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SERIE INTERNACIONAL DE DOCUMENTOS
INFORMACION Y COMUNICACION AGRICOLA

26 JUL 1982

CITA — TURRIALBA COSTA RICA

AGRICULTURAL TRAINING IN THE CENTRAL AMERICAN ISTHMUS

TECHNICAL REPORT
JULY 1981-JUNE 1982



C912



Ed

Institutional Series
Progress Report N° 38

CENTRO INTERAMERICANO DE COMERCIALIZACION
INFORMACION Y COMUNICACION AGRICOLA

20 JUL 1982

CIDIA — TURRIALBA, COSTA RICA

**AGRICULTURAL TRAINING IN THE CENTRAL
AMERICAN ISTHMUS PROJECT**

**TECHNICAL REPORT
JULY, 1981 - JUNE, 1982**

TROPICAL AGRICULTURAL RESEARCH AND TRAINING CENTER

C A T I E

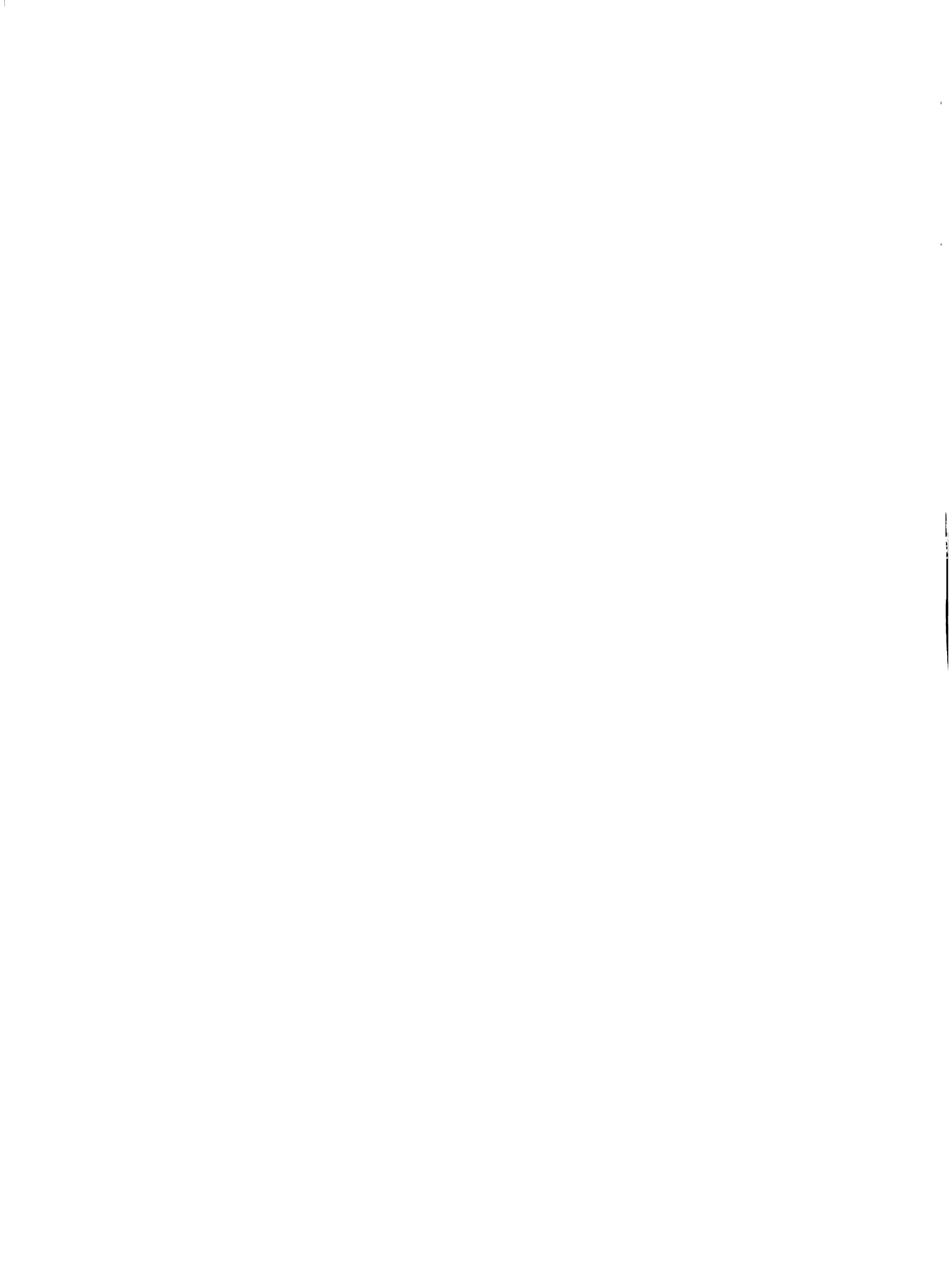
Turrialba, Costa Rica

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SUMMARY

The Agricultural Training in the Central American Isthmus Project is carried out by CATIE and financed by the W. K. Kellogg Foundation through the Pan American Development Foundation. Its activities were initiated in July, 1979 for four years; at this time (June 30, 1982), the first three years of the Project's life are summarized.

Its activities are focused within a conceptual framework which contemplates specific thematic areas of agricultural, animal and forestry production directed toward the renewal and complementation of the necessary skills for the national institution technicians' work related to agroforestry development in the Central American Isthmus through short courses, seminars, workshops and in-service training.

Likewise, in each training event we are trying to remain not only with the mere physical presence of the student in the classroom or the classical two-way contact between the professor and the student, but to complement this action with the preparation of various educational media, which are specifically designed to be utilized as auxiliary training materials or as products resulting from the practical work done by the participants. The use of these materials is expressed in two ways: they make possible the recording and maintaining of up-to date information and knowledge presented in the training events carried out, and they also utilize information and knowledge in other environments, places and formal and informal training activities.

Between July, 1979 and June, 1982 a total of six intensive courses have been carried out on aspects of animal production, horticulture, soils, cocoa and librarianship with an average duration of 4 weeks and 161 participants, all of whom are

dedicated to training and research activities. Likewise, considering the action of the extensionist, credit agent and technical assistance, a total of 23 short courses were developed; 8 of them were of regional covering and 15 of national. In these courses specific thematic areas of animal, crop and natural renewable resources production were dealt with. A total of 547 technicians from the different national institutions of the Central American Isthmus attended these events.

Considering the problems presented in agricultural development, a total of 8 seminars and workshops have been carried out with the participation of 270 technicians who worked and researched in the areas of perennial crops, agricultural production, meat cattle, and wildlands management. In these events a specific problem was analysed, creating alternatives for its solution; in this way the technician is better prepared to deal with an specific problem.

One of the characteristics of this Project has been to utilize the philosophy of "learning by doing"; within this aspect a diversity of in-service trainings were designed, in which the participant confronts and finds solutions to real problems. These in-service trainings have been executed within the associated works of the research projects of this Center, and had an average duration of 4 months with the attendance of 111 technicians, who have been trained in soils analysis and in the use of agricultural systems research, wildlands management, cocoa production, weed control and agricultural librarianship.

Actually, all of the executed events, considering their regional distribution and content, correspond to the plans and goals of the Project, which are directed toward the countries of the Central American Isthmus, to strengthen their national institutions in selected areas of agricultural,



animal and forestry sciences. In quantitative terms, the Project have developed a rate of about one course per month, with an average attendance of about 150 participants per country.

If only the total number of technicians who have participated in the training activities of this Project, during the first three years of its execution, is considered, it has certainly contributed to increase the levels of knowledge, skills and abilities of a total of 1089 Central American technicians, which is equivalent to 2100 man/weeks of work; if you add to this the efforts made by the technicians of CATIE, the invited speakers, the support personnel, and the coordinating team, it is possible to understand the magnitude of the contribution being made by the W. K. Kellogg Foundation and CATIE within the Project of Agricultural Training, to improve the preparation of human resources in the agricultural sector of the Central American Isthmus.

INTRODUCTION

The Agricultural Training in the Central American Isthmus Project is carried out by the Tropical Agricultural Research and Training Center, CATIE, with support from the W. K. Kellogg Foundation, through the Pan American Development Foundation.

This Project has a four year duration, from July, 1979 to June, 1983.

The Project is directed toward the building up or renewing of the necessary skills for the work of the technicians of the national institutions concerned with agroforestry development of the Central American Isthmus, by means of short courses, seminars, workshops and in-service training on specific themes.

Each year a report of the Project activities is prepared. The purpose of this annual report is to provide information as a basis for continued funding of the Project.

In addition, CATIE requires quarterly reports on the development of the Project. These are included in the annual report requested by the supporting Institution.

The present report of the third year of the Project includes activities from July, 1981 to June, 1982,

2. CONCEPTUAL FRAMEWORK

The training events are carried out within a conceptual framework which consists of methodological, systematic and disciplinary concepts within the technical Departments of CATIE: Crop Production, Animal Production, Natural Renewable Resources and Development of Resources for Research and Training. In addition, support training events are included according to the countries' demands, which are executed considering the existing technical resources at CATIE and that of national institutions of the Isthmus. Table N^o 1 represents schematically a specific thematic concept of each Department.

The Project considers the execution of the training events under the name of intensive courses (4-6 weeks), short regional courses (2-3 weeks), short national courses (1 week), seminars, and in-service training. Likewise, for each event, the topic, the level of knowledge and its duration are considered. Figure N^o 1 schematically represents the planning of the training activities.

Through these events, CATIE develops and transfers general technical concepts generated at the Center, which are needed for the agricultural and forestry development of the Central American Isthmus.

