	9/12/83	Itay EL-Baroud-Bahera	1664
Soliman EL-Nashar	9/12/83	Abou-Honos-Behera	11958,
Mohamad EL-Mahawy	31/3/83	Baha-Galubia	44000
Morsy EL-Bagawry	31/3/83	Benha-Galubia	3795.
Afify Abd-EL-Rahid Afify	16/5/83	Tonkl-Galubia	10,00
Abd EL-Ghani Ali Hafez	16/5/83	Benha-Galubia	3795.
Mohamed Mohamed Youssef	11/9/83	Tonkl-Galubia	2700
Mohamed Eman Zaky	13/10/83	EL-Kanater EL-Khaira	20,00
Hassan Mostafa Gafer	25/11/83	Galubia	9,323
Mohamed Ali Allah Selim	30/10/83	Kafr EL-Sheikh - <sup>Zuqiat</sup> Gharkia	5900
Ibrahim EL-Hadary	22/12/83	Bassien-Gharkia	17943,
Abu Zeid EL-Shazly Abou Kohla	31/10/83	Bassien-Gharkia	35,00.
Abd EL-Sattar Ali Ahmed	28/8/83	EL-Minia - EL-Minia	8916
Sabhy Youssef Atergia	1/9/83	" - "	15,00.
Refaat Mohsen Mohamed	3/11/83	Samelout-EL-Minia	11,399

Total

393970  
L.E.

Loans approved by the bank

Name	Approval Date	Location	Value L.E
Abd El-Berry El-Bassiony	22/2/83	Shubin El-Khatat Qalubia	50,000
Hassan Omar El-Gammel	6/11/83	Shubin El-Khatat Qalubia	25,000
Abd El-Moniem Adly	12/10/83	Hosh-Ema - Bahera	7,000
Total			82,000 L.E

Loans under Investigation in the bank

Name	Debiting Date	Location	Value
Fouad Aziz Abd EL-Meseh	11/6/83	Abou EL-Matamir	20,000
Ibrahim Mohamed EL-Saimat	1/16/83	Behera Abou EL-Matamir-Behera	15,000
Samira Afify Bakkar	24/7/83	Kom Hamada - Behera	20,000
Tantawy OKba	12/10/83	" - "	15,000
EL-Said Mabrouk EL-Dieb	12/10/83	" - "	45,000
Ahmed Ibrahim Abd EL-Razik	12/10/83	Abou EL-Matamir-Behera	12,000
Adel EL-Desouki Abd-Allah	19/10/83	Kafr Shokr - Gharbia	40,000
Samir Shaker Abd EL-Wehab	29/11/83	EL-Khanke - Gharbia	12,000
Ahmed Youf Ahmed	21/6/83	Samalout - Gharbia	24,000
Selim Mohamed Selim	5/7/83	Mullawi - Minia	40,000
Ibrahim Ibrahim Soliman	5/7/83	EL-Edwa - Minia	20,000
Adel Mohamed Naguib	28/8/83	Abou Karkeas - Minia	25,000
Mohamed Mostafa Abd EL-Motagalli	28/8/83	" - "	50,000
Monir Farah Abd EL-Malak	5/10/83	Samalout - Minia	40,000
Tawfik Israk Michael	28/11/83	Samalout - Minia	25,000
EL-Said Eid EL-Garawany	2/8/83	Tanta - Gharbia	20,000
Ahmed EL-Desouki EL-Bairaly	15/11/83	EL-Mahalla EL-Kobra	20,000
Ateyia Ahmed Shalash	8/11/83	Kafr EL-Zayat - Gharbia	25,000
Salah Ateyia Mohamed Saad	8/2/83	Diarb Wajm - Sharkia	20,000
Mostemed Mohamed Abd EL-Ghani	23/8/83	" - "	25,000
Samir Farag EL-Said	29/11/83	EL-Hersania - Sharkia	50,000
Harzem Hassan Ali	29/11/83	Giza - Giza	50,000

Total

613,000

Loans at the project level

Name	Application Date	Location	Value L.E.
Hosam Ali EL-Magdoub	3/10/83	Tanta - Gharbia	—
Mohamed Ali EL-Salhi	15/11/83	Kafr EL-Zayat - Gharbia	500
Saleh Abd EL-Aly Ata	16/11/83	Kafr EL-Zayat - "	1800
Abd EL-Hamid Ahmed Abd EL-Hamid	2/11/83	Bahariya - Gharbia	2500
Yassin Salah EL-Tamaily	13/12/83	Souhag - Gharbia	25000
Ragaa Abu EL-Ela Karkasha	13/12/83	" - "	25000
Barwaney Amer EL-Mawafy	13/12/83	Zefta - Gharbia	5000
Ahmed Saad Ali	11/8/83	Zagazig - Shoubha	22000
Ahmed Youssef Ghazy	26/10/83	<del>Abu Hamad</del> Bahariya	5000
Hosam Ali Abd EL-Saleh	3/11/83	Kafr EL-Dawar - "	15000
<del>Mohamed EL-Bahar Shami</del>	5/11/83	Kan Hamada - Bahariya	—
Mohamed EL-Sheikh	18/11/83	Kafr EL-Dawar - "	25000
Mohamed Saad EL-Aghoury	15/12/83	Mahoudia - Bahariya	15000
Mohamed Mohamed Ibrahim Khalid	25/12/83	Kan Hamada - Bahariya	50000
Mohamed Mohamed Hassan Khaled	13/12/83	Dalingat - Bahariya	4000
Shehata Hassan Seher	13/12/83	Abu Hamad - Bahariya	17000
Mohamed Mustafa EL-Emany	14/12/83	Hosh EL-Nasr Bahariya	25000
Mohamed Bahmany Morsy	28/12/83	Kafr EL-Dawar - Bahariya	25000
Mohamed Rany Faray	21/12/83	Sunghat - Bahariya	—

Total

Centers total	2,903,600 L.E.
workshops total	1,528,549 L.E.
<b>Grand Total</b>	<b>4,432,149 L.E.</b>

LOAN PROGRESS REPORT(small workshops)

6 Dec. 83

Clients Name : Abd El Sattar  
 Address : Minia City  
 Date of Report : 5 Dec 1983  
 Reporting Eng. : Eng. Bayoumi

## List of machinery tools etc. purchased:

1. Lathe, Military, 1m Purchased
2. Gringer, bench Sept. 83
3. Vice Sept. 83
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

A. Which machines etc. have been most helpful ?

Lathe, this machine was purchased to  
replace a smaller unit that was unrent

B. Have new machines drawn new customers ?

Yes, because I am now able to do more  
and better work that I previously could  
not do due to the limitations of my  
old lathe.

C. Which machines have generated most profit ?

Lathe, my only machine tool + a drill press

D. Have you enough work to keep new machine busy ? Yes  No Approximate hours/day ? 8 + hrs

Often have to work late at night and  
always have a back-log. waiting.

E. Approximately what percent has your income increased due to new machines ?

80 for both income & production

F. Has addition of new machines caused you any problems ?  
( Explain. )

1. Disappointed that the bank would not allow the one year grace period & they were slow.
2. Tolerances and accuracy of the military lathe is not good but I have aligned and adjusted it.

G. Do you feel that taking this loan was a wise decision  
( Explain )

Definitely Yes

H. Should you have purchased different machines, or machines with other features ?

Should have purchased a cyl. bore and cyl. hone in addition to the lathe.

1. Client says he has banked 1100 LE in the 3 months he has had his new lathe.
2. Also that he can handle payments easily w/o the grace period.
3. Will likely ask for a loan for additional machines. (We would be in favor of this.)
4. Mr. Satter is one of the most capable machinist/mechanics we have met in Egypt.
5. Would like to have his son get machinist training, beginning 1 May. (Also student)

Small manufacturers is another area of potential business which we have barely tapped. The reason we have not done much here is the uncertainty as to whether or not we were permitted to support these operations. For the first couple of years the answer was definitely no. Since then the rules have been some what relaxed, and I believe rightly so.

My feeling is that although the majority of shops in this category are primarily manufacturers, they all do some repair work on the type machinery they manufacture. This of course constitutes a contribution to the agriculture industry.

If we were to begin supporting all of the manufacturers that requested a loan, we would very shortly expended our funds.

Another thing to consider here is: Although we will be helping these operator to increase production and improve quality, they will still be producing the same poorly designed inefficient machines they have been making for years. In view of this, you must question whether or not this is a worth while contribution. To date we have been very selective in support of these manufacturing shops and will remain so unless we are directed by management to open the valve.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

AGRICULTURAL MECHANIZATION PROJECT

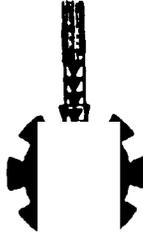
A. I. D. Proj. NO, 263 - 0031

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P. O. B. 256 Dokki - Giza, A.R.E.

704660 - 704720

704364 - 707247



مشروع المكننة الزراعية  
وزارة الزراعة المصرية - وكالة التنمية الأمريكية  
الدور الخامس - مبنى الجمعية العامة للإصلاح الزراعي  
مخدوم بريد ٢٥٦ - الدقي - جيزة ج ٢٠  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٣٦٤ - ٧٠٧٢٤٧

DATE 10/1/1984 التاريخ

To : Dr. David Gaiser  
From : R.E.Snyder *R. E. Snyder*  
Subject : Mo. Report (Oct.1983)  
Date : 10 Nov. 1983

General

Most of our efforts this month were in Qalubia, Garbia, Behera and Minia. We have had very limited success in Giza. Seems that most people in this area depend on Cairo for their parts and service. Misunderstandings with the bank in Sharkia have presented us doing any business in this governorate.

We have not yet seen the two additional mechanical engineers who were to join us this month. Seems to be a problem recruiting competent help.

We have developed a form to use in monitoring loans to determine what degree of success we are having. See sample copy, attachment -B-

Loan Activity

Disbursements for Oct. 83	100,000
Disbursements thru Oct.31,1983	326,636 LE
Loans with bank approval	153,400
Loans at bank but no approved	483,500
Loans being reviewed in out office	235,000
Total potential business	1,198,536

For details of the above see attachment -A- of this report.

Problems

Office space and furniture are still inadequate. We have not as yet been able to acquire transportation for our engineers, so we can survey the small villages for potential clients

Attachment-A- Tables

- 168 -

Service Centers and Small workshop Loans

*Month of Oct.*

First : Service Centers

1. Approved Loans by the bank

No	Name	application date	Location	Value
1	A. Amry	11/1/1983	Beni-Mazer, El-Minia	250,000

The client *has got* 95,000 L.E. from the building loan.

2. Loans under investigation of the bank

No	Name	Delivering date	Location	Value
1	M. El-Hamamy	11/1/1983	Abou Homos - Behera	198,0
2	A. Khair Allah	20/6/1983	Mohmodia - Behera	200,0
3	S. El-Egaisy	16/3/1983	Kaluib - Qalubia	250,0
4	Shoukry Co.	1/3/1983	W <sup>o</sup> erah - Kafr El-Sheikh	250,0
5	Diabex Co.	16/5/1983	Aga. Dakahlia	250,0
6	H. Magoub	16/5/1983	Beiala - Kafr El-Sheikh	107,0
7	M.R. El-Zomor	27/2/1983	Embuba - Giza	224,0
8	Ragaa Abd El- Rehim	10/6/1983	Beni Suif - Beni Suif	250,0
9	Construction Equipments Co.	6/7/1983	Kafr El-Dawar-Behera	250,0
10	Saad Mohamed Saad	20/10/1983	Delingat - Behera	160,0
Total				2,116

3. Loans at project level

No	Name	Application Date	Location	Value
1	K. Korrah	11/9/1983	El-Nobarria-Behera	25
2	A. Assam	8/2/1983	El-Badrashin-Giza	25
3	A. Dakrory.	6/5/1983	Abou Korkas-Minia	30
4	A. Osman	7/4/1983	Abou-Hamad-Sharkia	
5	M. Haghah	16/6/1983	Kom Hamada-Behera	
6	M. Afify	20/10/1983	Toukh-Qalubia	
7	M. Mabrouk	2/10/1983	Tanta- Gharbia	
8	Mrs. Nagdah	23/8/1983	El-Saff- Giza	
Total				

Second : Small workshop

1. Developed Workshops

No.	Name	Devlivery Date	Location	Value
1	I. Ateyia	18/1/1983	El-Delingat-Behera	12,636
2	H. Shalaby	15/3/1983	Damanhour-Behera	18,800
3	M. Kohla	9/3/1983	El-Delingat-Behera	8,815
4	M. El-Mahalawy	31/3/1983	Benha-Qalubia	49,000
5	M. El-Bagoury	31/3/1983	Benha-Qalubia	37,950
6	Afify Abd El-Rashid	16/5/1983	Toukh-Qalubia	10,000
7	Abd El-Ghani	16/5/1983	Benha-Qalubia	38,780
8	Abd El-Sattar	28/8/1983	El-Minia El-Minia	8,916
9	M. Selim	30/10/1983	Kafr El-Zayat-Gharbia	50,000
10	S. Youssef	1/9/1983	El-Minia El-Minia	15,000
11	M. Youssef	11/9/1983	Toukh-Qalubia	27,000
12	M. Emam Zaky	13/10/1983	El-Kanater El-Khairia Qalubia	20,000
13	Abou Kohla	31/10/1983	Bassion-Gharbia	35,000
Total				267,892

2. Loan approved By the Bank

No.	Name	Approval Date	Location	Value
1	A. El Basiomy	22/2/1983	Shibin El-Kanater- Qalubia	50,000
2	H. Gaafer	9/3/1983	El-Kanater El-Khairia Qalubia	17,000
3	R. Mohsen	14/8/1983	Samalout-El Minia	13,000
4	Y. Emara	12/10/1983	Etay El-Baroud - Behera	17,400
5	A. Adly	12/10/1983	Hosh-Essa-Behera	7,000
6	A. Tolba	12/10/1983	Abou-Homos - Behera	20,000
7	S. El-Nashar	25/10/1983	" " "	12,000
8	I. El-Hadary	16/10/1983	Bassion-Gharbia	17,000
Total				153,400

3. Loans under investigation at the bank

No	Name	Delivery Date	Location	Value
1	M. El Enany	16/5/1983	Hosh Essa- Behera	20,000
2	M. Zeinhom	16/5/1983	" " - "	12,500
3	El-Sammât	1/6/1983	Abu El-Mâtamir-Behera	15,000
4	Abd El-Meseh	1/6/1983	" " "	20,000
5	Al - Garawany	2/8/1983	Tanta - Gharbia	20,000
6	S.H.Selim	21/6/1983	Samalout -El-Minia	10,000
7	A. Youssef	21/6/1983	" " "	24,000
8	S. M. Selim	5/7/1983	Mallawy - El-Minia	40,000
9	I. Soliman	5/7/1983	El-Edwa-Minia	20,000
10	S. Bakkar	24/7/1983	Kom Hamada-Behera	20,000
11	A. Abd El-Kader	28/8/1983	Maghagha - Minia	25,000
12	A. Naguib	28/8/1983	Abou Korkas - Minia	25,000
13	Abd El - Motagally	28/8/1983	" " "	50,000
14	M. Abd El-Ghanf	23/8/1983	Diarb Negm-Sharkia	25,000
15	S. Ateyia	8/2/1983	" " "	20,000
16	T. Okba	12/10/1983	Wakid - Behera	15,000
17	A. Mabrouk	12/10/1983	" "	45,000
18	A. Abd El-Razik	12/10/1983	Abou El-Matamir-Behera	12,000
19	A. El-Desoky	19/10/1983	Kafr Shokr-Qalubia	40,000
20	H. El-Gammal	19/10/1983	SEibin El-Kanater-Qalubia	25,000
	<b>Total</b>			<b>483,500</b>

4. Loans at project level

No	Name	Application Date	Location	Value
1	M. El-Boraai	17/5/1983	Zefta- Gharbia	18,000
2	M. El-Kabuny	17/5/1983	Samanoud - Gharbia	25,000
3	H. Al-Magdoub		Tanta - Gharbia	-
4	S. Abd El-Razik	16/5/1983	Toukh-Qalubia	10,000
5	A. Ghazi	25/10/1983	Abou-Homos-Behera	50,000
6	M. Abd El-Malak	20/7/1983	Samalout-Minia	40,000
7	H. A. Ali	4/10/1983	Giza - Giza	50,000
8	A. Saad Ali	11/8/1983	El-Zagazig-Sharkia	22,000
9	A. El-Befaly	11/10/1983	El-Mahala El-Kobra Gharbia	20,000
Total				235,000

Service Centers Total	3,261,600	L.E.
Small Workshops Total	<u>1,198,797</u>	L.E.
Grand Total	4,460,397	L.E.

Supervisor of  
Service Center Development

*Morad Fawzy*  
Eng. Morad Fawzy

- 172 - Attachment - B -  
LOAN PROGRESS REPORT  
(small workshops)

*Oct. Report*

Clients Name : \_\_\_\_\_

Address : \_\_\_\_\_  
\_\_\_\_\_

Date of Report : \_\_\_\_\_

Reporting Eng. : \_\_\_\_\_

List of machinery tools etc. purchased

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

A. Which machines etc. have been most helpful ?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

B. Have new machines drawn new customers ?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

C. Which machines have generated most profit ?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

D. Have you enough work to keep new machine busy ? Yes — No —

Approximate hours/day ? \_\_\_\_\_ hrs

E. Approximately what percent has your income increased due to new machines ?

\_\_\_\_\_ %

F. Has addition of new machines caused you any problems ?  
( Explain. )

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G. Do you feel that taking this loan was a wise decision ?  
( Explain. )

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H. Should you have purchased different machines, or machines with other features ?

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

AGRICULTURAL MECHANIZATION PROJECT

A. I. D. Proj. NO. 283 - 0031

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704864 - 707247



مشروع الميكنة الزراعية  
وزارة الزراعة المصرية - وكالة التنمية الأمريكية  
المنهج الخامس - مبنى الجمعية العامة للإصلاح الزراعي  
صندوق بريد ٢٥٦ - الدقي - جيزة ج ٢٠٠٤  
٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٨٦٤ - ٧٠٧٢٤٧

DATE Jan 10, 1984 التاريخ

TO : Dr. David Gaiser  
Project Technical Director

FROM : R.E. Snyder *R. E. Snyder*

SUBJECT: Monthly Report (Nov. 1983)

GENERAL

The first half of the period was spent primarily in Behera, Gharbia and Qalubia governorates. There was no travel to Minia. We spent the last half of the month in& around Cairo. We were trying to concentrate on completing some loans that were well along the way. The result was disappointing as we still only completed 2 loans totalling approx.. LE 20,722. I am convinced that to keep things moving, we must spend as much time as possible in the field, doing follow up on old contacts and making as many new contacts as possible. We should avoid as much as possible, any activity that detracts from our functions in the field. We will definitely need additional help, "preferably a mechanical engineer," to help us with office work, machinery inspection and specification preparations.

A file cabinet was received and will be of considerable help in arranging our Loan files

LOAN ACTIVITY

Loan activity for the month was as follows:

- Disbursements for Nov. 83	LE 20,722
- Total Disbursements thru Nov.83	LE347,619
- Loans with bank approval	LE148,400
- Loans at bank but not approved	LE653,500
- Loans reviewed in our office	LE205,000

For details of the above see attachments  
-A- of this report.

PROBLEMS

Office space and furniture are still inadequate. Transportation for our engineers to survey village workshops has not been provided. Surveying these villages may or may or may not be a worthwhile effort. The fact remains that we shall never know until we have tried.

**Attachment - A -**

**Service Centers and Small Workshop Loans**

**First: Service Centers**

*For the Month of November*

**1. Approved Loans by the bank**

Dec. 1, 1983

No	Name	Application date	Location	Value
1	A. Assy	11/1/1983	Beni-Masar, El-Minia	250,000

The client has got 95,000 L.E. from the building loan.

