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Research Component
Annual In Country Training Plan
FY 1987/88

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November 1990

Research In Country Training Plan

PD-ABL-922

NATIONAL AGRICULTURAL RESEARCH PROJECT

NARP

MINISTRY OF AGRICULTURE
AND LAND RECLAMATION (MOA)
The Arab Republic of Egypt (A.R.E.), Cairo

UNITED STATES AGENCY FOR
INTERNATIONAL DEVELOPMENT (USAID)
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ANNUAL IN-COUNTRY
TRAINING PLAN FY 1987-1988
by
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ANNUAL IN-COUNTRY TRAINING PLAN FY 1987-1988

A. INTRODUCTION

The effective implementation and execution of the National Agriculture Research Project (NARP) will require changes in the operational thrust of the agricultural research system especially in research management, technical research execution, research support and on the farmers level. One of the important ways to effect change is through the method of training. For this reason, training is one of the major components of the NARP. A Manpower Development and Training Plan has been published in November 1987 which describes the planned integration and implementation of both out of country and in-country training activities which will be conducted and funded under NARP.

The Annual In-Country Training Plan for fiscal year FY July 1987-June 1988 is presented in the following pages and includes the On-Farm In-Country Management Training that was approved in Project Implementation Letters (PIL) 18 and 19. It has been prepared to serve as a framework for the in-country training.

B. IN-COUNTRY TRAINING PROCESS

Future agricultural programs which are needed to help increase food and feed production have been identified by the Ministry of Agriculture and Land Reclamation (MOA) and the Agricultural Research Center (ARC) in their 5 year plans. A trained cadre of both scientists and support staff are needed to manage and work in these programs. In-country training programs will be provided to improve the knowledge, attitudes and skills of agricultural scientists, staff and farmers to plan, manage and implement programs in the agricultural system.

Purpose

In-country training will provide both formal and informal training in Egypt for NARP participants from all levels of the agricultural research system, private sector or farm community. Research managers, researchers, technicians and support staff will receive hands-on practical training in research management, technology transfer, and technical training to help improve their job performance and implementation of improved research programs. The farm community will be able to increase their agricultural production through learning application of new technical practices.

Objectives

The objectives are to provide training in the three major areas of research management, technical training and language training.

1. Research Management Training

The objectives of the program are to:

- a. Train executive, middle and supervisory level managers within the research system to organize research and develop methods to utilize the human, financial and physical resources within the agricultural system;
- b. Train researchers and key personnel in the design and operation of inter-, multi- and single disciplinary research and management; and,
- c. Train researchers, on-farm specialists, and farmers to develop a system of technology transfer and provide a linkage from the researchers to the farmer through development and implementation of on-farm trials research management methods.

2. Technical Training

This training will be hands-on-training for all levels of staff such as researchers, technicians, support staff, skilled laborers, clerks, unskilled laborers and individuals in the private sector. The objectives are to train designated personnel on:

- a. Specialized research knowledge or techniques required within the individual institutes, laboratories, and departments.
- b. Research laboratory techniques;
- c. Concepts and use of computers in office or research applications;
- d. Secretarial and office procedures;
- e. Financial principles, procedures and application;
- f. Basic tools, procedures and technology in use of information systems and libraries for research;
- g. Operation, maintenance and repair of scientific research equipment, laboratory equipment, machinery, buildings, and computers.

3. English Language Training

The objectives of the programs are to have designated staff:

- a. Improve their English skills to obtain adequate ALIGU and TOEFL scores necessary for academic or short term training in the U.S.
- b. Improve their English skills to help on-the-job performance for research and management within Egypt.

The training services will be contracted mostly from individuals or organizations, or government training centers within Egypt. The MOA has agricultural technical and management training centers throughout Egypt which can be utilized. The list of government training centers are listed in Appendix A. In some instances the trainers will come from the United States or international agricultural research centers and be contracted with the out-of-country contractor.

Determining Training Needs

Each institute, department, and laboratory was asked to include the plans and numbers of staff whether needed to be involved in in-country training for the next five years considering the following points:

1. Training programs which would improve staff's capability to manage and implement current agriculture research programs.
2. Training programs which would develop staff's capability to manage and implement future programs that are priorities within the Research Unit, Agricultural Research Center (ARC) and Ministry of Agriculture and Land Reclamation (MOA) Five Year Plans.

The Training Working Group compiled the training numbers in the programs as outlined by the various Research Units within MOA/ARC. Training opportunities which were chosen for funding for the Manpower Development and Training Five Year Plan are those which were consistent with MOA/ARC and NARP goals, objectives, desired outputs and within the funds available for training.

The in-country training funding was decreased after the Five Year Plan was submitted. New estimates have been made to coincide with the new budget figures as outlined in the budget section in Appendix B.

Training as Related to Project Outputs

Training, one of the key components in providing change and providing the tools to make the NARP project successful, will affect greatly the outputs of NARP. The Project Paper Logical Framework lists the outputs and indicators of success for NARP in Annex 1 and 1B. Also, the Life of Project

Plan (LOPP) identified other outputs for programs which had not been mentioned in the Project Paper.

Training will most heavily affect the outputs in management, improved research methods, personnel development, information utilization and dissemination, seed production, integrated crop protection, on-farm trials, data analysis and collection and biotechnology because many of the in-country training has been specifically targeted to train staff in these areas.

Training will have less effect on the outputs for agricultural mechanization, agrometeorology, commodities and improved facilities. Mechanization in-country training will cover mostly operation, maintenance and use of farm and research equipment. Commodities, improved facilities and agrometeorology will be affected when there is training on operation and maintenance of the equipment or facility. The research grant program is only being affected by out-of-country training while no effect will be seen on development of professional organizations.

As was stated in the Project Paper and in the LOPP, outputs and indicators of success may need to be modified. Because of the needs assessment that was implemented in training, the outputs for training has been changed to more nearly reflect the needs. The outputs for mechanization has been slightly modified. Outputs which have a * beside them have been changed from the original Project Paper or the LOPP. A new Project Paper is also in the process of being written and some of the outputs will probably be modified or expanded. A complete list of the outputs are in Appendix C.