TABLE 1. WITHIN THE CENTRAL AMERICAN ISTHMUS AGRICULTURAL TRAINING PROGRAM *

DEPARTMENT	METHODOLOGY	SYSTEMATIC	DISCIPLINARY
CROP PRODUCTION ANNUAL CROPS	Research in Agricultural Systems	Basic grain production	Soils Fertility
	Design, analysis and evaluation of alternatives in agricultural production systems	Vegetables production	Control of weeds and insects
	Research in perennial plant crop systems	Cacao production	
ANIMAL PRODUCTION	Research in animal production systems	Milk production	Aspects: nutrition, forages, genetics, reproduction and economics in the tropical milk production systems
NATURAL RENEWABLE RESOURCES	Planning and management of wildland areas		Agroforestry Technics
	Planning the use of Natural Renewable Resources		
DEVELOPMENT OF RESOURCES FOR RESEARCH AND TRAINING	Utilization of nonconventional sources of energy	Agroenvironment	Agricultural Communication process and application
	Conservation of genetics resources		Agricultural Research, management methodology and technique.

* For each year of the Project's execution, specific events will be planned, according to the program.

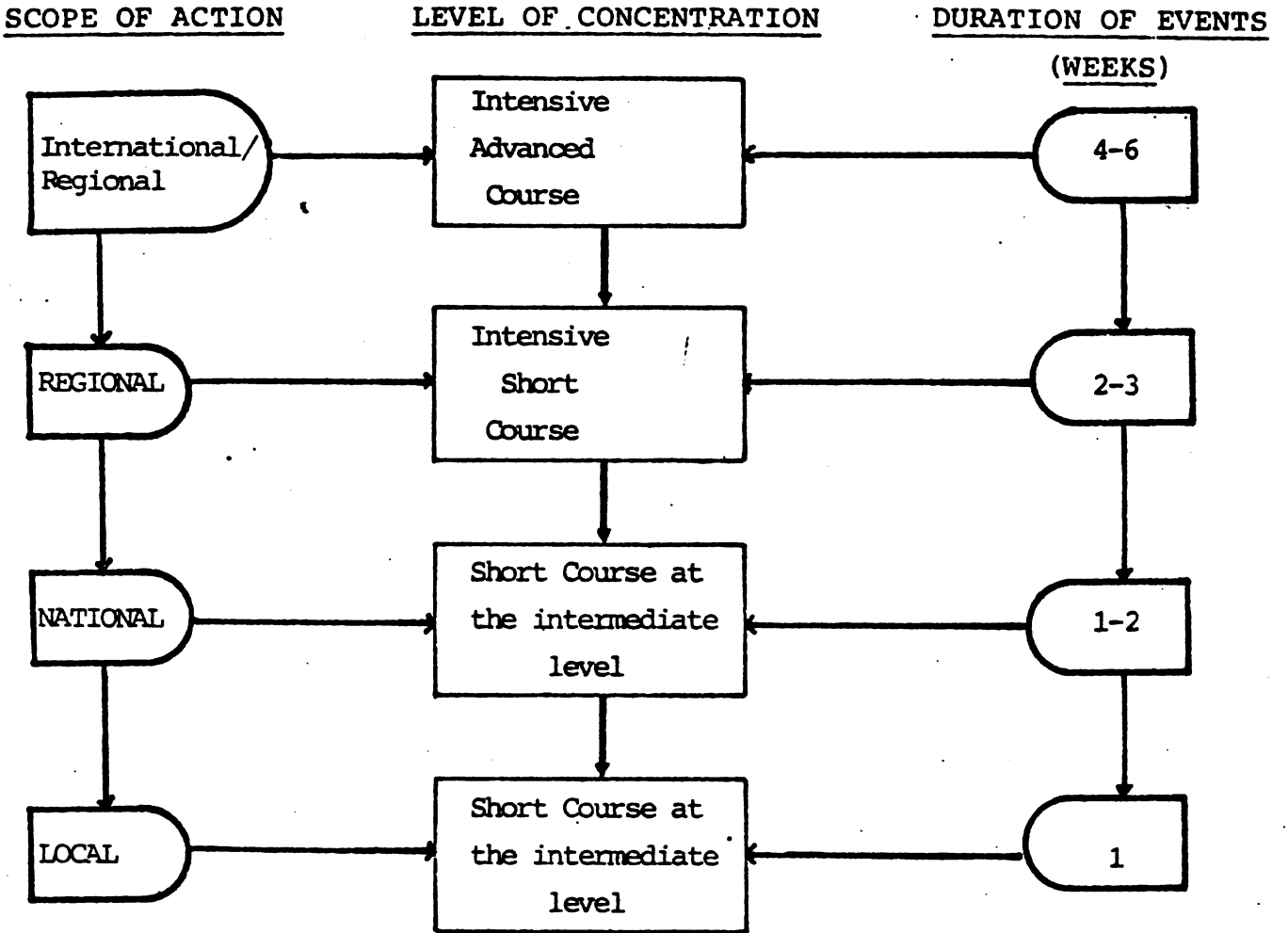


FIG Nº 1

GRAPHICAL ILLUSTRATION OF PLANNED TRAINING

ACTIVITIES

3. PERSONNEL

Table 2 shows a list of personnel who worked in the coordination and logistic support of the activities scheduled during the Project's development.

Since 1982 the Project has had two professional technicians and four support personnel; nevertheless, it was necessary to consider employing two additional workers (one to operate the composer machine and one for the offset and mimeograph printer) in order to produce the technical material used in the scheduled courses. This increase in personnel was within the specified items and did not change the budget funds.

TABLE 2. TECHNICAL AND SUPPORT PERSONNEL FOR THE PROJECT
AGRICULTURAL TRAINING IN THE CENTRAL AMERICAN
ISTHMUS. CATIE/W. K. KELLOGG

PERSONNEL	NATIONALITY	POSITION	OBSERVATION
<u>Professional Staff</u>			
Carlos U. León-Valarde*	Peruvian	Training Coordinator	Assumed completely the coordination of the Project on May 1st, 1981.
Jaime Rojas H.	Colombian	Specialist in the Production of Educational Materials	Assumed the position beginning February, 1981.
<u>Support Personnel</u>			
María E. Fernández R.	Costa Rican	Bilingual Secretary	Beginning March 16, 1981.
Hilda Jiménez B.	Costa Rican	Composer Operator/Typist	Beginning June 1st, 1979.
Fresy Ramírez E.	Costa Rican	Typist/Printing Assistant	Beginning April, 1982.
Mauricio Argueta R.	Salvadoran	Illustrator/Final Arts	Beginning June, 1981.
Francisco Solano A.	Costa Rican	Audiovisual Assistant	Beginning January, 1st, 1981.
Jorge Castro Z.	Costa Rican	Printed Operator	Beginning May 19, 1982.

* Previously, in his position as Short Term Training Coordinator, he was partially in charge of the Project, within the Training and Technical Cooperation Subdirection. On May 1st, 1981 he assumed completely the coordination of the Project. Also, he participates as a technician in the Training of Animal Production.

4. TRAINING ACTIVITIES CARRIED OUT FROM JULY, 1981 TO JUNE, 1982

The Project Agricultural Training in the Central American Isthmus defined a conceptual framework for the third year, referred to in Figure 1 and Table 1, which served as the basis for the training events carried out.

In this way, a total of 15 training events were held, consisting of four intensive courses and two regional short courses, nine national short courses and five seminars and workshops, attended by 543 technicians from different national institutions in the Central American Isthmus (Table 2, and 3).

In addition, six in-service trainings were planned and carried out, coordinated previously with the technical departments of CATIE. Forty Central American professionals received training for 3, 4, 8 and 12 weeks in different areas, according to the technical capacity of the Center. (Table 4)

The lists of participants for each technical event have been reported in previous quarterly reports. This report includes only the list corresponding to the events held during the last quarter (April-June, 1982) of the third year of the Project's life (Appendix 8.1).

With respect to the quantitative goals established for the third year, these were accomplished in the intensive and national courses, seminars/workshops in the in-service trainings expressed as "technician-training weeks" of which 95% of the proposed events were carried out. In a similar way, 67% of the scheduled regional short courses were given, being below the desired number of participants (30 in relation to the 90 scheduled). This situation was due to the fact that they were scheduled at CATIE with a duration of 2 weeks each, and when the transportation costs were considered,

in relation to the daily cost a mayor participation is impossible. It is hope that the next regional events will be held in a country in which a small group of participants from the other countries of the area will be able to attend to complement the total number of nationals attending.

Table 2. INTENSIVE AND SHORT COURSES IMPLEMENTED UNDER THE PROJECT "AGRICULTURAL TRAINING IN THE CENTRAL AMERICAN ISTHMUS". JULY, 1981 - JUNE, 1982.

TITLE OF EVENT	COURSE	DATE		WEEKS	N° PARTI- CIPANTS	PLACE
		BEGINNING	ENDING			
Use of Statistical Methods in Research Systems	Regional	3/8/81	14/8/81	2	17	Costa Rica
Cacao Production	Intensive	16/9/81	12/10/81	4	21	Costa Rica
Weed Control	National	18/9/81	2/10/81	1	29	Nicaragua
Forages Production	National	12/10/81	16/10/81	1	40	Dominican Republic
Animal Production	Intensive	12/11/81	4/12/81	5	34	CATIE
Horticulture Production	National	7/12/81	11/12/81	1	26	Nicaragua
Cacao Production	National	15/12/81	18/12/81	1	17	Costa Rica
Experimental Design	National	30/11/81	4/12/81	1	21	Nicaragua
Fertility and Soil Conservation	Intensive	1/2/82	5/3/82	5	27	CATIE
Agroenvironment	Regional	22/2/82	5/3/82	2	13	CATIE
Cacao Production	National	11/1/82	15/1/82	1	32	Dominican Republic
Agricultural Systems Research	National	29/3/82	2/4/82	1	29	Dominican Republic
Research Methodology in Crop Production	National	19/4/82	23/4/82	1	24	Panama
Interpretation and Programming of Experiments	National	26/4/82	30/4/82	1	25	El Salvador
Horticulture Production	Intensive	19/10/81	27/11/81	6	29	Honduras

SUMMARY:	TOTAL:	PARTICIPANTS	384
Intensive Course	4	114	
National Short Course	9	240	
Regional Short Course	2	30	
TOTAL	15	384	

Table 3. SEMINARS AND WORKSHOPS IMPLEMENTED UNDER THE PROJECT AGRICULTURAL TRAINING IN THE CENTRAL AMERICAN ISTHMUS; JULY, 1981 - JUNE, 1982.

