

PD-ABL-857

**INTEGRATED AGRICULTURAL DEVELOPMENT PROJECT  
MARYUT AGROINDUSTRIAL COMPLEX  
IN THE WESTERN DESERT OF EGYPT**

**CONTRACT NUMBER: ANE-0158-G-9006-00**

*Project No. 398-0158.14*

**EXTERNAL EVALUATION**

**APRIL 14-18, 1990**

**Dr. Earl Leng, Team Leader  
Research Cooperation Specialist**

**Dr. Max Patterson  
Professor and Horticulturist**

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# **I. EXECUTIVE SUMMARY**

## **A. Project Title and Countries Involved**

Maryut Agroindustrial Complex Project (Grant ANE-0158-G-9006-00); a regional project involving Egypt and Israel, with administrative coordination from a United States organization.

## **B. Project Background**

The stated project purpose is to develop a research base and facility for constructing and implementing a model complex of integrated agricultural development in Egypt's Western Desert. Specific areas chosen for research are vegetables, fruits/nuts, ornamentals, landscaping and post-harvest studies.

The project was jointly developed by a team of Egyptian, Israeli and U.S. scientists, with cooperation of the Albert Einstein Peace Prize Foundation. It was approved by A.I.D./Washington in 1989, and given two-year grant funding as a regional project in September 1989, at a level of \$1 million per year. A five-year extension request is being prepared and will be submitted to A.I.D./Washington later in 1990.

The project site is on the Alexandria-Cairo highway ("Desert Road"), 54 km. from Alexandria. It is a 60-feddan tract which was chosen in 1983 as the original site for a similar project.

## **C. Purpose and methods of the evaluation**

This was planned as an end-of-first year evaluation, to assess initial project achievements and to recommend further actions.

The evaluation was actually conducted before completion of the first year's activities in order for the evaluation team to be able to see field operations in full swing during the first cropping season. This enabled recommendations to be made in timely fashion for the 1990-91 cropping season.

The review was conducted by actual visitation of the project site, by interviews with research leaders both in Egypt and Israel, and by inspection of project documentation and reports. The U.S. Embassy (Cairo) official directly responsible for project oversight was contacted personally, and concerned officers of A.I.D./Washington were contacted by telephone when the review had been accomplished.

#### **D. Schedule of Evaluation and Team Composition**

The evaluation was conducted in Israel and Egypt between April 13 and April 18, 1990. The Team Leader conferred with officers of A.I.D./Washington by telephone after the overseas visit. The evaluation report was finalized in August 1990.

The review team consisted of two senior agricultural development specialists, both with significant experience in research administration and evaluation. The Team Leader also had been leader of the mid-term evaluation of CALAR I in 1984, and the end-of-project evaluation for CALAR I in 1988.

#### **E. Major Findings and Conclusions**

1. The evaluation team found that the project has made outstanding progress toward stated objectives.

2. Transferability of technology between Israel and the Maryut site has proven reliable and effective.
3. Cool-season vegetable production at Maryut under plastic greenhouses and low tunnels, was highly successful in the first winter cropping season.
4. Site development has been very effective and is in fact ahead of plan.
5. The present project structure is functioning smoothly and effectively, and should not be changed.
6. Extension of the project for near-term operations should be approved promptly, so that a sustained momentum can be achieved.
7. Long-term (at least 10 years) support of the project, at adequate funding levels, will be required if stated goals are to be attained.

## II. PROJECT BACKGROUND

Project ANE-0158-G-55-9006-00 "Maryut Integrated Agroindustrial Complex" was activated in 1989 as a regional activity of the Bureau for Africa and the Near East (ANE) of the Agency for International Development (A.I.D.) Washington, D.C.

Development of this project began in 1983 with a conference of international scientists brought together by the Albert Einstein Peace Prize Foundation. A project plan was developed based on an integrated approach to arid land development. This led to the establishment of a project site in the Maryut area of Egypt's Western Desert, planned to include a 2,000 feddan tract, but beginning with a 60-feddan research and development center.

Subsequently, the experience of the highly successful CALAR (Cooperative Arid Lands Agriculture Research) program was brought to bear on the planning for the Maryut project. This led to the involvement of the San Diego State University Foundation, which coordinates the CALAR project, and of the Joint Egypt-Israel Agricultural Committee. A project document was submitted to A.I.D. for funding in 1987, and a revised plan was approved for funding in September 1989.

As presently structured, the project is administered by a Board of Trustees through a Steering Committee. This Committee has nine members, three each from Egypt, Israel, and the United States. Under the guidance of the Steering Committee, three project coordinators are directly responsible for project activities; the United States coordinator for overall planning and communication, and the Egyptian and Israeli coordinators, respectively, for activities in their nations. A Project Director is on site, and responsible for day-to-day project activities.