In each training activity an effort will be made to assess effects of the activity on program outputs. A quarterly report will be submitted to the NARI Director General which reports training activities implemented, numbers of training, budgets and outputs affected. A chart used for these purposes is contained in Annex D.

C. TRAINING ACTIVITIES

The Annual Training Plan contained in the following pages describes the field of training, numbers of participants from August 1987 to June 30 1988 as compared to the revised five year total, number of courses, average number of trainees in one course, duration and content. In some cases, training is only planned for one or two years and is not necessarily continuous for the whole five years.

ANNUAL IN-COUNTRY TRAINING FY 1987 - 1988

Code #	Field of Training	Five yr. Total Training	FY 1987 - 1988				Dur.	Content
			#Part. '87-'88	# of Courses	#Trainees in 1 Course			
EXECUTIVE MANAGEMENT								
1	Managerial Skills & Leadership	220	20	1	20	6 days	Four Courses will be given to senior managers to: Determine roles and develop planning and organizational skills needed to improve research management. Analyze methods and time needed to accomplish the research tasks with clear delegation of responsibilities among staff. Develop and practice methods of problem solving and team building. Learn to assess programs and provide feedback to communicate program successes or improvement needed for future programs. Learn principles of negotiation.	
2	Time Management & Delegation	220	20	1	20	3 days		
3	Problem Solving and Decision Making	220	20	1	20	3 days		
4	Evaluation Methods and Skills	220	20	1	20	3 days		
MIDDLE MANAGEMENT								
5	Management Planning	315	40	2	20	5 days	Middle managers will be trained to: Understand principles of organization and development and develop plans for research in relation to research priorities. Learn to develop financial plans and management schemes according to current research priorities. Develop annual project plans to implement research priorities. Explore specific problems to practice problem solving and team building techniques within a group situation.	
6	Financial Management	315	40	2	20	5 days		
7	Mgmt - Project Cycling	315	40	2	20	5 days		
8	Organizational Management	315	40	2	20	5 days		
BEGINNING MANAGEMENT								
9	Basic Management/beginning	650	60	3	20	5 days	Beginning level managers will: Explore and understand basic principles of organization and development of research. Explore principles of leadership and apply selected project management system tools, techniques and team processes.	
10	Basic Mgmt. / advanced	650	60	3	20	5 days		
ORIENTATION TO AG.								
11	Reservice for new employees	400	40	2	20	5 days	Orientation for new employment at Agricultural Research Station. Create awareness for new agricultural research and technology transfer systems in agricultural sector.	
12	Agricultural Orientation	1500	150	6	25	1 days		
FINANCIAL MANAGEMENT								
13	Accounting	147	15	1	15	3 weeks	Learn new procedures implemented in 1987. Improve management and learn new procedures in 1988. Learn beginning procedures & rules of inventory management. Learn improved or new practices & procedures in inventory management.	
14	Signing Budgets	113	12	1	12	3 weeks		
15	Purchasing & Inventory - Beg.	154	15	1	15	3 weeks		
16	Purchasing & Inventory - Adv.	155	15	1	15	1 weeks		

ANNUAL IN-COUNTRY TRAINING FY 1987 - 1988

Code #	Field of Training	Five yr. Total Training	FY 1987 - 1988				Dur.	Content
			#Part. '87-'88	# of Courses	#Trainees in 1 Course			
17	Personnel Management	170	17	1	17	2weeks	Improve management skills and learn new updated methods for personnel management.	
18	Financial Management - Salaries	120	12	1	12	2 weeks	Update skills and learn new concepts & procedures of management.	
RESEARCH DEVELOPMENT								
19	Feasibility & Proj. Eval. Studies	400	40	2	20	5 days	Design and implement financial, economical, and social analysis.	
20	Research Planning	400	40	2	20	5 days	Determine research objectives and design implementation plans.	
21	Research Management	450	50	2	25	5 days	Learn to develop objectives and management plans for current research.	
22	Research Design	450	50	2	25	5 days	Develop laboratory, field and statistical designs for research activities.	
23	Experimental Design & Planning	450	50	2	25	10 days	Learn to select proper designs, ANOV and plan experiments.	
STATISTICS / ECONOMICS								
24	General Statistics	30	10	1	10	10 days	Review basic concepts and some new techniques.	
25	Sampling Statistics	30	10	1	10	10 days	Review basic concepts and some new techniques. Emphasis will be placed on learning to use selected computer programs.	
26	Social Research	30	10		10	10 days	Learn & review concepts methods of social analysis and research.	
27	Extension Methods Evaluation	30	10		10	10 days	Learn to develop statistics appropriate for extension evaluation.	
ON-FARM TRIALS								
28	On - Farm Trials Management	7000	720	18	40	10 days	Researchers and management staff will be involved in training sessions with on-farm specialists to define problems and research plans for the current year.	
29	On-Farm Trials Practicum	7000	700	continuous	10	40days	Researchers will work with on-farm specialists to practice and evaluate effectiveness of planned procedures.	
30	On - Farm Trials for Farmers	6000	1200	continuous	60	2 days	Special sessions will be conducted with farmers to plan and implement on-farm trials research.	
EXTENSION								
31	Subject Matter Specialist	800	80	continuous	20	10 days	Learn techniques to transfer new technology from the researcher to the extension worker and farmers. Test the linkage relationships.	
32	Local Leader Training (Mechan.)	14	14	1	14	1 week	Special training on mechanization techniques for farmers.	