TITLE OF EVENT	COURSE	DATE		WEEKS	N° PARTI- CIPANTS	PLACE
		BEGINNING	ENDING			
Wildland Planning and Management	Regional	31/8/81	26/9/81	4	25	Costa Rica
Analysis and Evaluation of Agricultural Systems	National	21/9/81	26/9/81	1	4	El Salvador
Crop Systems Research	National	3/12/81	6/12/81	1	27	Nicaragua
Inter-estival Agriculture	National	17/11/81	19/11/81	3*	41	El Salvador
Beef Cattle Research in Costa Rica	National	28/5/82	28/5/82	1*	62	Costa Rica

TOTAL: Five seminars and workshops

PARTICIPANTS = 159

* Days of length

**TABLE 4. IN-SERVICE TRAINING EVENTS IMPLEMENTED UNDER THE PROJECT
AGRICULTURAL TRAINING IN THE CENTRAL AMERICAN ISTHMUS
JULY, 1981 - JUNE, 1982**

TITLE OF EVENT	BEGINNING	ENDING	WEEKS	N ^o PARTI- CIPANTS	TOTAL WEEKS/ PARTICIPANTS
Systems Characterization	7/9/81	2/10/81	4	15	60
Agricultural Lybrarianship	2/11/81	27/11/81	4	3	12
Soil and Plant Analysis	2/11/81	27/11/81	4	8	32
Wildland Planning and Management	10/12/81	9/3/81	12	6	72
Management of Soil Fertility on Small Farms	12/4/82	30/4/82	3	7	21
Conservation of Genetics Resources	12/4/82	11/6/82	8	1	8
TOTAL = six in-service training events			TOTAL =	40	205

5. PRODUCTION OF EDUCATIONAL MATERIAL

The production of educational material corresponds to the contents of each training event. For each one, CATIE tries to have printed technical didactic material ready to give out to each participant attending the scheduled event. However, since many times it is impossible to have a formal publication ready, a photocopy of some text is then made, for the immediate use of the participants.

The efforts being made to produce educational materials are oriented toward the definition of technical materials of greater use and value for agroforestry development in Central America.

During the third year of execution of the Project, several technical materials were made, in order to strengthen each scheduled event. Some of them were produced in paperback.

In Table 5 the technical materials produced during the events carried out are listed; these materials are of great value and demand; nevertheless, their edition is short, because they have a good technical revision but they lack a good editing.

With regard to the audiovisual materials, the ones related to the Shade of Cacao, Witch Broom and Farms Diagramming were used in its preliminary editions, because the volume of the technical material has made its conclusion impossible, which impedes the diffusion of its contents on aspects that will be carried out during the second semester of 1982.

TABLE 5. EDUCATIONAL MATERIAL PREPARED IN THE TRAINING EVENTS DEVELOPED DURING JULY, 1981 TO JUNE, 1982 WITHIN THE PROJECT FOR AGRICULTURAL TRAINING IN THE CENTRAL AMERICAN ISTHMUS, CATIE, W. K. KELLOGG

EVENT	TECHNICAL MATERIAL
FORAGES PRODUCTION	Tropical Agricultural Research and Training Center. <u>Production and Utilization of Forages in the Tropics: Summary</u> ; Turrialba, Costa Rica. 1981. 190 p. (offset).
ANIMAL PRODUCTION	Tropical Agricultural Research and Training Center. <u>Cattle Production Systems with Emphasis in Dairy: Conferences</u> . Turrialba, Costa Rica. 1981. 464 p. León-Velarde, Carlos U. <u>Dairy Cattle Management Systems in the Tropics</u> . CATIE, Turrialba, Costa Rica. 1981. 58 p. (offset).
WEED CONTROL	Myron, Shenk, et al. <u>Weed Control in Cacao</u> . CATIE, Turrialba, Costa Rica. 1981. 106 p. (Mimeograph)
COCOA PRODUCTION	Enríquez, G. A. and Soria, J. <u>Genetic Improvement for Resistance of Five Cocoa Diseases</u> . CATIE, Turrialba, Costa Rica. 1981. 35 p. Enríquez, Gustavo. <u>Cocoa Production Course, Third Edition</u> . CATIE, Turrialba, Costa Rica. 1982. 124p. (mimeograph) Martínez, Alfonso y Enríquez, Gustavo. <u>The Shade of Cocoa</u> . CATIE, Turrialba, Costa Rica. 1981. 93 p. (offset) Saunders, Joseph. <u>Pest Control</u> . CATIE, Turrialba, Costa Rica. 1981. 8 p. (mimeograph) Enríquez, Gustavo. <u>Cocoa Plant Breeding</u> . CATIE, Turrialba, Costa Rica. 1981 17 p. (mimeograph) Suárez Capello, Carmen. <u>Pathology of Cocoa</u> , CATIE, Turrialba, Costa Rica. 1981. (mimeograph) Tropical Agricultural Research and Training Center. <u>Cocoa Production. Summary</u> . Turrialba, Costa Rica. 1981. Fourth Edition. 300 p. (in printing)

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EVENT	TECHNICAL MATERIAL
HORTICULTURE	Holle, Miguel, et al. <u>Horticulture Production</u> , CATIE, Turrialba, Costa Rica, 1981. (mimeograph)
AGROENVIRONMENT	Tropical Agricultural Research and Training Center. <u>Agroenvironment: Short Course</u> . Conferences. Turrialba, Costa Rica. 1981 280 p. (offset)
FERTILITY AND SOIL CONSERVATION	Tropical Agricultural Research and Training Center. <u>Fertility and Soil Conservation: Short Course</u> . Conference. Turrialba, Costa Rica. 1982. 200 p. (in printing).
WILDLAND PLANNING AND MANAGEMENT	Barborak, J. <u>Outdoor Recreation Management</u> . Reproduction of Jubenille A. Outddor Recreation Management. CATIE, Turrialba, Costa Rica. 1981. 29 p. (mimeograph)
	MacFarland, Craig. <u>Manuel Antonio National Park Management Plan</u> . CATIE, Turrialba, Costa Rica. 1981 75 pages (mimeograph)
BEEF CATTLE RESEARCH	Tropical Agricultural Research and Training Center. <u>Beef Cattle Research in Costa Rica</u> . Diagnostic about Research 1953-1980. Final Report. First Phase. SEPSA/CONIAGRO, San José, Costa Rica. 1981. 98 p.

6. SCHEDULED ACTIVITIES UNTIL DECEMBER, 1982

The fourth year of the Project's execution started in July, 1982 and will end in 1983; therefore, the first semester involves the planning of CATIE's activities for 1982.

For the year of 1982, the planning of activities will be carried out in July; thus, the technical report for the first quarter of the fourth year (July-September), will include the details on this respect.

Table 6 shows the planning of activities to be carried out within the Project until December, 1982, and it also includes the activities of the first semester of the fourth year of execution.

TABLE 6. SCHEDULED ACTIVITIES UNTIL DECEMBER, 1982

KIND OF EVENT	TITLE OF EVENT	PLACE	DATE
INTENSIVE COURSE	Cocoa Production	CATIE	July, 26-Aug. 21
	Production and Utilization of Tropical Forages	CATIE	Nov. 1-Dec. 3
REGIONAL COURSE	Management and Analysis of Data Research	Costa Rica	Aug. 30-Sep. 10
NATIONAL COURSE	Research with Agricultural Systems Methodology	El Salvador	July, 12-16
	Nutritional Aspects in Dairy Cattle Production Systems	Dominican Republic	July, 19-23
	Analysis and Evaluation of Crop Systems	Nicaragua	July, 26-30
	Dairy Cattle Production Systems Administration	Honduras	August, 12-16
	Analysis and Evaluation of Cropping Systems	Panama	Sep. 20-24
	Dairy Cattle Production Systems	Nicaragua	Sep. 27-Oct. 1
	Experimental Design on Agricultural Systems	Guatemala	Oct. 18-29
	Administration and Management of Production Systems	Dominican Republic	Oct. 25-29
IN-SERVICE TRAINING	Agricultural Librarianship	CATIE	July, 5-30
	Cocoa Production	CATIE	Oct. 3-16
	Soils and Crop Tissue Analysis	CATIE	Nov. 1-26

COMMENTS

During the first semester of the first year of the Project's execution, only three activities were carried out, because the Project was just being started and its activities had to be planned and strengthened.

This fact affected, partially, the second semester and apparently there was a delay in the quantitative objectives of the Project.

Therefore, after the second semester of the year 1980, in which the second year of the Project was initiated, its activities started to develop and in the third year, (July, 1981-June, 1982) the Project is in its greatest activity.

However, in overall terms, the Project has accomplished quantitatively its proposed goals with favorable and beneficial results which are not easily measured, but which are indicated in the evaluations of each event, as well as by the demand for attendance in the courses and letters received relative to the execution of the programmed events.

In this respect, there is a demand from countries outside the Central American Isthmus, especially for the intensive courses, to which CATIE accepts previously selected candidates having their own sources of financing. The rest of the accepted candidates which have no financing whatsoever can not attend. These latter cases are not numerous, but it would be feasible to be able to offer partial financing by the Project to those professionals that belong to national institutions which can show evidence that they do not have funds to train their personnel, but which very much need this training, or to those persons that have limited resources to whom partial aid could be offered.

In this way, it would be feasible and beneficial to expand partially the Project to other areas of the American Tropics where CATIE is working.