**2. Loans under investigation at the bank**

No	Name	Delivering date	Location	Value
1	M. El-Hamazy	11/1/1983	Abou Nomas - Behera	195,000
2	A. Khair Allah	20/6/1983	Mohmodia - Behera	200,000
3	S. El-Zgaisy	16/2/1983	Kaluib - Qalubia	250,000
4	Shoukry Co.	1/3/1983	Noorah - Kafr El-Sheikh	250,000
5	Diabex Co.	16/5/1983	Ag. Dakahlia	250,000
6	H. Magoub	16/5/1983	Beiala - Kafr El-Sheikh	107,000
7	M.R. El-Zomor	27/2/1983	Embeba - Giza	224,600
8	Ragas Abd El-Rahim	10/6/1983	Beni Suif - Beni Suif	250,000
9	Construction Equipments Co.	6/7/1983	Kafr El-Dawar - Behera	250,000
10	Saad Mohamed Saad	20/10/1983	Delinget - Behera	160,000
11	Mrs Magdah	13/11/1983	El Saff - Giza	125,000
	<b>Total</b>			<b>2,261,600</b>

**3. Loans at project level**

No	Name	Application Date	Location	Value
1	K. Korrah	11/9/1983	El-Moheria - Behera	250,000
2	A. Assam	8/2/1983	El-Bodrashin - Giza	250,000
3	A. Dekrory	6/5/1983	Abou Korkas - Minia	250,000
4	A. Omen	7/4/1983	Abou-Nomad - Sharkia	-
5	M. Harhash	16/6/1983	Kom Nomsa - Behera	-
6	M. Afify	20/10/1983	Toukh - Qalubia	-
7	M. Mabrouk	2/10/1983	Tanta - Charbia	-
	<b>Total</b>			<b>1,000,000</b>

**Service Center Total LE 3,511,600**

Second : Small Workshops

1. Developed Workshops

No.	Name	Delivery Date	Location	Value
1.	I. Ateyia	18/1/1983	El-Delingat-Behera	12,636
2.	H. Shalaby	15/3/1983	Damanhour - Behera	18,800
3.	M. Kohla	9/3/1983	El-Delingat- Behera	8,815
4.	M. El-Mahalawy	31/3/1983	Benha - Qalubia	44,000
5.	M. El-Bagoury	31/3/1983	Benha - Qalubia	37,950
6.	Afify Abd El-Rashid	16/5/1983	Toukh - Qalubia	10,000
7.	Abd El-Ghani	16/5/1983	Benha - Qalubia	38,780
8.	Abd El-Sattar <i>very good</i>	28/8/1983	El-Minia El-Minia	8,916
9.	M. Selim	30/10/1983	Kafr El-Zayat- Gharbia	50,000
10.	S. Youssef	1/9/1983	El-Minia El-Minia	15,000
11.	M. Youssef	11/9/1983	Toukh -Qalubia	27,000
12.	M. Emam Zaky	13/10/1983	El-Kanater El- Khairia-Qalubia	20,000
13.	Abou Kohla	13/10/1983	Bassion-Gharbia	35,000
	<del>R. Mohsen</del>	<del>3/11/1983</del>	<del>Samalout-El-Minia</del>	<del>11,399</del>
	<del>H. Gaafar</del>	<del>25/11/1983</del>	<del>El-Kanater El- Khairia</del>	<del>9,323 /</del>
	Total			347,619

2. Loans approved by the bank

No	Name	Approval Date	Location	Value
1.	A.EL Basiony	22/2/1983	Shibin El-Kanater Qalubia	50,000
2.	Y. Emara	12/10/1983	Etay El-Baroud Behera	17,400
3.	A. Adly	12/10/1983	Hosh-Essa-Behera	17,000
4.	A. Tolba	12/10/1983	Abou-Homos-Behera	20,000
5.	S. El-Nashar	25/10/1983	Abou-Homos-Benera	12,000 <sup>1</sup>
6.	I.El-Hodary	16/10/1983	Basion-Gharbia	17,000
7.	H.El-Gammal	16/11/1983	Shibin El-Kanater Qalubia	25,000
	Total			148,400

3. Loans under investigation at the bank

No.	Name	Delivery Date	Location	Value
1	M. El Enany	16/5/1983	Hosh Essa - Behera	20,000
2	M. Zeinhom	16/5/1983	" " - "	12,500
3	El-Sammat	1/6/1983	Abou El-Mata Behera	15,000
4	Abd El-Meseh	1/6/1983	" " " "	20,000
5	Al - Garawany	2/8/1983	Tanta - Gharbia	20,000
6	S.H. Selim	21/6/1983	Samalout El-Minia	10,000
7	A. Youssef	21/6/1983	" " "	24,000
8	S.M. Selim	5/7/1983	Mallawy - El-Minia	40,000
9	I. Soliman	5/7/1983	El-Edwa - Minia	20,000
10	S. Bakkar	24/7/1983	Kom Hamada - Behera	20,000
11	A. Naguib	28/8/1983	Abou Korkas - Minia	25,000
12	Abd El - Motagally	28/8/1983	" " "	50,000
13	M. Abd El-Ghani	23/8/1983	Diarb Negm-Sharkia	25,000
14	S. Ateyia	8/2/1983	" " "	20,000
15	T. Okba	12/10/1983	Wakid - Behera	15,000
16	A. Mabrouk	12/10/1983	" " "	45,000
17	A. Abd El-Razik	12/10/1983	Abou El-Matamir Behera	12,000
18	A. El-Desoky	19/10/ 1983	Kafr Shokr - Qalubia	40,000
19	T. Eshak	28/11/1983	Samalout-El-Minia	25,000
20	A.El-Beialy	15/11/1983	El-Mahala El-Kobra	20,000
21	H. Ali	29/11/1983	Gizal - Giza	50,000
22	S. Shaker	29/11/1983	Khanka - Qalubia	12,000
23	S. Faraq	29/11/1983	Husainia - Sharkia	50,000
24	M.M. Youssef	29/11/1983	Toukh - Qalubia	23,000
25	M. Abdel Halak	5/10/1983	Samalout - Minia	40,000
	Total			653,500

Put Full name in name column  
 RS cannot identify by name

4. Loans at Project Level

†

No	Name	Application date	Location	Value
1	H.El-Magdoub	3/10/1983	Tanta - Gharbia	-
2	A. Ghazi	25/10/1983	Abou-Homos-Behera	50,000
3	Azous S.Ali	11/8/1983	Zagazig-Sharkia	22,000
4	M. Ali Allah Selim	15/11/1983	Kafr El-Zayat-Gharbia	50,000
5	S. Ata	15/11/1983	Kafr El-Zayat-Gharbia	15,000
6	A. Abd El-Rahman	20/11/1983	Basion - Gharbia	25,000
7	Hanan A.Abd El-Salam	8/11/1983	Kafr El-Davar-Behera	15,000
8	Ateyia A.Shalash	8/11/1983	Kafr El-Zayat-Gharbia	25,000
9	M. Abd El-Rahman Sherief	15/11/1983	Kom Hamada-Behera	-
	<b>Total</b>			<b>205,000</b>

Service Center Total 3,511,600 L.E.

Small Workshops total 1,354,519 L.E.

**Grand Total 4,866,119 L.E.**

Supervisor of  
Service Center Development

*Morad Fawzy*  
Eng. Morad Fawzy

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**AGRICULTURAL MECHANIZATION PROJECT**

A. I. D. Proj. NO. 263-0031

**EGYPTIAN MOA/USAID**

5th Floor - Building of the  
General Society For Land Reform  
P. O. B. 258 Dokki - Giza, A.R.E.

704680 - 704720

704884 - 707247



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وزارة الزراعة المصرية - وكالة التنمية الأمريكية  
القصر الخامس - مبنى الجمعية العامة للإصلاح الزراعي  
صندوق بريد ٢٥٦ - الدقي - جيزة ٢٠٤ ج  
٧٠٤٦٩٠ - ٧٠٤٧٧٠  
٧٠٤٧٦٤ - ٧٠٧٧٤٧

DATE JAN 9, 1984 التاريخ

TO : Dr. David Gaiser - Project Technical Director

FROM : R.E. Snyder

SUBJECT: Monthly Report (Dec 1983)

GENERAL

Activity this month was primarily in Minia, Behera and Gharbia. It seems that regardless of the effort put fourth we can't complete more than two or three loans per month. Part of this is due to the fact that we are still not operating with a firm set of rules and regulations. For reasons I cannot explain, we still get new personalities added to the project. In each case we receive new and or additional forms to fill out and rules to follow. Lack of communications within the project is also causing confusion. It is not uncommon for management to write letters to clients or the banks without providing a copy for our info and file. Management also frequently makes decisions concerning our project without any input from myself or my counter part. It is doubtful that they realize how some of these decisions effect our project in the long-run

LOAN ACTIVITY

Loan activity for this period is as follows:

- Disbursements for Dec.83	LE 46,341
- Total Disbursements thru Dec.83	LE393,970
- Loans with bank a-proval	LE 82,000
- Loans at the bank but not approved	LE637,000
- Loans being reviewed in our office	LE422,000

For details of the above, see Attachment -A- of this report.

PROBLEMS

We have found that dealing with the public sector business establishments can be troublesome. In one case a client was not permitted to take delivery of a lathe at least an hour before closing time. In effect the client had come all the way from Behera with the banker and a rented truck for nothing. We will steer clients away from these establishment in the future so as not to waste time on this type laziness and incompetence.

We have found it necessary to cancell applications of loans to some clients. We have visited some of these people on numerous occasions. We have helped them with the problems that arose only to have them drop the ball in final stages of getting a loan

①  
Attachment - A -

Service Centers and Small Workshops Loans

(Month of Dec 83)

Jan. 1, 1984

First: Service Centers

1. Loans approved by the bank

No.	Name	Approval Date	Location	Value
1	A. Azmy	11/1/1983	Beni-Mazar, El-Minia	250,000

The client has got 110,000 L.E. from the building loan.

2- Loans under investigation at the bank

No	Name	Delivering Date	Location	Val
1	M. El-Hanany	11/1/1983	Abou-Homs-Behera	195,0
2	Abdouh Ali Khair- Allah	20/6/1983	Mahmodia - Behera	200,0
3	Saad El-Egaizy	16/2/1983	Kaluib - Galubia	250,0
4	Shoukry Co.	1/3/1983	Nasrah-Kafir El-Sheikh	250,0
5	Diabex Co.	16/5/1983	Aqa - Dakahlia	250,0
6	Mohamed Rashwan El-Zomor	27/2/1983	Embaba - Giza	250,0
7	Ragaa Abd El-Rehim	10/6/1983	Beni-Suif - Beni-Suif	250,0
8	Construction Equipments Co.	6/7/1983	Kafir El-Dawar-Behera	250,0
9	Saad Mohamed Saad	20/10/1983	Delinqat - Behera	160,0
10	Mrs. Magdah	13/11/1983	El-Saff - Giza	125,0
11	Mohamed Abd El-Fattah Harhash	4/12/1983	Kcm Hamada - Behera	250,0
Total				2,400

3. Loans at project level

No.	Name	Application Date	Location	Val
1	Kamal Mourah	11/9/1983	El-Noharia-Behera	250
2	Mohamed Nabil El-Gassar	1/2/1983	Kator-Gharbia	

Service Centers total L.E. 2,904,600

(2)

Second: Small Workshops

Developed Workshops

Name	Delivering Date	Location	Value L.E.
Ibrahim Ateyia	18/1/1983	Delingat - Behera	12,636
Hassan Shalaby	15/3/1983	Damanhour - Behera	18,800
Mohamed Kohla	9/3/1983	Delingat - Behera	8,815
Yousef Hassan Emarah	9/12/1983	Itay El-Baroad - Behera	16,649
Soliman El-Nashar	9/12/1983	Abou-Homos - Behera	1,195,
Mohamed El-Mahalawy	31/3/1983	Behera - Qalubia	44,000
Morsy El-Bagoury	31/3/1983	Benha - Qalubia	37,950
Afify Abd-Roshid Afify	16/5/1983	Toukh - Qalubia	10,000
Abd El-Ghani Ali Hafez	16/5/1983	Benha - Qalubia	37,950
Mohamed Mohamed Yousef	11/9/1983	Toukh - Qalubia	27,000
Mohamed Emam Zaky	13/10/1983	El-Kanater El-Khairia Qalubia	20,000
Hassan Mostafa Gaafer	25/11/1983	" " "	9,320
Mohamed Ali Allah-Selim	30/10/1983	Kafr El-Zaiyat - Garbia	50,000
Ibrahim El-Hadary	22/12/1983	Bassioun - Garbia	17743
Abou Zeid El-Shazly Abou-Kohla	31/10/1983	" "	35,000
Abd El-Sattar Ali-Ahmed	28/8/1983	El-Mania - El-Mania	8,910
Sobhy Yousef Ateyia	1/9/1983	" "	15,000
Refaat Mohsen Mohamed	3/11/1983	Samalout - El-Minia	11,390
<b>Total</b>			<b>393,9 L.E.</b>

2- Loans approved by the bank

	Name	Approval Date	Location	Val
1-	Abd El-Barry El-Bassiony	22/2/1983	Shibin El-Kanater Qalubia	50,0
2-	Hassan Omar E-Gamal	6/11/1983	Shibin El-Kanater Qalubia	25,0
3-	Abd El-Moneim Adly	12/10/1983	Hosh-Essa - Behera	7,0
	Total			82,0

L.E

3- Loans under Investigation at the bank

Name	Delivering Date	Location	Valu
Fouad Aziz Abd El-Meseh	1/6/1983	Abou El Matamir-Behera	20,00
Ibrahim Mohamed El-Sammat	1/6/1983	Abou-El-Matamir-Behera	15,00
Samira Afify Bakkar	24/7/1983	Kcm Hamada - Behera	20,00
Tantawy Okba	12/10/1983	" " "	15,00
El-Said Mabrouk El-Dieb	12/10/1983	" " "	45,00
Ahmed Ibrahim Abd El-Razik	12/10/1983	Abu-El-Matamir-Behera	12,00
Adel-El-Desouki Abd-allah	19/10/1983	Kafr Shokr - Qalubia	40,00
Samir Shaker Abd-El-Wahab	29/11/1983	El-Khanka - Qalubia	12,00
Ahmed Yousef Ahmed	21/6/1983	Samalout - <del>Qalubia</del> Minia	24,00
Selim Mohamed Selim	5/7/1983	Mallawi - Minia	40,00
Ibrahim Ibrahim Soliman	5/7/1983	El-Edwa - Minia	20,00
Adel Mohamed Naguib	28/8/1983	Abou-Korkas - Minia	25,00
Mohamed Mostafa Abd-El-Motagalli	28/8/1983	" " "	50,00
Monir Farah Abd El-Malak	5/10/1983	Samalout - Minia	40,00
Tawfik Issak Micheel	28/11/1983	" " "	25,00
El-Said Eid El-Garawany	2/8/1983	Tanta - Gharbia	20,00
Ahmed El-Desouki El-Baialy	15/11/1983	El-Mahalla-El-Kobra Gharbia	20,00
Ateyia Ahmed Shalash	8/11/1983	Kafr-El-Zayat - Gharbia	25,00
Salah Ateyia Mohamed Saad	8/2/1983	Diarb-Nigm - Sharkia	20,00
Moetemed Mohamed Abd-El-Ghani	23/8/1983	" " "	25,00
Samir Farag El-Said	29/11/1983	El-Hessania - Sharkia	50,00
Hazem Hassan Ali	29/11/1983	Giza - Giza	50,00

Total

613,00

-4-- Loans at the project level-

D.	Name	Application Date	Location	Value L.E.
	Hassan Ali El-Magdoub	3/10/1983	Tanta - Gharbia	
	Mohamed Ali Alla Selim	15/11/1983	Kafr El-Zayat-Gharbia	50,00
	Salah Abd El-Aty Ata	15/11/1983	" " " "	18,00
	Abd El-Gilil Ahmed Abd El-Rahman	20/11/1983	Bassioun - Gharbia	25,00
	Yassin Salah El-Tanaihy	13/12/1983	Samanoud - Gharbia	25,00
	Ragaa Abou El-Ella Kashasha	13/12/1983	" "	25,00
	Bassiony Amer El-Mewafy	13/12/1983	Zefta - Gharbia	5,00
	Azouz Saad Ali	11/8/1983	Zagaziq - Sharkia	22,00
	Ahmed Yousry Ghazy	25/10/1983	Abou-Homos - Behera	50,00
	Hamam Ali Abd El-Salam	8/11/1983	Kafr El-Dawar-Behera	15,00
	Mohamed Abd El-Rahman Sherief	15/11/1983	Kom-Hamada - Behera	- - -
	Abbas Mohamoud El-Sheikh	18/12/1983	Mahmodia - Behera	25,00
	Mohamed Said El-Aghoury	15/12/1983	Mahmodia - Behera	15,00
	Ahmed Mohamed Ibrahim Khalid	25/12/1983	Kom-Hamada - Behera	50,00
	Mohamed Mohamed Hassan Kohla	13/12/1983	Delingat - Behera	4,00
	Shehata Hassan Sakr	13/12/1983	Abou Homos - Behera	18,00
	Mohamed Mostafa El-Enany	14/12/1983	Hosh-Essa - Behera	25,00
	Nabil Bahnasy Morsy	28/12/1983	Kafr El-Dawar - Behera	25,00
	Latif Ramzy Fahmy	21/12/1983	Samalout El-Minia	25,00
Total				422,00

Service Centers Total 2,904,600 L.E.

Small workshops total 1,526,549 L.E.

Grand Total 4,431,149 L.E.

Supervisor of

Service Center Development Sub-project

*M. Fawzy*  
Eng. Morad Fawzy

**A.5 LAND IMPROVEMENT SUBPROJECT**

Monthly Report - October 1983

Land Improvement Sub-Project

1. Demonstration Program

A. Field Operations - The month of October was spent leveling lands in Kom Ombo. This work was carried out in support of the Research and Development Sub-Project's research program with the Sugar Company in Kom Ombo. The equipment was moved to Kom Ombo from Minya the first week of October and returned to Minya on October 31.

A total of 23 working days with 10 to 12 hours per day were carried out. The areas leveled were split between the old lands of Kom Ombo and the reclaimed areas in Wadi Greglt which are being farmed by the Sugar Company. The areas leveled are as summarized in the chart below.

Table 1: Areas Leveled in Kom Ombo by LISP land leveling equipment

Area (fdn)	Location	Configuration	Purpose
25 feddan	Old lands	with slope	R&D experiment
16 feddan	Old lands	with slope	"" "" "" ""
20 feddan	old lands	0% slope	"" "" ""
6 feddan	old lands	0% slope	unknown
6 feddan	old lands	0% slope	irrigation experiment
6.50	Wadi Ghrelt	5% slope	unknown
123 feddan	TOTAL		

As indicated above, a total of 123 feddan were leveled. The first two areas were leveled to slope to large elevation differences in the field, 180cm in one case. The areas which were dead leveled also required substantial earthworks. The Sugar Company currently uses 14ft. scrapers for land smoothing. In the future, if precision land leveling is undertaken, this larger scraper (the LISP scrapers were 10ft models), will be much more effective. The smaller scraper size is convenient for Minya earthwork volumes and frequent travel between basins. In view of apparently larger earthworks volumes in Kom Ombo, the difficulties of transporting the larger scraper may be offset by the improved field efficiency of a larger scraper. The LISP has records of the work carried out in Kom Ombo which would be used as guidelines for carrying out future precision land leveling in Upper Egypt.

It is unfortunate that a reconnaissance visit, using survey equipment, was not carried out before the field work. The research proposal and work carried out did not detail the proposed irrigation method or practices. Since PLL is primarily carried out to facilitate and improve surface irrigation, the research proposal should have given more careful consideration to the irrigation method and land configurations.

