

C105

23 ENE 1984



CATIE

ACTIVITIES AT TURRIALBA

VOL. 6 No. 4 OCTOBER - DECEMBER, 1978

BULLETIN OF THE
TROPICAL AGRICULTURAL RESEARCH AND TRAINING CENTER
TURRIALBA - COSTA RICA



Lic. José Miguel Alfaro, Second Vice-President of Costa Rica, addresses guests invited to the celebration of CATIE's first quinquennium held on October 26, 1978. Partially visible behind podium (left to right): Ing. Luis Osorio, General Manager of INTA (Nicaragua), and Ing. Alberto Vargas of MAG (Costa Rica); followed by Dr. Edwin J. Wellhausen, President of the Board of Directors, and Dr. Santiago Fonseca, Director of CATIE.

CELEBRATION OF CATIE'S FIRST QUINQUENNIUM

On July 1, 1978, CATIE celebrated its first quinquennium as a regional agricultural institution serving the countries of the Central American Isthmus.

Various activities were held at the Center during the week of October 24-27, 1978, to observe this significant event.

The program began on October 24 with a meeting attended by the Director of CATIE, Dr. Santiago Fonseca; Deputy Directors, Dr. Héctor Muñoz, Dr. Eduardo Locatelli, and Mr. Gustavo Delfino; Program Heads, Drs. Pedro Oñoro, Gustavo Enríquez, Gustavo Cubillos and Gerardo Budowski, and CATIE staff members stationed in other Central American countries: Dr. Donald Kass, Guatemala; Dr. Gualberto de Lucía, Ing. Jorge Luis García, Dr. Robert Hudgens, Dr. Jaime Pineda and Ing. Alberto Ramírez, Honduras; Ing. José Agustín Arze, El Salvador; Ing. Aníbal Palencia, Nicaragua; and Dr. Héctor Li Pun, Panama.

On the following day, a "Round Table Discussion on the Generation and Use of Agricultural Technology" was attended by representatives of the Central

Turn to page 2

Table of Contents

	Page
Celebration of CATIE's First Quinquennium	1
Director's Message on the Occasion of the First Quinquennium Celebration	3
<i>Magister Scientiae</i> Theses, Summaries and Conclusions	6
News in Brief	7
New Personnel	7
Miscellaneous Activities	10

Continued from page 1

Bank of Honduras, the National Center for Agricultural Technology (CENTA) of El Salvador, the Agricultural Research Institute of Panama (IDIAP), the National Forestry Institute (INAFOR) of Guatemala, the Nicaraguan Institute of Agricultural Technology (INTA), the Inter-American Institute of Agricultural Sciences (IICA), Natural Renewable Resources (RENARE) of Panama, and the Ministry of Natural Resources of Honduras. The principal speakers were Dr. Leobardo Jiménez, of the Graduate School at Chapingo, Mexico; Dr. Ignacio Ansorena and Dr. Eduardo J. Trigo, of IICA headquarters in Costa Rica, and the IICA office in Colombia, respectively. CATIE staff members residing in Central American countries, other than Costa Rica, also attended.

The official ceremonies of the first quinquennium were celebrated on October 26, with many distinguished visitors present. Among them were the Second Vice-President of Costa Rica, Lic. José Miguel Alfaro; various Ambassadors to Costa Rica; members of the Costa Rican Legislative Assembly; Vice-Ministers; representatives from national and international organizations; IICA staff members; and neighbors from Turrialba. The program began with a narrated slide presentation of the Center, including its organization, its current programs and future plans.

Two former Turrialba staff members were given recognition for their work in research and teaching. A plaque in the Soils Laboratory was dedicated to the late Professor Frederick Hardy (United Kingdom), and another was placed in the new Animal Production Program Building honoring Dr. Jorge De Alba (Mexico).

Professor Hardy, who died on April 9, 1977, in Trinidad, was a prominent tropical soils specialist. Beginning in 1956, he worked for various years at the

Center, sharing his vast knowledge of tropical soils with the students in the Graduate Program and conducting research in his speciality.

Dr. De Alba is a renown scientist in animal production and an outstanding educator. For many years as head of the Animal Science Department of IICA at Turrialba, he taught a great number of graduate and short-term students, in addition to carrying out excellent research work.

The day's program continued with a ceremony honoring the first two Directors of CATIE, Ing. Manuel Elgueta (1973–1976) and Dr. Jorge Soria (1976–1977). Their pictures were hung in the board room, and Ing. Armando Samper gave a discourse about the two men, plus a brief history of the institution's previous directors throughout the development of what is today CATIE.

Following this presentation, the guests were invited to the dining room of the main building for the formal commemoration of CATIE's first five years of existence. Addresses were given by Dr. Santiago Fonseca, Director of the Center; Dr. Edwin J. Wellhausen, President of the Board of Directors; Dr. José Emilio G. Araujo, Director of IICA; and Lic. José Miguel Alfaro, Second Vice-President of Costa Rica, representative for President Rodrigo Carazo. Afterwards a toast was offered in the vestibule of the main building and a luncheon served at the International Club.