8. APPENDIX

- 8.1. Programs and participants of the Training events implemented under the Project Agricultural Training in the Central American Isthmus.

April-June, 1982

CENTRO AGRONÓMICO TROPICAL DE INVESTIGACIÓN Y ENSEÑANZA
CATIE, Turrialba, Costa Rica

CURSO

METODOLOGIA DE INVESTIGACION EN
PRODUCCION VEGETAL

(Program in Spanish)



RESEARCH METHODOLOGY IN CROP

PRODUCTION

NATIONAL COURSE

(Panama)

April 19-23, 1982

PARTICIPANTS	COUNTRY
1. Rubén De Gracia	PANAMA
2. Ileana Broce	PANAMA
3. Gisela de Rodríguez	PANAMA
4. Rafael Sattler	PANAMA
5. José Román Araúz	PANAMA
6. Felipe González O.	PANAMA
7. Leonardo Marcelino	PANAMA
8. José Alberto Yau Quintero	PANAMA
9. Román Gordón M.	PANAMA
10. Roberto Rodríguez	PANAMA
11. Marco A. Navarro	PANAMA
12. Santander Jaramillo	PANAMA
13. Marciano Rodríguez	PANAMA
14. Lineth Carranza de Lamboglia	PANAMA
15. Eric Quirós Rodríguez	PANAMA
16. Ricardo Hernández	PANAMA
17. Ismael Camargo	PANAMA

...../

..... (Cont.)

- | | |
|-----------------------|--------|
| 18. Kilmer Von Chong | PANAMA |
| 19. Alejandro Delgado | PANAMA |
| 20. Eric H. Batista | PANAMA |
| 21. Carmen Bieberach | PANAMA |
| 22. Marco Navarro | PANAMA |
| 23. Ricardo Hernández | PANAMA |
| 24. Edgar A. Vergara | PANAMA |

METODOLOGIA DE INVESTIGACION EN PRODUCCION VEGETAL

LUGAR: David, Panamá

FECHA: 19-23 de abril, 1982

PROGRAMA

<u>FECHA</u>	<u>TEMA</u>	<u>RESPONSABLE</u>
19 de abril		
8:00-9:00 a.m.	Inscripción	
9:00-9:30 a.m.	Inauguración	Rodrigo Tarté
10:00-11:30 a.m.	Inauguración del laboratorio de Entomología (Programa Especial)	
11:30-2:00 p.m.	Almuerzo	
2:00-3:00 p.m.	Investigación en sistemas de finca. Conceptos	Luis Navarro
3:00-3:30 p.m.	Café	
3:00-4:30 p.m.	Una metodología para el desarrollo de tecnología agrícola aplicada para pequeños agricultores de un área específica.	Luis Navarro
20 de abril		
8:00-10:00 a.m.	Priorización y caracterización de áreas específicas.	Luis Navarro
10:00-10:30 a.m.	Café	
10:30-11:30 a.m.	Diseño de opciones tecnológicas en sistemas de producción de cultivos.	Raúl Moreno



<u>FECHA</u>	<u>TEMA</u>	<u>RESPONSABLE</u>
20 de abril (cont.)		
3:30-4:00 p.m.	Café	
4:00-5:00 p.m.	Introducción al trabajo en grupo: Caracterización de la producción de arroz en Progreso, Panamá.	Raúl Moreno Luis Navarro
21 de abril		
8:00-12:00 a.m.	Grupos de trabajo (Gira al campo)	Raúl Moreno Luis Navarro
12:00-2:00 p.m.	Almuerzo	
2:00-3:30 p.m.	Etapas experimentales en la investigación de sistemas de cultivos.	José Arze
3:30-4:00 p.m.	Café	
4:00-5:00 p.m.	Etapas experimentales (cont.)	José Arze
22 de abril		
8:00-12:00 a.m.	Grupos de trabajo	José Arze Washington Bejarano Raúl Moreno Luis Navarro
12:00-1:30 p.m.	Almuerzo	
1:30-2:30 p.m.	Experimentación en sistemas de cultivo en Panamá	W. Bejarano
2:30-3:00 p.m.	Café	
3:00-4:00 p.m.	Criterios para medir sistemas de producción de cultivo.	Raúl Moreno
4:00 p.m.	Evaluación del Curso	W. Bejarano

<u>FECHA</u>	<u>TEMA</u>	<u>RESPONSABLE</u>
23 de abril		
8:00-10:00	Presentación de las mesas de trabajo	W. Bejarano
10:00-10:30 a.m.	Café	
10:30 a.m.	Clausura del curso	Omar Chavarría

CENTRO AGRONÓMICO TROPICAL DE INVESTIGACIÓN Y ENSEÑANZA
CATIE, Turrialba, Costa Rica

C U R S O

INTERPRETACION Y PROGRAMACION
DE EXPERIMENTOS

(EL SALVADOR)

(Program in Spanish)



INTERPRETATION AND PROGRAMMING OF EXPERIMENTS

NATIONAL COURSE

April 26-30, 1982

<u>PARTICIPANTS</u>	<u>COUNTRY</u>
1. Rolando Barías	EL SALVADOR
2. Arelí H. de Mira	EL SALVADOR
3. Mario Cardona	EL SALVADOR
4. Felipe de Jesús Chinchilla	EL SALVADOR
5. Gloria Cecilia Gálvez	EL SALVADOR
6. Marco Antonio Serrano	EL SALVADOR
7. Rafael Reyes	EL SALVADOR
8. Julio C. Bonilla	EL SALVADOR
9. Ana Gertrudis Alvarado	EL SALVADOR
10. Lombardo Gil Faggiolly	EL SALVADOR
11. René Clará	EL SALVADOR
12. Edgardo Duarte L.	EL SALVADOR
13. Saúl Milla Flor	EL SALVADOR
14. Willie Velásquez	EL SALVADOR
15. Francisco Urías	EL SALVADOR
16. Ricardo A. Ortíz	EL SALVADOR
17. Pedro Manuel H. Saballos	EL SALVADOR
18. Armando Alabí	EL SALVADOR
19. María Isabel de Núñez	EL SALVADOR
20. Luis Felipe Martínez	EL SALVADOR
21. Rafael Mejía Vides	EL SALVADOR

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.....(Cont.)

- | | |
|-----------------------------|-------------|
| 22. Fabio Bautista Pérez | EL SALVADOR |
| 23. Jorge Alberto Cruz C. | EL SALVADOR |
| 24. Héctor Raúl Gavidia | EL SALVADOR |
| 25. Oscar Armando Rodríguez | EL SALVADOR |



INTERPRETACION Y PROGRAMACION DE EXPERIMENTOS

PROGRAMA

TEMATICA CUBIERTA

1. PRIMER DIA

- 1.1. Exposición de las condiciones que establece un diseño experimental Bloque al Azar.

Ejemplo: Proyecto de Investigación Pecuaria (Aves)

"Efecto de raciones a base de granos y leguminosas para pollos de engorde".

- 1.2. Discusión en grupo con los planeamientos:

Sintéticamente diga las condiciones que son exigidas al experimento en Bloque al Azar.

¿Fue correcto utilizar Bloques al Azar en el experimento de dietas con gandul en pollos de engorde?

- 1.3 Exposición de las conclusiones a partir de la discusión.

Condiciones que se exigen al Bloques al Azar con un factor de estudio.

Medición de la variación local mediante repeticiones.

Medición eficiente del error experimental con ayuda del control (diferencias de peso, fertilidad del suelo, profundidad del suelo.

Todos los tratamientos se asignan dentro de cada bloque, completamente al azar.

Cuando el número de tratamientos no sea muy grande (15).

A la segunda pregunta se respondió: Que sí fue correcto el uso de Bloques al Azar en el ejemplo expuesto pero que pudo existir algún factor de planificación.

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2. SEGUNDO DIA

- 2.1. Exposición de las condiciones que se exigen a un ensayo bajo parcelas divididas. Arreglo factorial con dos factores.

Exposición de resultados del experimento:

"Evaluación de las variedades CENTA S-2 y Criollo local en rendimiento de grano, forraje y valor nutricional con diferentes niveles de fertilización".

- 2.2. Discusión del grupo con los planteamientos:

Plantée según el ejemplo: la hipótesis según sus palabras. Enseguida plantéela como hipótesis estadística.

Haga gráficas para mostrar el comportamiento de los efectos principales y por tanto la interacción de I (NxP) para cada variedad.

Plantée la estructura de Análisis de Varianza hasta G.L dada la hipótesis que usted plantea.

¿Fue buena la aplicación del diseño al tema de investigación?

3. TERCER DIA

- 3.1. Exposición de las condiciones que se han de tener en cuenta cuando se proyecta el uso de regresión o correlación.

Exposición del ejemplo: Determinación del Nivel Crítico de Población para el gusano medidor Mocis latipes Guer en el Cultivo de Arroz.

- 3.2. Discusión con los planteamientos:

Establezca la condición principal en cuanto a manipulación de variables, para decidir si se utilizará la metodología de regresión o la correlación.....

4. CUARTO DIA

Exposición como hacer:

- 4.1. Interpretación de resultados de los experimentos

"Efecto de raciones a base de grano de leguminosas para pollos de engorde".

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Evaluación de las variedades CENTA S-2 y Criollo local en rendimiento de grano, forraje y valor nutricional con diferentes niveles de fertilización.

"Determinación del nivel crítico de población para el gusano medido Mocis latipes Guer en el Cultivo de Arroz"

- 4.2. Actividad general de grupos: plantear la síntesis de sus trabajos individuales, apoyándose en el grupo y tomando consultoría estadística para llegar a la interpretación de los siguientes trabajos, ya calculados sus análisis:

René Clará. Ensayos Internacionales de Sorgo del PCCMCA.

Rolando Barillas, Dos sistemas de laboreo, dos densidades

Ricardo Antonio Ortíz. Evaluación de fungicidas contra Pyricularia en arroz.