In this vein, the recommendations for long furrows or long basins, should be carefully balanced with the availability of sufficient volumes of water. The EWUP project has found that long furrow systems used without sufficient flow rates result in low irrigation efficiencies using more water than small basin systems. The Sugar company encountered this same problem in one of the areas leveled. Some areas did not receive any water not because of differences in level but because of insufficient volumes of water being supplied.

Altogether, the Sugar Company was highly cooperative and seemed positive towards using PLL. In this context the Company's Research Unit plans to carry out a study of irrigation methods and leveled land in cooperation with the Mechanization Project. While in Kom Ombo, LISP staff collected sufficient data to ensure that this experiment could be designed and carried out effectively.

The demonstration activities were postponed for the whole month in Minya due to the absence of the equipment which was in Kom Ombo. The program outlined in the September report was therefore set back. The farmers in two basins of Beni Mousa Village were willing with the repeated requests by sub-project staff to postpone planting to November. (Persons responsible: Amr Marie, M. Moustafa)

B. Planning, Surveys, and Designs: The second half of October, LISP staff began making visits to Minya in order to lay the groundwork for the Spring 1984 work plan. The visits center around determining what sort of cropping pattern will take place in the five project villages this season. This work is prior to carrying out basin reconnaissance visits and subsequent topographic and soils surveys.

## 2. Extension and Training

No extension activities were carried out this month. A two-week training course was carried out for the Fayoum drivers. This course was carried out in Fayoum as a pre-test to drivers who will attend formal courses in Minya. (Person responsible: H. El Banna)

## 3. Planned Activities

The sub-project intends to concentrate on the Demonstration program of the next three months. This will include carrying out the Fall 1983 field program outlined in the September monthly report as well as field work for preparing the 1984 work plan.

Monthly Report - November 1983

Land Improvement Sub-project

1. Demonstration Program

A. Field Operations:

The Unit 1 Equipment returned to Kom Ombo and began precision land leveling in Beni Mousa village in El Minya Governorate immediately. During the month the unit was down to two tractors, since the hydraulic system of the third broke down in Kom Ombo. In spite of being down to two tractors the field unit was able to complete 95 feddan in the village.

In the September, the work plan for the Fall Construction season was outlined. This plan, which totaled 425 feddan for leveling, anticipated field work from September to mid-December 1983. Because six weeks of the season were spent on the Kom Ombo operations, including transport to and from Kom Ombo, the field program was severely limited.

Summarized in Table one is the status of the original field program.

Table 1: Fall 1983 Construction Program - Unit 1

<u>Minya Governorate</u>				
Basin Name	Village	Planned Area (fdn)	Leveled Area (fdn)	Status
1. Ali Basha	Beni Mousa	40	40	Leveled Nov, 1983
2. Tawill	" "	40	40	" " "
3. Galal	El Atlat	150	-	Cultivated-Salinity problems precluded field work,
4. Rawfia	Beni Abeed	46	-	No extension visits by LISP
5. Mesl	" "	86	-	Due to absence in Kom Ombo
6. El Beahny	" "	63	-	Outs
7. Miscellaneous	Beni Mousa	-	15	Leveled Nov, 1983
8. Miscellaneous	" "	42*		Planned for Nov/Dec '83
Total		425	95	

\* Planned to replace area which was cultivated but not included in total.

It is evident that the sub-project is behind schedule. If one includes the Kom Ombo area a total of 218 feddans have been leveled against a projected 425 feddans with the season 80% over. At best approximately 120 additional feddans may be completed before the end of December. This would bring the total to 338 feddans, still short of the planned total. The problems and reasons for not meeting the planned objectives are discussed below.

Of the 425 feddans planned for this season, only farmers for 80 feddan were called to meetings and given presentations by LISP staff. Individual farmers from other basins may have met and discussed plans with extension personnel who were working in cooperation with LISP staff. In one case all arrangements were made by the extension officer, unfortunately this did not seem to carry the weight of the meetings held by LISP staff. Several factors led to the failure of LISP staff to hold meetings including; lack of transport, absence in order to undertake other project or sub-project activities and uncertainty regarding the return of the equipment from Kom Ombo. Of the above problems, two were resolved during the month; a third vehicle will be assigned to the sub-project and the equipment returned to Minya Governorate. Unfortunately all of this is still too late to affect the Fall season.

Of the basins planned, reconnaissance survey visits were carried out on 276 feddans of the total. Grid surveys were carried out only immediately prior to field work. This was due primarily to lack of transport earlier in the year.

Equipment problems severely affected Field Unit No. 1's activities. The tractor previously mentioned could do no work because one set of hydraulic outlets were not functioning. The supplier sent mechanics to the field twice and were unable to repair the system. Arrangements were requested for transfer of the equipment to their Cairo workshop. The project mechanics now report that the system works, before being sent to Cairo, simply by reversing a spring valve. On all 4 tractors batteries are not in good condition and some need to be replaced. The tires show a great deal of wear on the outside and will soon require replacing. Spare Oil filter and fuel filters supplied with the tractors are beginning to run out and new ones will have to be purchased shortly. Tools, Service trucks etc. are a limitation which should be solved by future procurements but a storage area remains a problem.

At the end of November, Equipment operation shut down for a period because funds for fuel and oil were unavailable. Funds seem to be on-time and should not present a problem in the future. The sub-project requires a staff member full time to keep financial affairs including; fuel and oil purchases, payroll, per diem, spares purchases etc, in order. Currently this work is undertaken by field staff who are taken away for long periods to complete paperwork losing valuable field time.

(Responsible person: Eng. Amr Marat).

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## 2. Extension activities

Other than advice to farmers in Beni Mousa on using long furrows no extension activities were undertaken. The project extension worker in Beni Mousa has not been active in encouraging use of improved irrigation using siphon pipes. Because large numbers of siphons are available this staff should be encouraged to demonstrate these practices. (Responsible person: Eng. H. El Banna).

## 3. Training activities

No training activities were undertaken during the month although various programs are being planned. In December drivers will be trained in Laser use and formal courses in the training centers will begin. (Responsible person: Eng. H. El Banna).

### B. Planning and Design:

Since mid-October sub-project staff has been active visiting the five project villages in Minya assembling data on cropping patterns, basin sizes, irrigation methods and farmers names. Although tentative data has been assembled; no basin reconnaissance trips or surveys have been undertaken. The prime reasons for this have been insufficient time being spent in the field by <sup>WSP staff</sup> and lack of transport. With the recent availability of transport this staff should accelerate their field activities. (Responsible person: A. El Fayoumi, H. El Banna, M. M. Moustafa and Yasser).

## 4. Equipment Procurement

The IFB procurement equipment has all arrived in-country and should be ready for delivery in December. The status of the various items is summarized in Table 2.

Table 2: IFB Equipment Status

(Field Units 2, 3 and 4)

Item	Supplier	Status
1. Laser Equipment	Spectra Physics	In-Country; quality inspected by supplier and ready for installation.
2. Tractors	Ford	In-Country; to clear customs end of November, to be assembled December
3. Implements	Allied	In-Country; partially assembled in Alexandria by project staff. Technician to arrive December-January for delivery.

The Ford supplier is presenting the itemized recommended spare parts list to the project for approval in December. This will involve a procurement of 10% spare parts as an adjunct to the IFB.

Two local procurements are in the pipeline. The first for 25 drag scrapers was awarded to Behera Company at the first part of November. Delivery of this equipment is expected begin in December 1983 and to be completed in January 1984 with two blocks of equipment being delivered. The additional field equipment procurement has been reviewed by the technical committee and with minor corrections should be approved by the end of the month.

(Responsible person: J. Mc Lung).

## 5. Planned activities

The fall season construction program will be over in December and equipment use will be minimal. The future plans over the next six months are outlined below.

### A. Demonstration Program:

This section is divided into two parts: Field Operations and Planning and Design.

- i) Field Operations: In December the construction plan will be completed with the 42 feddan clear in Beni Mousa and possibly an additional basin in El Atlat village. Following this a limited amount of field work will be carried out in order to train new drivers if land is available. The main push by Field Operations staff through February 1984 will be in setting up the new equipment. In February leveling of sugar land will begin.

The sub-project plans to disburse the available equipment as shown in Table 3.

Table 3: Planned working area of Field Equipment

<u>Unit No.</u>	<u>Location</u>	<u>Potential Work Area</u>
1.	Beni Suef	300 feddan
2.	Minya (Abou Quarkas)	1,000 feddan
3.	Minya (Matai)	1,000 feddan
4.	Unknown	Tractors seconded for 6 month to Training and Extension

The areas discussed are tentative and may increase or decrease.  
(Responsible person: Amr Maresi).

ii) Planning, Survey and Design of Basin Rehabilitation Program (BRP):

The sub-projects staff will continue basin reconnaissance in the five project villages in Minya to identify work areas. This should include visits and walking the boundaries of each potential basin. If basins have potential of meeting criteria, meetings should be held with the farmers and surveys carried out. Although topo surveys may be delayed until just before construction soil surveys should be carried out in each basin over the next several months. Topographic surveys should be carried out immediately where possible.

A work plan with designs for each area will be prepared and presented for approval on the basis of 4-5 months work season.

Working papers for undertaking a monitoring program and a Cost/Benefit analysis will be prepared to allow establishing the required programs. These programs will come on line during the Spring Construction Season.  
(Persons Responsible: Engs. A El Fayoumi, M.M. Moustafa, Yasser).

B. Extension and Training activities:

In conjunction with the planning of the BRP a variety of meetings and field days will be held for farmers in the basin selected. Due to the large number basins this will be almost a full time activity through January and February. Similarly during the construction season field days will be held to maintain interest.

A variety of training programs will be underway in the following months including the following:

- . Field training of Laser operators (Minya)
- . Mechanic Training
- . Beni Suef Operator Training
- . Fayoum Operator Training
- . Extension Officer Training Sakha  
(Dec 5, 6 and 7)

These will be supervised by LISP staff but other than Field training of Laser operators will require little full time attention.

A management training course is being considered for training of LISP staff. Additionally the observation tour to Pakistan and India should be reconsidered and rescheduled.  
(Responsible person: H. El Banna).

C. Equipment Delivery:

The IFB equipment and the scrapers will be assembled and delivered to field sites in Minya over the next three months.  
(Responsible person: Amr Marc~~i~~).  
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ANNEX B

MACHINERY DEMONSTRATION EVALUATION SERIES

NO. 2 WHEAT CULTIVATION: GRAIN DRILLS  
MOWER-BINDERS  
COMBINES

Dr. Peter Reiss

October 1983

Agricultural Mechanization Project

Cairo, Egypt

## SUMMARY

Wheat is one of Egypt's most important crops. An estimated one-quarter of the agricultural land in the country is devoted to wheat cultivation each winter season. Only bersim and maize are more extensively grown. The importance of wheat is apparent in the Project's twenty-three villages: wheat is grown in all of them, from thirteen to thirty-six percent of their cultivated area. Mechanization of its operations offers great potential. At present only seedbed preparation, water-lift, and threshing are significantly mechanized.

In an attempt to encourage the use and purchase of a wider variety of machinery suitable for wheat cultivation, the Extension and Training Component of the Agricultural Mechanization Project demonstration grain drills (Gallignani 1125 with a cutting width of 2.8 meters), mower-binders (Agostini MLP 140) and combines (Deutz-Fahr 980 self-propelled) during the winter season of 1982. The demonstrations were conducted on the land of farmers in Project and neighboring villages, often in large contiguous areas composed on many small holdings, sometimes on a single large holder's farm.

This evaluation focuses particularly on the following points: (1) traditional methods of planting wheat and observed changes with the introduction of a grain drill, (2) varieties of wheat presently grown and implications for the mechanization of the crop, (3) preferences of farmers for harvesting given a choice between manual labor, mowers, and combines, (4) suitability of combines for Egyptian agricultural conditions, (5) effect of agricultural machinery on patterns of labor use, and (6) after their first year of use, the observable advantages and disadvantages of the three machines demonstrated.

The information used in this evaluation was collected in nine villages in all four Project Delta governorates. It was collected from participating farmers in open-ended interviews during four extended field trips made throughout August 1983. In all, twenty-four farmers met with the evaluation team.

Before Project intervention, wheat was planted with any of three methods, characterized here as wet broadcasting, unplowed planting, and dry broadcasting. The choice of the method by the individual farmer was made on the basis of such diverse factors as tractor power availability, weather conditions, size of plot, and method of clearing the preceding crop from the field. Traditionally, the method of planting wheat was directly related to the constraints of removing cotton stalks from the ground. The land was flooded and the stalks pulled, given a chance to dry and broadcast with wheat. An alternative method involved recruiting large team of workers to scratch the soil with a small hoe and drop a few seeds which were then lightly covered. More recently, with the introduction of tractors for seedbed preparation, the method has shifted to dry broadcasting.

The reaction of farmers to the grain drill was generally very positive. When used properly, the farmers found that the wheat had a better stand, covering the field more evenly and being more uniform in height. Many noted that when using traditional

methods, the wheat was often crowded in the field with bald spots scattered among the clumps. No change in germination rate or period was observed. The incidence of weeds was comparable to that in dry broadcasting. Estimations for the time required to drill one feddan varied from one hour to one and a half hours.

However, the misuse and distrust of the grain drill created certain problems. Farmers use from six to ten gela of grain for planting using traditional methods but were advised to use only five gela with the drill. Many were suspicious, and in one village in Gharbia, farmers either added additional grain to the drill or entered the fields later and broadcast additional grain by hand. As a result, all of the wheat in the demonstration basin lodged and could not be harvested with the mower. While some regretted having sown more, many stated that they preferred a higher production through crowding than an even growth suitable for machine use. They reasoned that the labor saving through machine use did not offset the gain through a higher yield.

The most serious problem encountered had to do with scheduling of machinery in the Project villages. Apparently, village agents promised farmers that machinery would be made available at a certain time, and when its arrival was delayed encouraged them to wait. In some villages, farmers were delayed by six weeks.

For most farmers, the preferred variety of wheat is one which produces a tall plant with less grain. Newly introduced, high yield varieties (Giza 155 and Giza 157) have not won much favor because they emphasize grain production rather than straw, are darker in color, of different texture for breadmaking, and not as favored by animals. While many farmers suggested that their preferred variety is not suitable for machine use, it appears that with proper planting and fertilizer application, it can be harvested with mowers as well as the Giza wheat.

Farmers consider the harvesting of wheat to be a series of discrete operations rather than a single activity involving the cutting, collecting, loading, and carrying of the crop. Harvesting by hand requires careful management of labor. Given the competition for labor during a short period for wheat as well as for other crops, it would seem that a viable alternative to manual labor would greatly ease the farmer's plight. It is surprising then that in the past, wheat harvesters have found little acceptance among farmers. Most have complained about the losses in straw because the machine cut the wheat too high off the ground.

Yet, farmers interviewed who had used the mower-binder were unanimous in their praise for the cutting action of the machine. The height was generally estimated to be between five and ten centimeters, although some farmers said it cut to within a few cm. Generally, it was felt that the mower did a better job than hired laborers because it cut the wheat at a uniform height while workers did not.

While scheduling problems persisted, with some mowers arriving four to six weeks late, a serious technical problem involved the binding mechanism of the machine. On only two occasions

did the team meet farmers on whose land the binder had successfully worked. Most usually, the cord was not available. In any case, its expense must be considered as prohibitive. The binder works best with imported cord costing 13 L.E. a roll. Since the feddan requires one and a third rolls, the binding cost would be 17.50 L.E. Locally produced cord costs 5 L.E. a roll. At 7 L.E. per feddan it is still not a negligible amount.

One farmer who used the mower-binder had earlier purchased his own, a 14 hp. Italian-made self-propelled unit. He found the two to be similar in cutting action and time but preferred his own. His unit allowed for more flexibility for use and scheduling. The Project unit requires a tractor so that other activities, such as seedbed preparation for another crop or threshing, cannot be done at the same time. With his unit, he need not stagger his work. Another important difference is accessibility to the field. His unit may enter a field immediately and begin cutting. The Project's unit must first have the wheat along the edges of the field cut by hand, otherwise the grain would be lost. A neighbor who purchased an identical model uses it for custom work, charging 15 L.E. a feddan and has met with great success.

The negative reaction of the farmers to the use of the combine resulted from the absence of a baler. Given the exaggerated importance placed on straw by farmers in Egypt, its absence was a major setback to the machinery demonstrations. Farmers interviewed who had combines work their land suffered severe straw losses although they did hire teams of workers to collect what straw they could. Losses were estimated to be as high as 50%. However, the combine was said to have done an excellent job on grain, with no losses or breakage. A second evaluation of the combine is advisable for next season, given the problems this year.

Despite the unevenness of the operation of the demonstration equipment, it is possible to discern some change in the yields of grain and straw when comparing pre-Project with Project production. In those areas where both a seed drill and a mower-binder were used on the same plot, there were frequently increases of two to three ardeb of grain and one to two haml of straw. Still, it is problematic that the demonstrations were so unstructured. Many farmers attribute the increases to differences in the amount or kind of fertilizer or grain used, rather than to the machinery.

Complicating the picture further, too frequently, seed drills and mower-binders or combines were not used on the same plot. Of the nine villages visited, in only three did drills and harvesters work the same field.

Based on this report, the following recommendations are made:

(1) The improvement in yields and labor savings depend only in part upon agricultural machinery. Equipment must be considered to be an integral part of agricultural inputs. In some villages discussed here, demonstration equipment could not be used because of a misuse of other inputs or because farmers had their own ideas about what they wanted most. An important role is seen for the

village mechanization extension agents to inform farmers about the implications of seed and fertilizer use.

(2) Scheduling appears to have been one of the greatest problems faced during the last winter season. Many farmers delayed planting and in harvesting by hand in the hope of using Project machinery. Extension agents ought to be told firmly that they are not to promise machinery delivery unless they are certain and not to encourage farmers to delay their work beyond a reasonable time.

(3) The Project must accept some responsibility for disastrous effects on farmers' fields as a direct result of Project misuse or mismanagement. Not to do so, not only puts the farmers in an even more compromised position but also risks the Project's alienation. Some provision ought to be made for payment to farmers if yields are low due to Project involvement.

(4) An attempt ought to be made to schedule different pieces of equipment for various operations for the same crop on the same field. Farmers were confused that they had used the seed drill but not the harvester as they had been promised.

(5) It would be advisable to encourage farmers to keep seed variety and fertilizer amount and kind constant when using machinery for the first time so that the full effects can be observed. To do otherwise will lead the farmers to believe that machinery has played only a very minor role in yield increases.

(6) A comparison of the Project P.T.O. mower-binder and a self-propelled unit reveals that certain advantages will be gained by using the latter: more flexibility in use and scheduling and easier access to fields. If harvesting activities are to be expanded by the Training and Extension Component, it may be desirable that the Project purchase some units for demonstration.

(7) The binding mechanism of the mower-binder was not successful in the villages visited. It may be wiser to abandon its use in the future than expect farmers to pay exorbitant amounts for cord.

(8) Several farmers suggested that the Project purchase and demonstrate small Japanese combines which cost roughly half the price of the Deutz-Fahr units purchased by the Project and may be more suitable to Egypt's agricultural conditions.

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## 1.0 INTRODUCTION

Wheat is one of Egypt's most important crops. It has been estimated that one-quarter of the agricultural land in the country is devoted to wheat each winter season. Only bersim and maize are more extensively grown. The widespread cultivation of wheat may be attributed to its central role in the Egyptian rural household. Its grain is used for baking bread, and its straw is reserved for fodder and brick making. Most often, the crop is consumed by the household, although newly introduced high-yielding varieties are now grown as a cash crop.

