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Training and Conferences

A Strategy Document

8 May 1981

Centro Internacional de Agricultura Tropical

Centro Internacional de Agricultura Tropical. Training and Conferences Program.

Training and conferences: a strategy document.

FOREWORD

This strategy document for Training and Conferences has been developed by the Coordinator of Training and Conferences Activities in close interaction with the Coordinators of the Commodity Programs, with advise from the Director of International Cooperation, the Directors of Research and CIAT's Director General. It reflects the ideas of all these persons and their experiences at CIAT and elsewhere.

In addition, the document was consulted with Directors of Research and of Research Institutions of Latin America during a special seminar held 7 to 9 April 1981, on CIAT's Long-Term-Plan. Their comments and suggestions have been incorporated in this edition for the most part and are also included in their original form in the appendix.

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POSTGRADUATE TRAINING AND CONFERENCES

STRATEGY DOCUMENT

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POSTGRADUATE TRAINING AND CONFERENCES

The generation of improved technologies in agriculture and its subsequent transfer, diffusion and application, largely depends on the availability of well qualified scientific and technical staff. In fact, the lack or insufficiency of high-yield germplasm and attendant technologies in countries of the tropics, is a direct consequence of the lack or shortage of well-trained research scientists and of support services and extension personnel; all of them capable of continuously generating testing, adapting, validating and diffusing new improved technologies, with the potential to increase yields and availability of food commodities, at low cost to rural and urban consumers.

Likewise, the absence or imperfection of research and production policies in countries of the tropics results from the inadequate understanding of the role of research-production relationship among decision makers at various scientific and administrative levels.

These facts were from its inception recognized by CIAT when it decided to include in its organization a vigorous component of Training and Conferences parallel to the centers research structure.

Since early in the decade of the seventies CIAT began to develop, through training, relations with national research and extension programs in the countries of Latin America. These programs were in varied states of evolution, some very incipient, others more advanced, but all of them susceptible of benefiting from the training of their staff.

TRAINED SCIENTIFIC STAFF; A LIMITING FACTOR

The absence or weakness of some national commodity research programs is in part due to under-investment in research by governments of developing countries. In addition, several other factors limit the competency and the effectiveness of their often scarce scientific staff. The most critical factors are easily identified as follows:

a. The basic agricultural education tends to be inadequate for work in research. Universities still follow encyclopedic approaches and their graduates do not have sufficient field and laboratory practice.

b. In spite of some progress in stablishing and developing graduate schools in Latin America, these are still few and of low capacity in relation to the needs of the area region.

c. Specialized training on a given food commodity (ej. beans) is available in few places.

d. Professions in agriculture enjoy still a low level of prestige in comparison with medicine, law or engineering. This negates

priority in the assignment of resources for agricultural research in the countries.

e. Professionals in agriculture possessing graduate degrees are all too frequently lured to administrative positions, instead of being assigned to the research roles for which they have been prepared. Others change jobs frequently or are promoted to other positions. These forms of "internal brain drain" make additional efforts necessary to train new staff or substitutes.

CONFERENCES AND RESEARCH NETWORKS

The colaborative or independent generation of new improved technologies for increased agricultural production requires close communication among research staff of national programs, of CIAT's programs and of other international organizations. New germplasm and attendant technologies generated at a given location need to be tested in many other locations and selected for specific ecologies and social enviroments. Finally, they have to be validated in regard to its economic value. All of these require a network of collaborators for regional and local experimentation and for exchange of information among research workers of national programs, through CIAT and independently from it.

Conferences, and specially workshops, are recognized as effective mechanisms for information exchange and are useful in the planing of collaborative strategies within the research networks on a given specie. For these purposes CIAT has developed a yearly program of conferences on the commodities in his mandate, beans, rice, cassava and tropical pastures. In such program the center contemplates other seminars and meetings that not being commodity specific, focus on certain problems accross commodities along the lines of a scientific discipline.

1. INITIAL OBJECTIVES, PHILOSOPHY AND EVOLUTION OF THE PROGRAM

Training and Conferences Activities have been of a dinamic nature, adjusting its development in accord with the objectives and evolution of CIAT's research programs, as well as gearing its operations attempting to satisfy the needs and interests of the national programs. Three stages are easily recognized in the past as stated below:

1.1 " The first stage: Initiating a Program of Training and Communication 1968-1972"

In January 1978, a five-member program study team of two CIAT staff members and three of outside consultants, laid the basis for a " Training-Communication Program " at CIAT. From the recomendations of that team the objectives below were chosen to guide the start of training and communication activities.

1.1.1 Objectives

a. To identify institutions and individuals whose roles in the various countries involved are highly relevant to the development process.

b. To bring together these institutions and individuals in meaningful ways and with a catalytic-type action. This includes information dissemination, as well as conferences, symposia and other exchange activities.

c. To train individuals so that they can effectively function in their own institutions and thus enable those organizations to contribute significantly to the development process.

1.1.2 Outstanding Characteristics. As stated by its first head: "Training at CIAT" was characterized by a "communication approach" that sought to shorten the time between the development of a new variety and its utilization by farmers. Compatible with this purpose a sense of urgency was an intrical part of training. Another outstanding overall approach at CIAT was " learning by doing " with emphasis on field activities of research and production practices.

1.1.3 Evolution. These objectives and approaches governed the initial stages of development of training at the Center, which capitalized on experiences at IRRI and elsewhere. The evolution of Training and Conferences was geared to the overall Center's pace of evolution. In 1970 CIAT's mandate and organization was quite broad and included in the Crops Science Division: A cereals program with three separate crops; rice, maize and sorghum; a Tropical Root-Crops Program collecting cassava germplasm but also considering sweet potatoes and yams. A Grain Legumes Program exploring soybeans and field beans, and in the Animal Science Division: a large Beef Program emphasizing animal health and animal management plus a small Swine Program focused on nutrition and animal management. A strong disciplinary structure (agronomy, pathology, entomology, etc) criss-crossed horizontally with an emerging vertically integrated commodity program structure. Of all these, rice was the program in a more advanced stage of evolution typified by the release of CICA-4 in 1970.

1.1.4 Courses and in-service training. Training, not to overload such programs in an early stage of definition and take off, operated with considerable autonomy while trying to help the said programs evolve. The W. Kellog Foundation and AID provided the funding for training activities started in 1969 with two in-service interns in rice.

In 1970 two twelve-month courses were initiated, compatible with the two Divisions of CIAT. The "Liverstock Production Specialists Training Program", LPSTP, dealing with beef cattle and swine; and the " Crop Production Specialist Training Program ", CPSTP, focusing simultaneously on rice, maize, sorghum, field beans, soybeans and cassava. These courses financed by the Inter-American Development Bank, IADB, continued through 1975 in a series

of four LPSTP and six CPSTP. They helped CIAT to gain experience in many aspects of managing and providing training, and to generate good will and recognition by the national organizations; while the commodity research programs of CIAT defined its objectives, sharpened their focus and gained strength. Many of those trained professionals now fill positions in research, extension, and development in national institutions.

During this period of evolution of CIAT, individualized in-service training was increasingly promoted. It helped to strengthen disciplinary groups and commodity teams in client countries at the same time that research programs were developing. The following training categories were then stablished and 233 scientists were trained until 1972.

a. Postgraduate Internship-Research: Individualized learning by doing, training opportunities at the Ing. Agr. level in a specific research discipline dealing with one or more commodities.

b. Postgraduate Internship Production: Same as above but with a multidisciplinary focus on a commodity or group of commodities such as in the LPSTP or CPSTP. Participants were at the Ing. Agr. level.

c. Research scholarship: Students pursuing academic MS study at selected universities under CIAT's sponsorship, conducting MS thesis research at CIAT.

d. Research fellowship: Individualized post-MS training in research topics concentrating on a commodity from a single discipline focus. This category included also the conduction of Ph.D., dissertation research.

1.1.5 Conferences. The Conference operations of the program started with the centers own internal seminar series in September 1970. It had its international take off with a Seminar on Policies for Rice Production in Latin America in October 1971, almost simultaneous with a Workshop on Rice Blast. Subsequently in January 1972 a Planning Workshop on Cassava Research was held. A similar one, on Strategies for Bean Production Research in Latin America took place in February 1973. Both had the purposes of reviewing the state of research and of consulting the worlds experts on these commodities, regarding the future organization and strategy of the two new programs.

1.1.6 Geographical scope. At the start, the geographical scope of training was solely Colombia, were all of the training participants were identified and selected. By 1970, however, the proportion of participants from other countries started to increase and in 1972, 20% of training participants came from other countries.

1.1.7 Organization. During the first years of CIAT's development a principal concern of the Training and Communication Program was to integrate physically, conceptually and administratively the behavioral science

approaches necessary for effective training and communication, with the production-oriented multidisciplinary commodity team approaches to the solution of agricultural and economic problems of the lowland tropics. These consideration influenced the design of facilities completed in 1973. All along this period of evolution Training and Conferences was organizationally comprised in the Training and Communication Program that also contained the Library and Information Services. In 1974 these two later sections became independent and evolved separately.

Three senior-staff level, scientist had full time training responsibilities one heading of the program and one each in charge of training for the Crops Science Division and the Animal Science Division respectively. A conferences associate was assigned to managing conferences.

1.2 The second stage: Strengthening International Cooperation 1963-1975

Once the initial goals of organization and construction of facilities in Palmira, and of starting the research programs (rice, maize, beans, cassava, beef and swine), the strengthening of international cooperative relations acquired increasing importance. The objectives of Training reflected an attitude of cooperation with national programs in accord with the progress attained by the research programs. At that time the Training and Conferences Program was perceived within CIAT as the principal vehicle for the transfer of technology to the Latin American countries and others in Asia.

1.2.1 Objectives. At the begining of the second stage of evolution of the program, its objectives were stated as follows:

a. To develop and to test strategies and techniques for the rapid spread and adoption of improved germplasm and cultural practices.

b. To provide specialized instruction and experience in specific research fields for young scientists and to offer opportunities for such persons to engage in supervised research on problems of significance to their countries.

c. To develop and demonstrate more productive approaches including various internship programs, for pre-and in-service preparation of such professionals and non-professionals as agricultural production specialists.

d. To assist other institutions to establish, conduct and evaluate educational and training programs appropriate to their needs and institutional capabilities.

e. To help national leaders and policy-makers understand and assess the agricultural potentials of their countries and how these can be realized.

f. To provide information and instructional materials for reference and use in training programs of other institutions.

g. To establish and maintain on-going evaluations of the Training and Conference Activities of CIAT.

h. To provide orientation and communication services for the staff of CIAT.

With these objectives Training and Conference Program continued to grow through 1975 developing a strong reputation in client countries and helping strengthen national research and extension capabilities.

1.2.2 Increase in Relations with National Programs. During the period 1973-1975 the contacts with national programs were increased notably including germplasm collection and exchange ,technical assistance to research,and training. Figure 1 shows the increase in proportion of participants from outside Colombia and the expansion of cooperation with priority countries. Fig.2 shows the yearly increase in all participants.

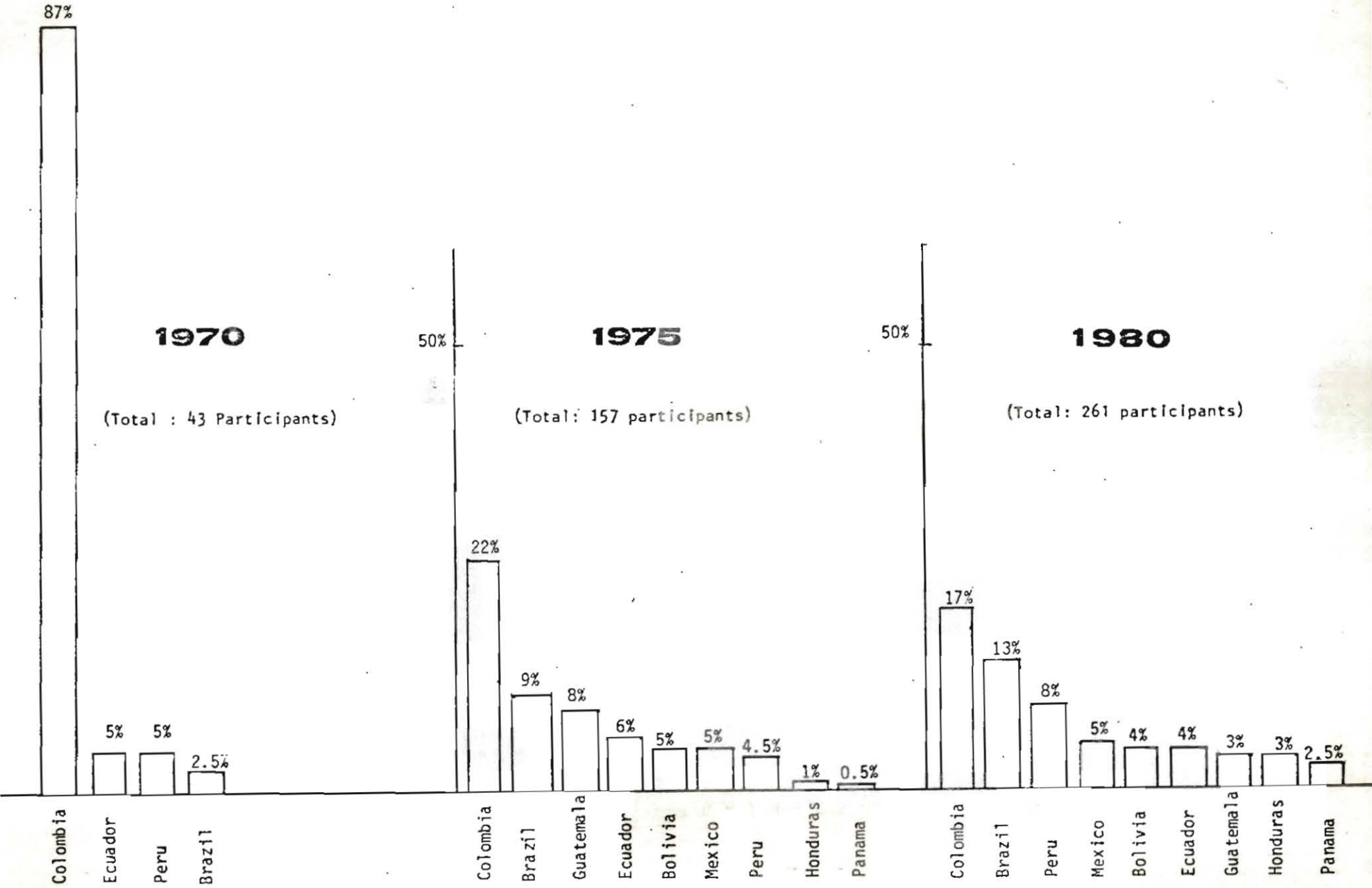
1.2.3 Begining of the International Research Networks. In this second stage, the concept of " research networks " as essential components of CIAT's international Cooperation was adopted. This concept emphasized colaborative regional testing (adaptive research) of potentially viable improved germplasm and attendant technologies. CIAT-trained scientists became ,in an informal way ,members of these incipient research networks, specially in rice, beans and cassava, together with other more experienced researchers already present in national programs. Conferences played then a critical role in lending coherence and coordinating the start of network strategy and operations. Appendix A shows the seminars and workshops held for the above purposes in the period,plus other conference events.