The present project site is on the west side of the Alexandria - Cairo highway ("Desert Road"), 54 km. from Alexandria and 166 km. from Cairo. It is the 60 - feddan tract initially chosen for research and development activities.

Supporting research is conducted by various cooperators at their respective research stations in Egypt and Israel.

### **III. PURPOSE OF REVIEW AND EVALUATION PROCEDURE**

#### **A. Reason for Evaluation**

This was intended as an end-of-first-year evaluation, to assess the success of initial project activities and to make recommendations for further actions.

#### **B. Timing of Evaluation**

Since project activities began only in the later part of 1989, this review (in April 1990) was actually conducted before a year's work had been completed. However, it was timed to enable the reviewers to see the initial crop on the project site, and to enable recommendations to be made in a timely fashion for the second cropping season.

#### **C. Methodology**

The review was conducted by actual visitation of the project site, by personal conferences with the coordinating staff and the research workers as involved (both in Israel and Egypt), and by inspection of project documentation and reports.

All three senior coordinators were contacted in person, as was the U.S. Embassy (Cairo) official directly responsible for project oversight. Concerned officers of A.I.D./Washington were contacted by telephone.

#### **D. Detailed Documentation**

Included in the report, or appended to it, are:

1. Composition of the evaluation team (Item IV)
2. Scope of Work (Appendix 1)
3. List of key individual contacted (Appendix 2)

4. Team itinerary (Appendix 3)
5. Technical report of Dr. Max Patterson (Appendix 4)

#### **IV. COMPOSITION OF EVALUATION TEAM**

The team for this external evaluation was selected by the San Diego State University Foundation. It consisted of two individuals with extensive experience in international agricultural development and in project organization and evaluation.

##### **Research Cooperation Specialist/Agronomist/Team Leader:**

Earl R. Leng, Ph.D.  
Private Consultant, retired Professor of Agronomy  
University of Illinois  
and University of Nebraska

Over 35 years of professional experience in agricultural development and participation in various aspects of A.I.D. projects. From 1975 to 1977, Chief, Crops Research Division, Office of Agriculture, A.I.D./Washington. From 1979 to 1984, Program Director, Sorghum/Millet Collaborative Team Leader, mid-term and final evaluations, Cooperative Arid Lands Agricultural Research Program (CALAR).

##### **Horticulture/Postharvest Specialist:**

Max E. Patterson, Ph.D.  
Professor and Horticulturist  
Department of Horticulture and Landscape Architecture  
Washington State University

Over 40 years of professional experience in research and teaching of horticultural crops. Formerly engaged in vegetable production research while a faculty member at the Cornell University, Geneva, New York Research Station. later engaged in fruit and vegetable postharvest research at Purdue University. Since 1958 engaged in teaching Tree Fruit Production, Postharvest Physiology, general horticulture courses and supervision of graduate students at Washington State University and responsible for conducting postharvest research on fruits and vegetables

emphasizing tree fruits. Recipient of three awards presented by the American Society for Horticultural Science for journal articles. Served as External Reviewer, spring 1987, for the Department of Agronomy and Horticulture, University of Pertanian, Malaysia. This provided opportunity to visit research centers and horticulture production sites as well as container ports and markets in Malaysia, Singapore and Hong Kong. In the fall of 1987 invited to tour high elevation tree fruit area and present a series of postharvest lectures at the Sichwan Agricultural University, Peoples Republic of China.

## V. FINDINGS OF EVALUATION

### A. Project Structure and Staffing

The project is organized in what appears to be a very effective way. Within each country, strong leadership is provided by a country coordinator who has long experience both in the research fields pertinent to project goals, but in collaborative inter-country project operation. The same individuals who led and coordinated the highly successful CALAR I project are in similar positions in the Maryut project.

*based on what substitution?*

Communication within project leadership is greatly facilitated by the high level of trust and understanding which exists between the two country coordinators and the U.S. administrative coordinator. Interchanges are direct, frank and focused on real matters which need attention; thus, there is a minimum of unnecessary, administrative effort and a maximum of effective problem solving. On site, the presence of a well-qualified, experienced project manager makes the linkage between administration and daily project operation simple and effective.

On site, the physical presence of an Israeli technical advisor provides a key element in effective project operation. On technical matters, he is able to provide direct linkage between Israeli research workers and on-site Egyptian specialists on a one-to-one basis, or as otherwise required, in a timely and precise manner. This has the effect of greatly increasing the trust and confidence felt among researchers from the two countries.

Within the site, organization and break-down of research activities appears to be well planned. As a result the project is operating effectively, with very little slippage between planning and execution.

## **B. Funding, Support and Use of Funds**

Funding issues were not examined in detail because of lack of time to do so in the evaluation process. However, some specific issues were obvious and were discussed with the coordinators.