ANNUAL IN-COUNTRY TRAINING FY 1987 - 1988

Code #	Field of Training	Five yr. Total Training	FY 1987 - 1988				Content
			#Part. '87-'88	# of Courses	#Trainees in 1 Course	Dur.	
	TRAINER OF TRAINERS						
33	Training of Trainers - General	40	40	2	20	4 weeks	General management seminar in training.
34	Organization Development	20	20	1	20	12 weeks	Analyze, modify and practice new techniques being used for development.
35	Trainer of Trainers Res. Mgmt.	20	20	1	20	12 weeks	Develop and test a management system for trainers.
	MANAGEMENT (MISC.)						
36	Mgmt. of Library Resources & Services	20	20	1	20	3 months	Learn management of scarce resources with best results like resource sharing, cooperative services, networking and case studies studies.
37	Library & Information Center Mgmt.	90	45	continuous	15	3 months	Learn to plan, budget and manage scientific libraries and information centers.
38	Mechanical supervision	50	25	1	25	4 weeks	Improve supervision skills of mechanical shop repair & maintenance of facilities.
39	Horticulture Farm Management	5	5	1	5	1 week	Learn techniques and procedures in orchard management.
40	Food Factory Management	5	5	1	5	2 weeks	Learn and practice improved methods of food factory management
41	Seed Lab. Orgn. & Mgmt.	40	40	2	20	20 days	Gain knowledge about efficient planning/managing/organizing of seed lab work flow, and technically accurate seed testing procedures.
42	Seed Program Management	40	0	0	0	15 days	Learn seed program organization, operating/support/QC; work planning and implementation; operations coordination; follow-up; records; management data.
43	Station Management Training	60	20	1	20	3 weeks	Learn operation and management of stations effectively.

ANNUAL IN-COUNTRY TRAINING FY 1987 - 1988

Code #	Field of Training	Five yr. Total Training	FY 1987 - 1988				Content
			#Part. '87-'88	# of Courses	#Trainees in 1 Course	Dur.	
LABORATORY TRAINING							
44	Research Lab. Training (Gen.)	215	20	2	10	10 days	Laboratory staff will be trained to: Learn and improve methods of general techniques in the laboratory
45	Research Lab Train - Specialized	280	28	1	14	30 dyas	Develop special techniques for special research.
46	Research Lab Maintenance	142	15	3	5	10 days	Maintain and repair laboratory equipment within the laboratory.
COMPUTERS							
47	Computer Literacy-Beginning	450	45	3	15	2 weeks	Learn basic concepts and gain hands-on experience for office or research applications.
48	Computer Literacy - Advanced	450	45	3	15	4 weeks	Continue second course to advance concepts for practical use.
49	Computer - Word Processing	350	40	5	8	4 weeks	Learn how to format, process, edit and transfer data.
50	Computer - Software	260	24	3	8	4 weeks	Hands on training on software appropriate for trainee's needs.
51	Computer Analysis & Data Systems	300	30	2	15	4 weeks	Learn computer software techniques necessary to analyze data
52	Computer Modeling	15	5	1	5	8 weeks	Develop techniques to make simulation models of plant pests, diseases, weeds, or pesticides in the environment.
53	Microcomputer & Telecommunications	190	20	2	10	4 weeks	Train on telecommunications hardware and installment of software.
54	Computer Equip - Basic Maint.	50	10	2	5	6 weeks	Learn routine maintenance and basic repair.
SECRETARIAL SKILLS							
55	Typing - English & Arabic	270	50	5	10	40 dyas	Learn and practice basic touch typing.
56	Secretarial	160	16	2	8	10 days	Learn to answer phones and apply general office procedures.
57	Filing	160	16	2	8	10 days	Learn basic filing systems and procedures.
MECHANIZATION - M & O							
58	Mechanics I	240	30	2	15	8 weeks	Learn to identify and use common workshop tools. Be able to identify all types of diesel and petrol engines.
59	Mechanics II	150	15	1	15	16 weeks	Learn to identify all parts of tractor, repair and change all needed spare parts.
60	Mechanics III	150	15	1	15	8 weeks	Learn skills for repair, maintenance, and overhaul of diesel & petrol engines. Be able to identify problems and do trouble shooting.
61	Machinist	100	15	1	15	10 weeks	Operate metal lathes and other shop equipment.
62	Welding	200	20	2	10	3 weeks	Learn the construction, operation and fundamentals of arc and gas welding and soldering.

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			#Part. '87-'88	# of Courses	#Trainees in 1 Course	Dur.	
63	Carpentry	125	10	1	10	4 weeks	Learn wood working techniques, basic building repair and maintenance.
64	Farm Machinery I	350	45	3	15	5 weeks	Operate and maintain tractors. Learn to attach, adjust and operate the different implements under field conditions.
65	Farm Machinery (O&M) II	350	45	3	15	1 week	Learn to identify the different implements and their use, function and construction. Demonstrate ability to connect these to tractor.
66	Harvester III (O&M)	300	30	3	10	2 weeks	Learn to identify the parts, operate, maintain and overhaul the machine.
67	Operation of Rice Transplanting Machines	375	40	1	20	2 days	Operate under field conditions and maintain the machine and be able to adjust the machine for planting.
68	Laser Leveling Equip. (O&M)	275	24	3	8	2 weeks	Learn to operate the levelling laser units under field conditions.
69	Irrigation Pump (O&M)	400	40	4	10	2 weeks	Learn to operate and maintain diesel engine pumps as well as electric pumps for different irrigation systems.
70	Canal Dredging Mach. (O&M)	400	40	4	10	1 week	Learn to identify the parts, maintain and operate the machine under field conditions.
72	Automotive Electricity	100	15	1	15	4 weeks	Repair and maintenance of automotive electrical systems.
73	Farm Electricity	75	10	1	10	4 weeks	Become familiar with basic electric repair & maintenance.
74	Driver Training (cars)	155	16	2	8	6 weeks	Learn to operate automobiles and trucks with safety.
ANIMALS							
75	General Veterinary Extension	20	5	1	5	2 weeks	Learn to transfer new technology from the researcher to the farmer Test the linkage relationships.
76	Specialized Vet. Extension	10	10	1	10	2 weeks	Learn methods of brucellosis and mastitis testing and protection.
77	Technical Tr. - Animal Breeding	10	10	1	10	2 weeks	Learn to record, analyze data on animal breeding programs.
78	Agric. By - Products Treatment	30	25	2	15	2 weeks	Learn technical treatment aspects for improvement of agriculture by-products.
79	Artificial Insemination	50	10	2	5	2 weeks	Techniques of insemination of cattle and buffalo.
80	Milking Machines (O&M)	30	30	2	15	2 weeks	Daily operation and maintenance of milking machines for dairy animals.
81	Rabbit Breeding & Production	20	10	2	5	2 weeks	New techniques in rabbit husbandry, breeding, production.
82	Dairy Quality Control	50	10	1	10	1 week	Techniques of quality control during processing dairy products.
83	Milk By - Products Production	50	10	1	10	1 week	Improve knowledge of utilizing by-products of milk processing for human consumption.
84	Industrialization of Dairy Tech.	50	10	1	10	2 weeks	Learning and developing technology important to dairy industry.
85	Lamb Production Intensification	50	10	1	10	2 weeks	Technology & procedures for breeding, management, physiology, and treatments for higher lam production.