1.3 The third stage: Decentralization of Training and Conferences 1976 to present

The year 1976 marked a turning point in CIAT's Training and Conferences Program. Having consolidated its approaches and acquired considerable experience, the program was then equiped philosophically and conceptually to: a) internally be useful to the commodity programs of the center in the collaborative generation, regional testing and interinstitutional transfer of technology and b) externally be of service to the client countries to help them develop their research manpower, so they may best utilize new technologies emerging from CIAT's programs.

By then, each of the five commodity programs, beans, cassava, rice, beef and swine had attained a sharp focus and a clear definition of objectives had identified their geographic and ecologic limits ,and some new technologies had been generated. Parallel to these developments, CIAT's training had acquired a sound international reputation parallel to that of research, and national programs were manifesting greater awareness of the advantages

Figure 1. PROPORTION OF CIAT'S TRAINING PARTICIPANTS FROM NINE COUNTRIES WITH THE LARGEST PARTICIPATION IN 1970, 1975 AND 1980



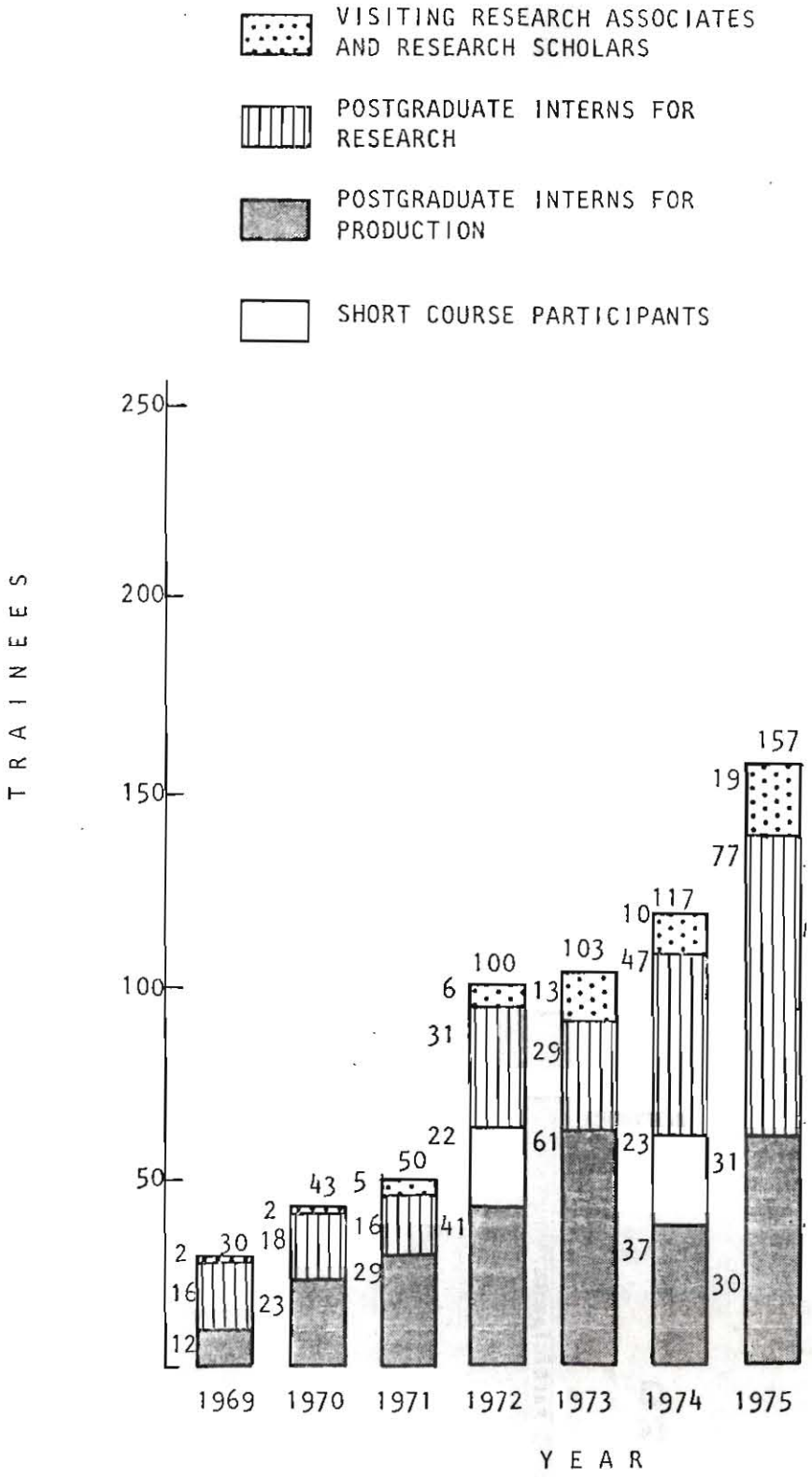


Figure 2. Increase in number of training participants 1969 - 1975

of vertically integrated commodity research and production programs in substitution of the traditional disciplinary departmentalization.

The conditions were then opportunely given to end the relatively independent training operations so far conducted by the "Training and Conferences Program" and to transfer to the commodity research programs a major part of the responsibility and action in the training of their future colaborators from national programs. CIAT's commodity programs were also given a greater role in conferences so they may actively function in coordinating research networks and exchange of information.

1.3.1 Revised Objectives. For the above purposes an internal workshop on Training was held at CIAT on April 1976. The following were then established as the objectives of Training and Conferences:

a. To contribute toward developing cooperative networks on field-beans, cassava, rice, beef, maize and swine for the purpose of validating, adapting and diseminating technology from the Center.

b. To help national institutions strengthen their agricultural research and development capabilities regarding CIAT's commodities.

1.3.2 Activities. To accomplish these objectives the following activities were chosen:

a. Specialized graduate training in specific research fields on CIAT's commodities

b. Multidisciplinary integrated training in field-testing of technology and in production practices on a single commodity basis.

c. Assistance to national institutions to establish and conduct within-country production training programs on CIAT's commodities.

d. Production of training materials for use in CIAT-based training as well as for within-country training and individualized on-the-job training.

e. Personal and institutional follow-up to graduates of CIAT's training as backstopping for collaborative testing and further transfer of CIAT's technologies in each country.

f. Conference events for research scientists, development workers and decision-makers either separate or as combined groups, to transfer information, obtain feedback and develop research and production strategies.

1.3.3 Reorganization of Training. In concert with the accepted commodity focus and with the existing level of evolution of CIAT's program, Training and Conferences was reorganized in 1976 following the three fundamental concepts below:

a. Training and Conferences is not an independent program but a set of " activities " that are intrical part of each commodity program.

b. Training and Conferences Activities are conducted in support of collaborative and independent commodity research in the countries.

c. Training and Conferences Activities are based on the center's research function and are part of CIAT's international cooperation.

These changes in objectives and philosophy suggested also changes in staffing. The former two positions of coordinators of training in the crop science and animal science division were eliminated. A coordinating head was maintained on a center-wide basis. A support personnel position (MS level) was assigned to each commodity program to provide leadership for the courses, to take care of logistics and to represent the Training Office in administrative details. At the same time, major responsibility was given to Coordinators of the commodity programs in deciding the training strategy of each program and in chosing the combination of training components that best suits the aims of the program and the priority countries.

The official name of Training and Conferences Program, changed to " Training and Conferences Activities " to better reflect of the new organization and to dispel the earlier notion of Training and Conference being a self contained " program " separate from the commodity programs. The Office of the Training Coordinator, senior staff level, maintained a central coordination to assure: 1) continuity between the various training efforts at CIAT, 2) efficiency of administration of training participants, 3) adherence to Center-wide training standards by the various programs, 4) efficient sharing of training resources and 5) integration of relatively independent training efforts into overall CIAT training and international cooperation strategies.

The Conferences section was redesigned to maximize administrative logistic and methodologic support to a steering committee for each conference event.

1.3.4 Developing critical mass. In 1976, CIAT had a strong preocupation to increase rapidly, in the client countries, the number of professionals knowledgeable of the research methdologies and of the progress and technologies generated at the Center. The short course approach tried for the first time during a rice production course in 1972 proved to be effective and convenient to develop critical mass and was adopted subsequently in training on beans, cassava and swine during 1977, 1978 and 1979 with special project funding from the UNDP. Simultaneously, longer term 6-month courses on rice, swine and beef were conducted and post-graduate internships and associateships were made available together with MS and Ph.D., thesis research opportunities.

2. PRESENT OBJECTIVES, PHILOSOPHY AND STRATEGY

Present objectives of Training and Conferences Activities must be defined within the overall objectives of CIAT, revised in 1977, which are:

> " To generate and deliver, in collaboration with national institutions, improved technology which will contribute to increased production, productivity and quality of specific basic food commodities in the tropics, principally countries of Latin America and the Caribbean, thereby enabling producers and consumers, specially those with limited resources, to increase their purchasing power and improve their nutrition ".

2.1 Principles. Also, Training and Conferences Activities base its objectives and operations on two important basic principles of international cooperation as stated in CIATs' strategy paper for Outreach Services; the principle of Complementarity and Cooperation and the principle of Comparative Advantage.

The first principle essentially means that " the cooperations as partners " by various national, regional and international agencies, of which CIAT is one, is necessary for successful accomplishment of final results. Cooperation occurs through a continuum of research and institutional transfer involving those organizations. CIAT's role in this continuum is graphically represented in Figure 3 and requires that active and strong collaboration must take place at the interphases between organizations. This also means that the work of CIAT can be effective only to the extent that it cooperates as a partner with its counter-part commodity research programs in each country. They become the limit of direct CIAT's involvement in interinstitutional transfer and the primary source of candidates for training at the Center.

The second principle, restricts CIAT's direct actions to those regarding its mandated commodities and to those activities in which it has a unique capability to do the job better.

2.2 Present Objectives. In accord with CIAT's general objectives and with the principles stated above, CIAT's present objectives for Training and Conferences Activities is stated as follows:

> " To help national programs (*) increase their capability for cooperative as well as independent research and transfer of technology on commodities of CIAT's mandate and related fields; in order to facilitate the utilization by client countries of CIAT's generated technologies and to help build the national programs own research capacity towards a goal of self sufficiency in applied research ".

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* Include official government and autonomous institutions as well as private enterprises

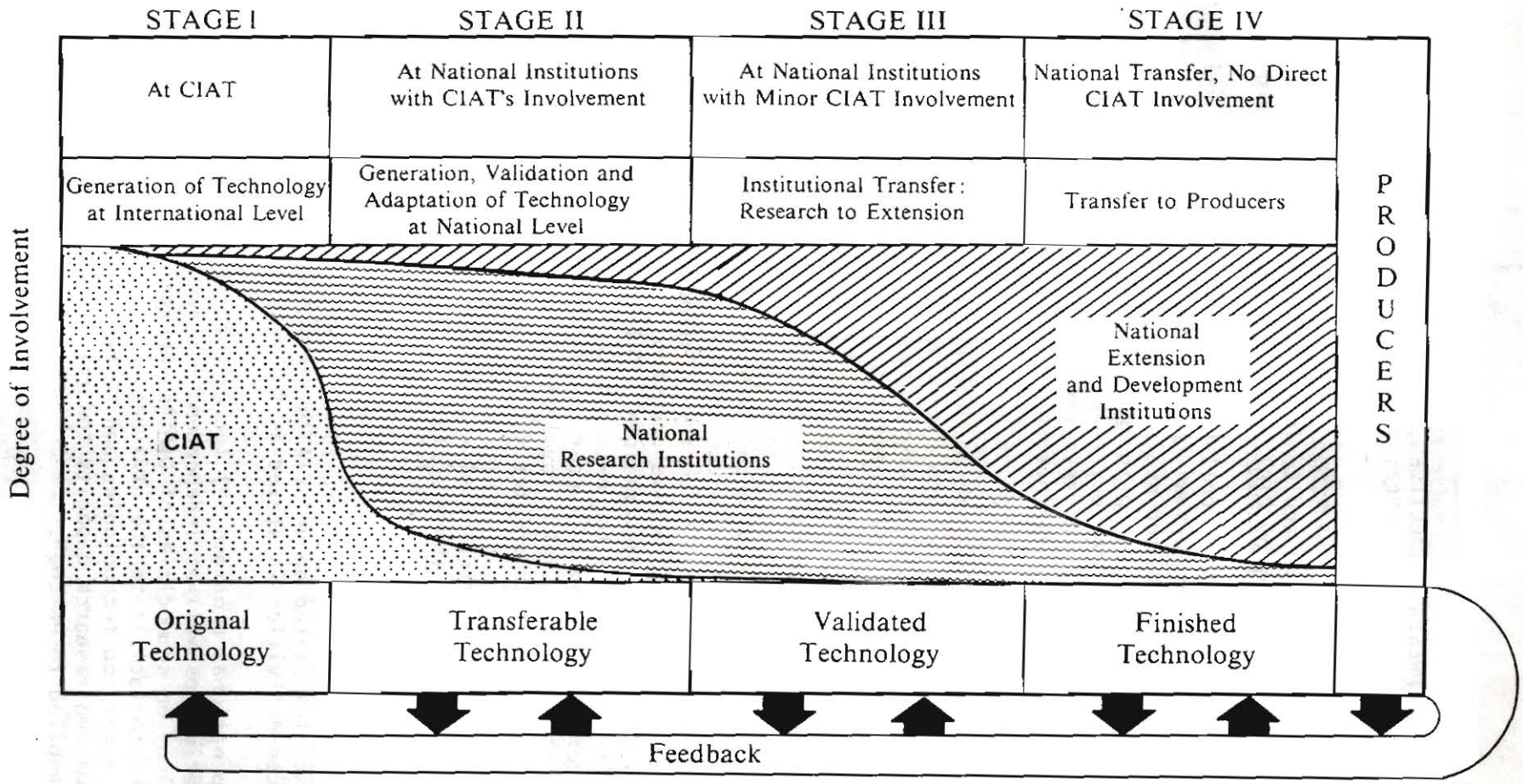


FIGURE 3. **Degree of involvement of CIAT and national institutions in the technology generation/ utilization process for commodities in CIAT's programs**

Under this overall objective the following operational objectives apply all of these in the context of CIAT's commodity mandate:

a. To help prepare scientists for collaborative and independent research in specific disciplines on a commodity.

b. To contribute towards the development and staffing of inter - national, regional and national research networks on field beans, cassava, rice and tropical pastures devoted to exchange, testing and validating improved germplasm and attendant technologies.

c. To help prepare commodity oriented professionals for multiplication of training.

d. To help prepare personnel for research-support services.

e. To help bridge research and extension in the countries.

f. To assist through conferences, scientists and decision makers and policy makers to plan research and transfer efforts for the generation, validation and utilization of new high-yielding technologies.