Fabio Bautista Pérez. Epocas y dosis de pentacloro nitrobenzeno

Saúl de Jesús Milla Flor. Evaluación de plaguicidas según dosis para combate de araña roja (O. punicae)

Armando Alabí. Influencia de algunas prácticas culturales sobre adaptabilidad de plantías de café en condiciones culturales.

Julio César Bonilla. Búsqueda de fungicidas sustitutos para el seniato de plomo en el control del ajo de gallo (M. citricolor)

Sergio Lombargo Gil Faggiolly. Determinación de la dosis de oxiclورو de cobre 50% y óxido cupro 50% para combate de la roya del cafeto (H. vastatrix).

Arelí Huexo de Mira. Efecto de un nivel de infestación de gusano cogollero (S. frugiperda) en el cultivo del sorgo variedad CENTA.

Felipe de Jesús Chinchilla. Efecto de tres densidades de siembra niveles de nitrógeno en el rendimiento del guineo. variedad

Gloria Cecilia Gálvez. Control de la mancha cercospora con fungicidas de eficiencia comprobada en la roya del cafeto.

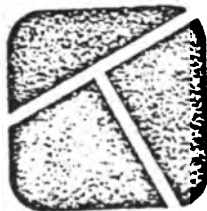
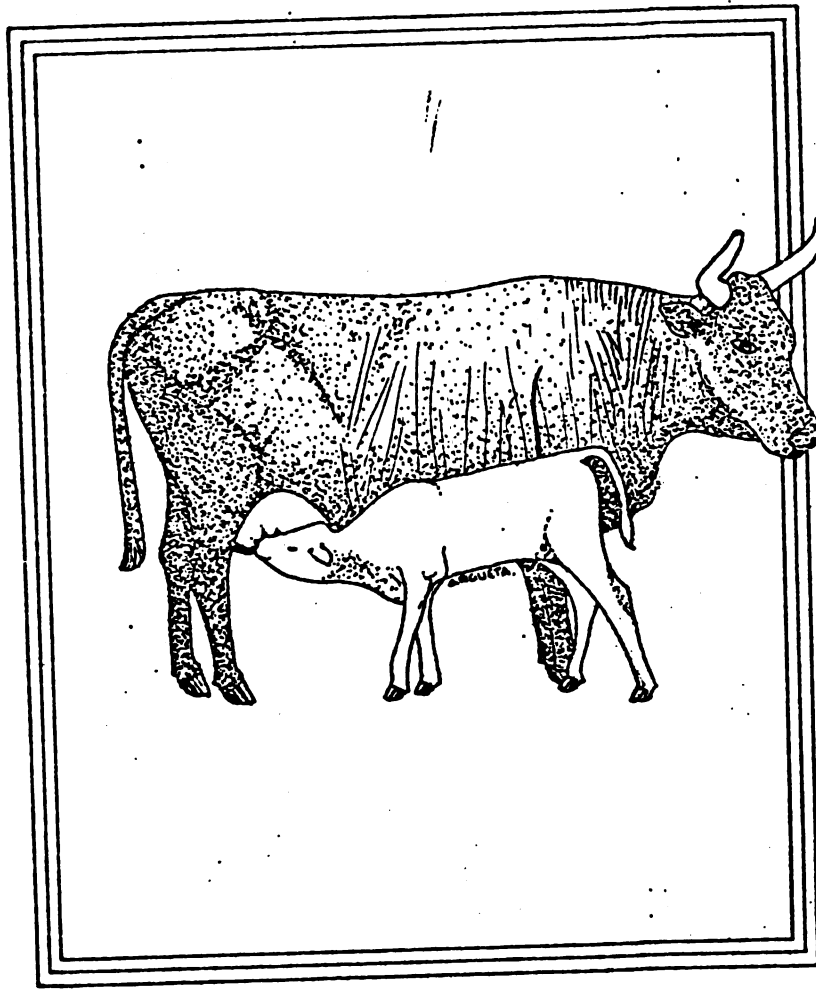
María Isabel de Núñez. Estudio del nivel crítico de boro y conservación de suelos cafetaleros en El Salvador.

Edgardo Duarte Linares. Sustitución de rastrojo de cosecha (baga de caña) en sustitución de aserrín de pino en novillos de engorde.

Exposición de los resultados y su interpretación.

LA GANADERIA BOVINA EN COSTA RICA

diagnóstico sobre la investigación 1953-1980



W. K. Kellogg Foundation



CONIAGRO

(Program in Spanish)



BEEF CATTLE RESEARCH IN COSTA RICA**SEMINAR**

May 28, 1982

PARTICIPANTS	COUNTRY
1. Rafael Molina Sánchez	COSTA RICA
2. Carlos A. Jiménez Crespo	COSTA RICA
3. Carlos Ramírez	COSTA RICA
4. Edwin Pérez Gutiérrez	COSTA RICA
5. William Rojas Ulate	COSTA RICA
6. Henry Soto Murillo	COSTA RICA
7. Teresita Camacho	COSTA RICA
8. Danilo Pezo	COSTA RICA
9. Rolain Borel	COSTA RICA
10. Guillermo Flores Matamoros	COSTA RICA
11. Edgar Cordero Madrigal	COSTA RICA
12. Víctor Manuel Prado Alvarez	COSTA RICA
13. Gerardo Guevara Rodríguez	COSTA RICA
14. Minor Leiva Canales	COSTA RICA
15. Nils Solórzano Villarreal	COSTA RICA
16. Jesús Alpízar Núñez	COSTA RICA
17. David Rodríguez Rodríguez	COSTA RICA
18. Hermando Ureña Brenes	COSTA RICA
19. Roberto González Quirós	COSTA RICA
20. Randall Arguedas Madrigal	COSTA RICA
21. José Barrantes Rojas	COSTA RICA

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22.	Guillermo González Cabezas	COSTA RICA
23.	Rafael Alberto Arguero Ch.	COSTA RICA
24.	Alvaro Castro Ramírez	COSTA RICA
25.	Alvaro Castro Ramírez	COSTA RICA
26.	José Miguel Carrillo V.	COSTA RICA
27.	Román Solera Andara	COSTA RICA
28.	Lucía Chinchilla Fonseca	COSTA RICA
29.	Alejandro Solís Cruz	COSTA RICA
30.	Alberto Soley Monge	COSTA RICA
31.	Oscar Echandi Murillo	COSTA RICA
32.	Gabriel Solórzano	COSTA RICA
33.	Jonathan Wadsworth	COSTA RICA
34.	José Alfonso Ramírez B.	COSTA RICA
35.	Bernal Soto Zúñiga	COSTA RICA
36.	Carlos E. Arce Calderón	COSTA RICA
37.	Danilo Monge Calvo	COSTA RICA
38.	Angel Cordero	COSTA RICA
39.	Manuel Aguilar C.	COSTA RICA
40.	Marco Podesta	COSTA RICA
41.	Jorge Camacho Sandoval	COSTA RICA
42.	Edwin Avalos	COSTA RICA
43.	Carlos Achio Tacsan	COSTA RICA
44.	Eduardo Eduarte	COSTA RICA
45.	Luis Fernando Salas Villegas	COSTA RICA
46.	José Rodríguez Z.	COSTA RICA
47.	Rafael A. Arroyo	COSTA RICA
48.	Fernando Mojica	COSTA RICA

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49. José A. Madriz	COSTA RICA
50. Humberto Cedeño	COSTA RICA
51. Leonidas Villalobos	COSTA RICA
52. Carlos Boschini Figueroa	COSTA RICA
53. Olmán Díaz Sánchez	COSTA RICA
54. John B. Hopwood	COSTA RICA
55. Luis A. Villegas Zamora	COSTA RICA
56. Guisselle Rodríguez	COSTA RICA
57. Orlando Bazán	COSTA RICA
58. José Barrantes Rojas	COSTA RICA
59. Jorge Delgado	COSTA RICA
60. José Amador	COSTA RICA
61. Víctor Quiroga	COSTA RICA
62. Aparicio Pineda	COSTA RICA

LA GANADERIA BOVINA EN COSTA RICA

PROGRAMA

INSCRIPCION	8:00
Sesión I Moderadores: Carlos L. Vásquez y Carlos Jiménez	9:00
Introducción: Oscar Arias, Presidente de CONIAGRO Jorge Torres, Director Ejecutivo de SEPSA	
Antecedentes y metodología del diagnóstico Leonidas Villalobos	9:30
Problemas tecnológicos en la ganadería de carne Minor Leiva	10:00
RECESO	
Sesión II Moderador: Manuel Aguilar	
Resultados del diagnóstico Rolain Borel	10:30
Informe del CONICIT sobre generación, adaptación y difusión de tecnología en ganadería de carne Carlos Barboza	12:00
RECESO	
Sesión III Moderador: Leonidas Villalobos	
Recomendaciones sobre tecnología Manuel Aguilar	14:00
Recomendaciones sobre la segunda etapa de trabajo Carlos Jiménez	15:00

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MANEJO DE LA FERTILIDAD DE LOS SUELOS
EN AREAS DE PEQUEÑOS AGRICULTORES DE
CENTRO AMERICA



ADiestRAMIENTO EN
SERVICIO
12-30 ABRIL
1982

(Program in Spanish)



MANAGEMENT OF SOIL FERTILITY ON SMALL FARMS**IN-SERVICE TRAINING**

April 12-30, 1982

PARTICIPANTS	COUNTRY
1. José Alexis Quintero	PANAMA
2. Mario Díaz	PANAMA
3. José Ramón Peralta	NICARAGUA
4. Gustavo Arguello	NICARAGUA
5. Douglas Rodríguez	NICARAGUA
6. Sergio Corrales	NICARAGUA
7. Orlando Cubillos Jiménez	COSTA RICA

PROGRAM

Programación del evento manejo de la fertilidad en áreas de pequeños agricultores de Centro América.