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Code #	Field of Training	Five yr. Total Training	FY 1987 - 1988				Content
			#Part. '87-'88	# of Courses	#Trainees in 1 Course	Dur.	
86	Sheep & Goat Production	50	10	1	10	2 weeks	New technology for different systems for managing, feeding and breeding of sheep and goats.
87	Use of Isotopes	5	5	1	5	4 weeks	Learn techniques for using isotopes for lab and research which also involves handling, utilizing and maintaining lab equipment.
88	Hormonal Analysis	5	5	1	5	4 weeks	Technology for enzyme and radio assays for physiology
89	Climatology	10	5	1	5	1 week	New technology for measuring adaptability for exotic breeds and adaptation of local breeds.
90	Sheep & Goat Phys. & Repro.	10	5	1	5	2 weeks	New technology in reproduction which includes artificial insemination, embryo transfer, endoscopy.
91	Statistical Analysis-Animal Breeding	30	10	1	10	2 weeks	New technology utilizing computer, statistical packages for animal breeding programs.
92	Animal Feed Technology	5	5	1	5	2 weeks	Analyzing feed, feed treatment, and mixing technology.
CROPS							
93	Sugar Cane Breeding	12	6	1	6	2 weeks	Learn theory and applied principles of sugar cane genetics, lab. and field work for selection of varieties.
94	Sugar Beet Breeding	12	6	1	6	2 weeks	Principles of sugar beet breeding, varietal testing and male sterility.
95	Sweet Corn Breeding	12	6	1	6	2 weeks	Adaptability to drought and salt plus breeding, varietal testing.
	Sugar Cane Production	15	8	1	8	2 weeks	Production estimates, farming systems and agropractices.
96	Beet Production	15	8	1	8	2 weeks	Production estimates, farming systems and agropractices.
97	Sweet Corn Production	15	8	1	8	2 weeks	Production estimates, farming systems and agropractices.
98	Quality Testing for Sugar Cane	15	8	1	8	2 weeks	Learn laboratory practices on chemical analysis and quality control.
99	Quality Testing for Sugar Beet	10	5	1	5	2 weeks	Chemical analysis for impurities & juice qualities.
100	Quality Testing for Sweet Corn	10	5	1	5	2 weeks	Testing for syrup qualities and processing
101	Sugar Cane Diseases	12	6	1	6	2 weeks	Learn viral, bacterial, fungal, nematodes and physiological disorders.
102	Sugar Beet Diseases	12	6	1	6	2 weeks	Learn viral, bacterial, fungal, nematode & physiological disorders.
103	Sugar Cane Pests	12	6	1	6	2 weeks	Learn pests of sugarcane.
104	Sugar Beet Pests	12	6	1	6	2 weeks	Learn pests of sugarbeets.
105	Flowering of Sugar Crops and Growth Control	12	5	1	6	2 weeks	Learn physiological basis of flowering & growth substances
106	Intensification & Intercropping	15	8	1	8	2 weeks	Learn to analyze cost-benefit ratio.
107	Econ. of Sugar Industrialization	16	8	1	8	2 weeks	Learn investment in sugar agro-industries.
108	Electronic Equipment (M&R)	2	2	2	2	2 weeks	Learn to use and maintain basic electronic equipment for fiber crops.
109	Electronic Balances (M&R)	2	2	1	2	1 week	Use and maintain electronic balances used in fiber crops research.
110	Ginning Equipment (M&R)	4	4	1	4	2 weeks	Use and maintain ginning equipment in research.

ANNUAL IN-COUNTRY TRAINING FY 1987 - 1988

Code #	Field of Training	Five yr. Total Training	FY 1987 - 1988				Dur.	Content
			#Part. '87-'88	# of Courses	#Trainees in 1 Course			
111	Weaving Machines	6	6	1	6	2 weeks	Use and maintain weaving machines.	
	HORTICULTURE							
112	New Systems of Irrigation	10	5	1	5	1 week	Learn to establish and operate new systems of orchard irrigation.	
113	Tissue Culture Techniques	10	5	1	5	4 weeks	Practical training to practice various tissue culture techniques.	
114	Crop Picking, Packing, Storage	30	10	1	10	1 week	Learn new techniques of picking and packing perishable produce.	
115	Drip Irrig. in Green Houses (O&M)	5	5	1	5	2 weeks	Learn to establish and operate drip irrigation systems in greenhouses.	
116	Packing and Ventilation Units in Protected Houses (O&M)	5	5	1	5	1 week	Learn to operate and maintain ventilation units in greenhouses.	
117	Landscaping	10	5	1	5	2 weeks	Practical training on landscape execution.	
118	Pruning and Grafting	100	20	1	20	4 weeks	Practice pruning, budding and grafting of fruit trees.	
119	Propagation and Production of Ornamental Plants	10	5	1	5	2 weeks	Learn new methods of propagations and explore various production techniques.	
120	Pest Control	5	5	1	5	2 weeks	Learn new practices of pest control of various horticulture crops.	
121	Micro Analysis	5	5	1	5	3 weeks	Learn to operate various apparatus in micro analysis.	
122	Food and Milk Analysis	15	5	1	5	6 weeks	Learn methods of food and milk analysis.	
123	Maintenance of Scientific Equip.	5	5	1	5	6 weeks	Learn basic daily maintenance and minor repair of lab equipment.	
124	Installation & Dev. of Food Factories	10	5	1	5	2 weeks	Learn methods of installation and development of food factories	
125	Food Technology, Eval. of Packing Materials	10	5	1	5	2 weeks	Learn to sterilize and pack processed foods in proper packages.	
126	Use of Machines- Wood Testing	4	4	1	4	6 weeks	Practice using machines to test different kinds of wood.	
127	Preparation, Treatment of Wood Machines	4	4	1	4	6 weeks	Learn to prepare and do basic daily maintenance on machines.	
128	Cellulose Production and Paper	4	4	1	4	6 weeks	Learn proper methods to produce cellulose and paper.	
129	Refrigeration Techniques	10	5	1	5	4 weeks	Train on maintenance and operation of refrigerated storage of different types.	
130	Orchard Mechanization	10	5	1	5	4 weeks	Use of machines for ploughing, pruning, spraying, harvesting of horticultural crops.	
131	Operation of Gardening Tools	10	5	1	5	4 weeks	Train to use and operate machines and tools used in public gardens gardens.	
	INFORMATION SYSTEMS, LIBRARY & RESEARCH							
132	Learning Literature Review	300	30	2	15	1 week	Learn the organization of, techniques and protocols in using	