2.3 Training, a means to an end and a way to generate a product.

Some of the objectives stated above may give the impression that training is only a means to transfer technology from CIAT to national programs. It must be made clear that, although CIAT's principal product is improved technology, another product also very important is scientists equiped with solid knowledge and skills on research methodology and new technologies regarding CIAT's commodities. This second product is vital to the interests of national programs and to the achievement of CIAT's objectives, that are essentially common to those of said programs.

2.4 Operational principles

Along with the above objectives, the following operational principles guide the organization and operations of Training and Conference Activities at CIAT.

a. Training should use learning by doing methods in field experiences. Classroom and other instructional methods will be a complement to learning by doing, to enhance in the participant knowledge and research skills. In the same vein, conferences should stimulate participants to actively interact in the exchange of information and ideas and in the derivation of concrete plans or conclusions.

b. Training and Conference Activities should attempt to qualify, motivate and energize participants for subsequent actions back in their countries or consequence of their sojourn at CIAT.

c. Training and Conferences Activities should be transferable and

have a built-in multiplier effect both through the actions of the participants and by means of follow up actions.

d. Training and Conferences should be dynamic and flexible enough to adapt training opportunities to needs of client institutions and to the evolution of the Center's research programs.

e. Training and Conferences Activities should be problem solving oriented and focused on the priority constraints on production of CIAT's commodities.

f. Training and Conference Activities should stress cooperation with national programs and with other regional and interregional organizations.

2.5 Present strategy: Building research capability in national programs

Strong national commodity research programs free of serious constraints are an indispensable ingredient to the achievement of CIAT objectives. In seeking those objectives the centers visualizes a research continuum shown graphically in Fig 3 and adopts an attitude of genuine collaboration at the same time that applies the principles of complementarity and co - operation and of comparative advantage stated in section 2.1 of this document. In the light of the above, improved technology on beans, cassava, rice and tropical pastures is initially developed mostly at CIAT headquarters and outlying stations. In some cases technologies for certain ecologies or constraints emerge through joint cooperative efforts with a few selected national institutions i.e. CPAC in Brazil and ICTA in Guatemala. Other technologies are generated by the independent efforts of some national programs or other organizations. Regardless of their origin, those incipient technologies have to follow successive steps of selection or testing, adaptation and validation for location specific situations. These steps can only be carried by researchers in the national programs. CIAT offers involvement only to the extent that its technical assistance is needed. Such cooperation in applied and adaptive research is inherent to the nature of CIAT's research.

Furthermore, self sufficiency in research by national programs is a goal that in the next decade will progressively shift part of the present work of CIAT to the national programs. At the present time very little breeding work is done on rice in countries of Latin American region. It is expected that this type of research will increase in national programs particularly by staff who has been trained at CIAT and with parent germplasm provided by the Center. Towards these goals, one of CIAT's most outstanding contributions through training is the progressive accumulation of self-confidence in the staff of the country programs.

2.5.1 Focus on institutions. The center focuses its collaboration, first of all, on the national institutions conducting research programs on rice, beans, cassava and tropical pastures and secondly, in certain cases, on extension or development organizations and on seed enterprises.

The training that best fits programs in each country varies considerably with their existing strength. CIAT is prepared to maintain close contact with their evolution over the near future to assist as efficiently and effectively as possible in building their research capability. The task however, simple as it may seem, faces serious and persistent " brain drain " difficulties and others, all inherent to the overall process of development of the countries themselves. The most critical of these difficulties are: a) low academic level of available personnel, very few with graduate degrees, b) frequent attrition or upward movement of trained staff within the institutions, c) dilution of work of CIAT's trained scientists to cover too many responsibilities, d) insufficient support of commodity research in their institutions. These negative factors, often make necessary repetitive training efforts to replace the staff turnover making progress slower and costlier. Without these scientists, however, the technologies generated by CIAT and in the countries themselves, could not realize its potential. In the long run, moreover, trained scientists, CIATs' second product, are expected to make an impact equivalent and parallel to that of CIAT's first product, improved technology.

2.5.2 Priority Institutions. The task of program building is large and costly, so it requires establishing of priorities. Thus, CIAT has chosen to give first level of attention to official commodity research programs in government research institutions. Second level of attention goes to universities but only those that have active commodity research projects. Third level priority is assigned to selected leadership staff of extension and development organizations to help link research with extension. This set of priorities is expected to change little in the near future. However, and increasing emphasis to universities should occur as they become more active in research and as graduate and undergraduate education ,typified by large multiplier effect, become more important for the transfer of technology, from CIAT and from national research institutions to the professional agriculturists.

2.5.3 Priority Countries. Priority countries vary for the different commodities in CIAT's mandate. They are selected on the basis of the following criteria:

a. The importance of the commodity on the food diet and the economy of the country.

b. The existence of ecology adequate for the production of the commodity as defined by the objectives of each program.

c. The interest of the country in research on the commodity.

d. The degree of development of the countries' program and its staffing needs in relation to scope of existing and future plans of that program.

2.5.4 Promoting the development of research networks. Research networks are strongly promoted in each commodity with the purpose of exchanging information and agreeing on research plans. Training and Conferences assist in preparing the scientist that become members of the network and in providing the venue and the organization for biannual meetings of the networks such as the Workshops on International Bean Yield and Adaptation trials.

3. PRESENT OPERATIONS

To implement and put into practice the strategy just stated, CIAT conducts a number of operations described below:

During 1980 the national programs were offered a variety of training options. The majority of the operations included short intensive courses, individualized internships or combinations of both. Fig 4 shows these structured programs for the four commodities and also the short courses on seeds. During the year a total of 303 professionals were trained at CIAT, 69 in beans, 78 in cassava, 33 in rice, 60 in tropical pastures, 55 in seeds and 8 in research support services. Seven visiting research associates conducted Ph.D., dissertation research and 8 MS thesis research. Other 15 have been studying for MS degrees under a special project funded by UNDP and will subsequently come to CIAT for their thesis project. Table 1 shows the distribution of the number of professionals trained during 1980 according to commodity and category.

Research network conferences took place on cassava and beans. Others details are given in the 1980 annual report.

3.1 Training Opportunities Offered by CIAT

CIAT makes available to national institutions a range of type levels and orientations of training opportunities. A built-in flexibility of choice and implementation allows the Center to adapt its training offers to a multitude of individual cases, depending on the aims and needs of the national program and the background and scientific needs of the participant.

3.1.2 Levels of Training. Training at CIAT is essentially of a postgraduate nature. While it is recognized that national programs have personnel at several para-professional levels as well as college graduates, CIAT has chosen to concentrate its attention on the university graduates, Ing. Agr. or equivalent, because that is where the pay-off in terms of research accomplishments and increased production is likely to be higher and quicker. Also, because it is the university graduates that have the science background required for successful work in research. CIAT, however, recognizes that in a few countries where college graduates are scarse, exception may have to be made to this principle at least while professionals with university degree become available.

Training options are offered for different academic levels. These are identified with training categories as follows:

	Type	Category
A. Non-degree related	Post-Baccalaureate	Postgraduate Intern
	Post-Masters	Visiting Research Associate
	Post-Doctoral	Post-Doctoral

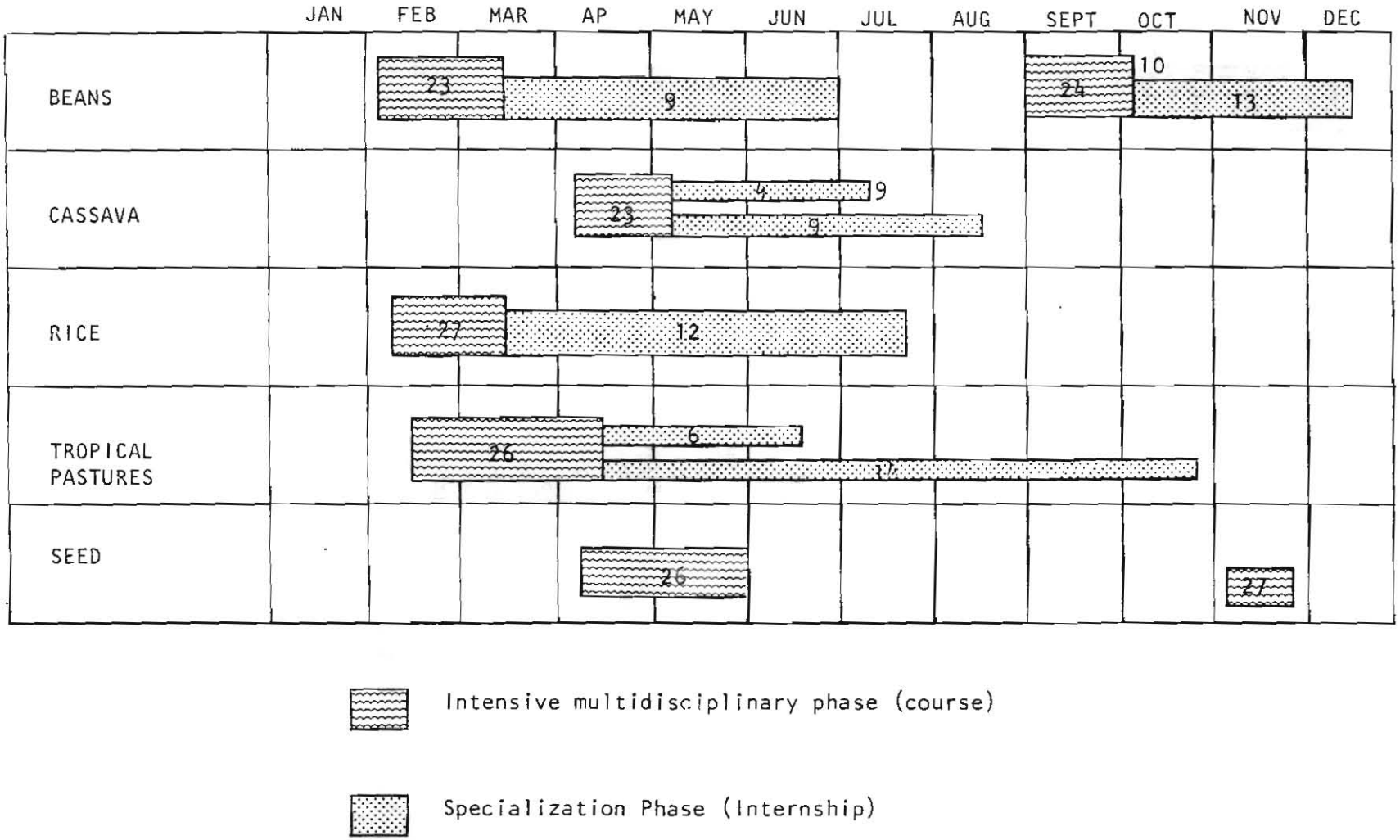


Fig. 4 STRUCTURED TRAINING PROGRAMS ON CIAT's COMMODITIES IN 1980

Table 1.

PROFESSIONALS TRAINED AT CIAT IN 1980, BY TRAINING CATEGORY IN EACH COMMODITY AN SUPPORT UNIT

PROGRAM OR UNIT	CATEGORY OF TRAINING						
	VISITING RESEARCH ASSOCIATES	RESEARCH SCHOLARS	POSTGRADUATE RESEARCH INTERNS	POSTGRADUATE RESEARCH INTERNS WITH SHORT COURSE PARTICIPATION	SPECIAL TRAINEES	SHORT COURSE PARTICIPANTS	PROGRAM SUB-TOTALS
	No. Months	No. Months	No. Months	No. Months	No. Months	No. Months	No. Months
Commodity Programs:							
BEANS	9 (83.0)	8 (86.0)	7 (20.0)	20 (80.0)		25 (25.0)	69 (294.0)
CASSAVA	9 (60.0)	4 (34.5)	8 (27.0)	11 (41.0)	9 (20.0)	37 (37.0)	78 (219.5)
RICE	1 (7.0)	2 (24.0)	3 (15.0)	11 (62.0)		16 (16.0)	33 (124.0)
TROPICAL PASTURES	8 (64.5)	8 (84.0)	12 (59.0)	19 (97.0)	3 (12.0)	10 (21.0)	60 (337.5)
Support Units:							
BIOMETRICS			1 (0.5)				1 (0.5)
SEED PRODUCTION		1 (12.0)				54 (81.0)	55 (93.0)
STATION OPERATION MANAGEMENT			1 (6.0)		1 (1.0)		2 (7.0)
AUDIOTUTORIALS			3 (8.5)		1 (2.0)		4 (10.5)
TRAINING	1 (8.0)						1 (8.0)
TOTAL 1980	28 (222.5)	23 (240.5)	35 (136.0)	61 (280.0)	14 (35.0)	142 (180.0)	* 303 (1094.0)
TOTAL 1979	34 (255.0)	23 (163.0)	71 (247.0)	34 (160.0)	24 (52.0)	201 (218.0)	387 (1095.0)

* From these 261 completed their training, the remaining 42 continue into 1981

B. Degree related	Master's thesis research	Research Scholar
	Ph.D., thesis research	Visiting Research Associate

A description of these categories is given in Administrative Memorandum DIR-469 from CIAT's Director General in Appendix B . Figure 8 shows the distribution of these categories throughout the history of CIAT.

3.1.3 Types of Training. These are designed to offer a range of options to fulfill the training needs of each participant and his institution. The following types are offered:

		Type	Characteristic
A.	Group training:	Short Courses	Multidisciplinary
		Short Courses	Specific Technique
B.	Individualized training:	In service internships	Discipline specific, Ing. Agr.
		Visiting Associateships	Discipline specific, MSA level
		Thesis research	Project specific, MSA level
		Dissertation research	Project specific, Ph.D., level
		Postdoctoral Fellowships	Training-employment

The Post-doctoral fellowship is considered both a high-level training opportunity as well as a senior staff temporary appointment, as endorsed by the TAC. 1/

Short courses (4-8 weeks) have been utilized extensively in the last five years, to provide instruction with a multidisciplinary-commodity approach. that teaches overall knowledge on the species. In 1977, with UNDP funding CIAT started an effort to rapidly increase the number of professionals, from national programs, knowledgeable of each commodity, the technologies available and being developed, and its research methodologies and strategies.