The observance of the Center's first quinquennium ended on October 27 with the Sixth Annual Meeting of the Board of Directors. The following board members attended: Dr. Edwin J. Wellhausen, President; Ing. Mario Martínez, First Vice-President; Ing. Alberto Vargas Barquero, Second Vice-President; Ing. Armando Samper; Dr. Leobardo Jiménez; Dr. Manuel M. Murillo (alternate); Ing. Gilberto Gutiérrez (alternate); Dr. José Emilio G. Araujo; Ing. Rodolfo Martínez Ferraté; Ing. Carmen Damaris Chea; Ing. Luis Osorio (alternate); Dr. José Silos (alternate).

At this meeting, the program–budget for 1979 was approved, and various resolutions were emitted in reference to the Center.

DIRECTOR'S MESSAGE ON THE OCCASION OF THE FIRST QUINQUENNIAL CELEBRATION

C I O I A
Turrialba, Costa Rica

It seems appropriate for institutions like CATIE to pause and reflect for a few moments at the close of each five-year period. Today's celebration marks the first five years of existence for our Center, and this special event is enhanced and made even more noteworthy by the presence of this distinguished assembly. We are honored and proud to have you here.

On behalf of all my colleagues, I would like to take this opportunity to extend to you a most warm and cordial welcome, and to say how pleased we are to have you here with us.

We have chosen to meet today in this central building, a permanent and silent witness to many years of untiring work in the fields of agriculture and forestry.

Perhaps some of you accompanied the late Dr. Rafael Angel Calderón Guardia, President of Costa Rica, and the late Mr. Henry A. Wallace, Vice-President of the United States in 1943, in the laying of the corner stone of this building, which for more than a quarter of a century housed the central headquarters of the Inter-American Institute of Agricultural Sciences (IICA), created in 1942.

Later, when IICA moved its main offices to San José, this building served as the headquarters for the Training and Research Center of the Institute for a period of thirteen years, until its transformation into CATIE in 1973.

This Center, in addition to being an integral part of the region, has attracted countless visiting dignitaries, scientists, and students, from all corners of the globe.

Many outstanding professionals from the agricultural sector of the hemisphere have worked and studied here, and they have disseminated the results of the work done at Turrialba throughout the continent.

It was a matter of destiny that the valuable action initiated by IICA in 1942 was continued, evolving into what is known today as CATIE, created in 1973 by mutual agreement between the Government of Costa Rica and the Institute (IICA). The new Center was created and strengthened with the accumulation of knowledge and experience acquired over 31 years, as a result of the perseverance of pioneers who made their contribution to agricultural development from Turrialba.

In honoring Jorge De Alba and Frederick Hardy today, we have embodied in them, not only the tribute due them, but the tribute due to all those persons who at one time or another have worked here, all leaving their mark on the Center's development. Many individuals should be remembered today, worthy of due recognition on this occasion.

But this morning, I only wish to make reference to the decision of CATIE's board members to express publicly their acknowledgement of and gratitude to those persons who have been responsible for directing the work of IICA in Turrialba.

CATIE was established as a nonprofit, autonomous, civil association, scientific and educational in nature, to promote, carry out, and stimulate research at various levels in the fields of agricultural and forestry production, with the purpose of meeting the

needs of the different areas of tropical America, particularly in the countries of the Central American Isthmus and the Antilles.

Research, our main objective and function, has been relegated for a long time in countries with an agricultural economy and orientation, such as those of the Central American Isthmus. One of the logical consequences of this is the lack of trained national personnel capable of carrying out this essential work. This, together with other limiting factors, has daily widened the technological gap between rich and poor countries.

The advancement of research depends, among other things, on political backing from national leaders. It is often difficult for them to understand the value of conducting research because of the length of time required to generate technology. This, in turn, delays the technological impact of research within the general context of national development. In spite of these circumstances, CATIE, during its first five years, has developed simultaneously with a rapidly growing interest on the part of countries of the Isthmus in agricultural research as an important tool for development.



Dr. Santiago Fonseca, Director of CATIE, addresses guests attending the celebration of the first quinquennium on October 26, 1978.

Present technology, in general, has been developed for farmers who have the economic resources to implement it. This technology is aimed at maximization of yields, a strategy requiring application of high levels of inputs at appropriate times. It requires economic resources, as well as a certain level of education, to adapt it. This predicament becomes worse, and even more complicated, when an attempt is made

to apply to the small farms of the tropical zones, a technology generated in the temperate zone and geared to the economy of the developed countries. It is obvious that basic, in-depth studies of technologies appropriate to the small farmer are needed, keeping in mind his limitations —to mention a few— land, inputs and education.

We must acknowledge the interest of the international community in agricultural research as expressed through the creation and support of various international centers. These centers occupy a definite place and play an important role in certain stages of research. They were responsible for the dramatic increases in wheat and rice production, what is known as the "Green Revolution". But despite these impressive endeavors, the technology generated has not spread to the great mass of farmers, and despite the bold efforts of these centers, hunger and malnutrition persist. Food reserves fell in 1973 to the alarming level of a world crisis, overshadowed only by the energy crisis due to the latter's great economic impact.

CATIE, through its regional projection, has been responsible for stimulating or strengthening research work on production systems in the countries of the Isthmus, especially in the area of annual crops for the small farmer. This type of research requires a change of viewpoint. In this approach, research activities are interdisciplinary and oriented directly toward the farmer. This differs from the traditional method of research conducted in separate disciplines at the experimental station.