1. Current funding appears adequate and funds have been made available in a timely fashion. For project site start-up, domestic Egyptian funding was made available to provide a quick start when final project approval was given in September 1989. This enabled project activities to begin in the winter season of 1989-90 and resulted in the gain of an entire winter crop season.
2. Use of funds appears very efficient and effective. As the review team understood it, the funding division is about 20 percent for overall administration, 20 percent for supporting research in Israel, and 60 percent for actual site operations in Egypt. This is a very sensible and effective distribution, concentrating funding on the operations at Maryut. The fund distribution is a model for efficient operation of a project of this type.
3. Support of the project, in concept and actual operation, has been excellent. Israel's institutions involved are providing a level of technical support far greater than the actual funds received would indicate. Egypt, also, has

drawn extensively on other resources to put the project into operation quickly. San Diego State University is receiving minimal funding for the level of skill and effort it is putting into project administration.

4. Prompt assurance of future funding is crucial to continued project momentum. Entering its second year of two-year funding in the latter part of 1990, the project will very quickly lose its sense of purpose and drive toward achievement of goals unless longer-term funding can be insured. The project cannot achieve any of its major goals in less than five years, and most will require ten or more years. The review team recognizes that A.I.D. cannot make firm commitments that far ahead, but it is imperative that a decision be made by, say, December 1, 1990, if the project is to go ahead at all. The research team has had an opportunity to go over the draft of a project extension request, and is convinced that plans are sound, and that the extension should be approved.

### C. Site Development

The Maryut site, which had undergone initial development some years previously, was reported to have been in very poor condition when reclamation activities began under this project. The Egyptian Ministry of Agriculture made funds available for site development even before project funds began to flow.

From a "standing start" in September-October 1989, the site, as the review team saw it in April 1990, was already in an advanced state of development. Drainage ditches have been cleaned and are functional, irrigation facilities, including an extensive drip

network, are in place and land forming, access roads and buildings have been brought to functional effectiveness.

Details of site development activity are summarized on the map following, taken from the draft Annual Technical Report, May 1990, prepared by project manager Dr. Awad Hussein.

*map is missing*

Critical required in the near future are the provision of an adequate electrical supply and facilities for post-harvest handling of project products.

#### **D. Research Facilities**

##### **1. Israel**

Supporting research in Israel is very highly developed as regards staff qualifications and technical facilities. Especially because of experience with participation in CALAR I, there appears to be a smooth and easy relationship between Israeli and Egyptian scientists. All Israeli participants are conducting research directly pertinent to Maryut project objectives.

Specific research areas seen by the review team and the leading individuals involved are:

Marketing - Dr. Arie Szeskin  
Ornamentals - Dr. Jaacov Ben-Jaacov  
Vegetables - Dr. Irit Rylski  
Landscaping - Dr. Yosef Ben-Dov  
Eucalyptus - Dr. Ruth Shillo  
Native Plants - Dr. Itzhak Biran  
Turfgrass - Mr. Hanoch Kalansky

Some details of technical aspects of the research are contained in Appendix 4.

## **2. Egypt - Project Site**

### **a. Vegetable Crops**

At the time of the review, vegetable crops planted in the autumn of 1989 for the winter season were in most cases just beginning to mature. Crops being grown were:

- (1) Cantaloupe
- (2) Cucumber
- (3) Eggplant
- (4) Pepper
- (5) Squash
- (6) Tomato
- (7) Watermelon
- (8) Sweet Corn (late winter sowing)

Most of these crops were being grown in long greenhouses, short greenhouses, and under low plastic tunnels in the field. Sweet corn was being grown only as a field crop with tunnel protection from sowing through the 6-to-7 leaf stage. Without exception, the development of the crops was excellent, and good yields were in prospect for all species which were at or nearing maturity.

The condition of tomato, pepper, eggplant and cucumber crops was particularly impressive. Excellent yields of "summer squash" (zucchini and similar types) were beginning to be harvested.

*Why no comment on the records aspect of exp. crops?*

Throughout, the success of the winter crops showed the effectiveness of the work on land reclamation, facility development and irrigation network. Excellent cultural practices were being followed, and meticulous attention was being paid to day-to-day care of the growing plants. The review team has nothing but praise for the entire operation of the vegetable crops section.

**b. Fruit and Nut Trees**

A successful start has been made on setting out initial stock of:

- (1) Apple
- (2) Pear
- (3) Persimmon
- (4) Almond
- (5) Peach
- (6) Nectarine
- (7) Plum
- (8) Pecan
- (9) Apricot
- (10) Grapes

*resulted in many of the plants dying*

*Partly due to lack of phyto-sanitary control*

Some significant delay in setting out seedlings and grafted stock arose from difficulties in cleaning Israeli stock through Egyptian plant quarantine. Stocks originating in the United States were admitted promptly and were planted in a timely fashion.