1/ The role of the Agricultural Research Centers in Training, Major Issues, TAC Secretariat, CGIAR, Rome 1978

Short courses were the principal means for this purpose. Presently, one such course is offered in each commodity per year and also one course on seed technology and another on a specific seeds subject.

Nevertheless the individualized in-service training overaging 4-month duration (range 3-12 months) and the graduate thesis research are considered as the more effective ways to train young scientists. Presently about two thirds of CIATs' staff training dedication and centers training funds goes into this medium and long-term training.

From the experience of the last decade CIAT has developed " Commodity Training Programs " for each specie combining a short course (multi-disciplinary phase) with a subsequent period of individualized training in a specific discipline applied to the same commodity (specialization phase) as shown in Figure 4. A preliminary internal evaluation conducted in 1980 indicate that this combination is perceived as providing more complete and more useful training than courses or internships alone. From 303 persons trained in 1980 46% participated in short courses, 35% in individualized training and 20% in a combination program.

The postgraduate intern represents more closely the young researcher of the Latin American region. Typically he is a recent graduate " Ingeniero Agrónomo ", in his late twenties, with little experience (1-3 years) in research, enthusiastic and eager to learn and work. It is expected however, that over the next ten years this image will shift toward the masters level and the more experienced man.

3.1.3 Orientation of Training. In accord with CIAT's mandate and with the principle of comparative advantage, the Training and Conference Activities are commodity oriented. With rare exceptions (seeds, support services), training is oriented to one commodity. From 1789 participants to date, 53% have been trained in a single commodity. This concentration has been enhanced since 1976. In 1980, out of 303 training participants, 80% were trained on one commodity. They utilized 90% of total man-months of training at CIAT for that year.

3.1.4 Training in Research Support Services. A few opportunities are provided in across-commodity training on research support services, including seeds, documentation, audiotutorials , management of experiment stations and biometry. The purpose being to help improve such services in their countries. Still, the justification for that training is commodity oriented, and participants are carefully selected for their role in assisting national commodity programs of rice, beans, cassava and pastures in the institutions with which CIAT collaborates.

3.1.5 Training Trainers

It has been stated previously in this document, that training at CIAT should have a multiplier effect and also that the support of in-country training is one of the activities encompassed. There is evidence that indicates that the exposure of trainees to the atmosphere of CIAT and to its training methodologies improves their capability to train others. In fact, in-country

courses assisted by CIAT rely 80% on teaching and organizational inputs by former trainees. Additionally in preparation for agreed upon in-country courses, selected individuals are given special instruction on training organization and methods, along with their participation in a course of the commodity of their interest. This assures competency both in content as well as on teaching methodology. Unfortunately the record of application of training of trainers has been low due to the short permanency of the trained trainer in his organization and the poor support of national research institutions for their own training programs.

3.2 Degree-related Training

The conduction of MS thesis and Ph.D, dissertation research at CIAT is of extreme importance in relation to the development of scientific staff of national programs. The majority of trainees at CIAT so far are below the graduate degree level. This imposes a low celing, both on their cooperative and independent research capabilities as well as on the depth and level of the training that they can absorb from CIAT's senior staff.

In the long run, both CIAT, as well as the countries it serves, need to count on a more advanced academic scientific base than that available at the present. Currently and whenever possible, CIAT tries to attract professionals employed by national programs that are or will be pursuing graduate degrees. This has the simultaneous results of upgrading the overall scientific competency of the professional, increasing his self reliance and of orienting him along lines of applied research relevant to his home program plus establishing a solid cooperative relationship between him and his supervisor.

Until now, only 38 out of the total of 1789 persons trained at CIAT have conducted MS thesis research at the center and 16 have done their Ph.D dissertation research. In connection with these, relations have been stablished with twenty one universities or graduate programs in eleven countries of North America, Europe, Africa and Latin America.

Vital to increasing the number of holders of advanced degrees originating from developing countries is the availability of funds for academic studies. CIAT has been able to sponsor academic studies for 18 scholars, with funds from a UNDP special project and with funds from an IDRC special project. Funds allocated in the Center's core budget have been used to finance the thesis at CIAT. However, the situation of scholarships from external sources in dismal. Furthermore, a recent study of IICA 1/ indicates that the researchers in selected national institutions holding a graduate degree are less numerous than ten years ago. This, added to the fact that the Center cannot act as a donor for academic scholarships, imposes a serious limitation on its efforts to upgrade the research capability of counterpart scientists of national programs.

1/ Ardila et al, Sistemas Nacionales de Investigación Agropecuaria en América Latina; Análisis Comparativo de los Recursos Humanos en Países Seleccionados. Los casos de Colombia, Argentina y Perú. IICA, San José, C.R. 1980.

3.3 Conferences

Biannual workshops are the kind of conference prefered at CIAT for information exchange and agreement on research strategies in the commodity research networks. These workshops are held regularily for the International Rice Testing Program (in cooperation with IRRI) , the International Bean Yield and Adaptation Nurseries IBYAN and the Regional Trials Networks on Cassava and on Tropical Pastures.

Other workshops and seminars are held as need arise on specific subjects such as the Seminar on Anthracnose, Angular leaf Spot and Bacterial Blight of Beans held in 1979. Some of these seminars are cosponsored with other organizations such as the recent Seminar on Biological Nitrogen Fixation co-organized by NIFTAL, ICRISAT and CIAT.

Seminars on CIAT's Advances in Research (Presentation Days) have been held in selected years. Lately this event has been revamped into a "Consultation Seminar" with directors of research from national institutions, a kind of conference more in accord with CIAT's present strategy and attitude of international cooperation.

Appendix A lists all CIAT-sponsored or cosponsored conferences held since 1971.

3.4 Assistance to in-country training

In-country training on CIAT's commodities is considered an effective means of bridging research with extension. Assistance is offered to interested national programs to organize and conduct 2-8 week courses for personnel in extension, credit and other development services. In all cases these courses are timed to coincide with introduction of new varieties and other technologies with high potential to make an impact on production. The minimum required help is given usually in the form of a course leader, a few instructional imputs by CIATs' staff and some teaching materials. In 1980, courses were assisted on rice in Peru and Panama; on cassava, in Mexico and in the Dominican Republic plus a regional course for Asia in the Phillippines; on beans and on seed technology in Colombia. For 1981 six such courses are planned on beans, three on rice and two on cassava.

3.5 Evaluation of Training

Constant evaluation is one of the characteristics of training activities at CIAT. Each course tests its participants at the start and at the end. Figure 5 gives an example of the result of such evaluations. Another kind of evaluation is done on the course features by the participants. Figure 6 shows a typical average curve of satisfaction of the participants of a rice course. Appendix C contains an example of an evaluation questionaire and results. These are used to introduce improvements into succeeding courses. A study of CIAT's training is presently in progress. Preliminary results are presented in a separate document attached.