One of the factors contributing most decisively to strengthening the Center, and to developing its own unique character, is the emphasis on research as the major element in generating an appropriate technology for the small farmer. CATIE's emphasis on research as its main function is greatly enhanced by its orientation toward production systems, thereby identifying it internationally as having a defined potential, and as being different from other centers. This is complemented by CATIE's unique and advantageous position among the regional and international centers of having the related disciplines of agricultural, animal and forestry production under the same roof.

Research has thus become the framework for the basis of CATIE's work, and its main function, oriented toward production systems, is to generate adequate technology for the small farmer.

CATIE's activities, carried out in conjunction with and through national institutions, are aimed at improving the living standard of farmers with limited resources. These farmers make up the majority of the population of Central America. They usually live on farms of less than 35 hectares, receive the least benefits from improved technology, and produce the largest proportion of the food crops consumed. As with other activities of CATIE, the Center's research must be innovative to obtain the cooperation of national entities directly responsible for generating technology in each of the countries.

For a rapid advance in research at the national level, it is also necessary to increase simultaneously the number of national professionals capable of carrying out that research. Therefore, the different levels of education offered at CATIE continue to be a special function of the Center and another way of collaborating with the countries in training national personnel, who will ultimately be responsible for executing different activities.

The Graduate Studies Program, operating in conjunction with the University of Costa Rica, follows the same orientation as that of the research approach. Education has been expanded to new levels, both at Turrialba and in other countries, and in-service training is increasing. Without a doubt, this type of education and training is particularly important to the countries, since it can be completed in a relatively short period of time and can benefit a considerable number of national technical personnel.

In the field of technical cooperation, CATIE has limited itself in providing advisory services solicited by the countries, and performed by individual staff members or preferably as an institution in solving problems both specific and general. In some cases, the service leads to the initiation of new national programs or projects. During CATIE's first five years, ten projects have been established outside headquarters. These projects encompass the six countries of the Isthmus. Twenty-four of the sixty-six staff members of CATIE are directly connected with projects in the countries.

Through these projects, CATIE's activities in the countries have been strengthened. As a result, its role and projection in the region are better understood, and it has achieved recognition for its beneficial work in these countries.

This recognition is substantiated by various resolutions in support of the Center taken by the Ministers of Agriculture; by the joint visit of the Heads of State from Costa Rica and Panama in May of this year (1978); and by the presence today of representatives from all the countries, accompanying us in this celebration. Furthermore, it is of significant importance that CATIE has ample and lasting support from countries such as Panama, which joined CATIE in 1975; and Nicaragua, which joined in 1978; and Honduras, which is well advanced in its negotiations with CATIE for membership.

To this we can add the growing interest of the international community in the Center's research and training work being done in the countries of the Central American Isthmus, as well as its increasing support of CATIE.

I would like to publicly express our recognition and gratitude for the endorsement we have received from the following organizations, now collaborating in current projects, or about to do so soon: GTZ of the Federal Republic of Germany; the International Development Research Centre (IDRC) of Canada; the Agency for International Development (AID)/Regional Office for Central American Programs (ROCAP) of the United States; the Netherlands Government; the Overseas Development Ministry (ODM) of the United Kingdom; the Cooperation for Development Program of the Swiss Government; the Organization of American States (OAS); the United Nations University (UNU); the World Bank; the Inter-American Development Bank; and the European Economic Community.

The budget for CATIE's first year was United States \$1,400,000, of which almost three hundred thousand dollars were earmarked for special projects.

Our projection for the 1979 budget is eight million dollars, with five million seven hundred thousand dollars reserved for special projects.

We can affirm, as shown by this increase in funds, that the first five years of CATIE have been productive; and we can predict that the second five-year

period for CATIE, with the backing of the international community and those countries interested in our development, will be even more fruitful in terms of its accomplishments.

It is only fair to recognize the fact that the accomplishments have been made possible, in a large part, by having this exceptional country as headquarters for IICA. First, Costa Rica generously offered their land to the Latin American community, and later, with the same open spirit, supported the creation of CATIE.

These buildings and lands constitute an integral part of the community of Turrialba, which over the years witnessed the birth of the Center and watched it grow to develop into a strong international organization. The name Turrialba is well-known in agricultural circles of the continent, said not with vanity but as a living tribute to all those people who have labored here, sharing their anxieties and satisfactions with the townspeople.

The driving force of an institution is its personnel, who have devoted their efforts and abilities to the ideal that policies be transformed into accomplishments, thereby fulfilling the Institution's objectives. It happens to be my good fortune to be at the head of a dynamic Center celebrating the gratifying event of its first quinquennium. Nevertheless, I am harvesting the fruits from seeds my predecessors sowed in fertile soil and carefully tended so they would germinate and bear fruit.

I came to an organization already on the road to success due to the perseverance and dedication of its staff. They are responsible for the successes achieved by the Center during its first five years of existence and certainly constitute an integral and principal part of this testimonial. (Original text in Spanish).