It was, of course, too early to have any significant ideas as to how the fruit and nut trees will develop under Maryut conditions. However, the research plan appears to be sound,

and there were no unfavorable indications except the late planting mentioned above.

### **c. Ornamentals and Landscaping**

Basically, implementation of the plan for work with ornamentals and landscaping has not yet begun. Only roses and bird-of-paradise plants are on hand at the site, and these are being maintained in temporary sites until the planned site for ornamental research has been developed. Also, the research officer who is to be in charge of this work was still overseas at the time the review was conducted, and further action was being deferred until his return.

?  
problem

### **E. Cooperation**

Cooperation between Egyptian and Israel project personnel appears to be excellent. Much of the existing trust between project scientists probably developed from their experience in CALAR I, since a high proportion of scientists participating in Maryut had been involved with CALAR I. Smooth and harmonious working relationships among the senior project personnel was particularly apparent. Here again, both country coordinators, the administrative coordinator, and Steering Committee members all were involved with CALAR I. A high degree of mutual respect, willingness to cooperate, and readiness to communicate was very obvious. The project deserves high praise for the effective employment of experienced personnel.

The review team observed that some external restrictions to cooperation may exist, for example as evidenced by what appears to have been undue delays in

clearing the importation of Israeli nursery stock into Egypt. However, considering political conditions in the region, such restrictions and impediments have been minimal.

## VI. CONCLUSIONS AND RECOMMENDATIONS

### A. Conclusions

1. The evaluation team considers that the Maryut project, as developed since A.I.D. funding was made available in 1989, has made outstanding progress toward the stated objectives.
2. Transferability of technologies developed elsewhere in Egypt and in Israel has proved to be excellent, and should greatly accelerate the achievement of practical results.
3. Cool-season vegetable production under plastic greenhouses and tunnels has proven to be practical, and in fact highly successful, at the Maryut site. *↳ how? ↳ why?*
4. Development of a difficult site into a productive area has proceeded very satisfactorily.
5. The evaluation team is convinced that fruit tree and ornamentals production will be successful, if adequate support is provided for the project.

*Nothing about research! on arid land*

### B. Recommendations

1. Long-term (at least ten years) financial support of the project is imperative if stated objectives are to be achieved.
2. While a range of research and development activities should be pursued, project efforts in the near-term should be concentrated on crops and products for which an established market exists (vegetables, fruit and ornamentals now being grown).

*Opinion! or based on what data?*

3. The present project structure, emphasizing close working cooperation between scientists of Egypt, Israel and the United States, should be maintained.
4. It is imperative that prompt provision be made for near-term funding at adequate levels, so that the existing momentum of the project not be lost.

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## **APPENDICES**

## **APPENDIX 1**

## **SCOPE OF WORK**

### **ARTICLE I - TITLE**

Maryut Integrated Agroindustrial Complex (Grant No. ANE-0158-G-55-9006-00).

### **ARTICLE II - OBJECTIVES**

The objective of this Work Order is to perform an end of year evaluation of the above project. This external evaluation is to be conducted to assess the success of the project in developing scientific and technical cooperation between Egypt and Israel in research on arid land agricultural development. The emphasis of the evaluation is on accomplishments and achievements of the project in its first year and what needs to be done to ensure continuation and proper implementation. The evaluation results and recommendations will be used by the Agency for International Development and the Governments of Egypt and Israel to assess the accomplishments of the project, to plan further work in arid land development and to consider the possibilities for similar cooperative efforts.

### **ARTICLE III - STATEMENT OF WORK**

The Research Cooperation Specialist shall be the leader of the evaluation team and shall be responsible for assembling and finalizing the Evaluation Report.

The Team Leader will also evaluate the success of the project in promoting regional cooperation, and will evaluate the overall establishment of the Maryut site at Abou Massoud as a model of integrated agricultural research and development serving arid lands development needs in Egypt and as a model for other arid nations and regions. The Team Leader will also evaluate accomplishments related to the establishment of the orchard as

well as the open field crops. The other team member will evaluate administrative and research activities of the project relating to the nursery and the plastic houses as indicated below. Objectives and specific tasks for the team members are as follows:

**A. Research Cooperation Specialist/Agronomist/Team Leader**

**Objective:** This part of the evaluation will measure the success of the project in developing cooperation between Egypt and Israel. One of the major project purposes, as stated in the Grant Agreement, is "...to enhance scientific and technical cooperation between Egyptian and Israeli agricultural scientists." The contractor (San Diego State University Foundation) is directed to "...insure that the described research and development activities are conducted in a true collaborative manner and that contact and cooperation between Egyptians and Israelis participating in the project is maximized."