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Code #	Field of Training	Five yr. Total Training	FY 1987 - 1988				Dur.	Content
			#Part. '87-'88	# of Courses	#Trainees in 1 Course			
133	English - Technical Reading Int.	300	30	2	15	1 week	published literature and informational services. Increase proficiency in understanding technical literature for own use and to assist others.	
134	English - Technical Writing Adv.	300	30	2	15	1 week	Write technical articles, abstracts and summaries acceptable for technical journals.	
135	English Translation	100	10	1	10	4 weeks	Translate scientific articles or abstracts with the use of dictionaries.	
136	English Adv. Translation	100	10	1	10	8 weeks	Write abstracts in Arabic of articles originally written in English.	
137	Use of Filing Systems for Research	50	25	1	25	2 weeks	Learn file organization, indexing and retrieval methods by manual or computerized methods. Use in publications.	
138	English in Libraries	200	50	2	25	3 weeks	Learn specialized terms and their meaning for use in library technology and in manuals.	
139	Library (O&M) Procedures	300	75	5	15	3 weeks	Use of basic tools and procedures in shelving, room arrangement, service protocols, using helpers, record keeping, catalogs, and reference sources.	
140	Use & Maint. of A.V.Equip.	400	100	5	20	3 weeks	Operate sound-slide projectors, film projectors, VCR of all types. Assemble and replace components, bulbs and to order and maintain supplies.	
141	Preservation of Library & Archival Materials	200	40	2	20	4 weeks	Learn to store and shelve, file for specific types of library materials, mend, bindery preparation, binding, gluing, taping and boxing.	
142	Microfilm Technology	210	50	5	10	10 days	Use and maintain microfilm equipment. Store and use microfilms, Produce copies (positive, negative).	
143	Reprography Copier Operation	200	40	4	10	10 days	Use and maintain microfilm equipment. Store and use microfilms, produce copies (positive, negative).	
144	Library Public Services	200	40	2	20	15 days	Learn to give public service to walk-ins and on telephone. Be able to orient user, answer questions, make referrals, use catalogs, forms and keep adequate records.	
145	Library Reference Source & Services	100	25	1	25	8 weeks	Learn to use basic reference sources and scientific reference materials; conventional and electronic.	
146	Database Search Techniques	30	10	1	10	10 days	Use electronic databases and cost-effective search techniques (subject specific and/or medium-specific orientation).	
SEEDS								
147	Seed Technology for Prod. & Proc. Officers	80	40	1	40	20 days	Participate in intensive study of applied technology of production, processing and handling of pure seed.	
148	Certification Inspections and	80	40	2	20	10 days	Learn procedures, practices and statistical sampling basis of field	

ANNUAL IN-COUNTRY TRAINING FY 1987 - 1988

Code #	Field of Training	Five yr. Total Training	FY 1987 - 1988				Content
			#Part. '87-'88	# of Courses	#Trainees in 1 Course	Dur.	
	grower guidance						inspections and grower guidance to improve certified seed quality, minimize rejections, and improve grower relations.
149	Seed Law Implementation	40	0	0	0	10 days	Practical organization and implementation to regulate seed quality under the seed law.
150	Tetrazolium Testing	40	0	0	0	15 days	Learn to use the tetrazolium test for rapid accurate viability tests in seed purchasing/quality control
151	Seed Pathology	40	0	0	0	15 days	Testing for seed-borne pathogens, using test results to guide seed treatment and disease control
152	Seed Internal Quality Control	40	0	0	0	15 days	Organizing, equipping, and operating internal QC programs to maintain high seed quality and efficient processing/storage.
153	Pre-processing Management	40	0	0	0	10 days	Organizing seed lots according to quality; clean-up processing tests, records, etc.
154	Seed Equipment Maintenance	40	0	0	0	5 days	Preventive maintenance and repair of specialized machines; parts stocking, maintenance schedules and records.
155	Seed Storage Pest Control	40	0	0	0	5 days	Systematic regular checking for insects and pests; identifying pests; managing control programs; applying control measures; safety.
156	Seed Promotion, Marketing & Extension Education	40	0	0	0	10 days	Promoting "Seed awareness" among farmer seed-users, gov't and private sector specialists who work with farmers.
	RESEARCH STATIONS						
157	Building Maintenance	355	45	3	15	3 weeks	Learn simple maintenance of buildings which involves, carpentry, plumbing, electrical, and painting, procedures.
158	Agrometeorology Equip. Oper.	15	5	1	15	2 weeks	Learn to use and operate equipment. Learn to manipulate and understand data results.
	PEST AND WEED MANAGEMENT						
159	Pest and Disease Identification	100	10	1	10	20 days	Learn to identify field samples of plant diseases and pests
160	Weed Management for Trainers	30	0	0	0	1 week	Learn advanced techniques of weed management and methods of teaching information to others.
161	Weed Mgmt. for researchers	90	0	0	0	3 weeks	Learn basic weed management.