CATIE PERSONNEL AND STUDENTS CELEBRATE THE CENTER'S FIRST QUINQUENNIUM

CATIE was created as an autonomous institution in 1973, and on July 1, 1978, the Center celebrated its first quinquennium. On July 3 at Turrialba headquarters, professional and auxiliary staff, field laborers, and students took part in a memorable day to mark the occasion. The festive atmosphere was informal, the turnout was excellent, and the weather was perfect — a "typical Turrialba day."

The program began with a field trip to the experimental plots for the administrative and secretarial staff.

Next, an address by Dr. Santiago Fonseca Martínez, Director of CATIE, preceded speeches by representatives of the different personnel groups: Ing. Eduardo Zaffaroni for the Student Council, Víctor Brenes for the auxiliary staff, and Dr. Raúl Moreno for the professional staff.

The program continued with sports events, followed by an outdoor lunch.

The celebration symbolized the fraternal spirit existing among the personnel and students of the CATIE family and commemorated another event in the history of the Turrialba Center.



The Director of CATIE, Santiago Fonseca, addressing the staff and students on the occasion of the celebration of the first quinquennium of CATIE.

ROUND TABLE DISCUSSION ON THE GENERATION AND USE OF AGRICULTURAL TECHNOLOGY

On October 25, a round table discussion on the generation and use of agricultural technology was held at CATIE as part of the first quinquennium celebrations.

Key members of the agricultural research organizations in each of the Central American countries and Panama attended the conference. The main presentations were: "The situation of technology transfer within the general panorama of agricultural sciences" by Dr. Ignacio Ansorena of IICA; "The role of agricultural research organizations in technology transfer" by Dr. Eduardo Trigo of IICA; and "A comparative analysis of the technology designed for generation, that which is obtained, and that which the farmer will eventually adopt" by Dr. Leobardo Jiménez of the Chapingo Graduate School. Also, as a special guest, Ing. Gilberto Gutiérrez Zamora from the Ministry of Agriculture of Costa Rica addressed the group on progress made in coffee in Costa Rica.

The meetings continued until early evening, and the following participants were actively involved in the discussions: Dr. Mario Contreras of the Ministry of Natural Resources, and Ing. Mario Nufio of the Central Bank, Honduras; Ing. Damaris Chea and Dr. Santiago Ríos of IDIAP, Panama; Ing. Mario Antonio Escobar and Roberto Vega Lara of CENTA, El Salvador; Ing. Luis Alberto Osorio and Dr. Oscar Hidalgo of INTA, Nicaragua; Dr. Mariano Segura of IICA; and Dr. E. J. Wellhausen and Ing. Armando Samper of CATIE's Board of Directors. Representative members of the CATIE staff, from the Turrialba group as well as from the other countries, also participated.

CATIE PUBLISHES BIBLIOGRAPHY OF 500 ABSTRACTS FOR FIRST QUINQUENNIAL CELEBRATION

To commemorate the celebration of its first quinquennium, CATIE published an annotated bibliography containing five hundred references for the five-year period 1973–1978.

The anniversary document includes contributions from staff members and from CATIE as an institution, as well as materials prepared for courses, seminars, conferences and other events organized by the Center.

With the reorientation of CATIE's programs and the new emphasis on production systems, CATIE is proud of the fact that it has 187 titles, or approximately one third of the bibliography, dealing with this subject.

Although CATIE reorganized its research in January, 1978, (See Volume 6 No. 1), from the departmental level to the program level, it was decided to follow the previous departmental structure for grouping the abstracts.

The Programs of Annual Crops and Perennial Plants, formerly the Department of Tropical Crops

and Soils, and for many years the largest department staffwise, has 252 references in the Bibliography. The Animal Production Program, the former Animal Husbandry Department, has published 110; and the Natural Renewable Resources Program, the former Department of Forest Sciences, has 114. The Directorate of the Center accounts for 24 documents in the bibliography.

The Graduate Program has made a valuable contribution to the bibliography with the preparation of 54 theses, each one an important integral part of the research projects carried out in the Programs.

It is sincerely hoped that the material published in this anniversary document will serve as a useful tool to those persons dedicated to agricultural research and training, and to those who will be consulting its contents for up-to-date material.

Without a doubt, the preparation of this document would not have been possible except for the tireless efforts of María José Galrao, Information and Documentation Specialist of IICA–CIDIA.

A copy of the annotated bibliography of 500 references entitled "Quinientos Resúmenes de Trabajos Publicados por el CATIE en sus Primeros Cinco Años de Labores, 1973–1978" may be obtained by writing to the Office of Public Relations, CATIE, Turrialba, Costa Rica, and enclosing a check for US\$8.00 payable to CATIE. It will be sent by second-class air mail.



MAGISTER SCIENTIAE THESES

Summaries and Conclusions

Initial Growth Characteristics of *Gmelina arborea* ROXB. Planted in Association with Maize (*Zea mays* L.) and Beans (*Phaseolus vulgaris* L.) in Two Spatial Arrangements at Turrialba, Costa Rica, by Silvestre Fernández Vásquez (1978) 125 p.

This research was carried out at the experimental site known as "Florencia Norte", which is managed by the Natural Renewable Resources Program of the Tropical Agricultural Research and Training Center (CATIE) in Turrialba, Costa Rica.