**Indicators:** The evaluation will analyze and measure the extent to which the project has contributed to the development of contacts and linkages between Egyptian and Israeli scientists and institutions. The evaluation will examine the type and nature of the contacts, relationships and collaboration which have resulted from the project.

**Specific tasks:** These will include the following:

1. Evaluate the extent to which overall project objectives have been met and how well it has been managed.
2. Review implementation plans and recommendations of the end of year evaluation, with reference to actual project performance.

3. Describe and evaluate the effects of external events, such as regional political developments, on the success of the project.
4. Evaluate the role of A.I.D. and the Contractor in supporting the cooperative aspects of the project, as well as the usefulness of the scientific and technical involvement of U.S. consultants.
5. Review and evaluate the Israeli and Egyptian Government support and the measures they have taken or need to take to ensure the establishment and continuation of implementation of the project.
6. Review and evaluate the factors, conditions, practices, and activities which encourage or inhibit cooperation and collaboration.
7. Examine and evaluate the efforts undertaken to reclaim the 35 plus feddans (acres) for the Maryut site as well as site preparations for the orchard, nurseries, plastic houses and open field crops.
8. Evaluate success of the project in introducing, developing and improving plant species suitable for adaptation and dissemination in arid lands.
9. Evaluate the potential technological and economic benefits to the population resulting from introduction, selection, improvement and dissemination of species, information, practices and technology, especially those relating to the orchards and open field crops.
10. Evaluate the economic benefits and ecological impact of the introduction, development and dissemination of plant species used, especially in the areas of open field crops and orchards.

11. Evaluate agromanagement practices developed in the project, including planting techniques, fertilization, irrigation, and harvest practices.
12. Evaluate the effectiveness of the scientific visitations and participant training, including the number of visitors and types of training.

**B. Horticulture/Postharvest Specialist**

1. Evaluate irrigation methods and equipment used in the project, with special reference to cost-effectiveness and feasibility.
2. Evaluate practices planned or developed by the project for the utilization of different vegetable and ornamental species and genotypes, and the applicability of such practices to practical conditions.
3. Evaluate work conducted for the preparation of the Maryut site including soil analysis, plant-soil moisture relations and drainage.
4. Evaluate transferability and applicability of laboratory research on ornamentals and postharvest technology, especially those developed or conducted in Israel to field conditions in Egypt under varying levels of technology.
5. Evaluate the economic benefits, ecological impact and commercial application of the various components of the project, particularly in reference to ornamentals and plasticulture.
6. Evaluate the potential economic and technological benefits to the population resulting from the introduction, selection, improvement an

dissemination of species, information, practices and technology, especially those relating to greenhouse agriculture and ornamentals.

7. Evaluate the technological and economic benefits and ecological impact of the introduction, development and dissemination of plant species used, especially in the areas of protected agriculture and ornamentals.
8. Review and evaluate the postharvest aspects of the project included in the planning, planting, harvesting and storing of crops.

#### **ARTICLE VI - EVALUATION METHODOLOGY**

The evaluation team will examine the documentary evidence and interview project participants and observers in Egypt, Israel and the U.S. Special caution and sensitivity must be exercised by team members because of potential political implications of the project in the Middle East.

##### **In Egypt and Israel:**

1. Discuss project with U.S. Embassy and U.S.A.I.D. officials examine project documents and reports.
2. Discuss project with Egyptian and Israeli project coordinators.
3. Discuss the specific scientific visitations or training results with participants.
4. Discuss and assess in-country contributions.
5. Visit related projects to assess the pertinence of the Maryut project to Egypt's overall arid lands development policy.

6. Visit appropriate project research sites in addition to the main Maryut site.
7. Discuss and examine measures needed to continue the program after end of funding.
8. Discuss the project with other appropriate governmental officials and members of the scientific community in those countries.

**In the U.S.:**

1. Discuss project with project coordinator and others in San Diego State University Foundation.
2. Discuss the project with appropriate officials of A.I.D.
3. Examine available project reports and other documents (Team Leader) finalize report, in consultation with San Diego State University Foundation and A.I.D.

In order to provide the services required as stated above, team personnel shall be required to travel to and within Egypt and Israel, and the Team Leader may visit A.I.D. in Washington, D.C. and San Diego State University Foundation, if found necessary.

**ARTICLE V - REPORTS**

The report shall describe the methodology, conduct and results of the evaluation. It shall also reflect the use of funds on both the technical and collaborative aspects of the project.

**ARTICLE VI - RELATIONSHIPS AND RESPONSIBILITY**

San Diego State University Foundation shall be responsible for transportation and travel arrangements. The Team Leader will make recommendations and contacts in selecting other team members, and will be responsible to the CALAR project manager at San Diego State University Foundation for conduct of the

evaluation and submission of the report. The team is expected to work closely and cooperatively with project personnel and appropriate officials of the Ministry of Agriculture of the Arab Republic of Egypt and the Research and Development Authority of the Ben-Gurion University of the Negev in Israel. Team members will be provided copies of the Project Agreement, technical proposals, and reports by San Diego State University Foundation.