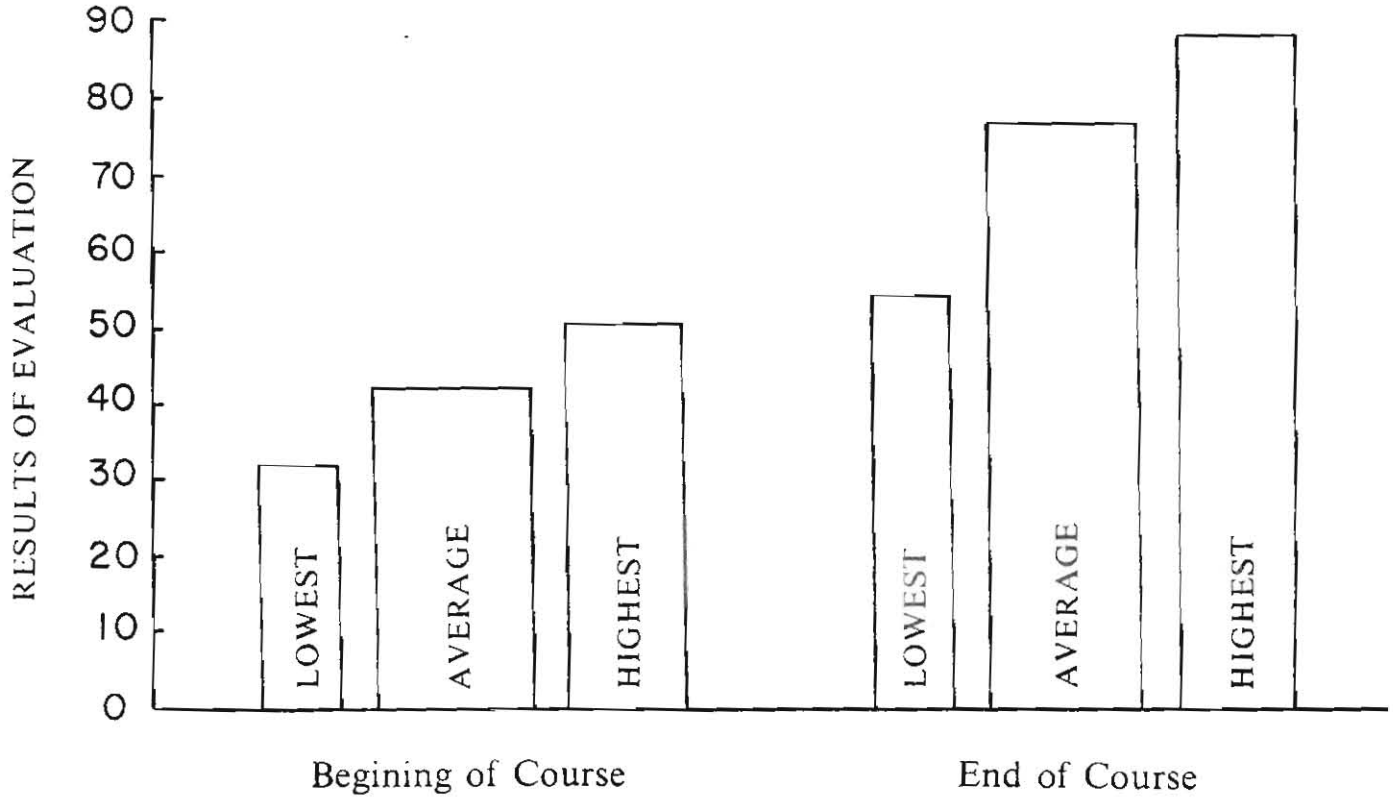


Figure 5. RESULTS ON KNOWLEDGE EVALUATION OF PARTICIPANTS BEFORE AND AFTER A COURSE

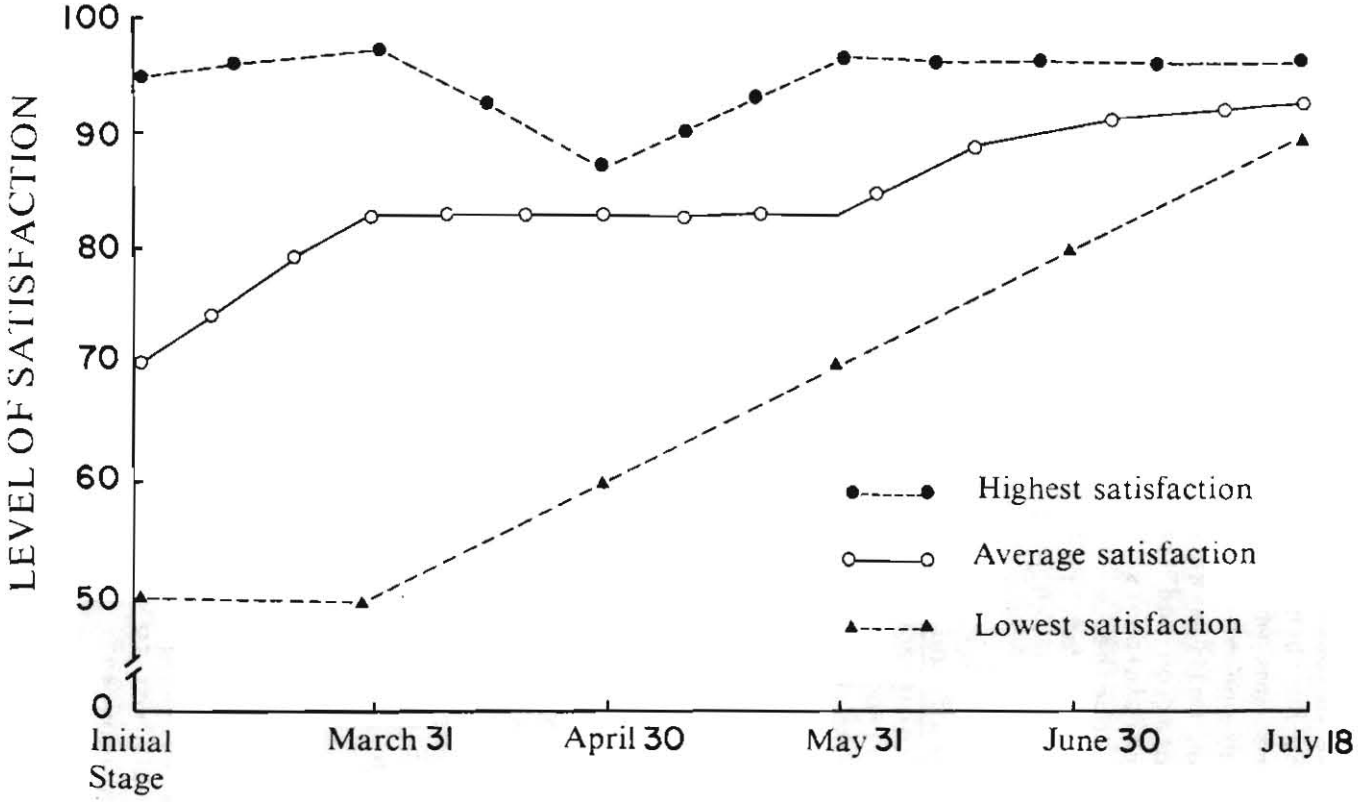


Figure 6. LEVEL OF SATISFACTION OF TRAINING PARTICIPANTS IN A RICE COURSE

3.6 Structure and Organization

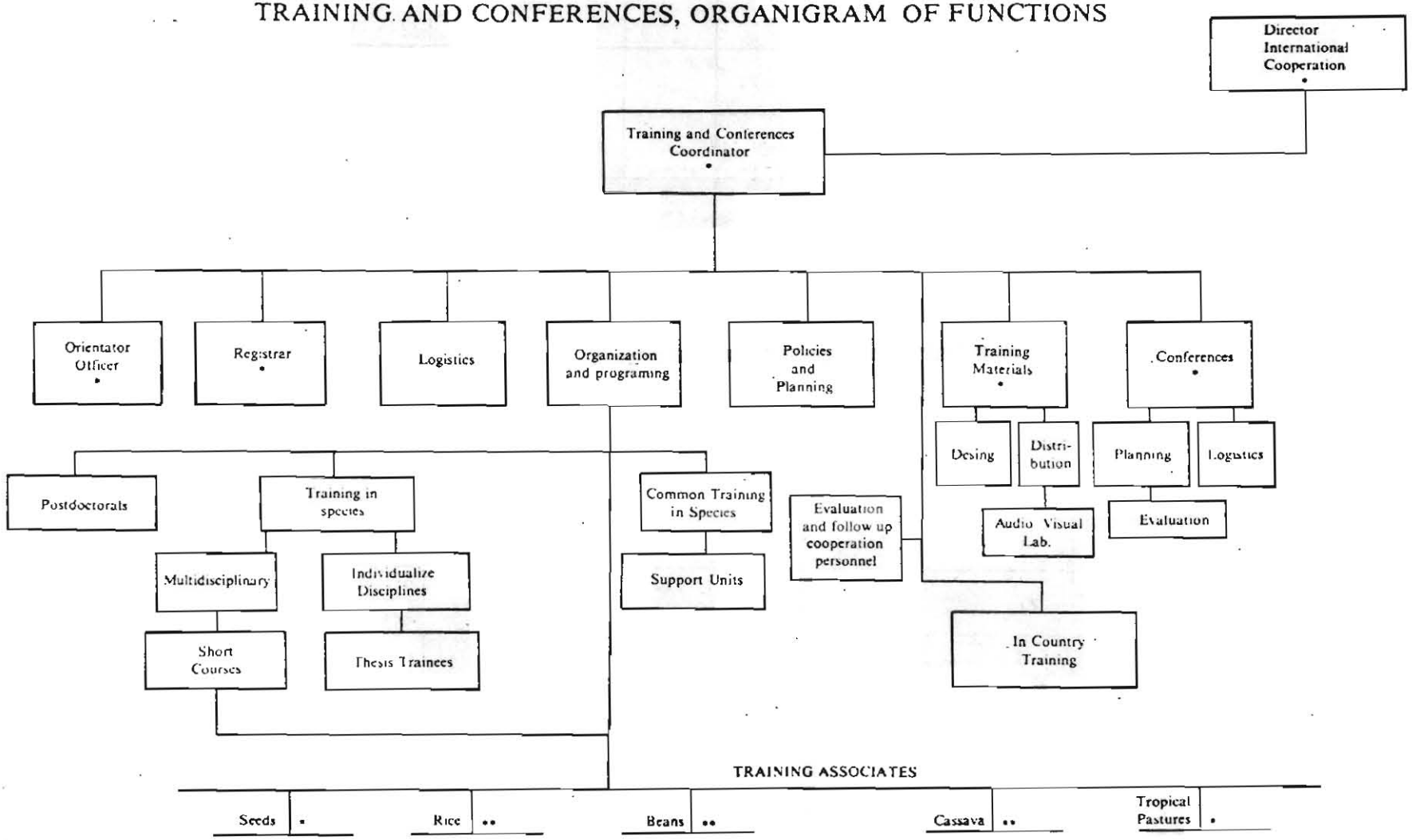
Training and Conferences do not constitute an independent program or unit but a set of activities that take place in the whole center and which are intrical part of each one of the commodity programs and of the support units. The relative autonomy that was justified during the first two stages of evolution, has been substituted by a decentralization of activities to the commodity programs while a central coordination was maintained. Senior staff in each one of the programs of rice, beans, cassava and tropical pastures as well as each support unit; station operations, communication, documentation and seeds,provide the instruction and supervision to their training participants. The Coordinators of the commodity programs and heads of units together with the Coordinator of Training and Conferences agree on the yearly plan of Training and Conferences and assign priority countries in accord with each programs' strategy for international cooperation.

3.6.1 The Office of the Coordinator of Training and Conferences The Coordinator of Training and Conference has a function of leadership and administration and reports to the Director of International Cooperation. The Coordinator works in concert with the other Coordinators of each commodity program, individually and collectively in the "leadership group" to agree on tacties plans and programing for courses, individualized in-service training, thesis research, conferences and assistance to in-country training. He also develops and manages the central budget for Training and Conferences Activities. This central coordination assures: 1) Unified philosophy and standards. 2) Continuity between various training activities at CIAT. 3) Efficiency of administration for training participants. 4) Efficient sharing of training resources. 5) Integrated relations with national programs regarding training needs and opportunities and identification and selection of candidates and 6) Integration of otherwise relatively independent training efforts into overall CIAT's training and outreach strategies. Appendix D lists details of the responsibilities of the Coordinator and of other members of the personnel in Training and Conferences. Table 2 gives the staffing pattern, past and present.

3.6.2 Professional Staff. Under the Training Office are 1) a Registrar in charge of processing admissions and records 2) a Conference Manager to assist in the organization and conduct of seminars and workshops and 3) an Orientation Officer to assist training participants to settle and adapt to the local environment. Shown in next page is an organigram of the present structure and functions of the Training and Conferences Office.

3.6.3 Training Associates. At the present eight " chief instructors " at the Masters level are part of the Office of the Coordinator of Training and Conference. They are however assigned to each one of the commodity programs (two for rice, two for beans, two for cassava, one for pastures and one for seed) under the technical supervision of the Program Coordinator. These training associates represent the Training Office for purposes of programing logistic, teaching methods, conduction of courses, follow up

TRAINING AND CONFERENCES, ORGANIGRAM OF FUNCTIONS



CIAT'S COMMODITY PROGRAMS AND UNITS

• Positions Staffed

able 2 CORE PLUS SPECIAL PROJECT (man-years) TRAINING AND CONFERENCES STAFF DURING THE PERIOD 1969-1981

Position Senior Staff (Ph.D)	69	70	71	72	73	74	75	76	77	78	79	80	81
ead, Leader or Coordinator	1	1	1	1	1	1	1	1	1	1	1	1	1
ivision Coordinators Plant cience and Animal Science		2	2	2	2	2	1						
Production Specialist (a) Tropical Pastures							1/2	1/2	1/2	1/2	1/2	1/2	
Production Specialist (a) Swine						1/2	1/2	1/2	1/2	1/2			
Audiotutorials								1	1	1/2			
Support Staff													
Training Associates (b)		1*	2*	4*	4*	4*	3*	4+2*	5+1*	5+2*	5+2*	5+1*	5+1
Training Assistants (c)	2	2*	2*	3	3*	3*	5*	2+3*	2				
Communication Specialist (b)			1	1	1	1	1/2						
Orientation Assistant (c)						1	1	1	1	1	1	1	1
Registrar											1	1	1
Social Scientist (Visiting)					1/2	1/2							
Conferences Administrator		1/2	1	1	1	1	1	1	1	1	1	1	1

(a) Half time outreach or regional trials
(b) At Master level
(c) At Ing. Agr. level
* Special project funded

of graduates and are the " chief instructors " for group courses. These associates also have the major responsibility for the organization and conduction of in-country courses in cooperation with interested organizations. Other of their responsibilities are detailed in Appendix D.

3.6.4 Responsibility of the Scientific Staff for Training and Conferences. All members of CIATs' senior scientific staff have teaching and supervisory responsibilities. The effort and time each one puts into these varies considerably with individual attitude, demand for training in a given discipline and the load of research and administrative responsibilities. Senior staff members spend on the average one sixth of their time during the year in training activities .That involves preparation and delivery of teaching imputs, field demonstration and exercises in short courses, plus individualized instructions and supervision of postgraduate interns, visiting research associates and thesis scholars assigned to him. Supervision takes place in conjunction and simultaneous with regular daily research work. The resulting interaction helps establish a strong relation that continues upon return of the trainee to this country and in numerous cases leads to cooperation for field testing and institutional transfer of technologies.

Being that the senior staff members have direct responsibilities, their support staff of research associates, assistants and oftentimes post-doctoral fellows, assist them in the training function. In certain cases the associates become fully responsible for instruction of selected topics.

3.6.5 Training capacity. Training capacity may be expressed in terms of numbers of participants, however, this parameter taken alone may be misleading since the period of stay at CIAT varies from two weeks to a year. Numbers of participants must be considered jointly with man years or man-months of training. Thus, the limit of training capacity is given by the number of senior staff members in each program and their individual capacity.

Capacity for individualized in-service training is considered at 2 simultaneous trainees at anytime or 2 man-years per senior staff at headquarters with teaching capability. 1/ From experience five months is the average period of stay per participant per year for each research senior staff member. In 1980, there were 50 senior staff members with teaching capability supervising 161-in service trainees utilizing 914 man months of training, which is within the theorical capacity of 200 in-service trainees and 100 man years.

In addition because of its intensive multidisciplinary nature and imputs required, short course capacity must be considered separately. One 5-8 week course is now institutionalized on each commodity and two courses on seeds. Each course has usually 24 participants and commands imputs equivalent up to 48 man months.

1/ Teaching capability excludes senior staff with full time administrative duties.

4. RESULTS AND ACHIEVEMENTS

Since 1969 until 1980 CIAT has trained 1789 professionals from 52 countries. Appendix E shows the number of those trained from each country. About 89% of them came from Latin America, 6% from Asia and Africa and 5% from developed countries of North America and Europe. Three fourths of all were trained specifically to conduct research the remainder were trained on production (with emphasis on farm testing) and on research support services. Figure 7 gives the distribution of number of persons trained until 1979, according to origin and specific training.

The number of training participants has increased over the years in the various categories as shown in Figure 8. Growth has been consistent particularly notable in the category of postgraduate intern and at a lesser rate in the higher categories of visiting research associates and research scholars conducting thesis research at CIAT. Short course participants increased rapidly from 1976 when a decision was made to promptly train a large number of professionals to familiarize them with CIAT's research and rapidly develop research networks and a body of collaborating scientists. Funding from UNDP project made this possible. Having achieved that purpose emphasis,on short courses is now being decreased. This also has the effect of decreasing the total number of participants and of shifting the balance toward the longer term training.

4.1 Formation and strengthening of national research teams

Training and Conference activities have helped to form several new or reorganized national commodity programs in tropical Latin America. Specific examples are: The cassava research team of CNPMF-EMBRAPA at Cruz das Almas Brazil is formed almost totally by CIAT-trained scientists. Likewise the multidisciplinary cassava research teams of INIA and associated institutions in Mexico, of the Ministry of Agriculture of Cuba, of the Ministry of Agriculture in the Dominican Republic and of INIAP in Ecuador.

The principal rice researchers of national programs in Mexico, Guatemala, Honduras, El Salvador, Costa Rica, Panama, Colombia, Ecuador and Peru have been trained at CIAT.

The majority of the research workers in the bean programs of Mexico, Guatemala, Honduras, El Salvador, Costa Rica, Dominican Republic, Colombia, Ecuador, Peru, Bolivia, Chile and Brazil have attended short or long-term training at CIAT.

Numerous professionals trained at CIAT on tropical pastures work in research programs and development projects in Brazil, Venezuela, Peru, Ecuador, Panama, Honduras and Costa Rica.

Several new programs have been formed with CIAT-trained personnel in Mexico, Honduras and Ecuador on cassava and in Honduras, Ecuador, Costa Rica and Bolivia on beans.

As a result of the efforts of these trained scientists together with the

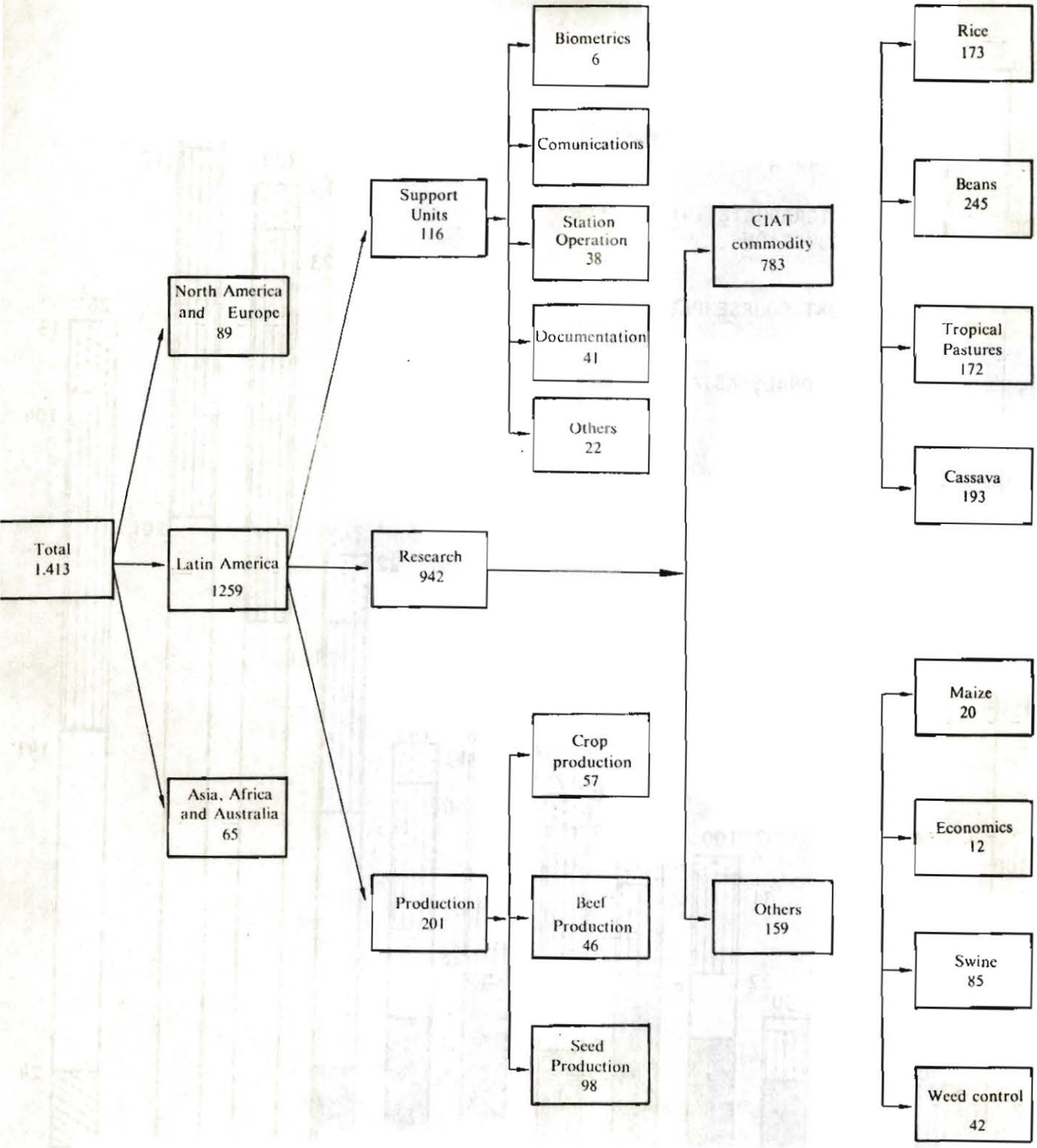


Fig. 7 DISTRIBUTION OF PROFESIONALS TRAINED AT CIAT
(Until December 1979, Data collected from study on evaluation of the training program)