<u>Tópico</u>	<u>Estado de Ejecución</u>
1. Diagnóstico de manejo de suelos por país.	Encuestas Completadas
2. Organización de los datos de acuerdo al esquema de sub-sistemas suelo.	Codificación iniciada 8 de marzo
3. Elaboración del sistema de manejo para área de Nicaragua y Panamá.	Abril 12-16 por las tardes
4. Análisis e interpretación de los datos de la encuesta.	Abril 19 y 20 por las tardes
5. Elaboración de una alternativa de manejo basada en información de investigación del país respectivo.	Abril 21 al 23 por la tarde
6. Presentación por país y discusión para intercambiar ideas y sugerir cambios.	Abril 26 al 30 por la tarde
7. Ejercicio en el campo "Medición de la densidad aparente" en tres sistemas de cultivo sembrado en suelo manejado de 4 maneras.	Abril 12-14 por la mañana
8. Ejercicio en el campo "Medición de resistencia a la penetración en dos sistemas de laboreo a diferentes profundidades.	Abril 15-16 por la mañana
9. Ejercicio en el campo "Medición de infiltración en suelo manejado de dos maneras"	Abril 19-21 por la mañana
10. Ejercicio en el campo "Instalación de tensiometros, bloques de yeso y determinación de humedad".	Abril 12-30 por la mañana.
11. Ejercicio en el campo: "Pruebas microquímicas rápidas para análisis de suelos".	Abril 22 y 23 por la mañana.
12. Ejercicio en el campo "Instalación de micro-parcelas".	Abril 12 al 30 por la mañana.



CENTRO AGRONÓMICO TROPICAL DE INVESTIGACIÓN Y ENSEÑANZA
CATIE, Turrialba, Costa Rica

ADiestRAMIENTO EN SERVICIO
CONSERVACION DE RECURSOS GENETICOS

(Program in Spanish)



CONSERVATION OF GENETIC RESOURCES**IN-SERVICE TRAINING**

April 4 - June 11, 1982

PARTICIPANT	COUNTRY
Aura Estela González	Guatemala

PROGRAMA DE ACTIVIDADES PARA
LA SEÑORITA AURA ESTELA GONZALEZ

<u>FECHA</u>	<u>ACTIVIDAD</u>	<u>RESPONSABLE</u>
14-4/23-4-82	Participación en toma de datos: (<i>Bixa orellana</i> y <i>Capsicum</i> spp)	Dr. Seidewitz
26-4/30-4-82	Información sobre documentación	Dr. Seidewitz
3-5-/14-5-82	Participación en trabajos en las Colecciones vivas	Ing. Morera/ Sr. Bonilla
15-5/16-5-82	Herbario	Sr. Córdoba
19-5/23-5-82	Participación en trabajos en el Laboratorio de Semillas	Ing. Arce
26-5/3-5-82	Laboratorio de Cultivo de Tejidos	Dr. Mueller/ Ing. Salazar
30-5/Salida	Realizar estudios de literatura, etc., entrevistas con el Sr. Ben Chang (B.L.S.F.) y el Proyecto de Agroforestales	

TRAINING EVENTS IMPLEMENTED UNDER THE
PROJECT AGRICULTURAL TRAINING IN THE CENTRAL AMERICAN ISTHMUS

-JULY, 1979 - JUNE, 1982-

EVENTS	TITLE OF EVENT	DATE		WEEKS	Nº PARTI- CIPANTS	PLACE
		BEGINNING	ENDING			
COURSES	Intensive					
	Vegetable Production	1/10/79	9/11/79	6	30	El Salvador
	Agricultural Librarianship	1/9/80	11/10/80	6	20	CATIE
	Cacao Production	16/9/81	12/10/81	4	21	Costa R. (CATIE)
	Animal Production Systems	12/11/81	4/12/81	5	34	CATIE
	Horticulture Production	19/10/81	27/11/81	6	29	Honduras
	Fertility and Soil Conservation	1/2/82	5/3/82	5	27	CATIE
	Cacao Production	18/2/80	29/2/80	2	21	CATIE
	Use and Management of Tropical Soils	18/8/80	12/9/80	3	18	CATIE
	Wildland and National Parks Management	21/8/80	6/9/80	2	30	Costa Rica Nicaragua
Regional	Communication Techniques	22/9/80	26/9/80	1	12	CATIE
	Experimental Techniques in Cropping Systems	6/10/80	17/10/80	2	32	Panama
	Basic Grains Cropping Systems	16/2/81	28/2/81	2	30	Nicaragua

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EVENTS	TITLE OF EVENT	DATE		WEEKS	N° PARTI- CIPANTS	PLACE
		BEGINNING	ENDING			
	Use of Statistical Methods in Research Systems	3/8/81	14/8/81	2	17	Costa Rica
	Agroenvironment	22/2/82	5/3/82	2	13	CATIE
National	Cacao Production	22/11/79	31/11/79	1	12	Costa Rica
	Cacao Production	12/1/81	16/1/81	1	25	Costa Rica
	Economic Evaluation of Animal Production Systems	24/2/81	28/2/81	1	18	Panama
	Forage Production and Utilization	23/9/80	27/9/80	1	33	Honduras
	Forage Production and Utilization	27/10/80	31/10/80	1	28	Guatemala
	Experimental Design for Animal Production	1/9/80	6/9/80	1	18	Panama
	Horticulture Production	7/12/81	11/12/81	1	26	Nicaragua
	Weed Control	28/9/81	2/10/81	1	29	Nicaragua
	Cacao Production	15/12/81	18/12/81	1	17	Costa Rica
	Experimental Design for Agricultural Research	30/11/81	4/12/81	1	21	Nicaragua

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EVENTS	TITLE OF EVENT	DATE BEGINNING	DATE ENDING	WEEKS	N ^o PARTI- CIPANTS	PLACE
	Forages Production	12/10/81	16/10/81	1	40	Dominican Republic
	Cacao Production	11/1/82	15/1/82	1	32	Dominican Republic
	Agricultural Systems Research	29/3/82	2/4/82	1	29	Dominican Republic
	Research Methodology in Crop Production	19/4/82	23/4/82	1	24	Panama
	Interpretation and Programming of Experiments	26/4/82	30/4/82	1	23	El Salvador

					Sub-total	708 Participants/Courses

WORKSHOP/SEMINARS

Forestry Research and Training in Costa Rica	11/8/80	25/8/80	1	10	Costa Rica CATIE
Control of <u>Monilia</u> (<u>Monilia rozeri</u>)	27/8/80	30/8/80	1	89	CATIE
The Role of Perennial Plants in Central America	16/2/81	10/2/81	1	12	CATIE Costa Rica
Wildland Planning and Management	31/8/81	26/9/81	4	25	Costa Rica

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EVENTS	TITLE OF EVENT	BEGINNING	DATE ENDING	WEEKS	N ^a PARTI-CIPANTS	PLACE
	Analysis and Evaluation of Agri-cultural Systems	21/9/81	26/9/81	1	4	El Salvador
	Crop Systems Research	3/12/81	6/12/81	1	27	Nicaragua
	Inter-estival Agriculture	17/11/81	19/11/81	3 *	41	El Salvador
	Beef Cattle Research in Costa Rica	28/5/82	28/5/82	1 *	62	Costa Rica

* Days					Sub-total	270 Part./Workshops-Seminars

IN-SERVICE TRAININGS

Soil and Plant Analysis	19/11/79	15/12/79	4	4
Systems Characterization	17/1/80	23/1/80	1	15
Agroecosystems	1/6/80	22/8/80	12	11
Weed Control	3/3/80	23/5/80	12	1
Soil and Plant Analysis	1/7/80	31/7/80	4	4
Agricultural Systems	2/6/80	22/8/80	12	3
Cacao Production	24/11/80	26/11/80	1	5
Cacao Production	22/6/80	22/8/80	12	1

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EVENTS	TITLE OF EVENT	BEGINNING	DATE	ENDING	WEEKS	N ^o PARTI- CIPANTS	PLACE *
	Systems Characterization	18/8/80	22/8/80		1	28	
	Wildland Management	8/12/80	27/2/81		12	5	
	Weed Control	2/2/81	7/2/81		1	1	
	Weed Control	2/2/81	24/4/81		12	1	
	Library	2/3/81	6/3/81		1	1	
	Agricultural Systems	2/2/81	24/4/81		12	1	
	Systems Characterization	7/9/81	2/10/81		4	15	
	Agricultural Librarianship	2/11/81	27/11/81		4	3	
	Soil and Plant Analysis	2/11/81	27/11/81		4	8	
	Wildland Planning and Management	10/12/81	9/3/82		12	6	
	Management of Soil Fertility on Small Farms in the Central American Isthmus	12/4/82	30/4/82		3	7	
	Conservation of Genetic Resources	12/4/82	11/6/82		8	1	