ANNUAL IN-COUNTRY TRAINING FY 1987 - 1988

Code #	Field of Training	Five yr. Total Training	FY 1987 - 1988				Content
			# Part. '87-'88	# of Courses	# Trainees in 1 Course	Dur.	
	LANGUAGE						
162	English Language Training - Adv.	415	36	2	18	8 weeks	Learn English to advance to pre-Toefl score of 196
163	English Language Training - Int.	800	90	5	18	8 weeks	Learn English to advance beyond ALIGU score of 150
164	English Language Training - Beg.	800	90	5	18	8 weeks	Learn basic English to advance beyond Aligu Score of 106.

D. IN COUNTRY TRAINING COSTS

Training Budget

The training budget in Appendix E gives the total estimated costs for the five years and an estimated cost for the Fiscal Year 1987-1988. The cost for this fiscal year covers training from August 1987 to June 1988. The costs for this period will be lower than other years because only the On-Farm Trials Research Management started in August and the remainder of the training will not start until December when the First Annual Training Plan is approved by USAID.

Allowable Training Costs

The training costs include:

1. Lecturers and instructors, supervisors, inspectors and program assistant fees;
2. Equipment rental;
3. Fuel, oil and lubricants;
4. Audio-visual aids and equipment and operator rental;
5. Room and board;
6. Transportation;
7. Expendable training materials;
8. Incidental living expenses;
9. Training Center fees;
10. Administrative expenses; and,
11. Miscellaneous.

Lecturer and Instructor Fees

1. Fees paid to the lecturers and instructors for workshops, seminars and discussions are provided when the person is from the private sector or if a government employee, is taking leave as permitted by the rules governing his employment*. The fees are determined according to the following rules :

* Government employees within ARC are allowed leave to consult or provide services outside of their institute two days a week. See Appendix F.

- a. LE 50 for an one hour lecture, with a maximum of 2 hours a day, from an undersecretary and above, or university professors and equivalent;
 - b. LE 40 for an one hour lecture, with a maximum of 2 hours a day, from a director general and above and/or university professor assistant and equivalent; and,
 - c. LE 30 for an one hour lecture, with a maximum of 2 hours a day, from a lecturer or other ranks.
2. Field Instructors demonstrating to trainees in the field are paid at a rate of 50% of the above rate.
 3. A maximum of LE 10 per day is paid to supervisors, inspectors, coordinators, guidance and field monitoring staff.
 4. A maximum of LE 8 per day is paid for secretarial, financial and service workers.
 5. All lecturers and instructors are fully accommodated with room and board when attending courses in addition to the actual transportation cost to and from the training centers.
 6. Translation and typewriting:
 - a. Oral translation according to lecturers fees and categories;
 - b. Written translation and typing will be paid according to GOE fees and regulations.

Training Center Fees

Training centers which have their own financial by-laws will determine the training center fees according to their by-laws for training programs conducted for the project.

Training centers without financial by-laws will have their training center fees estimated by agreement between the center's staff and the NARP staff.

Project management may choose to establish additional rules and regulations within the boundaries of the NARP training guidelines in order to ensure the successful implementation of the training plan.

Supplemental fees

Training will be used as one of the methods to improve the agricultural research system and needs maximum involvement of the researchers and staff for development of effective programs. In some cases the researchers, staff and university professors will serve as the trainers or instructors in the

program. This will require supplemental fees in the form of salaries (when not on leave), per diem, incidental costs or transportation. This will be allowed under the following conditions. (Reference Mission Order Draft No. 3-10, dated July 1, 1987, Section III A on page 5.) These fees may be paid if:

1. The payments of salary supplements are permitted under GOE laws and regulations;
2. The payment is deemed necessary to achieve the project objectives and that payments cannot be made from the Ministry resources;
3. No employee receives duplicate payments by receiving supplements from another source for the same activity;
4. Rates and fees paid are in accordance with local standards and are limited to magnitudes reasonable in reference to an employee's base pay;
5. The recipients are carrying out technical, managerial and administrative support functions rather than broad policy functions; and,
6. Accounting and control systems surrounding the payment of salary supplements financed are sufficient to ensure financial integrity and provide adequate monitoring and reporting.

Any fees paid to staff which are considered to be supplemental fees by USAID regulations will be reported. Supplemental costs and fees are considered as follows:

1. Lecturer fees for a government employee when allowed by the above regulations shall be paid according to the regular fees paid to lecturers and instructors as stated in the foregoing Section Lecturer and Instructor Fees when the employee is requested to perform additional work outside their normal duties. The participation of the employees will enable the accomplishment of the training objectives set up for the specific training activity.
2. LE 10 per day for room and board for trainees when accommodations are not available at the training center or if they live more than 50 kilometers from the training center or outside the governorate;
3. LE 3 per day for incidental living expenses; and,
4. Transportation expenses paid directly to the trainee when travelling both to and/or from training centers and/or the locations.

E. IN-COUNTRY TRAINING PROCEDURES

One of the goals of the NARP training component is to develop a system where training is an integral part of the ARC and the agricultural system.

The in-country training activities will be organized and implemented by a Manpower Development and Training Unit (MDTU) which is composed of the Training Working Group, CID Manpower Development and Training

Advisor and assigned staff. Staff will be assigned to the training activities. A Group which will coordinate the implementation of the training activities. Staff responsible for the fiscal management and financial analysis and reporting. Staff responsible for the processing necessary for reporting and monitoring.