#### **ARTICLE VII - TERM OF PERFORMANCE**

The effective date of this Work Order is April 1, 1990 and the estimated completion date is June 1, 1990.

Subject to written approval of the Project Manager, the estimated completion date of this Work Order may be extended, providing that such extension does not cause the time for completion of the work and submission of the final report to extend beyond 30 calendar days from the original approved completion date. Under no circumstances shall such extension authorize any expenditure in excess of the total amount approved for the performance of the work.

## **APPENDIX 2**

## KEY INDIVIDUALS CONTACTED

### In Israel:

✓ Dr. Samuel Pohoryles (Steering Committee member)  
Director General, Rural Planning & Development  
Ministry of Agriculture

Dr. Dov Pasternak (Project Coordinator, Israel)  
Head, Boyko Institute, Ben-Gurion University  
(Accompanied team to Egypt)

• Dr. Arie Szeskin (Marketing Specialist)  
• Dr. Itzhak Biran (Horticulture & Landscaping)  
Hebrew University

Dr. Jaacov Ben-Jaacov (Ornamentals)  
Volcani Center

Mr. Hanoch Kalansky (Turfgrass)  
General Manager, Kibbutz Givat Brenner

Dr. Irit Rylski (Vegetable Breeding)  
Volcani Center

○ Dr. Ruth Shillo (Eucalyptus)  
Ben-Gurion University

? Landscaping, Dr. Yoram  
Ben-Dov (see pg 13)

### In Egypt:

Dr. Adel El-Beltagy (Steering Committee Member,  
Project Coordinator, Egypt)  
First Undersecretary of State, Ministry of Agriculture

Dr. Awad Hussein (Director, Maryut Project)

Mrs. Atiat El-Menshawy (Administration)

Dr. Ahmed Abdel Fattah (Soils)

Dr. Abdel Aziz Sheta (Soils)

Dr. Amin El-Gamassy (Ornamentals)

Dr. Mohamed Hashim (Vegetables)

( Dr. Mohamed Hafiz (Fruit Trees)

**U.S. Personnel:**

Dr. Mohamed El-Assal (Administrative Coordinator)  
San Diego State University Foundation

Mr. John Bargeron (Political Officer, U.S. Embassy, Cairo)

## **APPENDIX 3**

## **ITINERARY OF EVALUATION ACTIVITIES**

<b>April 11 - 13, 1990</b>	<b>Travel to Israel</b>
<b>April 13 - 15, 1990</b>	<b>In Israel, Tel Aviv, Volcani Institute Ben-Gurion University</b>
<b>April 16, 1990</b>	<b>To Cairo meeting at Ministry of Agriculture</b>
<b>April 17, 1990</b>	<b>Visit to project site at Maryut</b>
<b>April 18, 1990</b>	<b>Cairo, Ministry of Agriculture and U.S. Embassy</b>
<b>April 20 - 21, 1990</b>	<b>Work on report</b>
<b>June - July - August</b>	<b>Completion of report after Project Technical Report became available</b>

## **APPENDIX 4**

# REPORT OF APRIL 13-18, 1990 MARYUT PROJECT EVALUATION

by Max E. Patterson

May 24, 1990

## SUMMARY

The evaluation team was provided with various documents concerning the inception, planning and progress leading to the present status of the Maryut Project. Meetings were arranged with Project administrators, scientists and technical personnel. Brief verbal reports were given by participants as well as opportunities afforded for informal discussions. Visits in Israel to cooperative research project locations and Maryut project site in Egypt were scheduled.

Insight into the Integrated Agricultural Development Project, Maryut Agroindustrial Complex, was gained from short reviews of the history and development of the Project given by the Project Coordinators, Dr. Pohoryles in Israel and Dr. El-Beltagy in Egypt. This provided a strong basis for understanding and objectively evaluating the activities and progress of the immediate past and present. These reports revealed the strong commitment to maintain and enhance the cooperation and collaboration established. They conveyed competence, optimism and dedication to making the Maryut project a success.

Participating scientists from both countries are well equipped by experience and training for their individual research and development projects. Project participants at any location or time consistently demonstrated the spirit of cooperation and collaboration desired in the project objectives.

The portion of the Maryut project being conducted in Israel was remarkable well advanced. Pre-existing Israeli institutional infrastructure plus availability of land, labor, plant materials, and plant laboratories hastened the cooperative research at

different locations. Experienced scientists working on closely related projects eliminated lag-time and increased the amount of work accomplished. The results reported and progress seen in the short time since the individual projects started was impressive.