The importance of wheat is apparent in the Project's twenty-three villages: wheat is regularly grown in all of them. From thirteen to thirty-six percent of the area of these villages is devoted to wheat cultivation, averaging nineteen percent, somewhat below the national figure.

Yet, farmers complain about the difficulties they have with certain crucial operations tied to wheat cultivation. Cutting, collecting, and transporting the wheat demand a high wage for agricultural laborers who are often not available when needed. It is not unusual to meet farmers with small holdings of less than one feddan who no longer grow wheat, preferring to cultivate bersim instead.

Given the present constraints on wheat cultivation, the mechanization of its various operations offers great potential. The technology, adaptable to Egyptian agricultural conditions, presents the possibility of the full mechanization of the crop. However, to date, agricultural machinery has been used on only a restricted basis. A survey conducted by the Project\* in four

\*Hopkins, Nicholas, Sohair Mehanna, and Bahgat Abdelmaksoud, The State of Agricultural Mechanization in Egypt. Results of a Survey: 1982. Cairo: Agricultural Mechanization Project

governorates among one thousand farmers revealed that machinery for wheat growing is largely limited to plowing (used by 84% of the sample), levelling (60%), water-lift (56%), insect-control (26%), threshing (83%), and winnowing (54% with a hand-operated machine). In comparison, 12% of the sample used machines for harvesting and 18% for transporting from the fields to their homes.

Recently, machinery distributors have begun to import other equipment that can be used for wheat cultivation: a self-propelled mower employed in harvesting. When introduced through the private sector, the reactions have been promising, with some mowers now involved in custom work. Other attempts have not been as successful. Mowers introduced through agricultural cooperatives in Minia and Assiout met little favor with farmers as a Project distributed report\* disclosed.

In an attempt to encourage the use and purchase of a wider variety of machinery suitable for wheat cultivation, the Extension and Training Component of the Agricultural Mechanization Project demonstrated grain drills, mower-binders, and combines during the winter season of 1982. The grain drill unit was a Gallignani 1125 with a cutting width of 2.8 meters. The mower-binder was manufactured by Agostini, Model MLP 140, the combine a Duetz-Fahr 980 self-propelled unit. The demonstrations were conducted on the land of farmers in Project and neighboring villages, often in large, contiguous areas composed of many small individual holdings, sometimes on a single large holder's farm.

The Evaluation Unit was requested by the Extension and Training Component and Project Management to assess the operation of these machines from the perspective of the participating farmers.

\*Abdelmaksoud, Bahgat. 1983. "The Reactions of Farmers in Middle Egypt to a Small Italian Wheat Harvester." Activity Report No. 8. Cairo: Agricultural Mechanization Project.

The following questions indicate the major concerns of the study:

- (1) What are the traditional (pre-Project) methods of planting wheat, and what changes were observed with the introduction of a grain drill?
- (2) Do the variety of wheat grown and its intended uses have implications for the mechanization of the crop?
- (3) What preferences do farmers have for harvesting wheat, given a choice between manual labor, mowers, and combines?
- (4) How suitable are large, expensive combines for Egyptian agricultural conditions?
- (5) What is the effect of agricultural machinery on traditional patterns of labor use?
- (6) During their first season of use, what are the observable advantages and disadvantages of the three machines demonstrated?

This evaluation of mechanized wheat cultivation was conducted in nine villages in all four Project Delta governorates: Konayiset Damsheet and Shabshir El Hessa in Gharbia; Desounes, Ezab Besentawai, and Sheikh Ahmed in Beheira; El Sadiine and El Teline in Sharqia; and Beltan and El Abédla (not a Project village) in Qalubia. Information was collected from participating farmers in open-ended interviews during four extended field trips made throughout August 1983. In all, twenty-four farmers met with the evaluation team to discuss the machinery demonstrations.

During this period, the Evaluation Unit was asked by Project Management to expand its study to include assessments of mowers used by the Small Farmer Production Project and the thresher-winnower adapted by the Small Manufacturer Advisor with the assistance of the Beheira Company. Since the transportation provided allowed only for the original phase of fieldwork, evaluations of the mower and thresher-winnower could not be undertaken. Should transportation be provided in the future, the Evaluation Unit would review the operation of these machines, given other work commitments.

## 2.0 TRADITIONAL METHODS OF PLANTING WHEAT

Before Project intervention, wheat was planted with any of three methods: wet broadcasting (zeraaEa haraatli or takhdir), dry broadcasting (Eafiir bidaar), and unplowed planting (Eafiir bil nugra). With the exception of Sheikh Ahmed, which several seasons ago acquired a grain drill through its Agrarian Reform Cooperative, the planting of wheat in the areas visited has been an exclusively manual operation. The choice of the method by an individual farmer has depended upon such diverse factors as tractor power availability, weather conditions, size of the plot, and the method of clearing the preceding crop from the field.

Traditionally, the method of planting wheat was directly related to the constraints of removing cotton stalks from the ground. Before the introduction of tractors into the villages, cotton stalks were removed by extracting them by the roots after the land had been flooded. This method has been described in detail in an earlier report on silage mowers used for cotton stalk removal\*. Since the land had already been irrigated to facilitate the removal of the stalks, the cultivation of the next crop followed upon it. The field was given a period to dry (estimated to be between a week and ten days) before planting and plowing. Grains were broadcast onto the wet land, immediately followed by two passes. As was pointed out in the last report, when the land was flooded as such, it was most likely plowed with draft animals, since tractors compacted the soil and required a longer waiting period before they could enter the land. Following plowing, the field was levelled. One month later, fertilizer was applied and the land was irrigated. This method of wet broadcasting had

\*Reiss Peter. 1983. "Silage Mowers Used for Cotton Stalk Removal Machinery Demonstration Evaluation Series Number 1. Cairo: Agricultural Mechanization Project.

the advantage of producing no weeds with the wheat.

An alternative method of wheat planting involved hiring a large team of workers, numbering six to eight per feddan, who scratched the topsoil with a hand-held hoe (nugra), then dropped in some seeds, and lightly covered them. No plowing or levelling were needed.

It appears that farmers chose the method depending upon the preceding crop. If cotton had been planted earlier, wet broadcasting would have to be used because of the requirement of flooding the land. If another crop was grown, the land would be dry following the harvest and clearing of the field and a team could enter to plant bil nugra immediately.

During the past decade, dry broadcasting has largely replaced the other two methods. It is more in keeping with the widespread use of tractors for seedbed preparation and the decreasing availability of expensive agricultural labor. Cotton stalks, instead of being pulled by the roots, are cut at their base. The land therefore no longer needs to be flooded, and wheat is broadcast onto a dry field. In this method, the field is plowed twice, levelled, the grain broadcast, the land irrigated, fertilized one month later, and irrigated a second time. Twenty of the twenty-four farmers interviewed planted wheat by dry broadcasting during the winter season preceding the Project's intervention. The remaining four farmers used wet broadcasting. They are similar in having planted relatively small areas with wheat, from nine to sixteen qirat. Farmers with small holdings say that they may still flood the land and broadcast, having first plowed with draft animals. Apparently, if the plot is much larger than a half a feddan, it becomes more advantageous to plow with a tractor and dry broadcast. Planting with a nugra seems to be rarely done.

The most recently that we found its having been used was five years ago, although its incidence may vary widely from area to area. The reasons for its not being used appear to be the following: (1) the expense of and difficulty in finding laborers, (2) the crowding of the wheat in the field produces a shorter crop which yields less straw, and (3) the method requires more grain for planting.

A comparison of the three methods of planting indicates that they differ in cost, labor required, machinery requirements, and turn around time. The following table summarizes the findings:

METHODS OF WHEAT PLANTING (for 1 feddan)

Requirement	Wet Broadcasting	"Bil Nuqra"	Dry Broadcasting
Plowing	2X (animal)	none	2X (tractor)
Plowing cost	5 L.E.	-	5 L.E.
Levelling	yes	no	yes
Levelling cost	2-3 LE.	-	2-3 L.E.
Labor (no.)	1	6-8	1
Wage/laborer (L.E.)	.40	1.50-2.	.40
Total labor cost	.40	9-16	.40
Time planting (approx.)	20 min.	6-8 hrs.	20 min.
Seeds (qela)	6	8	6
Approx. turn around*	20-5 days	2-3 days	5-7 days

The table indicates that bil nuqra planting may cost two times that of broadcasting, given the approximate cost of plowing (5 L.E.) and levelling. Given its other disadvantages, it should not be surprising that the method is rarely used now.

\*As used here, the turn around time refers to that period of time between which the field is clear of the summer crop and the wheat planting has been completed. This is a longer period than its usual sense.

### 3.0 OPERATION OF THE GRAIN DRILL

The reaction of farmers to the grain drill was generally very positive. When used properly, farmers found that the wheat had a better stand, covering the field more evenly and being more uniform in height. Many noted that when using traditional methods, the wheat was often crowded in the field with bald spots scattered among the clumps. Farmers did not observe a change in germination rate or period and said that the incidence of weeds was comparable to that in dry broadcasting. Estimations for the time required to drill one feddan varied between one hour and one hour and a half.

However, the misuse and distrust of the grain drill created certain problems. Although the practice was not widespread, we found that in one of the villages, and perhaps elsewhere, farmers unwittingly undermined their own potential benefits from Project activities.

Using traditional methods, the amount of wheat grain that was planted by the farmers interviewed varied from six to ten qela per feddan. In demonstrations of the grain drill, farmers were told by the village mechanization extension agents that five qela would be sufficient.

In Konayiset Damsheet, farmers feared that five qela would not be enough to produce a good crop. Their fears were confirmed when they found in its initial demonstrations that one feddan was not completely drilled with that amount. The drill apparently had not been adjusted properly.

Farmers in the twenty-two demonstration feddans then added additional amounts of grain to the drill while it was operating or entered the field later and broadcast grain by hand. One farmer admitted to using ten qela per feddan, although he ordinarily uses

only seven.

As a result, all of the wheat in the demonstration basin in Konayiset Damsheet ledged and could not be harvested with a mower-binder, the second stage of the demonstration efforts. Instead, the land of the omda was harvested with the machine, although he had planted it himself and the wheat was a high-yield variety, unlike any of the wheat grown elsewhere in the village.

When asked if they regret their decision to add additional grain to their field, some said they realize now they ought to have used the suggested amount. Others, interestingly, said that they added additional amounts in order to get a higher production. If the choice was to be between machinery use for harvesting and greater yield, they would prefer the latter since the labor saving did not offset the gain through a greater yield.

The most serious problem that was encountered had to do with the scheduling of the grain drill in the Project villages. Such scheduling problems appeared in the demonstration of other Project equipment. Apparently, village mechanization extension agents repeatedly promised that machinery would be made available when it could not be. In Ezab Besentawai, for example, the drilling of wheat was completed six weeks later than farmers usually did it. Some people on the Project have expressed annoyance with the farmers, saying that they only wanted machinery without a charge, and would otherwise have gone ahead and planted their land themselves when they found the machines were so late. While there is some truth in this, farmers were promised free machine use by the agents who actively encouraged them to wait only a few days more; the days grew into weeks. In hindsight, their action was unwise and should not be repeated in the future.

#### 4.0 WHEAT VARIETIES AND OTHER INPUTS

From the Egyptian farmer's point of view, he can grow two varieties of wheat. While the terms in use may vary from farmer to farmer or village to village, the dichotomy is fairly stable. Farmers speak of "hindi" and "mexique" (referring to Indian and Mexican sources), "baladi" and "Giza," or even "white" and "red." The first variety is the standard one, long grown by farmers in Egypt, producing a white flour preferred by farmers for bread making and a taller plant emphasizing the importance of straw production. The second is actually more than one kind; both Giza 155 and Giza 157 are grown in Project areas. They are newly introduced, high-yield varieties which produce a shorter plant emphasizing grain production. The following table indicates the estimated yield in grain and straw for the two types of wheat.

ESTIMATED YIELDS FOR WHEAT

	Baladi	Giza*
Grain (ardeb)	8	13-18
Straw (haml)	10-12	7

\*No distinction is made between Giza 155 and Giza 157

Given the great straw production of baladi wheat, most farmers prefer it. They also remark that their animals prefer the taste or texture of the baladi straw to the Giza.

Giza wheat is predominately grown by two kinds of farmers, those living in Agrarian Reform areas who have no choice and large landholders who sell the crop to the village bank. The former are likely still to plant an area with baladi wheat for their household use. The former are forced to purchase flour for their families. While farmers may be obliged to purchase Giza

grain in order to acquire government-priced fertilizer, many confessed that they used baladi grain reserved from the previous years for planting.

Some farmers expressed a belief that baladi wheat always fell over and was probably less suitable for machine harvesting. However, this does not appear to be the case. Fertilizer levels and frequency of irrigation are said to be determining factors in the height of baladi wheat, and farmers have been applying increasing amounts of nitrogen and phosphate to the soil. The amount of grain used in planting is a major factor in crowding. The combination at high levels suggests a propensity for lodging. Such a view is confirmed by the nature of wheat in several of the villages. In Desounes, for example, where fertilizer was limited to suggested amounts by the extension agent and no additional amount of grain was added to the five and six qela used by the drill, the wheat stood until it was harvested by the mower-binder supplied by the Project.

It would appear then that a program in machinery extension ought to consider as an integral part the variety of wheat and its fertilizer requirements. It cannot be left simply to a concern with machinery performance alone.

## 5.0 HARVESTING: MOWER-BINDER

Farmers consider the harvesting of wheat to be a series of discrete operations rather than a single activity. The wheat, traditionally, is cut by hand by a team of workers, numbering between 8 and 10 for a feddan, collected in piles, loaded onto the backs of camels, and carried to the threshing ground. When used properly, the mower-binder collapses the first two operations into a single rapid action.

Harvesting by hand requires careful management of labor since three separate teams may be needed: to cut, to collect, and to carry. Given the competition for labor during a short period since a number of activities must be accomplished at the same time: planting maize, planting rice, cutting bersim (for seeds), and the arduous weeding of cotton, a viable alternative to manual labor would greatly ease the farmer's plight.

Surprisingly then, farmers everywhere have often been found to be reluctant to accept machine harvesters. In the past, the greatest drawback has been the height at which the wheat was cut by the blades. Wheat is usually cut as close to the ground as possible and, in many instances, is pulled out by the roots. Farmers have apparently preferred to go to the added trouble of recruiting laborers rather than risk any sizeable straw loss.

Yet, farmers interviewed praised the mower-binder, although it cut the wheat at between five and ten centimeters from the ground. No particular interest was raised in returning organic material to the soil. Generally, it was felt that the mower did a better job than hired laborers because it cut the wheat at a uniform height, since laborers did it very unevenly. Problems with harvesting in demonstration areas occurred where farmers had sowed too many seeds and the wheat lodged. In some

of these locations, the mower-binder was used, but it cut the wheat at a height of 20 cm., considered to be very unsatisfactory.

The wheat harvest is both time-consuming and expensive. The cutting of the wheat costs between twenty and twenty-five L.E. (eight and ten workers, each earning from 2.50 to 3.00 L.E. per feddan for eight hours of work). Collecting the wheat for loading is an additional cost, two to four workers per feddan each costing two to three L.E. for a full day of work. The wheat is then loaded onto camels for another six to twelve L.E. It ought to be pointed out that depending upon the nature of the farmer's household and the size of the plot planted with wheat, some or most of these activities will be completed with family labor. A small holder, with one feddan or less of land is likely to depend less upon paid workers. The one activity that is most likely to be done by hired laborers is the transportation of the cut wheat to the threshing ground. One small farmer who had thirteen qirat of wheat only hires workers for transporting the crop. For all other operations for all crops, he and his household members do all of the work.

The following table summarizes the costs and labor requirements involved in wheat harvesting:

THE COST AND LABOR NEEDS FOR WHEAT HARVESTING

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Cutting:	No. workers	8-10
	Wage/Worker	2.50-3.00 L.E.
	Total cost	20-25 L.E.
Collecting:	No. workers	2-4
	Wage/Worker	2-3 L.E.
	Total cost	6-8 L.E.
Transporting		6-12 L.E.

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Total harvesting cost for one feddan	32-45 L.E.
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In contrast to the two days required to cut and collect the wheat by hand, the mower-binder was said to complete the work in one to one and a half hours.

When asked to suggest a price for custom work, many farmers said that 15 L.E. would be reasonable, roughly a half of the manual labor cost for cutting and collecting. If the machine is used for cutting alone, the price may have to be adjusted.

Two particular problems became apparent in the interviews: delays in scheduling and difficulties with the binding operation. In both Desoune and El Saadine, farmers complained that the machinery came one month to six weeks late. Although harvesting is usually done in mid May, the harvesters did not arrive until mid June. Farmers attributed lower than usual yields to these delays.

The binding mechanism, on the other hand, appears to be a technical problem. On only two occasions did we encounter a farmer who had his wheat bound. Most usually, the cord was not available. In any case, its expense must be considered. Although it may not be a significant capital cost (at roughly 600 L.E.), the binder works best with imported cord which costs 13 L.E. a roll. One feddan requires one and a third rolls, totalling nearly 17.50 L.E. Locally produced cord costs 5.00 L.E. a roll but is said to jam in the machine. Even so, the nearly 7.00 L.E. per feddan is not negligible.

The Evaluation Team did have the opportunity to meet a large landholder who used the Project's mower-binder and had earlier purchased a self-propelled Italian 14 hp. harvester. He did not purchase the binder attachment for 600 L.E. because he found that the cord was not readily available and was expensive.

This farmer, from El Telime, having tried both the Project tractor-pulled mower and the self-propelled unit found the latter to be preferable. The cutting action of the both were the same: both had the same blade width and cut the wheat at an estimated one to two centimeters from the ground which seems very low indeed. The costs are comparable. His mower, purchased two years ago, cost him 3,200 L.E. and now sells for 4,000 L.E. He has already used his unit for cutting bersim and maize stalks and believes that the Project unit would work as well. However, they differ in flexibility of use and scheduling. The Project unit requires a tractor, so that threshing or seedbed preparation cannot be done at the same time on another plot. With his unit, he is able to cut the wheat and have it collected while it is being threshed. He need not stagger his work. Another important differ is accessibility to the field. His unit may enter a field immediately and begin cutting. The Project's unit must first have the wheat along the edges of the field cut by hand, otherwise he would lose the grain in that area.

Working on his own land and that of his brother's, he has no need to rent out the mower, but he did note that a neighbor has done custom work with the same unit he has with great success. He charges 15 L.E. per feddan for mowing and is in steady demand by landholders in the village.

## 6.0 HARVESTING: COMBINE

The negative reaction of farmers to the use of the combine resulted exclusively from a decision not to purchase a baler to work in tandem with it. Given the exaggerated importance placed on straw by Egyptian farmers, this decision has damaged the reputation of the Project. Fortunately, more recently, balers have been included in machinery acquisitions and will be used with the combines in the future.

In all three farmers were interviewed who had combines work on their land. In general, the combines appear to have a much more restricted use than the mower-binders.

Although living in different villages in different governorates (Shabshir El Hessa in Gharbia, Ezab Besentawai in Beheira, and El Saadine in Sharqia) their experiences and reactions were very similar.

All found that the operation of the combine was good in terms of producing grain with no losses or breakage. However, all suffered severe straw losses. Although all of the farmers were forced to bring in teams of workers to collect the straw, the pieces were small and difficult to gather. The farmer in Shabshir El Hessa hired fifteen children at a cost of 1 L.E. per day for each who left an estimated 50% of the straw on the ground. The farmer in Ezab Besentawai collected only five haml or camel loads from his 20 qirat which last year yielded 9 qirat. The farmer from El Saadine brought in twenty workers at 1.50 L.E. each to collect straw from thirty-two feddans but eventually left six other feddans of straw uncollected, letting sheep to graze on them.

As such, it is difficult, at this time, to evaluate the operation of the combine and should be done again next season.