Planning In-Country Training Activities

The MDTU staff, Consortium for International Development (CID) Technical Assistance Team and staff from the Center for Agricultural Management Development (CAMD) will be responsible for planning the specific training activities as follows:

1. A training meeting for MDTU staff, CID TA team and CAMD will be held in November to discuss items such as writing in-country training objectives, determining program content, scheduling, determining budgets, reporting and evaluation.
2. A CID team member and a staff member from CAMD will work with directors who have requested in-country training to plan the training, outline training objectives, determine program content, instructors needed, determine scheduling, budgets and evaluation in early December.
3. The MDTU will work with CAMD staff in scheduling, organizing and further development of the scheduled training activities.
4. Monitoring and evaluation procedures will be designed in coordination with the USAID Training office in November.
5. A computer catalog system will be devised in January 1988, which will list all of the training activities available for the year. This system can be used in the libraries which will inform the user of the topic of training, type of training, target audience, duration, location and level of training. This catalog will be constantly updated for the duration of the project.

Implementing In-Country Training

The MDTU will be responsible to:

1. Advertise training opportunities through bulletins, meetings, workshops, etc;
2. Prioritize or adjust in-service training needs according to budget;
3. Develop and co-ordinate activities with appropriate training staff, organizations, institutes and centers in order to achieve training objectives;
4. Implement activities necessary to for training process;

5. Co-ordinate the use of essential training materials and audio-visual aids;
6. Keep records and books of training data;
7. Submit reports and complete evaluations about the in-country training;
8. Monitor trainees during their training programs and to follow-up their activities after their return to their activities, offices or villages; and,
9. Evaluate the training program in terms of subject and instructors to ensure that the program is efficient and achieves its aims and objectives.

Trainees

The following conditions apply to the trainees:

1. Should be at least 16 years of age;
2. Should have an identification card.;
3. Is willing to accept the accommodation and training provided by the project;
4. Trainees in each course should have similar backgrounds;
5. Will not be absent during any one course without an acceptable excuse or will be dropped from the course; and,
6. Additional regulations or instruction established by the project management will be distributed to all concerned.

Executive Bodies, Lecturers, Instructors, Supervisors, and Guides:

The MDTU is authorized to request support from and contract with institutes and centers in-country to assist in carrying out planned training programs by providing selected lecturers, instructors, trainers, supervisors and program assistants and service workers. These contracts will be reviewed by USAID. Trainers, lecturers or instructors needed from outside of Egypt will be contracted with the Out-of Country Contractor and financed in dollars.

Staff provided for the in-country training should be as follows:

1. The lecturers, instructors and trainers should be scientifically and practically oriented as well as educationally capable.

2. The supervisor should have leadership capability and be from the project or component staff or from outside sources if necessary; his job is as follows:
 - a. To plan and follow-up program implementation with instructor;
 - b. To solve problems impeding implementation;
 - c. To administer and manage training courses and provide necessary support (Audio-visual aids and materials) to instructors and lecturers;
 - d. To provide trainees with alternate lecturers and instructors in case scheduled original instructors or lecturers are absent;
 - e. To implement evaluation plan of the program as a whole including lecturers, trainees and instructors; and,
 - f. To brief lecturers and instructors and supervisors before a program begins.

3. Whether the program assistant is chosen from the project or from outside sources, he should be highly efficient and specialized in the planned program and complete the following:
 - a. Study the program in detail;
 - b. Contact the programs' lecturers and instructors and brief them about the program and trainees.;
 - c. Direct workshop and make decisions necessary to the implementation of the program;
 - d. Maintain discipline among trainees participating in the training course;
 - e. Submit a report on the lecturers and instructors;
 - f. Participate in the program evaluation; and,
 - g. Assist in preparing lectures and training materials.

4. A secretary for each course is to be assigned to do the following:
 - a. Clerical and administrative tasks;
 - b. Keep attendance and report trainee absences;
 - c. Introduce lecturers; and,

- d. Type, print and distribute lecture notes related to the cot
5. Caretakers are to be assigned at the training location at a rate to twenty trainees or less to provide miscellaneous services.

F. IN-COUNTRY TRAINING EVALUATION, MONITORING AND REPORTING

Evaluation is necessary to determine the effectiveness of the activities. The use of computers will be used to implement a detailed system of evaluation, monitoring, and reporting in the major areas of:

1. Improvement or change in knowledge and skill of the participant;
2. Analysis of contribution of training activities in relation to project outputs and improvements in organization;
3. Analysis of cost in relation to training activity; and,
4. Analysis of personnel, methods and training center.

Each training activity will be planned which will state the need for the training, an outline of the objectives, content and expected benefits for trainee and the organization. A separate evaluation sheet will be devised for each activity which will be aimed at measuring improvement or change in the individual or program.

A tracking system will be developed on computers which is similar to the the Participant Training Management System (PTMS) which is already being utilized by USAID. The PTMS can track participants and related costs in the organization at the institute level from entry into training through activities and progress of the participant over the five years of the in-country program.

The analysis of activities as related to project outputs (See Appendix D) will be submitted on a quarterly basis to both the Director General and USAID to report the relationship of training activities to project outputs.

Other evaluation methods will be developed as needed.