The objectives of the study were: 1) to obtain information on the initial growth characteristics of *Gmelina arborea* under two different densities, planted alone and in associations with maize or beans, or both; 2) to determine the influence of the two spatial arrangements on the growth of *Gmelina* and on the yield of the associated crops; and 3) to compare the costs of each system and spatial arrangement.

Gmelina arborea was planted in association with maize (*Zea mays*) and beans (*Phaseolus vulgaris*) during a ten-month period. *Gmelina* stumps with 10

to 12 cm stems and 20 cm roots were planted in densities of 5,000 trees/hectare (2×1 m) and 1,650 trees/hectare (2×3 m). In the associations, the Tuxpeño-1 variety of maize was planted at a density of 40,000 plants/hectare, and the Extender variety of string bean (first planting) and the Turrialba-4 variety of common bean were planted at a density of 200,000 plants/hectare.

A factorial design (4×2) in completely randomized blocks with five replications was used to compare the four systems of reforestation and the two different spatial arrangements.

Survival rate (percentage), total height, basal diameter at 5 cm above the soil, and the diameter of the canopy were measured.

The results were statistically analyzed and it was found that the survival rate of *Gmelina* was almost 100 per cent. No significant differences in total height were observed for the different spacings or for the interaction of spacings by systems. There was a significant difference in height among the systems, with average heights ranging from 2.03 to 2.41 m.

The diameter of the trees at 5 cm above the soil was significantly higher in the treatment with trees alone than in the treatments with trees planted in association with maize and/or beans, with the average diameters ranging from 6.5 to 9.35 cm. The average diameters of the canopy, ranging from 1.80 to 2.33 m, had significant statistical relationships similar to those variables mentioned above.

The economic analysis of the treatments shows that trees planted in association with crops produce positive family incomes.

It is concluded that agro-silvicultural systems are economically advantageous because of the more appropriate use of the land and the increased productivity of tropical soils.

Effect of the Factors of Reproduction, Calf Mortality and Precocity on some Biological and Economic Indicators on a Dairy Farm, by Manuel Rodolfo Otero Justo (1978). 63 p.

This study was carried out in the Animal Production Program of the Tropical Agricultural Research and Training Center (CATIE) in Turrialba, Costa Rica.

The objectives were to evaluate the effects of reproduction, calf mortality and precocity in terms of several biological and economic indicators of a dairy herd and to identify areas for further research and priorities at the level of herd-unit enterprises.

Based on previous results at this Center, the following factors and levels were chosen for study: reproduction at 13, 15 and 17-month calving intervals; calf mortality as 10, 20 and 30 percent; and precocity at 30 or 36 months of age at first calving. By simulation methods, 18 distinct herd structures were generated representing the various combinations of these factors. For each resulting herd, the energy requirements for one year were calculated. Assuming a fixed quantity of available feed energy, production of milk

and beef (culled cows and surplus calves) were calculated for the various herds. Several ratios of prices, beef:milk and feed:milk, were utilized to obtain some simple economic indicators.

The results indicated that a shortening of the calving interval by four months would reduce the number of cows in production as a consequence of raising more heifers; a larger number of females could be culled and the herd would produce more milk and beef. The economic consequence would be a 14.5 percent increase in gross returns from sales of beef and milk, and an 18.4 percent increase in the ratio gross returns/feed and animal costs, as well as a slight (6 percent) reduction in investment in animals.

A reduction in calfhoo mortality from 30 to 10 percent would cause herd structure changes similar to those of improved reproduction but would reduce milk production while increasing beef sales. Consequently, there would be a slight (1.9 percent) reduction in gross returns and a similar reduction in gross returns/feed and animal costs, whereas the investment in animals would be practically unchanged.

Finally, a reduction of six months in the average age at first calving would cause an increase in the number of producing cows and a corresponding reduction in replacement heifers, as well as more females culled. The economic indicators would thus favor gross returns by 10.5 percent, and the ratio of gross returns/costs of feed and animals by 12.7 percent, while the total investment in animals would vary by only 0.4 percent.

The three factors under study (reproduction, precocity and mortality) maintained their relative importance (in the above order) over a wide range of relative prices of beef/milk and widely variable feed costs when evaluated by the economic indicators. Reducing calf mortality rates from 30 to 10 percent resulted in negative economic responses with low priced beef but showed a positive response when beef was relatively high in price.



NEWS IN BRIEF

NEW PERSONNEL

Benjamín QUIJANDRIA Salmon (Peru) received the degree of B.C.A. and the title of "Ingeniero Agrónomo" in Animal Science from the National Agricultural University at La Molina, Peru, in 1964. From 1964 to 1967, he worked at the same university as Head of the Swine Research Station and as Secretary of the Animal Science Department. A graduate student at North Carolina State University in the United States from 1967 to 1970, he received his M.S. in 1969 and the following year qualified for his Ph.D. in animal genetics with a minor in statistics and physiology.

On his return to Peru, he continued working at the National Agricultural University at La Molina in the following positions: Head of the Animal Breeding Research Program (1970-73), Head of the Swine Research Program (1970-76), Director of Planning for the University (1974-75), Executive President of the Center for Studies and Projects on Investment and Development (CEPID) (1974-77), and Head of the Animal Production Department (1976-77).