## 7.0 WHEAT YIELD EFFECTS

Despite the unevenness of the operation of the demonstration equipment, it is possible to discern some change in the yields of grain and straw when comparing the pre-Project and Project production. In those areas where both a seed drill and a mower-binder worked on the same plot, there were frequently increases of two to three ardeb of grain and one to two haml of straw. Still, it is problematic that the demonstrations were so unstructured. Many farmers used different varieties of wheat and different amounts or different kinds of fertilizer. As a result, it is difficult for farmers to attribute what part in that increase is from machinery. Many considered the change in fertilizer to be of greatest importance, and they may be correct. The effect is a clouded picture of the role of the equipment in their production strategies.

Complicating the picture further is that too frequently seed drills and mower-binders or combines were not used on the same plot. Among the nine villages visited, in only three/were (Desounes, Ezab Besentawai, El Saadine) drills and harvesters used in the same location. However, even in some of those other villages where only one machine worked, there appears to have been some noticeable increase. In Konayiset Damsheet, for example, grain production rose for two farmers from 8 to 10 and from 10 to 12.5 ardeb. Again, how much of it was because of the seed drill is questionable.

The disastrous effects of misuse of equipment or poor scheduling are perhaps more striking. As has been mentioned, some farmers suffered grain and, more severely, straw losses because of delays in arrival, problems with binding, or absence of bailers. Some farmers lost 40 to 60% of their straw.

## 8.0 PATTERNS OF LABOR EXCHANGE

An interesting sideline to this report on wheat cultivation, which deserves a more detailed study in the future, is the informal labor relations among farmers. While much has been written about rural labor shortages, little attention has been given to strategies employed by farmers to get the work done. One rare study focuses on the cooperative and exchange relations among peasant households.\* Examples mentioned include the exchange of land under rotations, borrowing foodstuffs, borrowing animals. The point is made strongly that the relationships are casual and informal, not directly reciprocal. With increasing mechanization, there appeared to be a movement away from such exchanges.

In the context of this wheat study, the interviewers found, on the contrary, that labor exchanges were still widely practiced. Furthermore, they were clearly reciprocal, to the extent that labor was exchanged between villagers in terms of hours or days worked in a particular activity: harvesting cotton, wheat, rice; threshing wheat; building houses; and baking bread. The size of the exchange group varies with the activity. Harvesting wheat frequently involves four or five neighbors working together, with the participants shifting from one member's field to another's. While long in existence, it is possible that such labor exchanges have actually become more frequent with the diminishing hired labor force.

Since the effect of mechanization on such informal groupings is uncertain, it may be that the two are in competition as an importance organizing means for agricultural activities.

\*Kathy Glavanis, "Cooperative and Exchange Relations amongst Egyptian Peasant Households." Presented at Workshop on Migration and Mechanization. Agricultural Development Project. Cairo. December 1981.

## 9.0 THE CASE OF HAGA ISHTA

A closer look at one of the farmers interviewed may be useful in making the advantages and disadvantages of wheat cultivation more vivid and in pointing out the potential limitations of machinery use among the smallest of Egypt's holders.

Haga Ishta, an older lady and a widow, lives in El Abedla, Qalubia. Although not a Project village, a seed drill was demonstrated there. The Haga has only five qirat, roughly one fifth of a feddan which she inherited from her father. For the past four years, before the Project, she chose to plant bersim rather than wheat. Since the holding is less than one feddan, she is not constrained by the regulations of the crop rotation. She sold the bersim, since she has no animals to feed other than some freely running chickens.

She explains that bersim is easier to grow, but this year decided to plant wheat because of the presence of an American project. In Abedla, only a seed drill was used. From her own account, the following table summarizes the costs that Haga Ishtat usually incurs in growing bersim, those she had this year growing wheat, and the returns to her for both.

### A COMPARISON OF BERSIM AND WHEAT COSTS AND RETURNS

<u>COSTS:</u>		
Activity	BERSIM	WHEAT
Plowing	(.50/qirat x 5 q. x 2 pass) 5 L.E.	1.50 L.E.
Planting:	0 (Family)	0 (Project)
Harvesting:	0 (Family)	0 (Labor exchange)
Transporting:	0 (Family)	4.00 (people) 5.00 (camel)
<b>Sub-total</b>	<b>5 L.E.</b>	<b>10.50 L.E.</b>

COSTS	BERSIM	WHEAT
Sub-total (carried forward)	5 L.E.	10.50 L.E.
Threshing and winnowing:	-	(1½ hr. x 3 L.E./hr.) 4.50 L.E.
Fertilizer:(1 sack):	<u>nitarat</u> 5.00	<u>super</u> 2.60 L.E.
Seeds:	0	0
TOTAL	10.00 L.E.	17.50 L.E.
RETURNS	BERSIM	WHEAT
Sale:	3 L.E./qirat x 5 q. x 3 cuttings = 45 L.E.	12 L.E./ardeb grain 19 L.E. - grain + 30 L.E. - straw = 49 L.E.
PROFIT	35 L.E.	31.50 L.E.

Even with the Project's assistance in planting and the possible associated increase in yield, Haga Ishta's profit is greater with bersim. In wheat cultivation, her greatest costs are incurred in threshing and winnowing and transporting. Since her daughter exchanges labor with another villager for cutting the wheat (by exchanging their labor during two mornings), the use of a mower-binder would not have helped her realize any savings in tangible terms.

As is shown in the table, the only hired labor that the Haga requires for bersim growing is for plowing. All other activities are done by her daughter or herself. Bersim cutting is very likely to be done by household members, in any case, for small and medium sized plots.

Upon reflection, having considered the gains and losses of growing bersim and wheat, Haga Ishta decided that bersim is preferable to wheat. It requires less work, less hired labor, more household labor, and provides a greater profit. Despite

the Project's intervention, she concluded that she had been correct to stop growing wheat and would continue growing bersim as her winter crop in the future.

One must wonder what a concerted effort of machinery extension will have on the smallest of Egypt's landholders, like Haga Ishta. They are largely reliant on the labor of household members. Their hired labor needs are particular most frequently in transporting crops from the fields to a threshing area. The mechanization of such activities would require the improvement of field roads which is beyond the scope and resources of this Project.

## 10.0 RECOMMENDATIONS

Based on this report, the following recommendations are made:

- (1) The improvement in yields and labor savings depends only in part upon agricultural machinery. Equipment must be considered to be an integral part of agricultural inputs which work together. In some villages discussed here, demonstration equipment could not be used because of a misuse of other inputs or because farmers had their own idea about what they wanted (i.e., more straw than the ability to harvest with a mower). An important role is seen here for the village mechanization extension agents to inform farmers about the implications of the seed and fertilizer use.
- (2) Scheduling appears to have been one of the greatest problems faced during the last winter season. Many farmers delayed planting and harvesting by hand in the hope of using Project machinery. Extension agents ought to be told firmly not to promise machinery delivery unless they are certain and not to encourage farmers to delay their work beyond a reasonable time.
- (3) The Project must accept some responsibility for disastrous effects on farmers' fields as a direct result of Project misuse or mismanagement. Not to do so, not only puts the farmers in an even more marginal position but risks the Project's alienation. Some provision ought to be made for a payment to farmers if yields are low due to Project involvement in their cultivation practices.
- (4) An attempt ought to be made to schedule different pieces of equipment for various operations for the same crop on the same fields. Farmers were confused that they had used the seed drill but not the harvester as they had been promised.

(5) A comparison of the Project P.T.O. ~~power~~-binder and a self-propelled unit reveals certain advantages of the latter: a tractor may be used for other activities at the same time the mower is used and a field need not be prepared especially for its entrance. If harvesting activities are to be expanded in the future by the Extension and Training Component, it may be desirable to purchase some units for demonstration.

(6) Several farmers suggested that the Project purchase and demonstrate small Japanese combines which cost roughly half the price of the Deutz-Fahr units purchased by the Project and may be far more suitable to village agricultural conditions.

ANNEX C

EGYPTIAN AGRICULTURAL MECHANIZATION PROJECT

R&D NEED FOR THE PERIOD SEPT.83-DEC.88

CARL A. REAVES

Agricultural Mechanization is affected by variables that cross several academic disciplines. For example, the physical size of a harvesting machine is determined to a great extent directly by size of the crop plant, further as machine size increases the weight increases which causes greater soil compaction that adversely affects crop plant development. Hence, an agricultural engineer, soil physicist, and plant geneticist should be members of any research team that is charged with the development of a machine to harvest any particular crop. Another example, consider that a research team is charged with developing the optimum production system for a particular crop in a given locality. Variables that must be considered include existing physical and chemical conditions of the soil, qualities of irrigation water, characteristics of available seed varieties, kind, quantity, placement, and time of application of nutrients, identity of insects and diseases as well as appropriate chemicals and their use for control of insects and disease, date of planting, etc. Therefore, the research team should include an agronomist and a biologist. With the large number of variables involved plus interactions between variables in any research that deals with nature it is practically impossible to conduct enough experiments to evaluate each variable independently. The research team must include a statistician to design each experiment such that the maximum information will be gained. Lastly, a development of the

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ideal mechanization system is of little value, unless the farmer is willing to accept it, so the team must include a sociologist.

The need for R&D on agricultural mechanization systems for Egypt has already been established. It is believed that the most direct and productive procedure to develop workable mechanization systems is through multi-discipline research teams. Each professional member of the team must have a varied and thorough knowledge of Egyptian agriculture, both past and present. Professionals on each team should include at least one agricultural engineer, agronomist, biologist, soil physicist, plant geneticist, statistician, and sociologist. The team must be adequately funded and have freedom to readily purchase any materials and supplies that are needed. A must is sufficient transportation to move equipment as needed and for each team member to monitor all experiments and see that necessary operations are performed at the proper time. Areas of different soil types must be designated for continuous research for the next 100 years and the team must have complete control of all operations without any specific requirements for crop production.

Research needs will be discussed as much as possible by the main phases of crop production, processing, and marketing such as tillage, planting, cultivating, etc.

- I- TILLAGE

1983: Research has been started in three different locations to evaluate the effectiveness of various methods of soil manipulation with available conventional equipment. By the end of 1983 data on three different crops will be evaluated and used to make further recommendations. It has been determined in both Delta soil and the new reclaimed soil that with proper management of operations available equipment will satisfactorily create adequate crop seed and root beds by inversion, partial inversion, or no inversion of the surface layer. Based on soil measurements and examinations made this year most of the Egyptian soils are in good structural condition and extensive economically feasible tillage will not improve their condition. Stated more clearly shallow tillage will probably be required in the vicinity of crop seed, to control weeds, and to destroy soil crust, but any deeper tillage of the entire surface layer may even do harm to the existing soil structure. It is true that in certain areas hard subsurface layers exist but their depth extends beyond that which is economically feasible to obtain by tillage. For piercing of this hard layer to be of significant benefit to crop production the piercing must extend completely through this layer into well structured soil. Therefore, an effort was initiated to design equipment and experiments to determine the minimum tillage required to produce a crop without a decrease in yield. It should be noted that to date the level of mechanization has been low, and as this level increases the soil structure may be disturbed to a

greater extent more frequently by heavier equipment which could modify or change the above observations.

1984:

- (a) Based on research in 1983 develop some rules-of-thumb on tillage implements to use and their methods of use for different crops in various soil types.
- (b) Install additional tests on the effects of depth of tillage with other crops to extend data in (a).
- (c) Install experiments on various degrees of minimum tillage in different soil types and with different crops.
- (d) Plant a sown crop on the 1983 area of depth of tillage on heavy clay in Sakha to monitor any residual effects.
- (e) Assuming that 1983 data are conclusive enough and that minimum or reduced tillage will not be readily accepted design some small implements that can be manufactured locally.
- (f) Start research in Ganaclis to develop crop rotations and management of operations that are most suitable for various types of irrigation systems.

1985:

- (a) Continue refining minimum tillage systems and their recommended management practices.
- (b) Continue on developing crop rotations for the Ganaclis area.
- (c) Design tillage implements that can be manufactured locally for any new principle of operation that evolves from current research.

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1986:, 1987:, and 1988:

Continue work that evolves in 1985.

## II - PLANTING

Research was conducted in 1983 on peanuts, cotton, and maize which determined that planters now available are basically satisfactory in both Delta soils and in the new reclaimed soils. These planters are designed for a wide range of seed size. Minor modifications may be desired for components that manipulate soil in front of and behind the seed chutes and for the trailing press wheel. Also it may be desirable to adapt equipment for applying herbicides on the seed row. Mechanical planters that are readily accepted by the farmer must be provided since they directly affect the performance of all other mechanical operations such as cultivating, spraying, and harvesting. This is especially true when multi-row equipment is used. Machine shops in Alexandria, and other cities, now have the capability of producing row crop plate type planters with the possible exception of bearings, drive chains, and sprockets. The major problem to overcome with mechanical planters is to train farmers or operators the importance of preparing a proper seedbed and of planting to a precise depth to get uniform germination which aids weed control with mechanical cultivators.

1983: An imported pneumatic planter was successfully used to plant peanuts and maize in calcareous soils. An imported plate planter was successfully used to plant cotton in heavy clay soil.

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It was observed in calcareous soils that it is important to place seed only as deep as necessary for germination because of crust formations as the surface soil dries. Another reason for planting shallow is so the crop seed will emerge and grow quickly and be larger than newly emerged weeds to aid the first cultivation. In heavy clay soil if the largest soil clods on the surface are no more than 4 to 5 cm. it is generally accepted as an adequate seedbed. Seed are planted on the level and covered very little if any, then the area is flood irrigated which melts most of the soil clods to cover the remaining seed. This procedure produces a good crop stand but seed that are not covered by the planter tend to scatter to one side of the row and makes it very difficult to kill all of the newly emerged weeds during the first cultivation. Tests will be installed with several different semi-automatic potato planters during September or October.

1984:

1. Experiments should be made in calcareous soils to determine the optimum depth of planting different types of seed and different ways to mechanically rupture soil crusts.
2. Experiments should be made in heavy clay soils to determine different ways to cope with the large clods on the surface; i.e. decrease the maximum size to one cm in the vicinity of the seed, do minimum tillage and not create large clods, cover the seed with sand, etc.
3. Experiments should be made to determine if the machines will satisfactorily plant small seed.

4. Experiments should be made under different irrigation systems and for different crops to determine the optimum location with respect to crop seed and time of applications with respect to crop growth for plant nutrients. Starter fertilizer for fast early growth should always be applied at the time of planting. This may be considered as an agronomical rather than as an engineering problem, but data are not available and it is a required input for developing a mechanized system.
5. The heavy clay area where cotton was planted in 1983 is poorly drained and drainage throughout the area is very non-uniform due to surface elevations. Plant emergence was slower in the less drained areas, in fact plant population was low in some small areas. Research should be conducted to relate the degree of unlevelness of the surface to increase in cost of weed control and to decrease in crop yield.

1985:, 1986:, 1987:, and 1988:

1. Continue on any unfinished work for 1984.
2. Improve and/or add components to the different planters as the need arises. For example, if it is difficult or impossible to get crop plants to emerge and grow faster than weeds and grasses herbicide applicators should be added to the planter.

III - CULTIVATOR

1983: Tests were conducted in 1983 on calcareous soil and heavy clay soil which showed that imported cultivators of rolling or fixed type soil engaging components can be used to successfully control weeds within agricultural crops. The important decision to make with these implements is the proper time to cultivate with respect to the size of weeds. Proper adjustments of the soil working components with respect to size selection, depth of operation, distance from plant row, and speed of operation can easily be learned once one understands the task that should be performed on the soil. The rolling cultivator is a very effective and versatile tool and it has many applications in Egypt. It can be adjusted to thoroughly manipulate the soil, leave the surface level or ridged and it is effective over a wide range of speeds. One primary requirement of this implement is to use it while the weeds are still small. For any row crop cultivating equipment the most difficult design restriction is the allowable space between crop rows, and this is especially critical when the row spacing is only 60 cm, in fact this space is not adequate for proper soil manipulation to control weeds. Tests with maize were started in 1983 to determine the maximum row spacing that can be used without decreasing the yield. Similar data on other crops will be available through contract research by the end of 1983.

1984: There is very little or no improvement needed on the rolling cultivator because it has been well developed. The only  
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requirement to do successful cultivation with <sup>this</sup> implement is for the operator to learn good management practices. These comments are also true for the sweep and shovel type implements whether the standards are of the spring or rigid type.

1. Fertilizer application equipment should be adapted to the cultivators to permit placing nutrients after planting where the crop plant will use most of them and weeds very little. Another reason for placing nutrients with the cultivator is to mix them with soil to prevent displacement by irrigation water.
2. Spraying equipment for applying herbicides and insecticides should be adapted to the cultivators to minimize, where possible, the number of trips across the field with tractors.
3. The main need for tests with cultivators is to develop guide lines for selecting the best type of implement for a given task and the proper management of the selected implement. Industry in Egypt now has the capability of manufacturing components for cultivators with possible exceptions of roller slicer tines and spring shanks.
4. If research data are not available by agronomists work should be conducted to establish optimums plant population for different row spacings of different crops.

#### IV - FIELD SPRAYERS

Successful field sprayers of many types have been well developed in foreign countries, and industry in Egypt now has the capability

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for manufacturing most of the components. Boom type or gun type sprayers are easily adapted for specialized tasks such as row crops, vineyards, orchards, and precision spraying of herbicides in small row crop plants. Versatility of field sprayers is limited only by the imagination of manufactureres and users. The primary need for research with sprayers is to establish guidelines for available chemicals on quantities to use, relative times to use, the best chemical for a given task, residual effects, etc. Possible uses of each chemical are always suggested by the manufacturer. Any engineer can study available information on chemicals and sprayers and become an expert in a short time. Boom type and aerial sprayers were used in 1983 to a limited extent.

1984:

1. Research should be conducted to determine if chemicals are available to control weeds that exist in Egypt, quantities of chemicals required for the different weeds, number and timing of applications required, possible contamination of soil and irrigation water, etc.
2. Research should be conducted to determine the relative cost of producing crops with conventional methods, mechanical tillage and weed control, and minimum tillage with chemical weed control.

1985:, 1986:, 1987:, and 1988:

1. Continue work started in 1984 because new chemicals will become available, certain weepds will become resistant to available chemicals, certain crops may become less tolerant to chemicals, etc. so this will be a continuous project.

2. Adapt spraying equipment to specialized tasks as the need arises.

#### V. IRRIGATION

A large quantity of agricultural products are being imported at the present time, the population is increasing rapidly, and the supply of irrigation water is limited, so it is imperative that the efficiency of management of this water be increased as much and as rapidly as possible. It is known that in many instances considerably more water is being applied with the existing management during each irrigation than the crop uses. It is also known from work done in Egypt, as well as in other countries, that with proper management less water is required to produce a crop with sprinkler irrigation than with furrow irrigation. Drip irrigation systems can be more efficient than sprinkler systems because the entire soil area may not be covered. Little effort was made by R&D during 1983 to conduct research with different irrigation systems.

#### 1984:

1. Initiate a study in the Ganaclis area with different types of irrigation systems to determine optimum crop rotations with each type of system.

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2. Conduct research to compare the relative costs and water requirements of different types of irrigation systems to produce given crops. Establish the sources of wasted water ( not used by crop ) for each system.

1985:

1. Continue studies in Ganaclis on crop rotations for the different types of irrigation systems.
2. Initiate research with different crops on different types of soil to study the effects of frequency of irrigations and the depth of soil wetting at each irrigation. For example, if the soil tilth is such that the crop roots penetrate 1.5 m deep a four-week frequency for irrigation may be more effective than a two-week frequency with respect to cost of labor, total quantity of water required to product a crop, crop yield, etc.