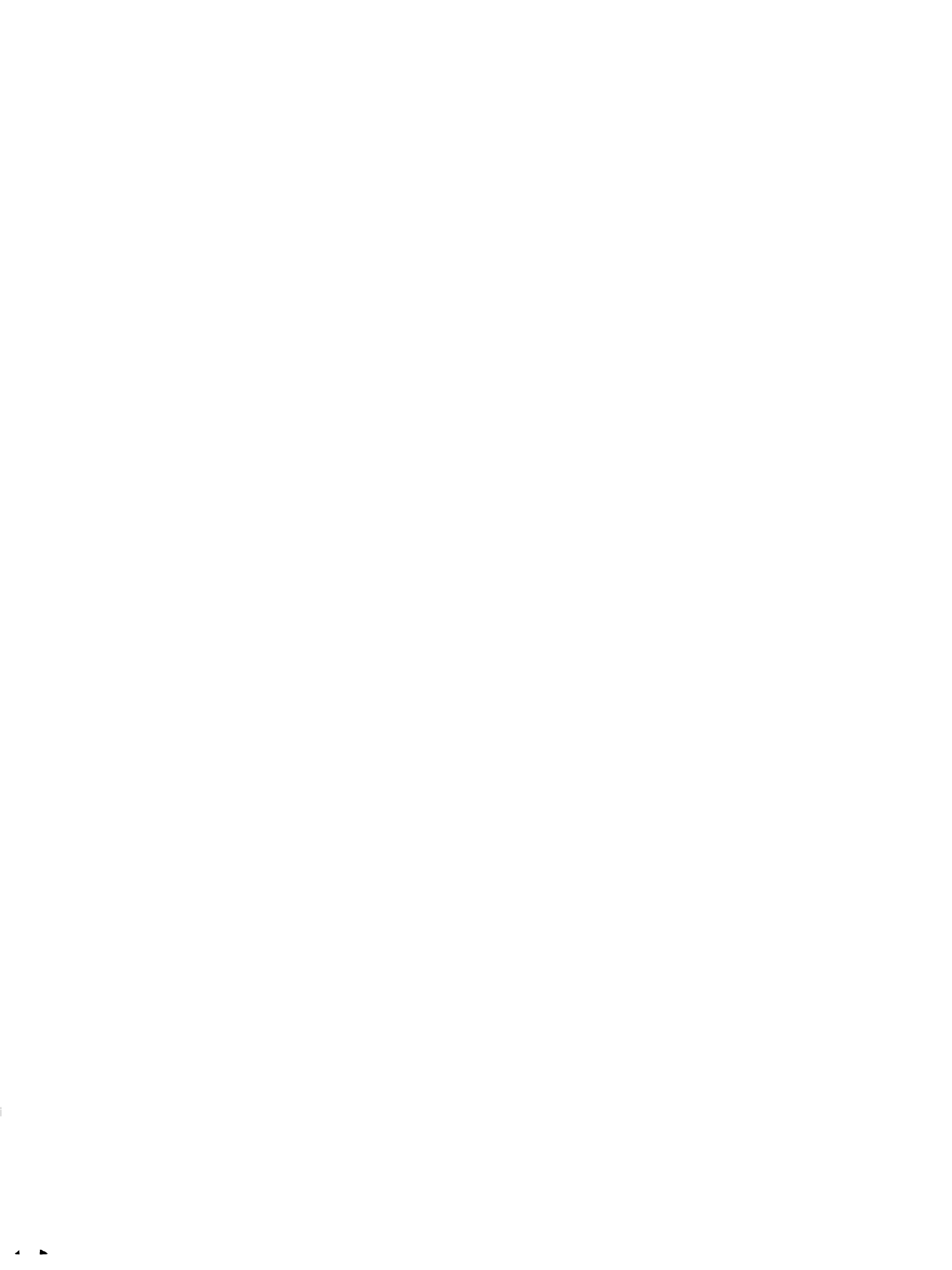
	* All the In-service Trainings were executed in Turrialba, Costa Rica					Sub-total	111 Part./In-service T.

TOTAL PARTICIPANTS 1089

8.3 QUANTITATIVE SUMMARY OF COURSES, SEMINARS AND IN-SERVICE TRAINING IMPLEMENTED UNDER THE PROJECT AGRICULTURAL TRAINING IN THE CENTRAL AMERICAN ISTHMS (FROM JULY, 1979 TO MARCH, 1982).

Forms of Training	PLACE		COURSES		TOTAL No.		PARTICIPANTS	
	CATIE	COUNTRIES	R*	C*	(%)	(%)	R*	C*
Courses:								
Intensive (6-4 weeks)	4	2	6	3	(200.0)	161	90	(178.8)
Regional (2-3 weeks)	5	3	8	9	(88.8)	173	270	(64.0)
National (1 week)	2	13	15	17	(88.2)	374	487	(76.8)
TOTAL	11	19	29	29	(100.0)	708	847	(83.5)
Seminars and workshop	5	3	8	4	(200.0)	270	140	(192.8)
In Service Training	No. Week	Participants	TOTAL		Week of Training	R*	C*	
	12	19	191	228				
	8	1	8	8				
	4	34	136	136				
	3	7	21	21				
	1	50	50	50				
		111	443	540				(82.0%)
Total participants estimated			1052					
Total participants present at the events			1089					
Percentage			104 %					

*R = Carried out
C = Committed



S.4 TRAINING EVENTS IMPLEMENTED BY CATIE AND SUPPORTED BY
 THE W. K. KELLOGG FOUNDATION AND OTHER INSTITUTIONS
 (1980 - 1981)

YEAR	TITLE OF EVENT	PLACE	OBSERVATION AND/OR FINANCIAL SUPPORT
<u>ANIMAL PRODUCTION DEPARTMENT</u>			
1980	Methodology of Research in Dairy Cattle Production Systems	CATIE	BID
	Methodology of Research in Dairy Cattle Production Systems	CATIE	BID
	Forages Production and Utilization	Honduras	KELLOGG
	Forages Production and Utilization	Guatemala	KELLOGG
	Experimental Design in Cattle	Panamá	KELLOGG
	Use of Harvest Residues in Animal Feeding	CATIE	CIID
1981	Methodology of Economic Evaluation of Animal Production Systems	Panamá	KELLOGG
	Dairy Cattle Production Systems	Nicaragua	BID
	Nutritional Aspects in the Dairy Cattle Production Systems	Honduras	BID
	Animal Reproduction and Breeding	Honduras	BID
	Forages Aspects in the Dairy Cattle Production Systems	CATIE	BID
	Nutritional Aspects in Dairy Cattle Production Systems	Guatemala	BID
	Animal Production Systems with Emphasis in Milk	CATIE	KELLOGG
	Forages Aspects in Dairy Cattle Production Systems	Panamá	BID
	Dairy Cattle Production Systems	Nicaragua	BID
	Nutritional Aspects in Dairy Cattle Production Systems	Panamá	BID
	Forages Production and Utilization	Dominican Rep.	KELLOGG

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YEAR	TITLE OF EVENT	PLACE	OBSERVATION AND/OR FINANCIAL SUPPORT
<u>CROP PRODUCTION DEPARTMENT</u>			
1980	Focus on Research	Honduras	KELLOGG
	Methods of Research in Agricultural Systems	Panama	KELLOGG
	Pest Management in Cropping Systems	CATIE	U. California
	Cocoa Production	La Lola	UPCA
	Cocoa Production	La Lola	National Bank of Costa Rica
	Cocoa Production	CATIE	KELLOGG
	International Meeting on Moniliasis	CATIE	KELLOGG
	Coffee Production	CATIE	PROMECAFE
	International Meeting on Phythoptora	CATIE	U. California
	Soils and Crop Tissue Analysis	CATIE	KELLOGG
1981	Crop Systems of Basic Grains	Nicaragua	KELLOGG
	Horticulture Production	Nicaragua	KELLOGG
	Use of Statistic Methods in Crop Research Systems	CATIE	KELLOGG
	Horticulture Production	Honduras	KELLOGG
	Methodology Research of Agricultural Systems	Nicaragua	KELLOGG
	Analysis and Evaluation of Experiments of Agricultural Crop Systems	Nicaragua	KELLOGG
	Weed and Insect Control	Panama	IPPC
	Weed Control	Nicaragua	KELLOGG
	Inter-estival Agriculture	El Salvador	KELLOGG
	Cocoa Production	La Lola, C.R.	KELLOGG
	Cocoa Production	La Lola, C.R.	KELLOGG

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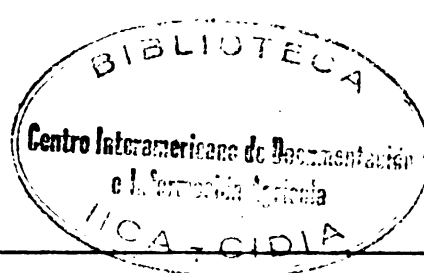
YEAR	TITLE OF EVENT	PLACE	OBSERVATION AND/OR FINANCIAL SUPPORT
	The Role of Perennial Plants in Central America	CATIE	KELLOGG
	Cocoa Production	CATIE	KELLOGG
	Cocoa Production	La Lola, C.R.	KELLOGG
	Soil Fertility	CATIE	KELLOGG
	Agricultural Systems	CATIE	KELLOGG
	Analysis and Evaluation of Experiments of Agricultural Crop Systems	CATIE	KELLOGG
<u>DEVELOPMENT OF HUMAN RESOURCES FOR RESEARCH AND TRAINING DEPARTMENT</u>			
1980	Genetic Resources	CATIE	GTZ
	International Meeting on Palm Fruit (Pejibaye)	CATIE	GTZ
	International Meeting on Capsicum (Aji)	CATIE	GTZ/FAO
	Communication Techniques and Transfer of Technology	CATIE	KELLOGG
	Agroforestry Systems	CATIE	World Bank
	Agricultural Librarianship Introduction	CATIE	KELLOGG
<u>NATURAL RENEWABLE RESOURCES DEPARTMENT</u>			
1980	Agroforestry Techniques	CATIE	DSE
	Research and Forestry Teaching in Costa Rica	CATIE	KELLOGG
	Use and Management of Tropical Soils	CATIE	KELLOGG
	Wildland Management and National Parks	Costa Rica Nicaragua	KELLOGG/National Parks of USA

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8.5 TRAINING EVENTS SCHEDULED FOR 1982