He was promoted to the position of Major Professor in 1975 and has taught courses on Swine Production, Genetic Improvement of Domestic Animals, Advanced Animal Breeding and Physiological Bases of Animal Production.

In addition to his work at the University, he has served as Advisor to various private and state groups in Bolivia and Peru.

He is the author of many articles and publications on research and extension.

In 1977 The Inter-American Development Bank (IDB) contracted his services as Consultant to the Program for Dairy Development in Guatemala. He began working for CATIE as a Consultant on Small Farm Animals in March, 1978, and in September that same year he became a CATIE staff member in Turrialba, as a Specialist in Animal Science in the Animal Production Program.

Philip John SHANNON (United Kingdom) was awarded his B.Sc. degree in Agriculture in 1973 from Reading University. In 1976 he received his M.Sc. degree in Entomology from London University.

From 1973 to 1978, Shannon worked in the Library Service and the Information Service of COPR (Centre for Overseas Pest Research), which included preliminary work in setting up an abstracting and retrieval system for the world literature on termites.

On August 20, 1978, Shannon joined the CATIE staff in the Annual Crops Program as Entomologist dealing with pest control problems in small farm cropping systems. He is collaborating with other entomologists at CATIE in setting up a reference collection of insect pests from Central America and the production of a pest control manual and fact sheets for the area.

His stay at Turrialba is financed under the Pre-Service Attachment Scheme of the British Ministry of Overseas Development (ODM).

STAFF DEPARTURES

Dr. Rufo Bazán, Soils Specialist in the Annual Crops Program for eight years, resigned on September 30, 1978, to accept a position with IICA as Coordinator of the Institutional Committee of the American Tropics (CITA). Prior to his resignation, Dr. Bazán worked with the Soil Fertility Project and was in charge of coordinating the sub-project on soil analogs financed by AID/ROCAP. He played an active role in the organization of the Second Meeting of Soil Analogs held in El Salvador in March of 1978. Dr. Bazán taught classes in the graduate program at Turrialba and served as major advisor and member of the advisory committee of many graduate students.

NICARAGUA PAYS ITS FIRST QUOTA TO CATIE AS NEW MEMBER

In a brief ceremony held during the Sixth Annual Meeting of CATIE's Board of Directors, the Nicaraguan Government officially paid its first quota to

CATIE as a new member. Ing. Luis A. Osorio, General Manager of INTA in Nicaragua and CATIE Board Member (alternate), presented a check to Dr. Santiago Fonseca, Director of CATIE.

The Government of Nicaragua became a member of CATIE on May 4, 1978, when Nicaragua's Ambassador accredited in Costa Rica, His Excellency Juan Bautista Lacayo, and Dr. Fonseca signed the Document of the Adhesion of the Government of Nicaragua to CATIE.



Dr. Santiago Fonseca, Director of CATIE (left), receives a check for the Government of Nicaragua's first quota to CATIE as an official member of the Center. Ing. Luis A. Osorio, General Manager of INTA in Nicaragua, makes the presentation. From left to right: Ing. Carmen Damaris Chea, Dr. José Emilio G. Araujo and Dr. Edwin J. Wellhausen.

UNU OFFICIAL VISITS CATIE

Dr. Anton C. J. Burgers, Senior Programme Officer of the Natural Resources Programme of the United Nations University (UNU), visited CATIE November 17-20, 1978, to discuss activities for 1979 under the terms of the UNU/CATIE Contract. CATIE became the first entity to associate with the UNU in the field of Natural Renewable Resources when an Agreement of Association was signed during the visit of Dr. James Hester, Rector of the UNU in Tokyo, Japan, in October, 1977. Dr. Burgers met with the Director, Deputy Directors and the Head of the Natural Renewable Resources Program to discuss future plans. During Burgers' visit, a film entitled "Knowledge without Boundaries", which explains the organization and activities of the UNU, was shown to a large group of CATIE staff and students. At the end of the showing, Dr. Burgers answered questions from the audience and then presented a U.N. flag to the Director of CATIE.



Dr. A. C. J. Burgers presents a U.N. flag to Dr. Santiago Fonseca, Director of CATIE, during his four-day visit to the Center in November, 1978.

NEW IDRC PRESIDENT VISITS CATIE

On November 30, 1978, CATIE had the pleasure of receiving Dr. Ivan Head, the new President of the International Development Research Centre (IDRC) of Canada, who was on his first trip to Latin America. CATIE operates several projects financed by IDRC: one at Turrialba entitled Milk and Beef Production Systems for the Small Farmers using Crop Derivatives; and two others in Honduras and Nicaragua dedicated to research on small farm cropping systems in collaboration with national institutions. Dr. Head was accompanied by Henrique Tono, Regional Director of IDRC for Latin America in Bogotá; Mrs. Anne Carson and Mrs. Mairuth Sarsfield, Associate Director of Public Affairs, both of IDRC in Ottawa. Also present



Dr. Ivan Head, President of IDRC, visits the dairy module at CATIE. Left to right: Dr. Santiago Fonseca, Director of CATIE; Mrs. Anne Carson and Dr. Ivan Head listen as Dr. Gustavo Cubillos, Head of the Animal Production, explains the project.

were Miss Christine Lundy, Chargé D'Affaires of the Canadian Embassy in San José, Costa Rica; and Ing. Manuel Rodríguez, Deputy Director General, and Mario Vilches, Head of the Publications Division, both of the Inter-American Institute of Agricultural Sciences (IICA). The visitors were received by the Director, Deputy Directors and Program Heads of CATIE.