1986:

1. Continue work in Ganaclis on crop rotations for the different types of irrigation systems.
2. Extend and complete work started in 1985 on frequency of irrigation.
3. Initiate <sup>tests</sup> in different soil types to establish the relationship of water table elevation to the degree of over irrigation ( water applied beyond what the crop uses ). It is possible that in some poorly drained areas farmers are over irrigating and cause the water table to rise excessively which restrict plant root development which in turn restricts yield.

1987:, 1988 :

1. Continue work unfinished and initiate new projects as the need arises.

## VI. GENETICS

The importance of this discipline quickly becomes obvious anytime that engineers start to increase the degree of agricultural mechanization. For example, as the crop plant size becomes larger machinery to produce and harvest the crop must become larger which means more weight to obtain sufficient strength. Soil structure has a limited strength which means that it can resist only so much pressure applied by machines. Researchers have shown that in many situations one pass of a heavy machine will destroy the soil structure to an extent that two or more years are required to restore the structure. Hence, it is important to breed new varieties of plants that are smaller in size so machine weights can be kept low. Many existing varieties of certain agricultural crops require several different harvestings, hence the machine must be capable of selecting only mature fruits, vegetables, cotton bolls, etc. and at the same time do little damage to the plant. This requires more degrees of freedom in the sensing and collecting components of the machine and this greatly complicates fabrication plus it increases initial cost and maintenance of the machine. It is possible to breed varieties of certain crops on which most of the fruit will ripen at the same time and permit only one harvest, hence the plant can be destroyed during the harvest.

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1983: A Geneticist was not assigned to R&D.

1984: Initiate research to develop a variety of local cotton that is suitable for machine harvest.

1985: Initiate research to develop local tomato varieties, especially those designated for canning or juice, on which all fruit will ripen at the same time and permit once over harvest.

1986:, 1987:, and 1988: Initiate research on other priority crops to develop varieties that will aid mechanical harvesting. Each of these crops will require several years and of course research on the harvesting machines will be carried on simultaneously.

## VII. HARVESTING OF SMALL GRAIN

Harvesting requires more labor or more complicated machinery and good management to preserve the quality of crops than any other operation. For this reason harvesting will be discussed in categories of small grains, field row crops, vegetables and fruits.

### A. Harvesting small grains :

There has been a lot of effort spent on the self propelled mower-binders from Italy and they still will not harvest Egyptian wheat or rice satisfactorily. Because they were designed to harvest wheat from 70 to 100 cm high there is not adequate space to pass the 120 to 140 cm high wheat grown in Egypt through the machine.

1983: The self propelled mower with pickup reel will be tested in rice again this season. Modifications will be made to the assist for moving the cut crop up the conveyor of the small French combine and it will be tested in rice. If possible a 2 to 1 gear reduction box should be adapted to this machine to decrease the ratio of forward speed to cutter bar and reel speed. Capacity of the reel drive must be increased to give more positive action.

1984: It is believed that the small French combine can be made to harvest wheat and rice satisfactorily, but this may be too large a step from hand harvest especially with limited access and field roads that will accommodate this type of machine. Although there definitely is a need to continue research to develop successful combines other intermediate systems for harvesting small grains with less labor must be developed.

1. Mechanical mow and windrow, load on wagon by hand and haul to mechanical thresher-winnower system should be developed.
2. Mechanical mow-windrow-load on wagon and haul to mechanical thresher-winnower should be developed.
3. Mechanical mow-windrow-combine system should be developed.
4. Solar drying of crops harvested at different stages of drying from complete maturity should be researched to decrease the required time between crops and/or permit growing one additional crop per year. It is anticipated that contract research will make a contribution to this.

1985:

1. Research should continue to refine objective 1, 2, and 3 for 1984. Different machines or management methods should be explored.
2. The solar drying effort should continue and include different crops and/or designs of drying equipment. Relative merits of small bins, large bins, wagons, etc drying containers should be determined.
3. Material transport equipment should be developed for small farmers.

1986:, 1987:, and 1988: From information obtained in 1984 and 1985 a complete mechanical system for combining as soon as the crop reaches full maturity - discharging into a drying wagon - conveying into an elevator or some type of long term storage facility should be developed.

B. Harvesting field row crops :

1983:

1. Peanuts will be dug with two or three different types of machinery - hand picked and if possible with a mechanical harvester - graded by hand.
2. Cotton will be hand picked.
3. Maize will be handpicked and research will be conducted with at least one mechanical rotary drum thresher to determine efficiencies for different moisture contents at harvest through a range of different thresher operating variables.

1984:

1. Although the need is, apparently, not critical at the present time a maize picker - sheller should be imported and tested.
2. Mechanical equipment for transporting the harvested crop out of the field should be developed.
3. Different systems of picking and transporting maize out of the field should be evaluated. For example, hand pick - place in piles - later place in wagons to transport to sheller, hand pick - place directly into wagon for transport to sheller, mechanically pick into wagon for transport to sheller, or combine into wagon.
4. If the geneticist has bred some variety of cotton that has a potential for mechanical harvesting conduct tests.
5. Conduct sheller and/or thresher tests with beans at different moisture contents.

1985:

1. Develop precleaning equipment for mechanically harvested cotton to be used at the gin, and continue picker tests cooperatively with the geneticist.
2. Develop a complete mechanical system for harvesting and shelling beans.
3. Continue work not completed in 1984.

1986:, 1987:, and 1988:

1. Recommend a complete mechanical harvesting system for the

most promising variety of cotton that the geneticist has developed.

2. Based on research data to date continue to improve and refine all harvesting machines being used with field row crops.

C. Harvesting vegetables :

Egyptian farmers produce some of the most beautiful and edible vegetables of any country in the world, but management practices during harvesting and retailing to the consumer causes excessive losses and deterioration of quality. Most vegetables mature over a long period of time and require several different harvestings which make mechanization more difficult than for small grains and field row crops. Although complete mechanization of harvesting vegetables may not be feasible at the present time there are a number of mechanical harvesting assists that can be economically employed.

1983: No effort will be expended.

1984:

1. The geneticist should start breeding varieties of canning tomatoes, cucumbers, squash, etc on which all fruits ripen at the same time and the engineer should acquire a machine that can be adapted to harvest these vegetables.
2. The engineer should develop specialized hand carried harvesting containers to prevent damage to the crop and a wagon that will accommodate these containers for transporting to a grading and packing center.

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3. The engineer should develop machines to assist in grading and packaging these vegetables.
4. The engineer should develop procedures and equipment if necessary for management of these crops from the time they are packaged until the retailer displays them for the consumer.

1985:, 1986:, 1987:, and 1988:

1. Continue refinement of work started in 1984.
2. Eventually develop field machines with assists such as cross belts, grading tables, and packing units.

D. Harvesting Citrus and Grapes

1. Import from foreign countries machines that shake citrus off of the trees onto collecting belts and adapt these to Egyptian conditions. This may require some research by the geneticist.
2. Develop mechanical assists for hand harvesting grapes similar to those for vegetables.
3. Since Egypt produces a large quantity of grapes for wine, the geneticist should breed varieties that can be mechanically harvested. This will require the engineer to develop a specialized trellis so the bunches of grapes will grow below the vines and can be mechanically cut onto a collecting device.

Ministry of Agriculture  
Arab Republic of Egypt

AGRICULTURAL MECHANIZATION RESEARCH INSTITUTE

Computer/Data Acquisition Systems

by

M. Yousry Hamdy, P.E. & Ph.D.  
Department of Agricultural Engineering  
The Ohio State University  
Columbus, Ohio, USA

Prepared for  
Agricultural Mechanization Project  
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## Introduction

The assignment for this study was "to add the computerization required to implement Dr. Roger Garrett's instrumentations at the new mechanization center in Cairo." The assignment was accepted well before Dr. Roger E. Garrett, the Chairman of the Agricultural Engineering Department at the University of California (Davis), had a chance to finalize his report. Dr. Garrett spent two days with the author in Columbus, Ohio, while returning from Egypt to California. He reviewed in detail the rough draft of his report and generously shared his thoughts on the Agricultural Mechanization Research Institute (AMRI) with the author. He might have even accepted a few suggestions by the author. The final report reached the author two weeks later - ten days before his departure to Egypt - and reached the mechanization project personnel in Cairo around the same time the author arrived in Cairo.

The history of the contacts between Dr. Garrett and the author is reviewed because of its direct impact on the recommendations formulated in this study. First, the interaction with Dr. Garrett might have influenced his recommendations. Second, the author conducted a broad market survey, following Dr. Garrett's visit, collecting relevant literature and talking to the representatives of no fewer than six manufacturers of computer and data acquisition systems. Third, when Dr. Garrett's final report was received, it was carefully read, digested and analyzed. The computer needs identified in the report were tabulated by location, function and priority. The table was subsequently revised and expanded well beyond the AMRI instrumentation needs. Fourth, another more specific market survey was conducted and the in-depth advice of technical sales representatives and academic colleagues was sought. Last, following arrival to Cairo, the mechanization project personnel were consulted and interviewed

numerous times until the recommendations contained in this study finally evolved.

### Scope of Study

The initial scope of the assignment was to add the computerization required to implement Dr. Roger Garrett's instrumentations at the Agricultural Mechanization Research Institute in Cairo. This was quickly expanded to include all computer needs of the AMRI. Finally, the scope was further expanded to take into account the possibility of having a modern mainframe computer within the Ministry of Agriculture which may be directly accessible to the AMRI personnel.

### Agricultural Mechanization Research Institute Organization

The organization and structure of the AMRI have a direct bearing on the computer hardware needed for its effective and efficient operation. More specifically, the technical and administrative functions of the AMRI and the geographic locations of these functions dictate the desired hardware,

Dr. Roger Garrett conducted a detailed analysis of the functions of the AMRI in August, 1983. His comprehensive recommendations on the organization, structure and geographic locations of the various departments of the AMRI, along with suggestions of functions, personnel and equipment lists for each department, are included in his final report. This report was completed in mid-September, 1983, and reached the mechanization project management early in October, 1983, while this current study was underway. As of the time of this writing, the report has not yet been debated in detail nor accepted by the project management; however, it has been accepted in principle with

minor revision of the geographic location of one or two departments. Table 1 lists the proposed AMRI departments and their functions, personnel, and geographic locations. Table 1 is the basis of the computer recommendations presented in this study.

An examination of Table 1 reveals that the AMRI will consist of six departments at three locations as follows:

- CAIRO:            Analysis, Planning and Evaluation Department
- Post Harvest Department
- Equipment Design and Production Department
- GIANACLIS:      Crop Production Department
- Animal and Poultry Production Department
- ALEXANDRIA:    Energy and Power Department

It should be noted that the Post Harvest Department may be located at Gianaclis instead of Cairo. Such a change will have no bearing on the recommendations for either the Cairo or the Gianaclis facilities, with the exception of locating the data logger of the Post Harvest Department at Gianaclis instead of Cairo. It should also be noted that the Gianaclis facility might be located at Sakha in the Delta, which is more representative of the rich agricultural soil of Egypt. Such a change will have no influence on the computer needs of the Gianaclis facility as long as its departments remain the same and the location is not in close proximity of either the Cairo or the Alexandria facilities.

AMRI Computer Needs

It is assumed that a computer system will be provided at each of the AMRI three facilities: at Cairo, Alexandria and Gianaclis. The specific functions of each computer system are listed here based on the functions of the departments at each location as shown in Table 1. The list of the specific functions of each computer system is not intended to be inclusive; it simply highlights the main functions and applications as perceived at the present time. There should be no doubt whatsoever that new applications will evolve before the computer systems become operational. And there should be no doubt that the staff of the AMRI will create their own new functions as they become more proficient in computer use and applications.

CAIRO: Automatic data acquisition and analysis of the laboratory and field tests of imported equipment, experimental units, and production prototypes for the Post Harvest Department (crop storage structures and environment, physical properties, heat and moisture transfer during drying, cooling, fermentation, etc.) and the Equipment design and Production Department (machinery stresses and strains, velocity, rpm, fluid flow, productivity, performance, etc.)

Computer-aided design and drafting for all departments, especially the Equipment Design and Production Department, blue prints, maps, etc.

Dynamic simulation and analysis of mechanization systems for the Postharvest Department (Machinery, heat and mass transfer processes, etc.) and the Equipment Design and Production Department (machinery, control systems, etc.)

Mass storage of test data for all departments

Analysis of mechanization systems for the Analysis, Planning and Evaluation Department utilizing standard systems analysis techniques such as linear programming, dynamic programming, simulation, critical path method, network analysis, queuing methods, etc.

Support of the administrative functions of the AMRI personnel such as electronic filing, record keeping (financial, technical, operational, etc.), generating periodic financial statements for different accounts and projects, word processing with a spelling checker, technical report development, etc.

GIANACIS: Automatic data acquisition and analysis of the laboratory and field tests of imported equipment, experimental units, and production prototypes for the Crop Production Department (machinery for tillage, landscaping, irrigation, drainage, fertilizing, harvesting, etc.) and the Animal and Poultry Production Department (construction, heating, ventilation, feed storage, metering, distribution and dispensing, water supply monitoring, treatment and distribution, product storage and processing, waste treatment and disposal, etc.).

Dynamic simulation, analysis and control of production facilities for the Animal and Poultry Production Department or the irrigation and drainage systems of the Crop Production Department.

Preliminary statistical and economic analysis of laboratory and field test data for the Crop Production Department (growing practices such as planting methods, thinning, weeding, pruning, fertilizing and harvesting methods, irrigation and drainage systems, etc.) and the Animal and Poultry Production Department (feed mixes, waste collection and disposal, bedding receiving, storage, and distribution, product collection, storage, handling, and shipping, etc.)

Support the administrative and technical functions of the Gianacelis personnel such as electronic filing and record keeping, periodic financial statement generation, word processing with spelling checker for reports and technical papers, data entry on discs or tapes for further analysis on larger computer systems (Cairo facility, Ministry of Agriculture mainframe), etc.

ALEXANDRIA: Automatic data acquisition and analysis of laboratory and field tests for the Energy and Power Department (tractors, engines, electric motors, power transmission components, hydraulic systems, alternate energy sources such as solar, wind, etc.).

Dynamic simulation, analysis and control of tractors, electric motors, electric power distribution, hydraulic systems, alternate energy sources, etc.

Preliminary statistical and economic analysis of laboratory and field test data on the performance of tractors, tractor engines, power transmission, hydraulic systems, electric power distribution networks, alternate energy sources, etc.

Support the administrative and technical functions of the Alexandria personnel such as electronic filing and record keeping, periodic financial statement generation, maintaining vehicle and tractor maintenance records, word processing with a spelling checker for reports and technical papers, data entry on discs or tapes for further analysis on larger computers (Cairo facility, Ministry of Agriculture mainframe), etc.

### Ministry of Agriculture Mainframe Computer System

The Egyptian Ministry of Agriculture is attempting to develop a central data processing department equipped with a mainframe computer system. A mainframe computer system will provide the AMRI with desperately needed services, such as analyses of large scale systems, that are clearly beyond the capacity of the AMRI's own microcomputers, current or projected. Large scale problems involving linear programming, dynamic programming, critical path method, network analysis, queuing theory, etc., which occur in economic analysis of large scale systems, will have to be solved on the mainframe computer, not a microcomputer. Large scale statistical analyses, likewise, require the size and speed of a mainframe computer system.

The AMRI should plan on utilizing the mainframe computer system of the Ministry of Agriculture in solving its large scale problems and meeting some of its administrative needs (electronic filing, communication, recordkeeping, word processing, etc.). On the other hand, the AMRI will need microcomputers for tasks that a mainframe computer cannot - or should not - perform such as automatic data acquisition and analysis, simulation and control of dynamic systems, and computer-assisted design and drafting. Furthermore, the AMRI micro-computers can serve as smart terminals to the Ministry of Agriculture mainframe computer for data entry and solution output, electronic communication, mass storage of data, etc.

The AMRI microcomputers and the Ministry of Agriculture mainframe computer do not compete with each other; rather, they compliment each other. Each can do tasks the other cannot - or, for the sake of efficient operation, should not do. Together, they multiply the effectiveness of each other.

### Recommendations

- 1 - The AMRI should acquire and operate an integrated computer and automatic data acquisition system at each of its three facilities: at Cairo, Gianaclis, and Alexandria.
- 2 - The three computer/data acquisition systems must be compatible with each other and their components must be interchangeable with each other.
- 3 - When the AMRI selects the computer/data acquisition systems, PREFERENCE should be given to the vendor who can supply AND maintain the entire three systems.
- 4 - The AMRI should identify the computer operators of the three systems and, preferably, their back-up personnel while selecting the systems. When the systems are selected, the operators and their back-up personnel should undergo a rigorous 3 - 6 month training program on the effective and efficient operation of the systems and their routine preventative maintenance. This training program should be organized by the system vendor(s) and may be partially conducted in the U.S. Delivery of the systems should be delayed until the trained operators are ready to take delivery and use the systems extensively during their warranty period to work out any problems.
- 5 - Once the computer/data acquisition systems are selected, the AMRI researchers who will use the data loggers/data acquisition systems should attend a workshop on the efficient and effective use of these systems. The workshop should be organized by the vendor(s) and be held in Egypt to keep the cost down. The workshop speakers should have extensive experience with the system and could be drawn from Egypt, Europe or the U.S.
- 6 - The detailed description of the recommended system is presented in Table 2. A paired-down and less desirable system is described in Note 1 following the table; it costs around 15% less - 30% if the large plotter and associated CAD are postponed - and is, therefore recommended with reservation.

Acknowledgements

The author is extremely grateful for the advice and cooperation of Dr. Ahmed F. El-Sahrigi and Dr. Zakaria A. El-Haddad. The support, counsel and guidance of Dr. David Gaiser made the assignment much more pleasant and the work much easier and more meaningful. Finally, the excellent quality of the project personnel, including technical and support staff, is both refreshing and noteworthy. The project management must be congratulated for their outstanding recruitment and selection.

TABLE 1

AGRICULTURAL MECHANIZATION RESEARCH INSTITUTE  
DEPARTMENTS AND FUNCTIONS

I. ANALYSIS, PLANNING AND EVALUATION

Location: Cairo

Functions: Generate and analyze economic and social data  
Solicit and evaluate project proposals, obtain review by  
technical experts, present proposals for review to  
Advisory Committee  
Analyze market potential  
Analyze resource requirements  
Monitor project progress  
Evaluate effectiveness and impact  
Maintain contacts with extension, farmers and Government  
planners

Personnel: Agricultural Economist  
Rural Sociologist  
Agricultural Engineer with extensive experience  
Computer Programmer

II ENERGY AND POWER

Location: Alexandria

Functions: Tractor and engine selection and application  
Electric power distribution and motor selection  
Power transmission components selection, design and  
application  
Special tractor and self-propelled vehicle design  
Vehicle maintenance and repair

Alternative energy source development

- Personnel:** Agricultural or Mechanical Engineer - Tractors engines, hydraulics, power transmission
- Agricultural or Electrical Engineer - Power distribution, motors, generators
- Agricultural or Mechanical Engineer - Solar, wind, combustion, gasification
- Agricultural or Chemical Engineer - Methan, alcohol (jointly with the Animal and Poultry and the Post Harvest Departments)

III. CROP PRODUCTION

**Location:** Gianacelis

**Functions:** Review production practices for mechanization opportunities in field and horticultural crops: primary tillage, landscaping, planting, irrigation, drainage, cultivating, thinning, weeding, pruning, pollinating, fertilizing, weed and insect pest control, harvesting

Grow crops for mechanization tests

Arrange for mechanization tests on farmer plots

Define mechanization conditions and requirements

Test in laboratory and in fields imported equipment, experimental units and production prototypes

Demonstrate equipment and operating techniques

Train operators and managers on operations and maintenance

- Personnel:** Agricultural Engineer - Field crop machinery
- Agricultural Engineer - Horticultural crop machinery
- Agricultural or Civil Engineer - Irrigation and drainage

systems design

Agricultural or Mechanical Engineer - Irrigation and drainage  
equipment selection, design and maintenance

Agronomist - general field crops

Statistician - Experiment design and data analysis

#### IV. ANIMAL AND POULTRY PRODUCTION

Location: Gianaclis

Functions: Review production practices for mechanization opportunities:

Production space, layout and flow patterns; construction,  
heating, ventilation, lighting; feed receiving, storage,  
metering, grinding, mixing, pelleting, distribution,  
dispensing; water supply, pumping, storage, treatment,  
distribution; bedding receiving, storage, distribution,  
application; product collection, storage, handling,  
shipping; waste collection, treatment, disposal

Raise animals and poultry for mechanization tests

Arrange for mechanization tests in farmer facilities

Define mechanization conditions and requirements

Test in laboratory and in field facilities imported equipment,  
experimental units, production prototypes

Demonstrate equipment and operating techniques

Train operators and managers on operations and maintenance

Personnel: Agricultural or Civil Engineer - Structural and environmental  
design

Agricultural or Mechanical Engineers - Mechanical equipment  
design

Animal Husbandry Specialist  
Poultry Husbandry Specialist  
Veterinarian

V. POST HARVEST

Location: Cairo or Gianaclis

Functions: Review production practices for mechanization opportunities:  
storage structures and environment; conveying; handling;  
packaging; processing, cleaning, sorting, grinding,  
mixing, drying, cooling, fermentation; transporting;  
physical properties; post harvest mechanization tests  
of project products; arrange for mechanization tests of  
farmer products; define mechanization conditions and  
requirements;

Test in laboratory with project or farmer products imported  
equipment, experimental units and production prototypes

Demonstrate equipment and operating techniques

Train operators and managers on operation and maintenance.