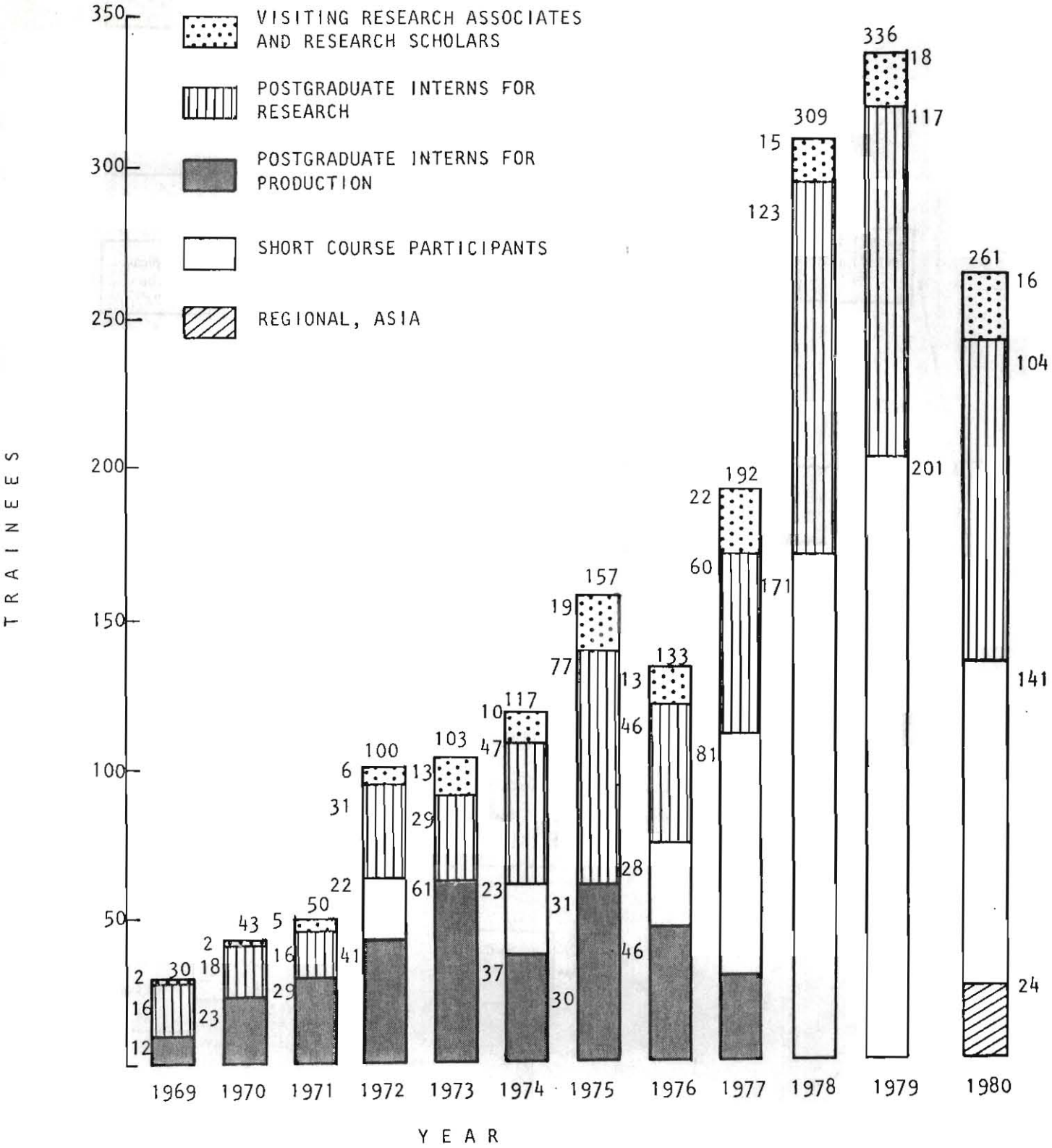


Figure 8. NUMBER OF TRAINING PARTICIPANTS WHO HAVE COMPLETED TRAINING AT CIAT FROM 1969 TO 1980.

follow up support of CIATs' staff, new varieties and attendant technologies have been generated. Examples are: The new bean varieties " ICTA-Quetzal" "Jutiapa" and "Tamazulapa" in Guatemala, "Acacias 4" in Honduras, "Revolucion 79" in Nicaragua, "Talamanca" in Costa Rica and "INIAP Bayito"in Ecuador. In Cuba former training participants have led the introduction of selected germplasm of "ICA Pijao" a Colombian bean variety and have tested and diffused improved cultural practices for cassava with impressive results.

The majority of the international rice trials are carried by CIAT-trained scientists as also are the selection of new varieties from CIAT's germplasm. New varieties have been released from their work in Peru, Ecuador, Panama, Costa Rica, Guatemala, Honduras, El Salvador and Mexico.

Graduates from CIAT's training have played major multiplier roles regarding CIAT's commodities in their country training courses and extension services.

Conferences conducted at CIAT have been a major factor in the formation and coordination of the research networks and also in the exchange of information and the concert of research strategies in several disciplines of research.

4.2 Utilization of Training

A study of training and Conferences at CIAT presently in progress reveals that two thirds of a statistical sample of former training participants maintain active communication in research networks on CIAT commodities but one third is isolated. The same study shows a short permanency of trained personnel in their positions of commodity research, although the permanency in research on non CIAT commodities is longer. However it seems from the same data that the permanency rate is increasing over the years and the rate of non-return to their job just after training is decreasing. More details on these findingsare given in a separate report.

5. PROPOSED FUTURE STRATEGY

Eleven years of experience in collaborating with national programs to assist their strengthening have allowed CIAT to establish, a) well defined objectives, b) a strategy of cooperation and assistance to said programs and c) an integral organization to put that strategy into practice in the context of CIAT's commodity research programs detailed in the Long-Term Plan document " CIAT in the Eighties ". It is thus expected that the basic philosophy and basic strategy of the present will continue during the present decade with minor adjustments required by changes in circumstances as they may arise.

Nevertheless, CIAT considers a few innovations in philosophy and in the combination of strategy components. These will be put into practice in accord with the interests and needs of the countries and with the evolution of CIAT's programs. It is anticipated that the present objectives and principles specified in sections 2.1, 2.2 and 2.3 of this document will continue guiding the Training and Conference strategy during this decade. This strategy will be linked with other actions of international cooperation between countries of Latin America and CIAT. Countries of other regions will receive also CIAT's attention as it may be justified and required.

5.1 Overall strategy: A Program for Development of Scientific Capability

Under this new name, CIAT intends to conduct the until now called Training and Conferences Activities. The limit of concern of this program will be given by CIAT's commodity mandate. The main components of this program will include:

a. Advanced studies, degree related, thesis research for MS or Ph.D., degrees.

b. Advanced studies, post MS not degree-related

c. Postgraduate specialization, concentrated on one commodity and one discipline ej: bean breeding

d. Intensive courses, 4-8 weeks, multidisciplinary on one commodity (ej. tropical pastures research) or on a specific technique or subject (ej. meristem culture for cassava).

e. Assistance to in-country training, mainly for extension personnel.

f. Analysis of national programs and planning for developing research manpower, as a function of country needs and capabilities (possibly in cooperation with ISNAR)

g. Conferences, of several kinds to facilitate information exchange and coordination of the research networks.

It must be carefully noted that the concept and terminology of "training" and "internship" are not well perceived in the culture of Latin American countries. It suffers from misinterpretations and undesirable connotations. Individual consultations with numerous persons have indicated enthusiastic acceptance of the new terms and concept of "development of scientific capability ", "advance study" and "postgraduate specialization".

In accord with the new proposed terminology, it is intended to change the terms "trainee" and postgraduate intern to "visiting researcher" for those in components a, b and c above and "course participant" for those in component d. The visiting researcher will be given recognition as a temporary member of the scientific personnel and learn through his association with his senior staff supervisor.

5.2 Selecting priority countries and institutions.

Each of CIAT's commodity programs will decide on priority countries according to the criteria stated in section 2.5.3.

The institutions on which CIAT will concentrate attention will be those indicated in section 2.5.2, however it is planned to progressively increase attention to universities, both at the graduate and under-graduated level, as part of an effort to a) assist to better prepare their professors for research on CIAT's commodities and to increase their knowledge of new technologies,so they may pass on that knowledge to their students and b) to promote the involvement of universities in research projects, especially of those few that have graduate programs.

The proposed program for Development of Scientific Capability recognizes that the institutions to which CIAT offers its cooperation differ substantially from one another in their levels of evolution and complexity. Therefore, the combination of components will be selected that best fits those levels. Table 3 summarizes the mix of components for national programs that will be classified in the following categories:

a. Advanced organizations that have reached a steady state compatible with, or ahead, of, the level of development of their country.

b. Developing organizations in a very dynamic state of growth and development of their programs.

c. Developing organizations at an incipient stage of evolution, staffed by personnel with low academic degrees and level of training.

d. Organizations that do not have programs on a given CIAT commodity but whose country has good potential for production of that commodity.

e. Organizations that because of political or other circumstances are in a state of decline and need revitalization.

Table 3

MIX OF COMPONENTS FOR DEVELOPMENT OF SCIENTIFIC CAPABILITY TO BE OFFERED TO NATIONAL PROGRAMS IN RELATION TO THEIR LEVEL OF DEVELOPMENT

A. Advanced which have reached a steady state

B. Developing programs in dynamic stages of growth

C. Developing programs in incipient stages of growth

D. Non existing research programs but country has potentia for the commodity

E. Formely effective programs which require revitalization.

COMPONENTS OF DEVELOPMENT OF SCIENTIFIC STAFF					
Country Category	Ph.D, MS Thesis	In Service	Special Techniques	Short research courses at CIAT	Short Production courses in countries
A	*** 1/	*	***	***	****
B	**	**	*	***	***
C	*	****	o	*	o
D	o	o	o	*	*
E	**	***	*	***	***

1/ Relative Emphasis

**** High

*** Medium

** Low

* Very low

o No attention

For instance in the case of a national program that has reached an advanced stable level A, heavy emphasis will be placed in upgrading their scientific capability through Ph.D., and MS studies. Short courses will be efficient to update their staff and considerable effort would be placed in multiplication of knowledge on new technologies through in-country courses for extension workers. On the other hand a program in inicial stages of development will benefit most from medium term specialization for its young scientists, a few MS studies, short courses only for selected experienced researchers and no in-country courses would be suggested since new technologies would still be in early stages of generation.

CIAT's program-strengthening policy will recognize the different needs of these organizations. Training for each country will be adjusted and change in composition as national programs evolve.

5.3 Assestment of Staffing and training needs of national programs; reaction or interaction

So far the attitude of CIAT toward the national programs has been characterized by a mix of action and reaction. It has been partially active when staff members traveling in countries detect needs of research expertise in certain disciplines where the national program shows weakness. It has been largely reactive in that about two thirds of the candidates for training have been proposed directly by the national programs knowing the training opportunities offered. CIAT then has reacted to request. While both attitudes will be normally at work, the balance in the future will be purposely shifted towards the active attitude, based on a philosophy of assistance to integrated program development and strengthening of researh capability. Plans are for CIAT, through its personnel of the proposed program for Development of Scientific capability and through staff members, and outposted staff in the research programs; to maintain close contact with the national programs and analyze their staffing structure and composition in a sistematic way. From such analysis a 5-year plan will be jointly prepared for each national program specifying required advance studies, specializations, participation in short courses, attendance to conferences, and support to in-country courses. The experience with a few countries where this has been done has shown such analysis and planning to be useful and effective. The computerized record system presently utilized at CIAT will be expanded to maintain updated profiles of the composition of national programs and trained personnel to facilitate monitoring of changes and replacements as well as to provide information to Program Coordinators and Senior Staff Scientists that will assist them in their international cooperation work.

5.4 Adjusting strategy to the evolution of CIAT's own programs

The Center also recognizes that its own programs differ in its state of evolution. The program for Development of Scientific Capability will adjust its strategy for each commodity program according to its evolution and needs.

5.5 Balance between short courses and medium term specializations

The need to rapidly build a " critical mass " of professionals knowledgeable of CIAT's research justified,between 1976 and 1980 an emphasis in short intensive courses. Five hundred and fifty seven persons have thus participated in twenty short courses in the five year period. Having attained that purpose, future emphasis will shift toward the more solid medium term specializations and the short course-specialization combinations. Short courses will be made available to key extension personnel to educators and to experienced researchers that only need updating or introduction to a commodity new to them.

5.6 Balance between non-degree and degree related advanced studies

The main objective of the proposed Program for Developing of Scientific Capability, is to help strengthen the research capability of national programs. To accomplish that goal, a vigorous focus on degree-related training is essential over the long run. Medium and short-term courses are known to be rapid and useful means to prepare personnel for initial research needs of national program, but have three serious limitations:

a. Starting from a relatively low scientific base, the scope and depth of training that the participant at the Ing. Agr. level can absorb, is relative low.

b. The relatively quick specializations and its very applied research focus impose another limit to the increase of the participants scientific competency.

c. Non-degree specializations are not very attractive to the bright young professionals for lack of the accreditation and prestige of a degree. In fact may delay his possibilities of a scholarship for graduate study.

To attract the best minds it is of paramount importance that CIAT,jointly with the national programs,agree to provide opportunities for obtaining graduate degrees. CIAT has assigned priority funding in its core budget for the conduct of MS and Ph.D., thesis research. However, not being a donor agency it cannot finance from core funds academic degree studies. Therefore, to obtain indispensable resources the Program for Developing of Scientific Capability intends:

a. To try to obtain funds through special projects from traditional as well as non-traditional donors.

b. To attract students, belonging to national programs, that have started or are going to start graduate study with scholarships from other sponsors.

c. To identify together with national programs projects financed by BID, World Bank, UNDP or others that may have funds available for graduate study.

The emphasis that CIAT intends to give to the various levels and types of training are given graphically in Figure 9.

5.7 Postdoctoral Fellows

Holders of Ph.D. degrees from national programs will be invited for 6 to 12 month sojourns on a specific project.