SWISS GOVERNMENT OFFICIAL VISITS CATIE

Mr. Jean-Pierre Nyffeler of the Cooperation for Development Program of the Swiss Government visited CATIE on December 4, 1978. As representative of the Program's Latin American Section, he came to review the progress achieved during the first two-year phase of the cooperative program established between Switzerland and CATIE. The decision was made to extend the first phase until the end of March, 1979.

A detailed discussion of the project proposal for the second phase led to an agreement on the part of the Swiss government to finance the following activities in CATIE's Natural Renewable Resources Program:

- A project providing forestry information and documentation for Latin America.



Director of CATIE, Dr. Santiago Fonseca, receives Mr. Jean-Pierre Nyffeler of the Cooperation for Development Program of the Swiss Government on his official visit to CATIE, December 4, 1978. Left to right: Dr. Eduardo Locatelli, Dr. Santiago Fonseca, Jean-Pierre Nyffeler and Jean Combe.

- Labor and equipment for species and propagation trials, currently under way with promising fast-growing species.
- Equipment for meteorological and hydrological measurements in watershed observations.

– Organization of a workshop at CATIE for professionals and technicians involved in bilateral forestry projects funded by the Swiss Government.

Also Switzerland will continue to provide an experienced staff member for CATIE's Natural Renewable Resources Program. At present, this member is Ing. Jean Combe.

Participating in the discussions mentioned above were Mr. Nyffeler, Dr. Santiago Fonseca, Director of CATIE, Deputy Directors and members of the Natural Renewable Resources Program. Previous to the discussions, the Deputy Directors Héctor Muñoz and Eduardo Locatelli, and Ing. Jean Combe accompanied the Swiss visitor on a tour of field experiments.



MISCELLANEOUS ACTIVITIES

THIRD MEETING OF THE REGIONAL ADVISORY COMMITTEE OF THE CATIE/ROCAP PROJECT

The third meeting of the Regional Advisory Committee of the CATIE/ROCAP* Small Farm Cropping Systems Project was held at CATIE on October 10 and 11, 1978. During the meeting, there were discussions on the Project's achievements in the six countries of the Central American Isthmus.



Dr. Santiago Fonseca addressing participants of the Third Meeting of the Regional Advisory Committee of the CATIE/ROCAP Project. From left to right: Dr. Héctor Muñoz, Dr. Santiago Fonseca, Dr. Eduardo Locatelli, and Dr. Pedro Oñoro.

The following representatives from research institutions in these countries participated in the meeting: Ings. Mario Sáenz Artavia and Carlos A. Ramírez of MAG, Costa Rica; Ings. Roberto Vega Lara, Víctor Antonio Vásquez and Hernán Ever Amaya of CENTA; and Ing. Heleodoro Miranda of IICA, El Salvador; Ings. Manlio Castillo and Ramiro Ortiz of ICTA, Guatemala; Dr. Mario Contreras, Dr. Franklin E. Rosales and Ing. Wilberto Fiallos of the Ministry of Natural Resources, Honduras; Dr. Oscar Hidalgo and Ing. Reynaldo Treminio of INTA, and Ing. Francisco Tercero Vellecillo of INVIERNO, Nicaragua; Dr. Santiago Ríos and Ing. Félix Estrada of IDIAP, Panama. Also attending were CATIE staff members stationed in each of the countries and in Turrialba. The representatives from the national institutions elected Dr. Hidalgo as president, Ing. Vega Lara as secretary of the Committee, and Dr. Ríos as alternate. Their dedication and efficiency were largely responsible for the success of the meeting.

Following a motion presented by Ing. Treminio, the Committee firmly backed (first recommendation) CATIE's negotiations with ROCAP for the continuation of the Project, recognizing the benefits that the Central American countries have received from it.

INTENSIVE COURSE ON MANAGEMENT AND UTILIZATION OF TROPICAL PASTURES FOR ANIMAL PRODUCTION

The Animal Production Program at CATIE held an intensive course on the Management and Utilization of Tropical Pastures for Animal Production, November 1 through December 13, 1978.

The six-week course, financed by the Organization of American States (OAS), was attended by forty-nine professionals from fifteen countries as shown by

* Regional Office for Central American Programs (ROCAP) of the Agency for International Development (AID).

the following break down: Argentina (6), Bolivia (3), Brazil (2), Chile (1), Colombia (1), Costa Rica (8), Ecuador (3), El Salvador (1), Guatemala (4), Honduras (3), México (7), Panama (2), Paraguay (1), Peru (3), Venezuela (4).

Among the participants, twenty were from the CATIE—University of Costa Rica Graduate Program, fourteen were financed by the OAS, three by the Food and Agriculture Organization of the United Nations (FAO), and one by the International Development Research Center (IDRC). Eleven were sponsored by their own institutions, or had independent financing. All participants had to be involved in research work or teaching in their respective countries, as the objective of the course was “to improve and update the knowledge of professors and researchers involved in tropical bovine production based on the use of pastures”.