Personnel: Agricultural or Chemical Engineer - Heat and moisture trans-  
fer processes

Agricultural or Mechanical Engineers - Mechanical processes  
and materials handling

Post Harvest Physiologist - Product response to storage and  
handling

VI. EQUIPMENT DESIGN AND PRODUCTION

Location: Cairo

Functions: Adapt instruments to laboratory and field equipment  
Design and build special test fixtures and instruments

Calibrate instruments

Conduct shakedown and dry run tests

Assist with laboratory simulated tests

Re-design and modify imported and experimental test units

Design and build production prototypes

Design and build production fixtures

Maintain stock and materials including bearings, sprockets, sheaves, roller and agricultural chains; v-belts; high strength bolts; high strength and heat-treated steels; special steel sections and materials

Establish and maintain contracts, channels, and procedure for: importing equipment and supplies, local manufacture of project development, local supplies of OEM parts and materials, joint venture manufacture of project developments, service and repair shops

Demonstrate project developments to local and joint venture manufacturers, service and repair shops

Train manufacturers and service and repair shops

Prepare production drawings

Inspect and certify manufactured designs

Personnel: Agricultural or Electrical Engineer - Instrumentation, electronics, and control systems

Agricultural or Mechanical Engineer - Instrument and adapter design, lab fixtures

Agricultural Engineer - Experimental unit design

Mechanical Engineer - Prototype and production fixture design

Mechanical Engineer - Materials and manufacturing processes,

cost estimation  
Procurement Officer  
Inventory Manager

TABLE 2

COMPUTER/DATA ACQUISITION RECOMMENDATIONS  
AGRICULTURAL MECHANIZATION RESEARCH INSTITUTE

<u>Item</u>	<u>Quantity</u>	<u>Location</u>	<u>Description</u>
1	1	Cairo	Digital computer system with a 16-bit processor, 8 MHz (min) clock frequency, 16-bit asynchronous data bus, at least one non-maskable and five maskable interrupt levels, 2 megabytes (min) of RAM, built-in interfaces for all necessary accessories and peripherals including an RS-232 interface, ASCII keyboard/character set, expanded BASIC and PASCAL Languages (other languages such as FORTRAN are desirable), battery backup power (to store programs and data during power failure for later recovery), <u>two</u> built-in or external 250 K bytes (min), 134-mm flexible disc drives, <u>one</u> full 310-mm (min) CRT (color preferred) display with 24 lines x 80 characters (min) and 500 x 390 graphics (min); <u>one</u> dot-matrix impact printer capable of up to 180 character per second and 136-character column width (at 10 characters per inch) plus some graphics capability, and <u>one</u> two-color 20 x 30 cm (nominal) graphics plotter for chart paper and transparency film with automatic pen changes, 0.1 mm, or better, addressable resolution and repeatability. The system shall have the provisions for future expansion and must be able to handle up to four additional keyboard/CRT workstations.

<u>Item</u>	<u>Quantity</u>	<u>Location</u>	<u>Description</u>
2	2	one each at Alex & Gianaclis	Digital computer system identical to item 1 with only 640 K bytes of RAM and monochrome CRT
3	2	Cairo	10 M byte (nominal) winchester disc drive plus all associated hardware and software for use with item 1.
4	4	Two each at Alex & Gianaclis	5 M byte (nominal) winchester disc drive plus all associated hardware and software for use with item 2.
5	1	Cairo	Letter quality, daisywheel heavy duty printer plus all associated hardware and software for use with item 1.
6	4	Cairo	Keyboard/CRT workstation for data entry, word processing, text processing, document processing plus all hardware and software for use with item 1. The keyboard shall be an ASCII keyboard/character set. The CRT display must have 24 lines x 80 columns (min) with 400 x 300 graphics (min), and be of a quality suitable for prolonged viewing.
7	1	Cairo	Eight-pen, size E (90 x 120 cm nominal), drafting plotter for use on chart paper, vellum and double

<u>Item</u>	<u>Quantity</u>	<u>Location</u>	<u>Description</u>
			matte polyester plus all associated and software for use with item 1. The plotter must have programmable automatic pen changing, 0.1 mm, or better, addressable resolution and repeatability.
8	12	Four each at Cairo, Alexandria and Gianacelis	Portable hand-held computer, measuring less than 4 x 20 x 25 cm and weighing less than 750 gm (including batteries). The computer shall be programmable in BASIC and must have at least 20 K bytes of RAM. The computer shall have a standard typewriter keyboard layout (ASCII keyboard/character set), a numbers keypad, at least five user-defined (soft) keys, and a built-in, dot matrix, 26-character (min) LCD display with some graphics capability. The vendor must be able to offer for use with the computer a multi-color printer/plotter with a graphics capability, a magnetic recording/playback device (cassette, tape, disc or card) to record and playback programs and data files, and an RS-232 module for communications with other computers and peripherals. Preference shall be given to the computer which offers more features (more RAM, more extensive BASIC and other functions, a multi-row LCD with more characters per row, better graphics, etc.) which is smaller in size and lighter in weight,

<u>Item</u>	<u>Quantity</u>	<u>Location</u>	<u>Description</u>
			which has better and more complete and convenient accessories and/or peripherals, or which offers a more complete library of software programs and applications.
9	6	Two each at Cairo, Alexandria & Gianaclis	An integrated, complete, home-base station of peripheral equipment for use with the computer described in item 8. The station shall consist of a multi-color printer/plotter with graphics capabilities, a magnetic recording/playback device (cassette, tape, disc, or card), and an RS-232 module plus all associated hardware and software.
10	3	One each at Cairo, Alexandria & Gianaclis	A multi-channel automatic data acquisition system including signal conditioning, channel scanning and reading, and data transmission to the computers in items 1 and 2 for processing and analysis. The system must have a built-in digital voltmeter (DVM), a built-in current source, a built-in digital clock, a built-in reciprocal frequency counter, and a built-in RS-232 module for interfacing with nearby and remote computers. The system must be capable of reading up to 60 channels, using relay multiplexers or otherwise, consisting of up to 20 channels of voltage information, up to 20 thermocouples, and up to 20

<u>Item</u>	<u>Quantity</u>	<u>Location</u>	<u>Description</u>
			<p>straingauges. The system must be expandable to 120 channels (min) of similar and/or other channel types such as digital input/interrupt, actuator/digital output, voltage D/A converters and current D/A converters. The system must be able to read at least 8 channels per second; higher rates of up to 100 channels per second are desirable but not required. The specifications of the system components are: <u>DVM</u>: 5 1/2 - digit (min), multi-range, DC unit which can read in the ranges of <math>\pm 0.10</math> V, <math>\pm 1.0</math> V, <math>\pm 10.0</math> V and <math>\pm 100.0</math> V (120V peak) with a resolution of 0.001% of the maximum reading in each range, a 30-day accuracy of <math>\pm (0.01\%</math> of reading + 3 counts in the Least Significant Digit Display) when the system is kept between 20 and 30° C, and a 0 to 50° C temperature coefficient not exceeding <math>\pm (0.0003\%</math> of reading + 0.3 LSDD counts) per °C. The DVM input impedance must be at least 10 M<math>\Omega</math> in the 100V range and 100M<math>\Omega</math> in the other ranges. <u>Current Source</u>: multi-range DC unit which can supply 0.010, 0.10 and 1.0 mA with a 30-day accuracy of <math>\pm 0.03\%</math> when the system is kept between 20 and 30°C, and a 0 to 50°C temperature coefficient not exceeding <math>\pm 0.003\%</math> per °C.</p> <p><u>Clock</u>: timer/real time non-volatile (battery operated) unit with a digital display showing Day, Month, Hours, Minutes,</p>

<u>Item</u>	<u>Quantity</u>	<u>Location</u>	<u>Description</u>
			and Seconds with an accuracy of $\pm(0.005\%$ of elapsed time + 0.1 Second). The clock shall be usable to measure real and elapsed time for up to one year, and as a 24-hour alarm and timer. The clock must be able to communicate its display information to the computer interfaced with the system. <u>Reciprocal Frequency Counter</u> : to measure mechanical and electrical frequencies up to 100 kHz with a $\pm(0.02\%$ of reading +3' LSDD counts) accuracy. <u>Voltage Relay Multiplexer(s)</u> : to monitor voltage signals of up to 20 channels, not exceeding 120V between any two input terminals, with a channel resistance of 200 $\Omega$ (max) closed/100 M $\Omega$ (min) open, a non-inductive current rating of 25 mA (min) per channel, a power rating of 0.5VA (min) per channel, and a 100 $\Omega$ $\pm 10\%$ protection resistor in each channel. <u>Thermocouple Relay Multiplexer(s)</u> : to monitor up to 20 separate, type T, thermocouples using hardware or software compensation (including reference junction compensation) with an overall accuracy (all errors due to data acquisition hardware and computer software) of $\pm 0.4^{\circ}\text{C}$ , or better, in the 0 to 400 $^{\circ}\text{C}$ measurement range if the system is kept between 20 and 30 $^{\circ}\text{C}$ , and a temperature coefficient not exceeding 0.01 $^{\circ}\text{C}$ per $^{\circ}\text{C}$ change in system temperature, <u>Strain</u>

<u>Item</u>	<u>Quantity</u>	<u>Location</u>	<u>Description</u>
			<u>Gauge Relay Multiplexer(s)</u> : to drive and operate up to 120 $\Omega$ and/or 350 $\Omega$ strain gauges with a 0.2 $\mu\epsilon$ (max) sensitivity, a 30-day accuracy of $\pm 10\mu\epsilon$ (max) when the system is kept between 20 and 30°C, and a 0 to 50°C temperature coefficient of $\pm 2\mu\epsilon$ per °C (max).
11	3	one each at Cairo, Alexandria & Giza	Portable automatic data acquisition system with the same built-in features and 60 channel capacity as item 10; however, the ability to expand the system is only desired, not required. The system shall not weigh more than 15 kg nor measure more than 20 x 40 x 50 cm (nominal). The system shall have the capability of being directly interfaced to the computers in items 1 and 2, and to work independently in the field by recording its output using a built-in (preferred) or detached digital recorder (cassette, tape, card, disc, RAM, etc.) which can record up to 100,000 readings and later play back the recording for computer processing and analysis. All associated hardware and software for using the system with the computers described in items 1 and 2 must be provided.
12	1	Cairo	A complete set of file management software to create customized database forms; create, change, copy (for backup), list (on an external device) and a file or a volume of files; create, change,

<u>Item</u>	<u>Quantity</u>	<u>Location</u>	<u>Description</u>
			list and remove file names and file directories; store, manipulate and retrieve files and file directories; pack files to recover unused mass storage space, perform keyed searching of files, etc.
13	1	Cairo	A complete set of project management software to plan, organize, manage, analyze and monitor projects using network analysis, Program Evaluation and Review Techniques (PERT), Critical Path Method (CPM), scheduling and queuing analysis, etc.
14	1	Cairo	A complete set of business accounting software to create customized ledgers and spreadsheets and to manipulate their contents, to do payroll, inventory control, requisition forms, accounts payable and receivable, employee time cards, statistical forecasting, trends, projections, linear and non-linear regression analysis, confidence limits and zones, etc.
15	1	Cairo	A complete set of mathematics/statistics software including basic statistics and data manipulation, statistical graphics, linear and non-linear regression analysis, analysis of variance, Monte

<u>Item</u>	<u>Quantity</u>	<u>Location</u>	<u>Description</u>
			Carlo simulation, component and factor analysis, basic numerical analysis techniques such as root finders, integration, ordinary differential equations, linear algebraic systems, Eigen analysis, Fourier analysis, Laplace transforms, interpolation, etc.
16	1	Cairo	A complete set of terminal emulator software to interface the computers in items 1 and 2 with each other or with a mainframe computer system.
17	1	Cairo	A complete word, document and text processing software package for engineering, office, and manual writing. It must offer automatic text changes (deletions, modifications, insertions), keyed searches, customized form letters, development of mailing lists, text alignment, underlining, saving and retrieving, spelling checker/dictionary, etc.
18	1	Cairo	A complete graphics software package including color graphics, pie charts, vertical and horizontal bar charts, organization and flow charts, statistical graphics (linear and non-linear regression curves, raw data, confidence zones) etc.

<u>Item</u>	<u>Quantity</u>	<u>Location</u>	<u>Description</u>
19	1	Cairo	A complete straight-forward drafting software package, including color, with accepted line-types, line functions, circles, arcs, dimensioning capabilities, etc.
20	1	Cairo	An engineering package for applying finite element analysis to 2- and 3-dimensional static and dynamic structures and to heat and mass transfer problems, to investigate the effects of potential design modifications, etc.
21	1	Cairo	A software package to perform mapping functions and computations such as contouring, 3-D, sections, relief shading, volume computations, etc., for analyzing reservoirs, landfills, mines, construction sites, etc.
22	1	Cairo	A complete set of utilities software for Cartesian plotting, autostart, setting computer clock, program editing and debugging, diagnostic functions, data acquisition software, meter calibration, etc.
23	1	Cairo	A complete software package for computer-aided drafting/design for mechanical systems.

General Notes:

1. A less desirable but still acceptable system could use thermal instead of impact printers (items 1 and 2), delete the small plotters (items 1 and 2), use half as many winchester disc drives (items 3 and 4) and portable hand-held computers and base station (items 8 and 9) at Cairo, Alexandria and Gianaclis.
2. Preference should be given to the vendor who can supply and maintain the entire system.
3. Vendors should be encouraged to propose alternate configurations of the proposed system which take advantage of their hardware and software, and to offer alternate and additional software packages. Hardware and/or software that may not meet all specifications should be considered if differences are justified.
4. All hardware (items 1 through 11) must be usable in a 0 to 55°C environment with up to 95% relative humidity (non-condensing), must operate on 220V AC  $\pm 10\%$  and 50 Hz, and must meet industry-accepted electrical standards. All portable hardware (items 8, 9 and 11) must also operate on rechargeable batteries (preferred) or standard batteries readily available in Egypt.
5. The software packages of items 12 through 22 should be acquired with the right to copy them (for use at Alexandria & Gianaclis).
6. All operating, system and instructions manuals must be provided.

APPENDIX

Hardware and Software Cost Estimates

The following cost estimates for the proposed hardware and software are intended to help the project management in evaluating the recommended system. The costs of the necessary transducers, sensors, cables, consumables, site preparation, and training the personnel who will operate the system are not included. These estimates are based on current U.S. market prices; prices in Egypt will likely be higher. Discounts that might be extended to the project are not included.

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Total Cost</u>
1	1	2 - megabyte computer, 2 disc drives, color CRT, printer, plotter	\$ 32,000
2	2	640K byte computer, 2 disc drives CRT, printer, plotter	45,000
3	2	10M byte winchester disc drive	10,000
4	4	5M byte winchester disc drive	14,000
5	1	Letter quality daisywheel printer	4,000
6	4	Keyboard/CRT workstation	9,000
7	1	Eight-pen size E (90 x 120 cm) plotter	23,000
8	12	Portable hand-held computer	5,000
9	6	Printer/plotter, recorder & RS-232	3,000
10	3	60-channel data scanner	25,000
11	3	Portable 60-channel data scanner	35,000
12-22	1 ea.	Software packages	18,000
23	1	CAD software	7,000
			<u>7,000</u>
Grand Total			\$ 230,000

Appendix, Continued

The less desirable but still acceptable system (thermal printers, no small plotters, half as many winchester disc drives, hand-held computers and base stations) will cost around \$200,000. If the purchase of the size E plotter and its CAD software are postponed, the price tag will drop to around \$170,000.

ANNEX E

A MECHANIZATION PROGRAM  
for the  
SMALL FARMER PRODUCTION PROJECT

A MECHANIZATION EXTENSION PROGRAM  
for the SMALL FARMER PRODUCTION PROJECT

INTRODUCTION

After several seasons of operations in the Sharkia, Kalyubia and Assiut governorates the Small Farmer Production Project (SFPP) has developed a pressing need for a coherent mechanization extension and training program in project areas. In order to help fill this need and to establish an ongoing working relationship in the field between the SFPP and the Agricultural Mechanization Project (AMP), the following is proposed.

Staff Organization

In order to carry out the Program outlined below a staff organization is needed and will be drawn from both the SFPP and the AMP in the following manner.

1. SFPP personnel will include a governorate -level contact person to be designated to the SFPP management, namely \_\_\_\_\_ for Sharkia, \_\_\_\_\_ for Kalyubia and \_\_\_\_\_ for Assiut . In addition, a technical advisor for each of these areas will be designated as follows:  
Sharkia:  
Kalyubia:  
Assiut:
2. AMP personnel will include a Loan Funds Equipment Training Supervisor (LFETS) who will coordinate all extension/training/demonstration activities in the field with the SFPP staff. This supervisor will be Mr. Ahmed Araini Said

Overall coordination of the field activities will come from a joint effort between the management staff of both the SFPP and the AMP with operational assistance from the AMP Extension and Training Coordinator, Fred Schantz. After initial contacts are made in the various areas of operation, it will be determined if additional technical staff from the AMP field staff will be necessary in which case they will be used in SFPP as conditions permit.

Staff Support Systems

In order to carry out an effective effort, field financial and operational support will be necessary and will be provided by the SFPP, including

1. Transportation for the AMP field staff, mainly the LFET supervisor.
2. Incentives from the SFPP for personnel from the AMP while they are carrying out field activities for the SFPP

Mechanization Extension and Training Program

The following elements of a mechanization extension and training program are proposed in order to fulfill the SFPP needs for extension and training on equipment purchased through the Project and presently working in the various Project areas.

1. Mechanization Extension Specialists

In order to establish ongoing support for the SFPP's field effort, the SFPP will provide two extension staff from each of the three governorates (6 total trainees) to attend a 3 month extension mech-

anization course, to be held at the Sakha Training Center in Kafr El Shiek governorate from 24 September until 23 December 1983 at the expense of the AMP.

## 2. Field Training Sessions

A series of 1-3 day practical training sessions will be held in all three governorates under the supervision of the Field Supervisor in conjunction with the particular equipment manufacturer representative (whenever possible). These sessions will include but not be limited to the following machines:

- a. Mowers
- b. Rotatillers
- c. Seed drills
- d. Sprayers

These sessions will be organized and scheduled by the Field Supervisor following an initial field survey of the equipment, staff and areas to be used for demonstrations.