EVENT	DATE	PLACE	FINANCIAL SUPPORT
<u>INTENSIVE SHORT COURSES</u>			
Fertility and Conservation of Soils	FEB., 1-MAR., 5	CATIE	KELLOGG
Cocoa Production	JUL. 26-AUG. 21	CATIE	KELLOGG
Production and Utilization of Tropical Forages	NOV. 1-Dec. 3	CATIE	KELLOGG
<u>REGIONAL SHORT COURSES, IN-SERVICE TRAINING AND SEMINARS</u>			
Experimental Design of Agricultural Crop Systems	OCT. 18-29	Guatemala	KELLOGG
Agroforestry Techniques	MARCH 16-25	CATIE	ROCAP-AID
Agroforestry Techniques	SEP. 21-OCT. 10	CATIE	ROCAP-AID
Cocoa Production	OCT. 3-16	CATIE	KELLOGG
Soils and Crop Tissue Analysis	NOV. 1-26	CATIE	KELLOGG
Wildland Planning	DEC. 82-FEB-83	CATIE	KELLOGG
Agroenvironment	FE. 22-Mar. 5	CATIE	KELLOGG
Beef Cattle Research in Costa Rica	MAY 28	Costa Rica	KELLOGG
Agricultural Librarianship Introduction	Jul. 5-30 Nov. 1-26	CATIE	KELLOGG
Management and Analysis of Data Research	AUG. 30-Sep. 10	CATIE	KELLOGG
Cocoa Production	JAN. 10-17	Dominican R.	KELLOGG
Agricultural Research Systems	MAR. 29-APR. 2	Dominican R.	KELLOGG
Interpretation and Programming of Experiments	FEB. 8-12	El Salvador	KELLOGG

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EVENT	DATE	PLACE	FINANCIAL SUPPORT
Methods Research in Agricultural Systems	JULY, 12-16	El Salvador	KELLOGG
Methods Research in Agricultural Crops	April, 19-23	Panamá (David)	KELLOGG
Analysis and Evaluation of Agricultural Crop Systems	Sep. 20-24	Panamá (David)	KELLOGG
Analysis and Evaluation of Crop Systems	FEB., 22-26	Nicaragua	KELLOGG
Sanitary Aspects of Cattle Production Systems	March, 8-12	Honduras (La Ceiba)	BID
Reproduction Aspects of Cattle Production Systems	March 15-19	Panamá (David)	BID
Nutritional Aspects of Production Systems	March 22-26	Costa Rica	BID
Socioeconomic Aspects of Production Systems	April 26-30	Guatemala	BID
Administration of Dairy Cattle	June, 14-18	Honduras	KELLOGG
Dairy Cattle Production Systems	July, 5-9	El Salvador	BID
Nutritional Aspects of Production Systems	July, 19-23	Dominican Republic	KELLOGG
Sanitary and Reproduction Aspects of Dairy Cattle Production Systems	Aug. 2-6	Nicaragua	BID
Dairy Cattle Production Systems	Sep. 1-7	Honduras	BID
Sanitary Aspects of Production Systems	Sep. 6-10	Panamá	
Production and Sanitary Aspects of Dairy Cattle Production Systems	Oct. 4-8	Guatemala	BID
Management and Administration of Production Systems	OCT. 18-22	Costa Rica	BID
Management and Administration of Cattle Production Systems	Oct. 25-29	Dominican Republic	KELLOGG

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YEAR	TITLE OF EVENT	PLACE	OBSERVATION AND/OR FINANCIAL SUPPORT
1981	Agroforestry Techniques	CATIE	DSE-GTZ
	Firewood Production	C. R/NIC.	ROCAP
	Planning and Environmental Inter- pretation Techniques	Costa Rica	KELLOGG
	Agroforestry Techniques	Mexico	UNU
	Basic Concepts used in Forestry Projects	Nicaragua	ROCAP
	Planning and Management of Wildland Areas	CATIE	KELLOGG
	Planning and Wildland Management	CATIE	KELLOGG

8.6 QUANTITATIVE SUMMARY OF THE COURSES, SEMINARS AND WORKSHOPS CARRIED OUT BY CATIE, FROM 1979 TO 1982
AND FINANCED BY THE W. K. KELLOGG FOUNDATION AND OTHER INSTITUTIONS.

Event Financed by	YEARS							
	1979		1980		1981		1982	
	N ^a	Participant	N ^a	Participant	N ^a	Participant	N ^a	Participant*
W. K. Kellogg	2	42	11	311	17	478	18	450
%	13.3	15.2	42.3	52.6	58.6	58.4	60.0	60.0
Others Institutions	13	234	15	280	12	340	12	300
%	86.8	84.8	57.7	47.4	41.4	41.6	40.0	40.0
	15	276	26	591	29	818	30	750

* Estimated

8.6 QUANTITATIVE SUMMARY OF THE COURSES, SEMINARS AND WORKSHOPS CARRIED OUT BY CATIE, FROM 1979 TO 1982
AND FINANCED BY THE W. K. KELLOGG FOUNDATION AND OTHER INSTITUTIONS.

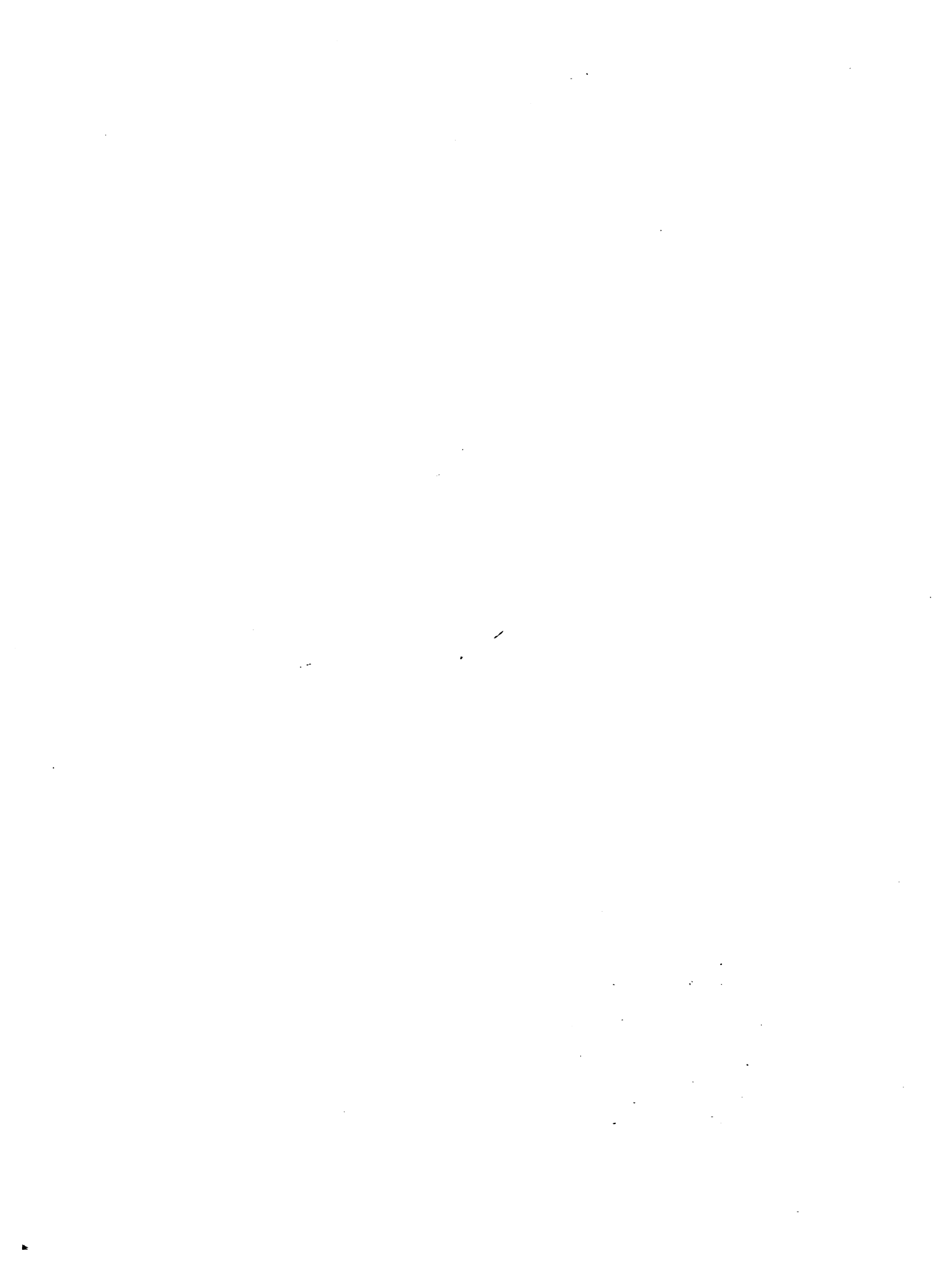
Event Financed by	YEARS							
	1979		1980		1981		1982	
	N ^a	Participant	N ^a	Participant	N ^a	Participant	N ^a	Participant*
W. K. Kellogg	2	42	11	311	17	478	18	450
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%	86.8	84.8	57.7	47.4	41.4	41.6	40.0	40.0
	15	276	26	591	29	818	30	750

* Estimated

8.7 QUANTITATIVE SUMMARY OF THE IN-SERVICE TRAINING CARRIED OUT BY CATIE, FROM 1979 TO 1982 FINANCED BY THE W. K. KELLOGG FOUNDATION AND OTHER INSTITUTIONS.

In-Service Training financed by	YEARS									
	1979		1980		1981		1982 *			
	N ^a	Participant	N ^a	Participant	N ^a	Participant	N ^a	Participant	N ^a	Participant
W. K. Kellogg	1	4	8	55	8	35	6	27		
%	33.3	44.4	88.9	94.8	100	100	85.7	87.1		
Others institutions	2	5	1	3	-	-	1	4		
%	66.7	55.6	11.1	5.2	-	-	14.3	12.9		
	3	9	9	58	8	35	7	31		

* June, 1982.



Date Due

16 FEB 1996

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18 ABR 1996

P. INTERNO

25 JUN 1996

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P. INTERNO	
25 JUN 1996	P. INTERNO
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64265

Preparado en la Unidad de C
Responsable: Coordinador d
Mecanografiado: María Este
Impresión: Servicio de mim

Publication of CATIE
Training Unit
Edition: 15 copies
Turrialba, Costa Rica, July

