

CATIE

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CENTRO AGRONOMICO TROPICAL DE INVESTIGACION Y ENSEÑANZA

INSTITUTO NACIONAL DE INVESTIGACIONES Y SERVICIOS AGRICOLAS  
COSTA RICA  
7 AGO 1981

CATIE — TURRIALBA COSTA RICA

AGRICULTURAL TRAINING

IN THE CENTRAL AMERICAN ISTHMUS

A PROPOSAL

Submitted to the Kellogg Foundation

Turrialba, Costa Rica

June, 1978



## AGRICULTURAL TRAINING IN THE CENTRAL AMERICAN ISTHMUS

### I. THE PROBLEM

A high proportion of the food consumed in the Latin American Tropics is produced by small to medium-sized farmers. In Central America, about 75 percent of the staple food (mainly corn and beans) is grown by farmers with holdings below 35 hectares. Most of these farmers still continue using their traditional farming systems and so far progress toward better living conditions has been extremely low or negligible.

The following are the main factors which are impairing the development of the rural poor in these countries:

1) The new technologies available are in most cases grossly inadequate. Most agricultural technologies have been developed for farmers with capabilities for high use of inputs, and they generally are of restricted applicability to small farmers under tropical conditions.

2) The shortage of properly trained personnel is one of the main constraints for attaining the development of appropriate technologies for the small farmer in Central America. Education at the undergraduate level is usually deficient for several reasons: There are not enough teachers with adequate training and education is oriented toward specific subject matters or crops, with the idea of solving the problems using the same methodology that was successfully applied in developed, temperate countries, where socio-economic conditions are totally different.

3) There is a substantial gap between developing or adapting appropriate technology for the small farmer, and the adoption of it. Usually the extension services lack resources and they are isolated from the sources of adequate technology.

Therefore, it is evident that there exists a need for improving the capacity and capability of the national research entities and their staff, so that they are able, with the resources available, to define or develop more appropriate technological packages for small farmers and develop models to accelerate the transfer of this technology at the level of the small farmer within his socio-economic framework.

## II. CATIE

The Centro Agronómico Tropical de Investigación y Enseñanza, CATIE, was created in 1973 as an autonomous, non profit regional agricultural research and educational institution, by the joint action of the Government of Costa Rica and the Inter-American Institute of Agricultural Sciences of the Organization of the American States. It was legally established in Costa Rica as a civil association to serve primarily the countries of Central America, through their national entities.

CATIE's main thrust is on farming systems involving crop, animal and forestry production. In the execution of this thrust the main emphasis is on research at the farm level on an interdisciplinary basis, to provide alternative methodologies to produce technologies applicable for small farmer situations. The work is carried out in a collaboration network of individuals and institutions throughout the region.

Although CATIE is presently providing the major leadership, the idea, is not to perpetuate the Center as an institution devoted to carry out its own research, but, instead, to stimulate and guide technical personnel in each of the countries on how to conduct it according to their needs; consequently, training is an important new issue within CATIE's activities as a step toward strengthening the national institutions.

### 1. Training at CATIE

Through individual programs and projects, which include the graduate program with the University of Costa Rica, intensive and short courses, seminars, workshops and in-service training, CATIE has already provided substantial training to a considerable number of people from different countries. In an attempt to further organize and augment CATIE's training capability, it was created a Sub-Directors Office for Training and Technical Cooperation. Under this office, there will be a unit for coordination and execution of an overall educational program within the general philosophy of CATIE. It will cover different levels of training and hopefully will increase the national capabilities in the near future.