5.8 Preparing trainers for in-country courses

It is expected that in the current decade national programs will be delivering to producers a number of improved varieties and cultural practices on rice, beans, cassava, and tropical pastures. In conjunction with those releases CIAT will offer assistance to interested countries for the conduct of in-country courses. These will need specialized instructors to organize and teach the courses. They will be properly prepared at CIAT but only in cases when the interested organization demonstrates definite and well funded plans for a long term in-country training program.

5.9 Assistance to in-country training and education

The present level of evolution of CIAT programs sepcially of those in rice, beans, and cassava and the progress made in adaptive testing by national programs suggest an increase in the technical support to in-country training to assist in the linking of research, extension and education and the resulting diffusion of new technology. CIAT plans to expand such support in the current decade by the following means: 1) Assistance to short courses. 2) Offers of specializations at CIAT for university professors. 3) Production of training materials including manuals, bulletins and audiotutorials.

5.10 Follow-up to CIAT graduates

CIAT with its scientific staff will assist national programs by means of follow up of its graduates providing to them a) germplasm, visits and technical advice, c) cooperative trials, d) training materials and e) invitations to network workshops. The priority criteria stated in sections 2.5.2 and 2.5.3 will be applied.

5.11 Conferences

A workshop for the research network of each commodity is planned every other year. In alternate years each commodity program will hold a seminar on a specific topic. It is also planned that two seminars will be held on subjects across commodities in cosponsorship with other organizations.

Until 1980 there has been a preference for maintaining attendance to Conferences in the range of 50 to 100 participants, a size compatible with

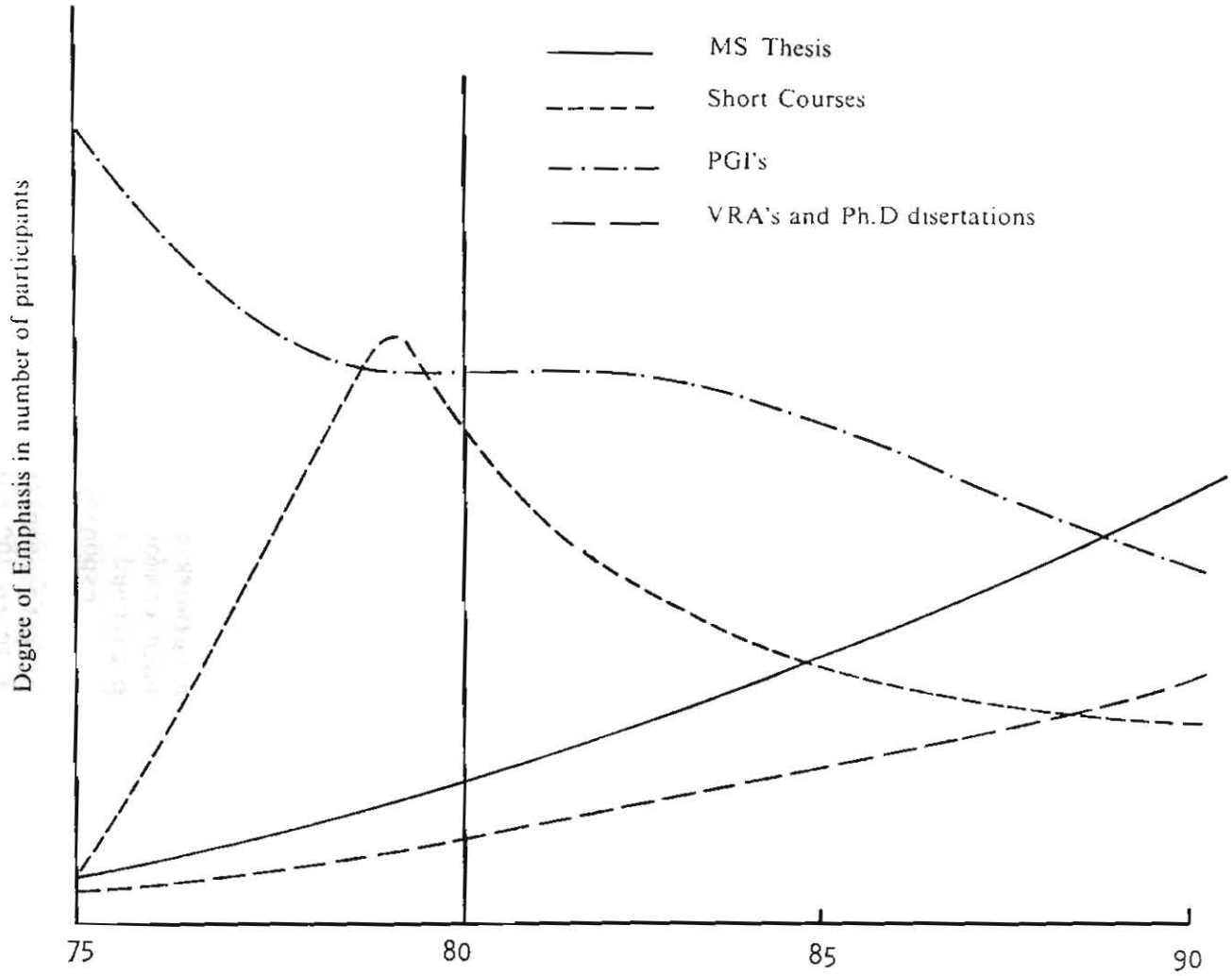


Figure 9. Past, present and projected emphasis on types of training during 1975 to 1990.

the purpose of the workshops and with the conference room capacity. However, it is expected that as the research networks grow there shall be a growth which will be also related to the increase in number of CIAT-trained scientist.

Two new kinds of meetings related with Conferences have been initiated in 1980. One is the " breeders workshop " for small groups of 12 meeting to observe and select new germplasm and two is the " monitoring tour " also with small groups touring testing sites in selected countries. These new modalities will be continued and possibly expanded (depending on availability of funds) during the present decade.

5.12 Projected Staffing

It is intended that the Training Office's professional core staff in charge of centralized responsibilities will be kept to a minimum while any expansion in the future will occur at the decentralized training associates. The following is the staffing pattern at the present and projected for the next five years.

Position	1981	1982	1983	1984	1985	1986
Coordinator (Senior Staff)	1	1	1	1	1	1
Registrar (*) (GAS)	1	1	1	1	1	1
Orientation Officer	1	1	1	1	1	1
Training Associates (MS level)	6	9	10	11	11	12
Conference Manager (GAS)	1	1	1	1	1	1

Shown in the table in next page is the present and projected assignments of training associates among the commodity programs.

The following will be the assignment of core training associates

Program	1981	1982	1983	1984	1985	1986
Rice	2	2	2	3	3	3
Beans	2	2	2	3	3	3
Cassava	1	1	2	2	2	3
Tropical Pastures	1	1	2	2	2	2
Training assesment and evaluation	-	1	1	1	1	1

More training associates are assigned, firstly to rice because of the smaller size of the senior staff in the program and the large demand for in-country courses. Secondly to the bean program because of the more numerous countries assisted and the large demand for in-country courses. The number of training associates required for tropical pastures is expected to increase after 1986 as the program centers into more rapid generation of new technologies.

Additional training associates are expected to be available from special project and will serve the specific needs of the project.

APPENDICES

Appendix A

Conferences Sponsored and Cosponsored by CIAT
1971 - 1981

Appendix B

Temporary Professional Staff and Training Appointments at CIAT.

Administrative Memorandum from J.L. Nickel, Director General

Appendix C

Example of Evaluation of an Intensive Course.

Appendix D

Responsibilities of Training and Conferences Staff

Appendix E

Number of Professionals Trained at CIAT by Commodity Programs and Support Units, 1969 - 1980

Appendix F

Report of the Work Group on Training at the Consultation Seminar on Research and Training Strategies, attended by Directors of Research and Research Institutes of Countries from Latin America
6 to 9 April, 1981