The series of classes given by professors and researchers, in most cases specialists of international prestige, included the following topics:

PART I. Fundamentals of the Soil-Plant Relationship in Forage Production.

- Considerations in forage production. Gustavo Cubillos, Ph. D. (Chile).
- Establishment of Pastures for Bovine Production in Tropical Areas. Enrique Alarcón, Ph.D. (Colombia).
- Nutritional Requirements of Forage Plants Utilized in Animal Production. Rufo Bazán, Ph.D. (Bolivia), Rafael de Lucía, Ph.D. (Uruguay) and Alberto Ramírez, M.S. (Colombia).
- Physiological Aspects of Forage Plant Production. Roy Blaser, Ph.D. (USA).
- Introduction and Selection of Species. Jorge León, Ph.D. (Costa Rica).



Participants of the intensive course on the Management and Utilization of Tropical Pastures for Animal Production visit the experimental farm of CATIE's Animal Production Program.

PART II. Animal Production Based on Grazing in Tropical Areas.

- Nutritive Value of Forages. Rodrigo Parra, Ph.D. (Venezuela) and Danilo Pezo, M.S. (Peru).
- Forage Management and Utilization. Ricardo Garza, Ph.D. (México).
- Management of Pasture Systems. Gustavo Cubillos, Ph.D. (Chile).
- Solutions to the Feed Shortage in Production Systems Based on Grazing. Claudio Wernli, Ph.D. (Chile), Manuel Ruiz, Ph.D. (Peru) and Alberto Moreno, M.S. (Argentina).
- Animal Production Systems in the Tropics Based on Pastures. Filemón Torres, Ph.D. (Argentina).

PART III. Other diverse activities forming part of the course included seminars, in which participants discussed different aspects of forage production in relation to animal production in their respective countries.

Several CATIE staff members gave lectures in their fields of specialization: Dr. Karel Vohnout on Quantitative Methods of Systems Theory, Dr. Gerardo Budowski on Silvo—Pastoral Systems, and Ing. Humberto Jiménez on Agricultural Information Systems.

The group visited three different ecological areas in Costa Rica in order for the participants to observe and analyze different beef and milk production systems according to the existing type of vegetation in each area.

FOUR CACAO COURSES GIVEN BY CATIE IN 1978

CATIE has increased considerably its training activities at the regional level in response to the growing interest in cacao production in the area. A series of courses on cacao covering theory and practice have been given to meet the needs created in Central America by a lack of such courses during the last eight years.

The first of these courses was held June 5–10, 1978, in San Juan Pueblo, Atlántida, Honduras. It was sponsored by the Inter-American Institute of Agricultural Sciences (IICA); by the National Agrarian Institute (INA) on the part of its program for Training Farmers for Agrarian Reform (PROCARA); and the Food and Agriculture Organization of the United Nations (FAO). Forty-one persons attended the course, including representatives from companies engaged in community development and related to the National Farmers Association of Honduras (ANACH), the Federation of Agrarian Reform Cooperatives (FECORAH) and six independent groups. Participants also included specialists of the INA Cacao Program in La Ceiba.

The course was given by Dr. Gustavo A. Enríquez and Ing. Alfredo Paredes of CATIE's Perennial Plants Program; Mr. Myron Shenk specialist in Weed Control, and Dr. Joseph Saunders, Entomologist, of the Center's Annual Crops Program.

The Ministry of Agricultural Development (MIDA) in Panama and the Panamanian Institute of Agricultural Research (IDIAP) sponsored the second course in Changuinola, Bocas del Toro, Panama, July 17-22, 1978. There were 53 participants in the course from different sectors including independent growers, teachers, students, and employees of MIDA. The course was given by Dr. Gustavo Enríquez and Ing. Alfredo Paredes.

The next course was held at CATIE's cacao farm at La Lola August 16-25, 1978, for personnel of Costa Rica's Ministry of Agriculture and Animal Husbandry (MAG). The course was attended by 16 MAG professionals. Dr. Gustavo A. Enríquez and Ing. Alfredo Paredes dictated the course with the collaboration of Drs. Rufo Bazán, Joseph Saunders and Mr. Myron Shenk of the Annual Crops Program and Dr. Gerardo

Budowski of the Natural Renewable Resources Program.

The site of the fourth course, held November 23-December 2, 1978, was again San Juan Pueblo, Atlántida, Honduras, with the Honduran Institute of Rural Development (IHDER) as sponsor. Forty-one persons attended from the areas of Cuyamel, León, and La Masica, with the participation of technical personnel from the National Institute for Professional Training (INFOR) and from the INA cacao project at La Masica. Dr. Gustavo A. Enríquez and Ing. Alfredo Paredes were instructors, receiving logistic and administrative assistance from Ing. Alvaro Martínez Puerta of INA and Ing. Adrónico Espinal of IHDER.

In each one of these courses, printed material covering the lectures was distributed to the participants.

CATIE will continue to offer activities of this kind throughout 1979.

CATIE CENTRO AGRONÓMICO TROPICAL
DE INVESTIGACIÓN Y ENSEÑANZA

Turrialba, Costa Rica

CORREO
IMPRESOS
AÉREO