CATIE's present training activities are briefly described below:

- a) Intensive courses. The duration and cost of the formal graduate education makes it difficult to train the required personnel in a short period of time. Therefore, to upgrade the capacity of the countries, especially in research and teaching, and to update the knowledge of the nationals, CATIE has a series of intensive courses. They are authorized by the Graduate Program and are taught jointly by local staff and specially invited Ph.D. scientists, for the benefit of the Latin American professionals. They last six weeks covering a specific matter. For those participants that pass the examination and wish to become a regular graduate student of the Program, a number of credits are recognized.
- b) Short courses. This type of training makes possible the fast updating of a large number of people, in a more economical way. It provides "refresher" training for personnel already involved in production and extension activities, and strengthens the capacity of new staff in national institutions. The updating of knowledge, in a short period of time (two to four weeks), at low cost, is of vital importance to benefit national institutions which, for budgetary as well as for functional reasons, can not afford to divert key personnel for a long period such as it is required for regular graduate training. The short courses are oriented primarily to improving the capacity of personnel in the Central American Isthmus.
- c) Seminars and Workshops. To interest the technician as well as the administrator, in specific activities of CATIE or in new available knowledge, CATIE has a series of one to two weeks seminars or workshops designed primarily for personnel within the Central American Isthmus. Due to the active participation of the personnel involved, there is usually a very fruitful interchange of experiences and a feed back from the participants to CATIE staff. This type of activity is carried out at headquarters, but in the future, research sites in the countries will also be used.
- d) In-Service Training. This presents another alternative

by which the national staff of the Central American Isthmus receive personal attention, working on specific problems, during a time span which is intermediate between short courses and graduate training. Usually, it requires two or three months working side by side with CATIE staff and with experienced national personnel in a particular area of agriculture, animal husbandry, or forestry production.

- e. Graduate Program. Since 1948 until 1973, the Inter-American Institute of Agricultural Sciences awarded the Master of Science degree. In 1973 CATIE signed an agreement with the University of Costa Rica to continue the Graduate Program at Turrialba, and at the present time more than 60 students from Latin America are involved. The Program as a whole is under the academic regulations of the University and it is oriented within CATIE's research objectives. Graduate students are trained toward production systems and exposed to the interdisciplinary approach to research which provides them with a better understanding of their role in the agricultural development of small farmers. This Program will continue with a Latin American scope, but with a limited number of participants.

Most of the training activities described above take place either at CATIE's headquarters or in the countries of the Isthmus. The idea is to intensify short time training, as resources become available.

Due to CATIE's cooperative research and outreach programs in cropping systems, animal husbandry, and forestry production, and interest in the expansion of non-degree training courses has been awakened.

In several meetings, during the second semester of last year, the Ministers of Agriculture of the Central American countries have expressed the need for further support to the role that the Center should play in this important matter.

## 2. Transfer of Technology

CATIE is conscious that the process of transferring the appropriate technology is primarily a national responsibility;

the aim is to assist national institutions in seeking and developing more appropriate and effective models or strategies in the mass transfer of advantageous new technologies for the benefit of the small farmer. The rationale behind is that appropriate technology once developed, should not rest on the desk of the researchers, and therefore, the task is to design and spread models to accelerate that process, in order to increase the production and productivity of the small farmer. The plan consists in initiating a program with national institutions to study models for the transference of technology.

### III. THE PROPOSAL

CATIE is submitting this proposal with a view toward strengthening its own capabilities in the development and backstopping of programs in Central America.

This proposal is structured contemplating a five year plan to cover the six countries of the Isthmus and fits within CATIE's overall training program for that period.

#### 1. OBJECTIVES

##### A) General Objectives

- a. To strengthen the capacity and capability of the national institutions in the six countries of the Central American Isthmus for developing or adopting appropriate technologies for the small farmer and to accelerate their transfer, in order to improve agricultural production and productivity, and therefore, the living conditions of the small farmer.

##### B) Specific Objectives

- a. To train enough national personnel with sufficient knowledge on crops, forestry, and livestock production to face the problems of their individual countries by developing techniques to meet their needs.
- b. To provide "refresher" training and to strengthen the capability of new staff in national institutions through short-term training.
- c. To increase the participation of the professionals

of the Central American Isthmus in CATIE's Graduate Program through the stimulus of providing scholarships.

- d. To study models for accelerating the process of transferring adequate technology at the small farmer level.

## 2. GOALS

- a. To provide specific training for 60 persons by means of in-service training.
- b. To provide general information on agricultural problems through seminars and workshops for 210 people to make them aware of production problems.
- c. To train 1120 technicians and professionals on general topics by means of short courses.
- d. To train 120 national research and teaching staff through intensive courses at the graduate level.
- e. To provide scholarships for the graduate training of 12 professionals within the five year span of the proposal.
- f. To establish at least one model of accelerating the transfer of technology in each country.