Appendix A

To be revised from
beginning 5-year plan

MINISTRY OF AGRICULTURE
AGRICULTURAL TRAINING CENTERS AND FACILITIES

Center	Activity	Governorates	Directors' Name	Liaison Officers	Capacity
Sakha Training Center	Multi-purpose	Damietta - Gharbiya Beheira - Dakahliya Alexandria - Marsa Matrouh Kafr El-Sheikh	Eng. Sameeh Osman Abdel Ghaffar	Mr. Ahmed Zahraan Mr. Mohamed Hussein	(100) Full Board
Sids Training Center	Multi-purpose	Minia - Fayoum - Beni-Suef	Eng. Mohamed Sami Kandil	Mr. Sayed Al-Showeny Mr. Sayed Gharib	(150) Full Board
Agricultural Management Development Center	Management & Administrative Affairs	All Governorates	Eng. Atef Abdel Halim	Mr. Ibrahim Youssuf Sidky	(53) Full Board
Ismailia Training Center	Multi-purpose	Ismailia - Suez - Port Said - Red Sea - North Sinai - South Sinai	Eng. Sayed Mohamed Aly	Mr. Mohamed Hassan Salim Mrs. Nabila Al-Tonsy	(30) Full Board
Mariut	Multi-purpose & Rural Development	Beheira - Alexandria - Marsa Matrouh	Mr. Mahmoud El-Mahdi		(150) Trainees (75) Full Board
Belbeis Training Center	Multi-purpose	Sharkiya - Menoufia - Kalubiya	Eng. Abdel Aziz Al-Kashif	Mr. Fathy Al-Azhary Mrs. Samira Victor	(60) Full Board
Mansoura	Farm Machinery Training Center	All Governorates	Eng. Nabil Helmy		(75) Full Board
Shandaweel Training Center	Multi-purpose	Assiut - Sohag - Quena - Luxor - Aswan - New Valley	Eng. Moneir Selim Wassif	Mr. Mohamed A. Khedr Mrs. Zeinab Hussein A. Abdullah	(65) Full Board
The Egyptian International Center for Agriculture	Multi-purpose	All Governorates	Direct supervision of the Central Administra- tion for Adm. Develop.	Mr. Magdi M. Abdel Samad	Accommodates in Cairo at contracted hotels
Beni Suef	Craftsman	Beni Suef - Menia - Fayoum	Mrs. Samia Khalil		(150) Trainees (30) Full Board
Horticulture Training Center	Horticulture	All Governorates	Eng. Hassan El-Rashidi	Mr. Ahmed Zahraan	(48) Full Board (60) Under Completion

(Cont'd)

Center	Activity	Governorates	Directors' Name	Liaison Officers	Capacity
El Marg	Craftsman	Kalubiya - Sharkiya - Ismailia - Cairo	Mrs. Samira Khalil		(160) Trainees No accomdations
Central Training Center	Multi-purpose	A. Cairo B. Giza	Eng. Mohamed Hassan	Mrs. Ferial H. Makhlot Mr. Hossam Abdel Razik Mr. Mohamed Amin Amir	Non-residential (Lecture rooms & training aids provided with facilities)

OUTPUTS AND INDICATORS OF SUCCESS FOR NARP

The Project Outputs and Indicators of Success are summarized below:

1. Improved management system with trained managers:
 - Standard management procedures being used in all Institutes and 31 experiment stations;
 - Full complement of approved positions;
 - Standard operating procedures being followed;
 - Periodically adjusted approved research agenda;
 - Operating within budgetary limitations; and,
 - Research plans being implemented on schedule.

2. Improved research methods:
 - Interdisciplinary system approach being used which considers relationships of cropping patterns and incorporates animals in analysis
 - Use of farming systems approach to identify constraints to increased production;
 - Greater use of appropriate designs for field and station experiments;
 - More effective control of research experiments;
 - Reduced time in analyzing and reporting on research findings;and,
 - More reliance on computer technology to accelerate research analysis.

3. Personnel development program with balanced mix of research scientists and of skilled technicians:*
 - 70 participants in long term degree training;
 - 400 participants in post-doctoral and short term training;

 - Over 20,000 staff training opportunities for in-country training;

 - Establishment of a staff development program;
 - Inclusion of specific training objectives in the ARC's annual operating plans; and,

- Accomplishment of the stated training objectives as found in the annual operating plans.
4. Timely and accurate source of agricultural production data through data analysis and collection:
- Data on production, yields of crops, number of animals, and their production, factor and market prices published regularly;
 - Improved agricultural data base;
 - Expanded data processing capability within the MOA
 - Improved agriculture and food policy analysis capacity; and
 - Regularly scheduled publication of agricultural statistics.
5. Information utilization and dissemination:
- A collection of no less than 30,000 items and dissemination of 50 specific technical reports per year;
 - A single classification and cataloging system;
 - An efficient circulation system;
 - Trained personnel to manage the library collection; and,
 - Effective mechanisms to disseminate relevant research results to farmers.
6. Seed Production and Technology:
- 70% of cereal seed demand and 100% of hybrid, vegetable and legume seeds demand met.
 - A vigorous private sector seed industry for hybrids, vegetables and forages;
 - Three seed testing stations properly equipped and sufficiently mobile; and,
 - Adequate supplies of improved varieties available to farmers.
7. Improved Facilities:
- Laboratories fully equipped and functioning in 31 research stations.

- Full occupancy and utilization of the complete facilities; and,
- Completed facilities being maintained.

8. Commodities:

- Equipment fully used and
- Vehicles serviced according to manufacture's instructions and schedule.

9. A coordinated and collaborative agricultural research community:

- At least 3 professional associations related to research organized e.g. plant genetics, veterinarians and agricultural economists.

10. Research Grant Program:

- Research which supplements ARC research in high priority areas will be conducted, reviewed, and disseminated;
- Administrative staff will have been trained so as to be able to continue such programs in future if funds permit;
- Capability of university staff to conduct research that is interdisciplinary and adaptive, will have been increased, with strong emphasis on on-farm trials and needed economic evaluations;
- Progress will have been made in using the regional universities as problem solving institutions for farmers and others related to agriculture in nearby agronomic zones; and,
- Collaboration among agricultural research institutions in Egypt and with U.S. universities and international agricultural research centers will have increased, and means to foster this in future will have been developed.

11. Integrated Crop Protection:

- Packages of ICP practices directed toward eight major crops as crop groups;
- Required pest and disease diagnostic centers;
- A survey system for more accurately measuring crop losses caused by diseases, insects and mites, vertebrate pests and weeds; and,
- Development of a training plan for specialists on safer handling of pesticides.

12. On-Farm Trials:

- A system for developing prototype machinery for the private sector;
- A development of a multicrop thresher and a grain crop harvester; and,
- Development of a private sector industry responsive to small farm machinery needs.

13. Mechanization:*

- A system for developing appropriate machines in the Agriculture Mechanization Research Institute.
- A development of a multicrop thresher and a grain crop harvester; and,
- Development of the private sector capabilities to respond to small farm machinery needs.

14. Biotechnology:

- Operation of one or more plant tissue culture laboratory and
- Trained ARC personnel in recent biotechnology methodologies.

15. Agrometeorology:

- A network of strategically located meteorology stations that are linked to the existing stations and
- A data collection, transmission, analysis and distribution system.