Dr. Pasternak, Chair of the Technical Consultant Panel, was present with the evaluators throughout the evaluation in Israel and Egypt. It was evident that Dr. Pasternak is a key individual to maintaining open lines of communication at every level between all participants. Attention to details, prompt responses to delays or problems, action as needed, reason, understanding and a determination to promote understanding were dominant characteristics of his leadership. He continually provided insight, background and relevant information to the review team.

## **OBSERVATIONS IN ISRAEL**

An initial meeting was held with Dr. Samuel Pohoryles upon arrival. The remainder of the discussions and site visits in Israel were on the day of Passover. This affected the persons and programs seen and emphasized the floriculture and ornamental programs. Project activities concerning acquisition of plant materials, plantings, cultural practices, research procedures, observations, evaluations and measurements were well established. The scale of operations and the progress achieved were impressive. Researchers were visited at the Volcani Institute, Marvadeshe Kibbutz Givat Brenner and Ben-Gurion University of the Negev Institute for Applied Research.

Before visiting research sites, Dr. Arie Szeskin (researcher, marketing and agricultural economics) discussed the economic analysis relative to the Maryut site and subsequent area farm operations. This work will detail various inputs, costs of production, market prices, and seasonal distribution of crops that will be produced. The first stage will address domestic markets. The immediate domestic market is Alexandria, which is

reputed to have a "Mafia" operating in the market which could affect normal market controls. Tourists and more affluent Egyptians are expected to create a demand for quality gourmet or "luxury" items, as long as prices are competitive. Participants believe the Maryut area can produce quality produce and ornamental products. Objective evaluations of quality will be needed. The second stage will deal with export markets. Israel exports crops to Europe and it is expected that Europe will also become a market for Egyptian crops in the off season.

It is anticipated there will be three model farms within the Maryut site. The major question to be answered is, what are the weak points within the production and marketing system of the three models? There will be a need for complete control of problem variables. This focuses on the potential problems of the college graduates who will be farming area farms and using Maryut research experiences as a model for solutions. A strong production extension effort will be needed, as well as such things as profit motivation and marketing extension effort.

A written and verbal report was received and an on site inspection of plantings was made with Dr. Yaacov Ben-Yaacov (research scientist, ornamentals) at the Agriculture Research Organization (A.R.O.), Volcani Center. Dr. Yaacov Ben-Yaacov gave some background on the European flower market and requirements for meeting the needs of this market. Then he reported on progress in acquiring and growing woody plants for cut flower production in arid climates. Most of the species selected for study have been acquired and are under test. The adaptation, propagation and cultural practices needed for economic production are under investigation. Good growth, plant development and flowering of the new plantings will hasten evaluation and selection of superior plants. Other companion research work appeared to complement the Maryut project effort.

A brief visit was made at the home of Dr. Irit Rylski, a member of the project technical committee. She indicated that many of

the previous findings for arid land production of vegetables can be utilized at Maryut. Dr. Itzhak Biran at the Marvadeshe Kibbutz Givat Brenner provided a verbal and interim written report on the native annual ornamental plant collection and evaluation. Various trials were observed in a large field planting. Clear differences in growth of selected plant material with desirable characteristics were evident at this time, indicating a positive potential for use of native plants.

At Ben-Gurion University of the Negev, Dr. Yosef Ben-Dov (researcher officer, landscaping and ornamentals) and Dr. Dov Pasternak discussed work with and showed development of eucalyptus for flowering and ornamental branches. Several greenhouses were visited including those growing for European markets. Dr. Ruth Shillo commented on her research in this area.

The program in Israel is well under way. Existing institutions, facilities and faculty and staff working in the same or related areas gave Israeli scientists an excellent head start. Project activities concerning acquisition of plant materials, plantings, cultural practices, research procedures, observations, evaluations and measurements were well established. Basic plantings, designs, procedures, data collection and materials and supplies are already in place or readily obtained. Selected existing projects that appeared adapted to Maryut needs were adopted as extensions of existing projects. The ornamental and floriculture programs are extensive. All are good strong programs under experienced, well trained, competent project leaders. There was a strong commitment to cooperation and the success of the project. Common arid land problems and potential solutions bridged needs of both countries. Use of information derived from these studies will benefit both countries.

Partially due to the pre-existing research infrastructure in place and similar research programs underway, the Israeli scientists' individual project effort was well advanced. The

scale of the operations, the progress achieved to date and the capability and commitment of participating scientists were positive factors for success.

## **OBSERVATIONS IN EGYPT**

Arrival in Egypt was during Ramadan. At the introductory evening meeting Dr. Adel El-Beltagy outlined aspects of the need, development and objectives for the project. The following morning a tour was made of the Dokki Training Center in Cairo. Vegetable crops were under intensive hydroponic plastic house production. The design of the houses and the production practices developed and used here will be an important part of reclaimed desert land production. Mushroom spawn and mushrooms are also produced. Student trainees in residence were observed working with crops and studying in the center. A documentary video film was viewed in the media center. The media center produces educational and training materials. This is a unique facility in location and service to Egyptian agricultural development, food production and educational needs.