## 3. STRATEGY

### A) Personnel

In order to increase the Center's training activities to perform the task desired, there is a need to appoint two new specialists, at least at the M.S. level, and some sub-professional and support staff to cover certain activities such as the organization of courses, the production of audio-visual and printed materials and technical communications.

- a. A Training Coordinator will be required to obtain and discuss priorities of the subjects on which the short-term training should emphasize in each country and in the region as a whole. He must evaluate the resources already available to avoid duplications and to establish the areas of more urgent needs. He will be required to put together the training activities and to supervise the arrangements for programs, co-sponsoring institutions, speakers and places of training.

- b. A Communications Specialist whose main initial function will consist in promoting the training activities as well as generating the the written and printed material to be distributed in the different training events. At the same time, he will evaluate the Mass Communication Program in the areas where research is in process, to eventually serve in the models helping to accelerate the transference of the generated technology.

The Training Coordinator and the Communications Specialist will help in their own fields at the Center's level and will contribute directly in parts of the training courses at both, the graduate and other levels.

B) Training Activities

- a. An in-service training will be established to prepare personnel on highly specialized topics during a three month period, both at CATIE and in the countries where there is staff available.
- b. Information Seminars and Workshops will last one week and deal with both administrative and technical subject matters. They will be mostly oriented to generate added interest in new approaches for the development and tranfer of technology.
- c. Short Courses will comprise general production problems, and will be given in the countries other than Costa Rica. Topics will be covered by CATIE staff as well as guest speakers.
- d. Intensive Courses will be taught mostly at CATIE because of the organization and support required to hold them. Attendants holding a B.S. degree may apply for obtaining credits at the Graduate Program, if they pass the course. Courses at this level will be taught in cooperation with several known high level guest speakers. The courses will cover very specific fields, and their duration will be six weeks.
- e. Fellowship Program, necessary to increase the research capacity of the Central American countries to train at least two B.S. gradyates from each country in the Graduate Program. Their thesis work could eventually help in the work related to training and communications.
- f. Transfer of Technology. Since this activity is a



new one at CATIE, an attempt will be made initially to establish a model in one of the countries which will serve and help the Center to obtain knowledge on methodology and theory, as well as to provide training. The model should be located in a defined area where research work is already under way, and where the efforts from different disciplines can be concentrated.

- g. Equipment. The largest initial requirements will be for transportation. A small bus is recommended. A portable communication unit for duplication of training material on the spot, audiovisual equipment for headquarters are also recommended.

The courses and activities indicated in the Calendar of Events and budgeted in the following pages have been designed as part of a general training program; by themselves they are capable of accomplishing the general training objectives.

IV. CALENDAR OF EVENTS 1979-1983

Year	COURSES				INFORMATION SEMINARS	IN-SERVICE TRAINING 3 months	TOTAL PARTIC- IPANTS
	Intensive	Short					
	courses 6 weeks ipants	courses 4 weeks ipants	partic- courses 2 weeks ipants	partic- seminars 1 week ipants	partic- ipants	partici- pants	
1979	1	1 + 2*	120	4* 160	1 35	12	367
1980		1 + 2*	120	4* 160	1* 35	12	327
1981	1	1 + 2*	120	4* 160	1 + 1* 70	18	408
1982		1 + 2*	120	4* 160	1 + 1* 70	18	368
1983	1*	-			"		40
	3	12	480	16 640	6 210	60	1510

\* Outside CATIE

## V. BUDGETARY CONSIDERATIONS

The following budget which includes all activities described previously, has been prepared for a five years periods.