The program and organization presented is for the period from 1 Sept. 1983 until 15 December 1983 and will be reviewed and revised as necessary by the management of both the SFPP and AMP during periodic meetings in the Cairo office and at field locations when possible. Attached for consideration at these meetings are three plans which have been completed for the AMP including a Machinery Introduction Program, a Mechanization Extension Workplan for area extension mechanization extension coordinators or the AMP, and a course outline entitled Training Workshop for Project Villages Farmers. These completed plans will be the basis upon which to expand programs and program planning for the similar activities of the SFPP. Additional simplified technical materials are available and are being added to by the AMP Extension Information Director, Dr. Mamdough El Baz and will be used during the field practical training sessions.

AGRICULTURAL MECHANIZATION PROJECT

MACHINERY INTRODUCTION

PROGRAM

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## MACHINERY INTRODUCTION PROGRAM

### I. INTRODUCTION

The purpose of this paper is to outline a machinery introduction program in satisfaction of the conditions precedence for conducting an agricultural implement introduction program. This paper will: (1) review the initial concept in the Project Paper, (2) identify a machinery introduction strategy, and (3) integrate this into an implementation program.

### II. PROJECT PAPER REVIEW

The Project Paper recognizes that the existing use of tractor power is confined to seedbed preparation, operation of threshers, and operation of water pumps. Thus, there is a need to expand the machinery and equipment phase of the mechanization process to meet the problems faced by the Egyptian farmer and hence to increase agricultural productivity. To accomplish this, four types of equipment are identified:

1. A tractor mounted disc and spike-tooth harrow to improve seedbed quality
2. Tractor mounted row-crop planters to provide better seed placement and germination and to facilitate cultivation of row-crops
3. Self-propelled mower binders to permit more timely harvest of small grains and earlier planting of the following crop, and
4. Thresher-winnowers to reduce grain losses and to help relieve peak season power and labor constraints on other cropping operations.

The principal implementation mechanism will be field demonstrations by village extension workers of these equipment to create a farmer awareness and demand for these machine services. Equipment would be sold on credit to private custom operators requiring a minimal downpayment. Repayments would be geared to demand for services with the option of returning the equipment if demand does not justify its economical use. In addition, all repayments would flow into the Research and Development Center account to support research activities and further prototype development.

### III. A MACHINERY INTRODUCTION STRATEGY

Although the Project Paper addresses several priority areas where equipment and machinery are needed, there are several shortcomings:

1. The introductory equipment is limited in scope: there is not an opportunity to introduce other equipment that the Project might identify as needed.

2. The program is not an on-going program: once the original equipment is sold, there is not a means for continuing the introduction process.
3. The participants are limited to custom operators: this ignores other possible avenues of introducing machine services such as through service centers and machinery rental cooperatives.

Consequently, the following program is intended to meet these shortcomings and yet retain the progressive direction of the Project Paper. Essentially, this is a matter of broadening the perspective of the Project Paper. It is instructive to first view the variables basic to machine introduction through a causal loop diagram (figure 1), since this states the causal relationships, or hypothesis involved. Briefly, the interpretation of figure 1 is as follows: if, all other things being equal, a change in one variable generates a change in the second variable relative to its prior value in the same direction, then the relationship between the two variables is positive(+), a negative relation(-) occurs when a change in one variable produces a change in the opposite direction, again all other things being equal. For example, increasing (or decreasing) machine services will decrease (or increase) labor bottleneck problems, therefore the relationship is negative(-). Thus, the relationship in figure 1 are expressed in terms of a feedback loop where past actions of the system controls the system's future action. In this instance the system that is represented is negative: that is goal seeking-- in this case reducing a labor bottleneck problem.

Reviewing figure 1, increasing labor bottleneck problems increases machine demand. This activates research activity and machine inputs. Research may follow the path of modifying an imported machine or developing a new prototype, which leads to increased local manufacturing activity. This, along with machine imports, increases machine supply which increases demonstration activity. Also, new prototype development will increase demonstration activity. Demonstration activity will then increase available machine services through machine purchases and rental. And increased demonstration activity will also increase machinery demand. As machine

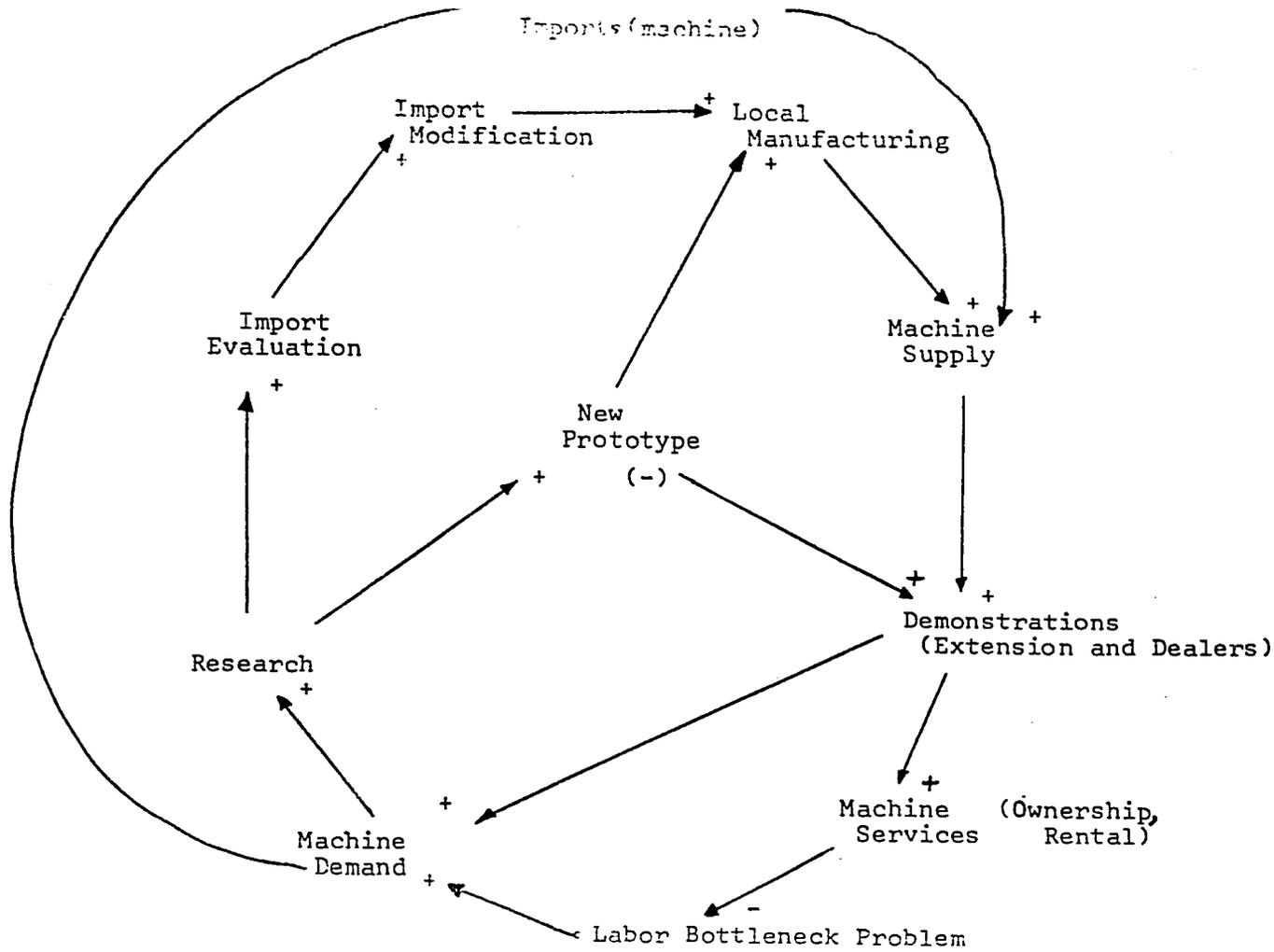


FIGURE 1 Causal Loop Diagram of Mechanization Services and Labor Bottleneck Problems

services increase, that particular labor bottleneck problem is reduced. And as that labor bottleneck is reduced, machine demand is reduced, etc. Thus, the system seeks its level.

Now, how does this cycle relate to the Project and machinery introduction. Three basic activities are identified: (1) research, (2) local manufacturing, and (3) extension and equipment dealer demonstrations. The Project addresses these activities through its research/development, local manufacturing, extension, and service center programs, all of which are basic to machinery introduction. The strategy for this program is quite simple: field demonstrations to enhance machinery demand and then providing the means to acquire these services. Basic to this strategy is the emphasis upon machinery services either through ownership or machine rental. Too often machinery introduction is restricted to machine ownership, which is not often possible for the small farmer. In addition also, the private sector is too often ignored, but the service center program offers the opportunity for extending rental services, as well as machinery sales, in developing a machinery introduction program.

#### IV. MACHINERY INTRODUCTION IMPLEMENTATION PROGRAM

The Project started concentrating in 23 randomly selected cooperative villages (gamaya) which are planned to expand at a later stage. In these villages field demonstration units will be established with cooperating farmers. Mechanization will be introduced and demonstrated on these demonstration fields stimulating demand for mechanization services. These demonstrations will be carried out by the extension mechanization specialists now in training at the Sakha Training Center.

The missing links in figure 1 (from an implementation standpoint) are two: (1) lack of demonstration equipment, and (2) the funding needed to purchase designated equipment. Both of these needs have been addressed in the original Project amendments submitted in November 1981 and the revised amendments submitted in May 1982; these provided for funding demonstration/training equipment (US\$ 1 million) and a machinery introduction fund (US \$ 4 million).

At present, the amendments are still under review. For the purposes of meeting the CP for machinery management extension, it is requested that A. authorize the originally budgeted \$1,926,000.00 for farm machinery management extension introduction (page 1X-6 of the Project Paper for commodities). In order to start up the machinery introduction credit fund, it is requested that AID approve the expanded credit fund to allow participation of custom operators, groups of farmers and individual farmers as recipients and to permit code 935 procurement under the project's shelf item waiver of equipment deemed suitable to mechanize key farm operations.

Under this proposed machinery introduction fund, machinery credits would be offered to individual farmers, groups of farmers, custom operators, and other entities involved in renting equipment services at low rates of interest, minimal downpayments, and with extended payback periods. The types of machinery that could be purchased under this program would not be limited just to those equipment cited in the Project Paper but extended to all machinery suitable for on-farm applications. Machinery would come from three sources: 1) machines available on the local market, 2) machinery prototypes developed and manufactured under the Project's auspices, and 3) selected imported machinery from US and free world sources.

Principal and interest payments would not accrue to a Research and Development account for further research funding but would be repaid on a revolving account basis. This proposal would institutionalize a rural credit structure to alleviate a major agricultural constraint: insufficient credit available for farmers, custom operators and the like.

#### V. SUMMARY

In summary, the machinery introduction strategy involves linking research, extension/training, local manufacturing, and service center programs into a machinery introduction effort. It is based upon the concept of developing machinery services through ownership and/or rental of designated equipment which is to be introduced. To complete the causal sequence in Figure 1, two implementing activities are needed: 1) demonstration/training equipment, and 2) a machinery introduction fund. This will then support and assist to institutionalize both private and public sector activities for making available machinery services to the farming community.

AGRICULTURAL MECHANIZATION PROJECT

مشروع المكنة الزراعية

A. I. D. Proj NO 268 - 0031

وزارة الزراعة المصرية - وكالة التنمية الأمريكية

EGYPTIAN MOA/USAID

الدور الخامس - مبنى جمعية العمارة للإصلاح الزراعي

5th. Floor - Building of the

صندوق بريد ٢٥٦ - الدقي - جيزة ج. م. ع

General Society For Land Reform

٧٠٤٦٦٠ - ٧٠٤٧٢٠

P. O. B. 256 Dokki - Giza, ARE.

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704660 - 704720

704864 - 707247



DATE 12 September 1982

التاريخ

SUBJECT

الموضوع

REF. No.

ATTACH

مرجعيات

الرقم

To: Mr. David Gaiser, Team Leader

Dr. Zakaria El Haddad, Project Coordinator

FROM: Fred Scrantom, Extension and Training Coordinator

Josephine A. Gatas, Extension and Training Counterpart

Subject: Agricultural Mechanization Extension Staff Workplan: 1 Sept. to 31 Dec. 1982

The attached workplan including job activities has been prepared in order to provide the field implementation staff with information concerning the activities and responsibilities of the seven principal persons involved. This will serve to coordinate their activities in the project areas and will establish the working relationships for the remainder of 1982 which are critical to the successful beginning of the project's mechanization implementation efforts. If these functions are carried out in a cooperative manner and if the Management System for Project Demonstration/Training Equipment (MEMO of 6 Sept. 1982) is adhered to, the results of our field efforts will be felt in all areas this year.

cc: Dr. Mamdouh El Baz  
Gordon Stringer  
M. Abdei Azia  
Foud Menri  
Snafik L. Harb

Salah Bakar  
Ahmed Beheri  
Samir Shawky  
fite (2)

MECHANIZATION EXTENSION STAFF WORKPLAN: September 1, 1982 through December 31, 1982

NAME:	Sept.	15	Oct.	15	Nov.	15	Dec.	15
I. <u>Dr. Mamdouh</u> (MACHINERY MANAGEMENT EXTENSION DIRECTOR)	1. Extension visual aids development ----->							
	2. Village Programs development with extension specialists ----->							
	3. Planning--implementation of Village Programs activities (demos, etc.) ----->							
A. <u>Moh. Abdel Aziz</u> (NORTHERN REGION MECHANIZATION EXTENSION COORDINATOR)	1. Northern Region coordination of activities with Dr. Mamdouh ----->							
	2. Wheat planting coordination with Ahmed Beheri (Beheira/Garbya governorates) ----->							
	3. Monitor/assist village programs development/implementation ----->							
B. <u>Foud Mehri</u> (CENTRAL REGION MECHANIZATION EXTENSION COORDINATOR)	1. Central Region coordination of activities with Dr. Mamdouh ----->							
	2. Wheat planting/peanut harvesting/etc. with Salah Bakar (Sharkia/Qualibya governorates) ----->							
	3. Work with mech. trainees ----->							
	at the Sakha Training Center				MONITOR/ASSIST village programs			
					development (Sharkia/Qualibya)			
C. <u>Shafik L. Harb</u> (SOUTHERN REGION MECHANIZATION EXTENSION COORDINATOR)	1. Southern Region coordination of activities with Dr. Mamdouh ----->							
	2. Sugar cane/etc. harvest/coordination in El Minia ----->							
	3. Work with mech. trainees ----->							
	at the Sakha Training Center				MONITOR/ASSIST village programs			
					development (El Minia)			
	4. Demonstrations/training activities in conjunction with Soil-Improvement subproject ----->							
II. <u>Gordon Stringer</u> (MM Extension TECHNICAL ADVISOR)	1. Determine areas and specific equipment for machinery/farming demonstrations ----->							
	2. Coordinate with extension staff and assist technically as necessary ----->							
	3. Continue on a part-time basis for the present ----->							
III. <u>Ahmed Beheri</u> (PROJECT TECHNICAL SPECIALIST)	1. Arrange for wheat planting in Beheira/Garbya governorates ----->							
	2. Coordinate with the extension director and the northern regional coordinator to plant wheat ----->							
IV. <u>Salah Bakar</u> (TECHNICAL TRAINING SPECIALIST)	1. Arrange for wheat planting/peanut harvesting/etc. in the Sharkia/Qualibya governorates ----->							
	2. Coordinate with the extension director and central regional coordinator in all activities ----->							

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٧٠٤٦٦٠ - ٧٠٤٧٢٠  
٧٠٤٣٦٤ - ٧٠٧٢٤٧

DATE 5 December 1982 التاريخ

SUBJECT الموضوع

REF. No. ATTACH مرقات الرقم

TO: Subproject Advisors  
FROM: Extension/Training Subproject Staff  
SUBJECT: Training Workshop for Project Villages 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.

We have programmed speakers from each of the subprojects to participate in the sessions which all are welcome to attend. Your full cooperation is appreciated.

cc: file

Time Program for Rural Leaders  
Syllabus  
from Project Villages

Day & Date	Subject	Time		Lecturer
		from	to	
Saturday	Launching of the Syllabus & explaining its goals.	10.00	11.00	Dr. Zoharia El Haddad Dr. Mamdouh El Baz Eng. Ibrahim El Gatas
4.12 , 18.12	Definition of the Mechanization projects.			
1.1 , 15.1	Introduction for Extension activities of the project.	11.30	12.00	Dr. Mamdouh El Baz Eng. Ibrahim El Gatas
	Introduction for internal & external training activ.	12.30	1.30	Eng. Samir Shawky
Sunday	Definition of the Mech. projects.			
5.12 , 19.12	Introduction for Planning Unit and Credit System in the project.	9.00	10.00	Eng. Zaki Helmi
2.1 , 16.1	-Introduction for activit. of Farming Administration Unit.	10.00	11.00	Eng. Maher Eskander
	-Introduction for activ. of Service Centers Unit.	11.30	12.30	Eng. Morsaad Allan El-Fawzi
	-Introduction for subproj. activities for soil improvement.	12.30	1.30	Eng. Adel Orabi
Monday	Problems of Agriculture in Egypt	9.00	1.00	
6.12 , 20.12	a. Theoretical lecture			Eng. Ali Youssef Saado
3.1 , 17.1	b. Workshop of students			Agricultural Affairs Manager , Minia.
	c. Discussion of results of workshop stud			Eng. Samir Shawky
Tuesday				
7.12 , 21.12	Field Visit (1) for a site of work sites of the proj. in the Governorate of Behera of Garbya.	9.00	1.00	Eng. Ahmed El Gohery
	- Exposure of a cinematic film about the Ag. Méch.	5.00	6.00	Eng. Mohamed Abdel Aziz

Day & Date	Subject	Time from to		Lecturer
Wednesday 8.12 , 22.12 5.1 , 19.1	Importance of modification & 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 9.12 , 23.12 6.1 , 20.1	Field Visit (2) to the Gov. of Kafr El Sheak. a. Irrigation Project b. Rice Mechanization project , Kelin.	9.00	2.00	
Saturday 11.12 , 25.12 8.1 , 22.1	Agric. Mechanization a. Problems of Mechanization in Egypt. b. Mechanization Policy in Egypt.	9.00 11.30	11.00 1.30	Dr. Zakaria El Hadad Dr. Ahmed El Sahiegy
Sunday 12.12,26.12 9.1 , 23.1	Agric. 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 Mamoura Training Center Manager.
Monday 13.12,27.12 10.1,24.1	Field Visit (4) to Al Behera Co. to recognize the ways of of Agric. Machines industrialization & the possibilities of the company and local industrialization unit activ.	<i>+ Research Station</i>		<i>Eng. Mod. El Nogyar</i> Eng. Abdel El salam El Geesh. El Fehera Co.
Tuesday 14.12,27.12	Visit (5) to Garb El Nubarya Co. to recognize the using of agric. machines in modern Agriculture.	9.00	11.00	Eng Esam Khalil Head of Board of Directors, Garb
Wednesday 15.12,29.12 12.1,26.1	Visit (6) to a site of proj. work sites in the Govern. of Behera or Gharbya. Exposure of Evaluation Unit Activity- Evaluation of the Syllabus.	9.00 4.00	2.00 6.00	Eng. Ahmed El Beheri Eng. Mohamed Abdel Aziz. Eng. Nour El Din Nasr.
Thursday 16.12,30.12 13.1,27.1	Seminar of recommendations conclusion of the syllabus.	9.00	12.00	Dr. Zakaria El Hadad Dr. Mamdouh El Baz Eng. Ibrahim El Gatas