En route to the site, between Cairo and Maryut, land reclamation and new developments were seen all along the highway in the desert. Farms adjacent to the highway were in all stages of development from no development to complete development. Farm buildings, homes, entrance gates, fences and windbreaks were under construction. Some fields were planted with crops, some with and some without windbreaks. A few plastic greenhouses appeared to have crops planted in them. One stop was made to drive through the Dina Agroindustrial Complex. This is a large, modern, fully developed, successful appearing commercial farm. Herds of dairy cattle, other livestock, circle irrigation, fertigation, pasture and excellent field, forage, grain and fruit crops were seen.

Maryut was just off the main highway. A good road, adjacent to an irrigation canal, led into the gateway to the meeting center and laboratory buildings. The fields fanned out from this corner. Water was piped from the canal into the site through a field pumping station. The first impression was of neat rows of crops, some under plastic tunnels, some not, rows of plastic houses with neat rows of crops of varying heights and a field building in the distance. Descriptions of cultivars, planting schedules, treatments and comparisons being evaluated were given by project scientists. At close range it was easy to see that crop growth was excellent. Plants were vigorous, uniform in character, free of weeds, insect infestation and disease. There were no missing plants, plant color was good and essentially no deficiency symptoms were present. Workers were busy removing plastic covering on plants getting night time protection. Some of the plastic houses were still being erected. Trenching in the newest houses for drainage and recovery of hydroponic nutrient solutions was underway. Some tree crops had just been planted. Delays had been encountered due to quarantine difficulties. Trees basically looked healthy and were off to a good start. The speed and scale of progress since the authorization in early fall of 1989 was very impressive.

At the Maryut site land, buildings, plant structures, water supply and access roads are well developed and in use. Fruit and vegetable crops are planted and in various stages of development. Vegetable crops are being grown under difficult kinds of protection. Soil preparation, pest control, plant nutrition and plant growth are excellent. Plots are neat and orderly. Comparisons of productivity, cultivars, structures, nutrition, etc., are underway. Major site developments have taken place. Accomplishments since August are outstanding.

Rehabilitation of the laboratory and meeting building was essentially complete except for arrival of laboratory equipment, instrumentation and electricity. The electricity is critical and

it is essential that a backup uninterrupted power source be available.

The landscape design is apparently still in the formative stages. Landscape plants and floriculture crops are still to be planted. Plant materials were being collected in one of the plastic houses for planting in the near future.

Ultimate success for meeting the on-farm project objectives at the Maryut site appears to be the responsibility of the Egyptian Project Director, Dr. Awad Hussein, and the Israeli Technical Advisor, Mr. Itzhak Ayalon. Their cooperation, coordination and agreement on matters of farm management, policy and procedure is critical. These are factors that could not be evaluated in any direct manner in the brief period available. However, the significant on-site achievements since approval of the agricultural plan are evidence of dynamic site leadership and accomplishment.

Post site-visitation reports emphasized the detailed soil analyses and plot preparation work that preceded planting. Other individual project objectives and results were reported. The landscape plan and the ornamental and floriculture plantings have been delayed. Electrical power is acutely needed for the laboratory building. Outlines of postharvest handling systems for loss prevention have not been developed. Some harvesting and consumer packing for local domestic markets is taking place. Outlines of postharvest handling systems for export and domestic loss prevention have not been prepared. Handling, packing and storage facilities and equipment needs were not discussed.

Overall progress toward Project goals in both countries has been excellent. Attitudes and cooperation between sites are outstanding. Potential use of the site as an economic and production model for desert land reclamation is very promising. This appears to be a very productive project with promise for meeting agricultural, economical and sociological objectives.

Eight (8)

## ✓ EVALUATION SUGGESTIONS

A written copy of each days itinerary should be issued to the reviewers each evening or morning before departing on the day's visits. <sup>2</sup> A listing of people and their responsibilities, organizations and locations to be visited should be provided for reviewer perspective and accuracy.

The review would be more efficient if each scientist provided a copy of his/her experimental design, summary sheet of accomplishments or a time line summary of activities during the visit.

4/ More time is needed, time to read relevant documents before departure from the United States and time before returning to the United States. <sup>5</sup> There needs to be time at the end of each day for the review team to review, organize and summarize the days activities. <sup>6</sup> Time is needed at the end to prepare an initial draft of the review document. <sup>7</sup> Secretarial services and <sup>8</sup> access to input by the Chair of the Technical Consultant Panel should be available at that time.