The highest concentration of expenditures occurs in the first three years. From 1982, CATIE will absorb most of the expenses regarding personnel as well as training activities

**BUDGET: SHORT COURSES AT GRADUATE LEVEL, SHORT COURSES AT OTHER LEVELS,  
IN-SERVICE TRAINING, AND INFORMATIVE SEMINARS**

	1979	1980	1981	1982	1983	TOTAL
Short Course Graduate	46.000	46.000	46.000	52.000	144.000	
Short Course Other levels	98.000	98.000	98.000	98.000	392.000	
Information Seminars	10.800	15.660	26.460	26.460	79.380	
In Service Training	36.000	36.000	54.000	54.000	180.000	
<b>TOTAL</b>	<b>190.800</b>	<b>149.660</b>	<b>224.460</b>	<b>178.460</b>	<b>52.000</b>	<b>795.380</b>

**NOTE:** Differences in course budget are established by: 1) Whether the course is given at CATIE or in other countries, 2) Number of scholarships involved, 3) Duration

BUDGET: SCHOLARSHIPS (IN US\$)

DISCIPLINES	1979	1980	1981	1982	TOTAL
ANNUAL CROPS	(1) 8.000	(2) 16.000	(2) 16.000	(1) 8.000	48.000
PERENNIAL PLANTS	(1) 8.000	(2) 16.000	(2) 16.000	(1) 8.000	48.000
RENEWABLE NAT. RES.	(1) 8.000	(2) 16.000	(2) 16.000	(1) 8.000	48.000
CATTLE AND SMALL AN.	(1) 8.000	(2) 16.000	(2) 16.000	(1) 8.000	48.000
<b>TOTAL</b>					<b>192.000</b>

BUDGET: PERSONNEL (IN US\$)

	1979	1980	1981	TOTAL
<u>PROFESSIONAL STAFF</u>				
Training Coordinator (M.S.)	<sup>A.M</sup> 35.000	35.000	35.000	105.000
Communications Specialist (M.S.)	<sup>A.N</sup> 35.00	35.00	35.00	105.000
<u>SUB PROFESSIONAL STAFF</u>				
Technician (audio visual), Secretary and typist	23.000	23.000	23.000	69.000
<b>TOTAL</b>	<b>93.000</b>	<b>93.000</b>	<b>93.000</b>	<b>279.000</b>

BUDGET: MATERIALS AND EQUIPMENT (IN US\$)

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	1979	1980	1981	TOTAL
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VEHICLES				
Bus & Operation	15.000			15.000
EQUIPMENT AND MATERIALS				
Mimeographs, slide projector Overhead projector, typewriter, publications, photo slides	20.000	5.000	5.000	30.000
PRINTING EQUIPMENT	15.000			15.000
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TOTAL US	50.000	5.000	5.000	60.000
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BUDGET PER YEAR (IN US\$)

ITEM	1979	1980	1981	1982	1983	TOTAL
<u>PERSONNEL</u>						
Professional Staff	70.000	70.000	70.000			210.000
Sub-Professional Staff	23.000	23.000	23.000			69.000
<u>Scholarships</u>	<u>32.000</u>	<u>64.000</u>	<u>64.000</u>	<u>32.000</u>		<u>192.000</u>
Short Courses Graduate	46.000		46.000		52.000	144.000
Short Courses other levels	98.000	98.000	98.000	98.000		392.000
In Service Training	36.000	36.000	54.000	54.000		180.000
Infor. Seminars	10.8000	15.660	26.460	26.460		79.380
Vehicles	15.000					15.000
Equipment and material	20.000	5.000	5.000			30.000
Printing Equipment	15.000					15.000
<b>TOTAL</b>	<b>365.800</b>	<b>311.660</b>	<b>386.460</b>	<b>210.460</b>	<b>52.000</b>	<b>1.326.380</b>
	<b>333.8</b>	<b>247.660</b>	<b>322.460</b>	<b>177.460</b>		<b>1.134.380</b>
<i>Training alone</i>	<i>190.8</i>	<i>149.66</i>	<i>184.46</i>	<i>178.460</i>	<i>52.0</i>	<i>755.38</i>

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795.380

BUDGET SUMMARY (IN US\$)

Personnel	279.000
<del>Scholarships</del>	<del>192.000</del>
Short Courses Other Levels	144.000
In-Service Training	392.000
Information Seminars	180.000
Vehicle, Equipment	79.380
and Material	60.000
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TOTAL	1.326.380
	1.134.380