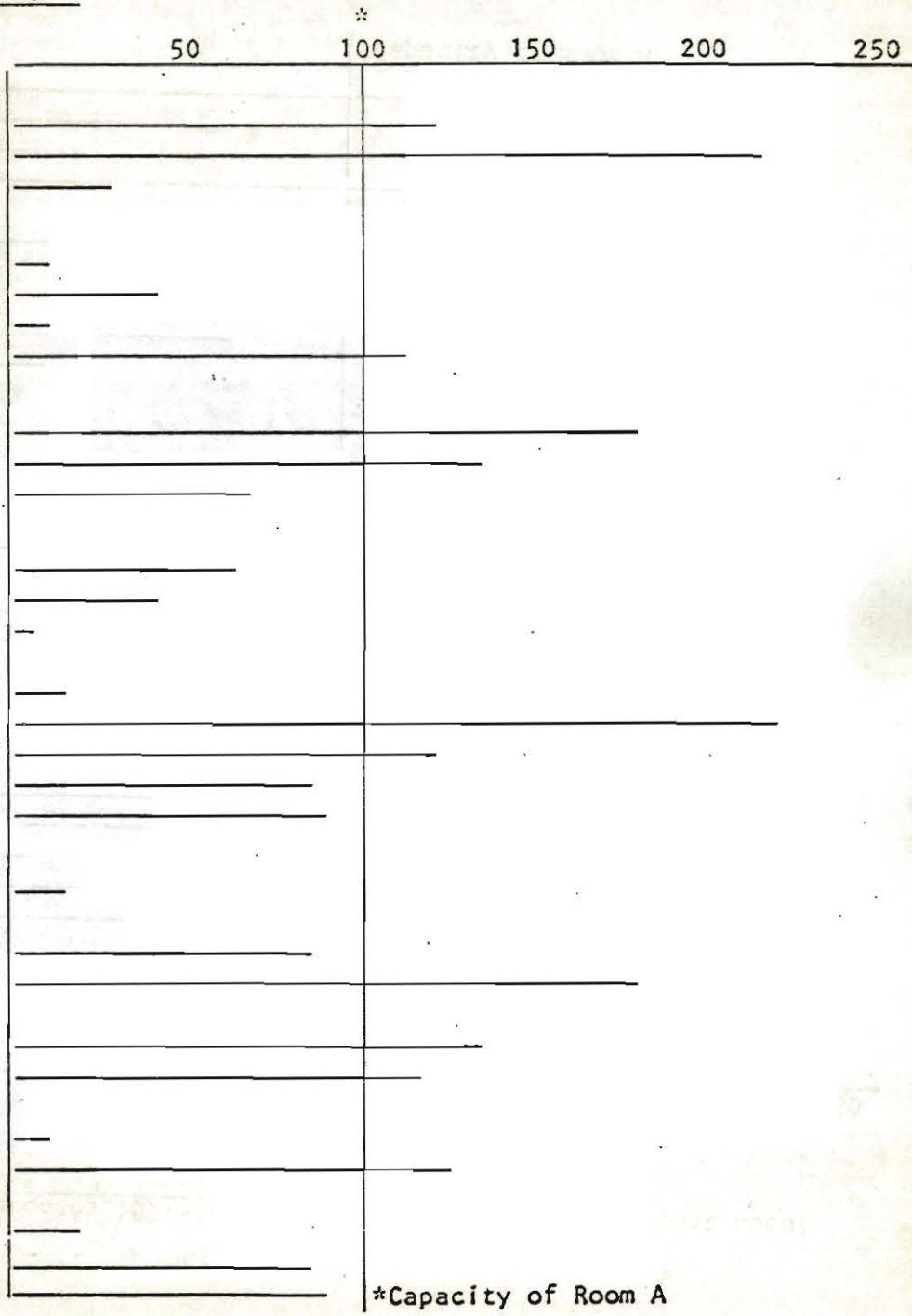
Conferences

sponsored and cosponsored by CIAT

1971 - 1981

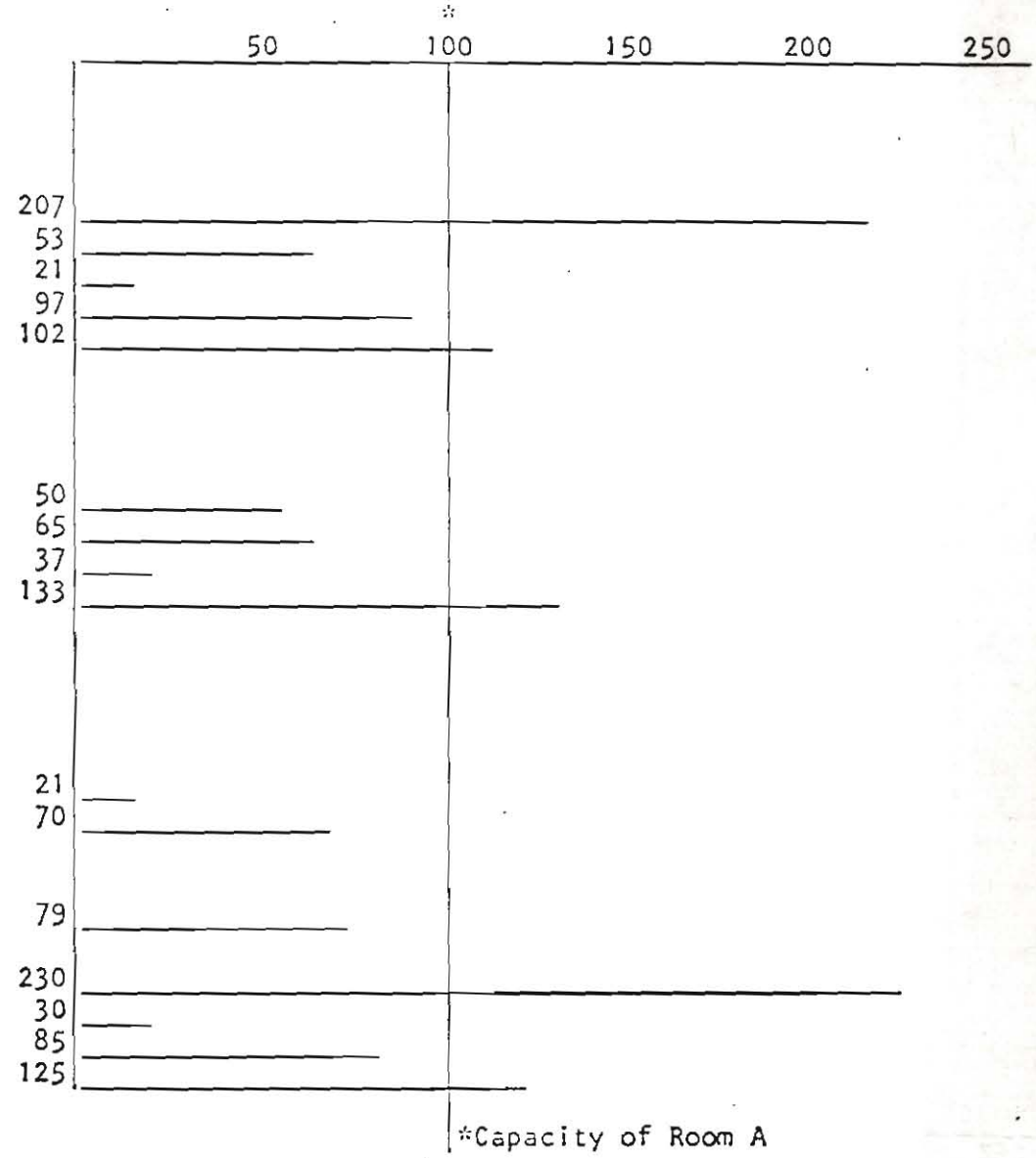
NUMBER OF PARTICIPANTS IN CIAT-SPONSORED AND CO-SPONSORED CONFERENCES

1971-1981

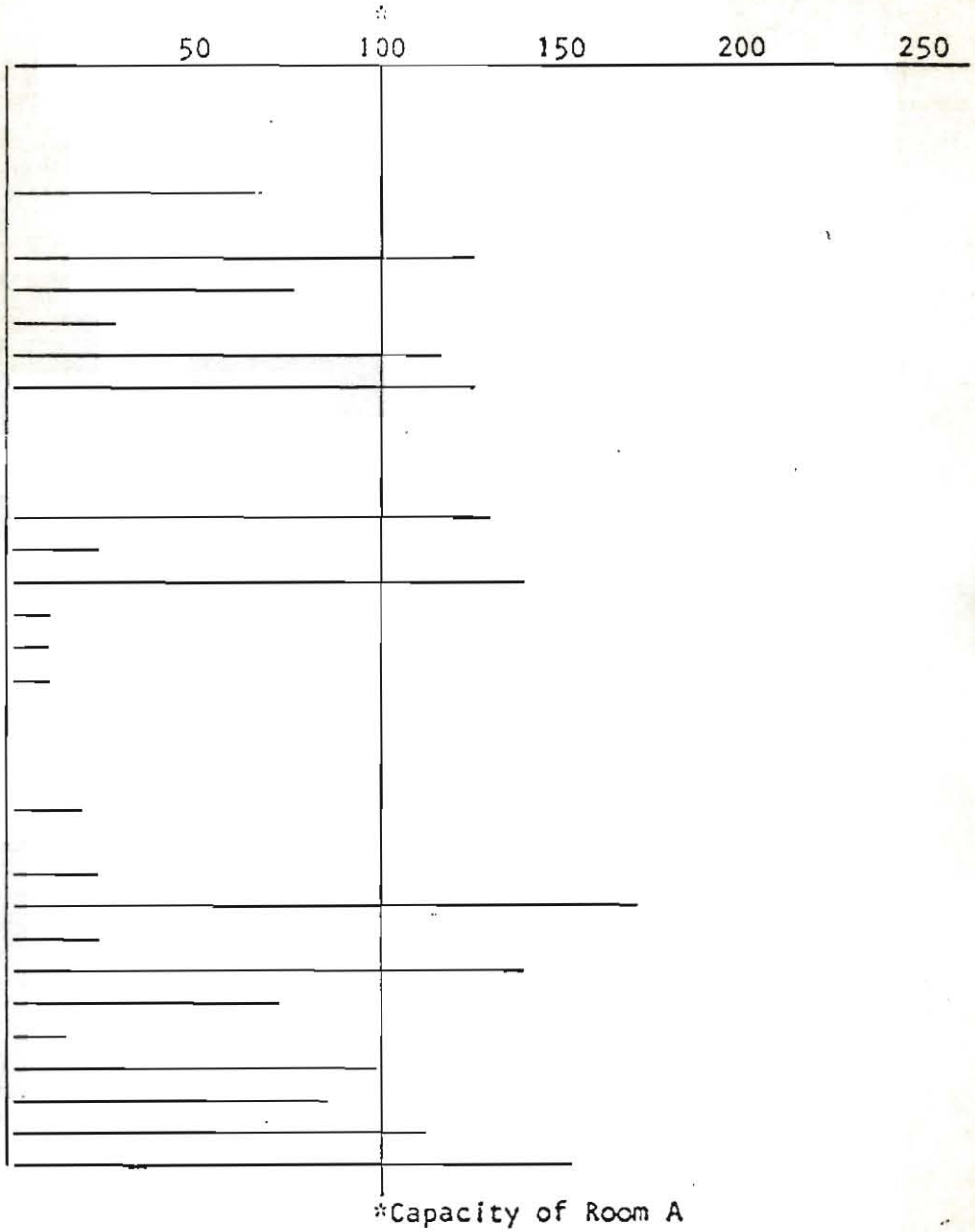


1971	
Horizontal Resistance to Rice Blast	125
Rice Policies in Latin America	234
IV Andean Maize Workshop	43
1972	
Cassava Program Review Conference	27
Rice Research Workers	49
Maize Plant Protection	28
Swine Production in Latin America	104
1973	
Potential of Field Beans in Latin America	186
Potential of the Lowland Tropics	144
Program Reviews	65
1974	
Bean Rust Research	55
Bean Program Evaluation	43
Economics of Beef Production in Latin America	18
Methods to Allocate Resources in Applied Agricultural Research	36
Soil Management and Development Process	230
Communication Strategies in Rural Development	120
Presentation Days	80
Program Reviews	82
1975	
Cassava Advisory Committee and Testing Program	30
Genetic Improvement of Dry Beans and Germplasm Resources	75
Bean Protection	155
Potential for Increasing Beef Production in American Tropics	132
Epidemiology and Control Anaplasmosis and Babesiosis	105
Characterization of Beef Cattle Sector in Selected Countries	25
Ecology and Control External Parasites of Cattle	113
Economic Analysis in Design of New Technology for the Small Farmer	40
Presentation Days	94
Program Reviews	98

umber of Participants in CIAT-sponsored and Co-sponsored Conferences 1971-1981 (continued)



Number of Participants in CIAT-sponsored and Co-sponsored Conferences 1971-1981 (continued)



Appendix B

Temporary Professional Staff and
Training Appointments at CIAT

Administrative Memorandum
from J.L. Nickel, Director General

APARTADO AEREO 67-13
CABLES: CINATROP
CALI - COLOMBIA

RO INTERNACIONAL DE AGRICULTURA TROPICAL

DIR-469

April 30, 1975

MEMORANDUM

TO: All Senior Staff

FROM: John L. Nickel

SUBJECT: Temporary Professional Staff & Training Appointments at CIAT.

The following categories of appointments are established to cover the range of temporary staff and training appointments available at CIAT:

1.- VISITING SCIENTIST.- This category is intended for the appointment for periods of up to 12 months of well-established scientists, normally with the doctoral degree and appropriate experience, who are invited by CIAT to undertake professional work in a specific program or for the organization generally. In most cases, these individuals will be on leave from an established institution, while some may be retired. Final negotiations with individuals for such appointments will be accomplished through the Director General, who will have a budgeted fund for this purpose.

2.- VISITING SPECIALIST.- These are experienced individuals who come to CIAT, at CIAT's invitation, to assume a major responsibility in a specific research, training, or other assignment within a commodity program or support services. Appointments are for periods of up to one year, with the option of renewing for an additional year. They may occupy either core or special project budgeted positions.

3.- POST-DOCTORAL FELLOW.- These individuals, usually recent recipients of the Ph.D., normally receive one-year appointments, with the possibility of being extended for an additional year. The purpose of the appointment is to further the training and professional development of the individual for work in tropical agriculture, but without commitment for employment by CIAT or in a CIAT outreach program.

4.- VISITING RESEARCH or TRAINING ASSOCIATE.- This category includes three types of individuals, as follows:

a) Persons with a M.S. degree or equivalent who have a leave of absence from a national institution (within or outside Colombia), who normally

are appointed for one year for assignment to a budgeted position in CIAT and carry out specific research or training assignments. Appointments may be extended for an additional year with the concurrence of the home organization.

b) Persons with a M. S. degree or equivalent who seek opportunity to gain experience in tropical agriculture by working in a research or training program at CIAT, or who are detailed by their employing organization to CIAT for this purpose. In the former case, the individuals occupy budgeted positions; in either case, appointments normally are for one year, but may be extended for an additional year with the concurrence of all parties concerned.

c) Persons who are engaged in thesis research in a doctoral degree program and may be supported wholly or in part by interests outside of CIAT. Initial appointments are for one year and may be extended to permit completion of the research project, but, in no case, will the total period involved exceed three years.

5.- VISITING RESEARCH/TRAINING ASSISTANT.- Individuals in this category are on leave of absence from a position in a national institution or organization, have at least a B.S. degree or equivalent, are appointed for a minimum of 6 months and maximum of a year. Persons appointed in this category occupy a budgeted position in CIAT. It is not expected that many persons will be appointed in this category but rather the individuals be invited to CIAT as postgraduate interns in research or production.

6.- RESEARCH SCHOLAR.- Individuals in this category normally are candidates for the master's degree; either in the academic or thesis phase. Appointments normally are for one year, being extended, as appropriate, to allow completion of the master's degree, assuming continuous satisfactory progress toward completion.

7.- POSTGRADUATE INTERN (RESEARCH).- Individuals in this category are selected for training in research within the commodity, disciplinary or operational programs of CIAT, normally have the equivalent of at least a B.S. degree; appointments are from 3 to 12 months.

8.- POSTGRADUATE INTERN (PRODUCTION).- Individuals in this category include those enrolled in specific production specialist training courses, plus others accepted for production training in a specific commodity; appointments normally are from 6 to 12 months; the equivalent of at least a B.S. degree normally is required.

9.- SPECIAL TRAINEE.- Individuals who are not readily classified into any of the above categories are known as special trainees. Appointments usually are for periods of 2 to 6 months.

10.- SHORT COURSE PARTICIPANT.- Individuals in this category are those enrolled in specific courses or workshops of one-week to three months.

Nominations of persons to be appointed as Visiting Scientists, Visiting Specialists, and Post-Doctoral Fellows may be initiated within programs and forwarded through the appropriate Associate Director General to the Director General for consideration. As with other appointments, the office of Training and Conferences will initiate, for signature of the Director General, such correspondence and other actions as he requests.

With the exception of the first three categories, the Office of Training and Conferences will be responsible for processing and administration of all temporary staff and training appointments in accord with the procedures outlined above. Appointments in categories 4(a), 4(b) and 5 will be coordinated with the Office of Recursos Humanos. Commodity programs will be responsible for identifying and recommending individuals for appointment, but the Office of Training and Conferences will initiate such actions as necessary and prepare the appointment letters.

All members of the senior staff are requested to cooperate in these matters to the end that CIAT can efficiently and effectively attract outstanding temporary staff members and trainees, reduce administrative details to a minimum, and avoid confusion and conflicts. The ultimate goal is mutually productive experiences for visitors and trainees as well as for CIAT and its staff.

Appendix C

Example of

Evaluation of an intensive course

EVALUACION DE LA FASE MULTIDISCIPLINARIA DEL ADIESTRAMIENTO

INTRODUCCIÓN

La presente evaluación tiene los siguientes objetivos principales:

1. Conocer la variación del nivel de satisfacción de los participantes e identificar las causas más importantes de esta variación.

2. Evaluar la parte académica del curso; obtener comentarios u opiniones sobre las ventajas y/ó desventajas de conferencias, prácticas de campo y laboratorio, unidades audiotutoriales, etc. y,

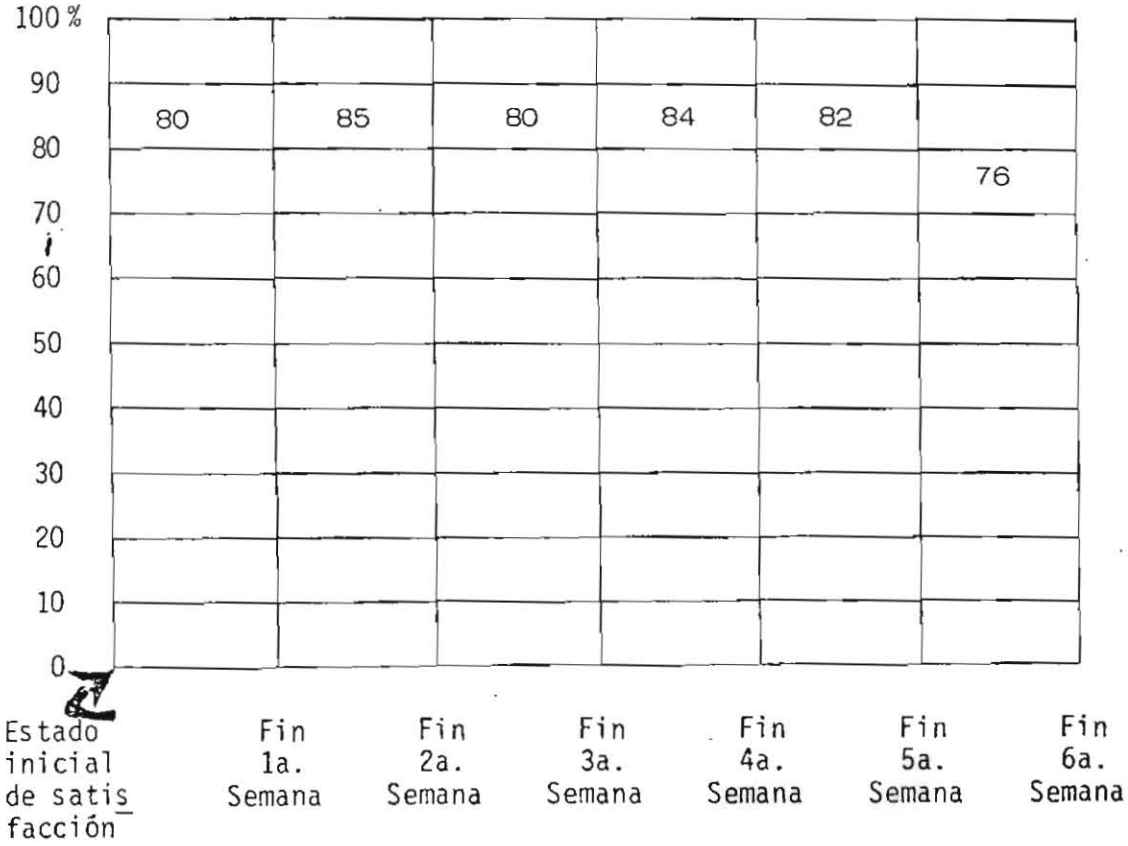
3. Precisar los aspectos positivos y negativos más sobresalientes del curso.

1. NIVEL GENERAL DE SATISFACCION

Instrucciones: La Gráfica inferior tiene dos dimensiones: la escala vertical representa en porcentaje el "nivel de satisfacción" (100% equivale a un individuo completamente satisfecho; 0% equivale a un individuo completamente insatisfecho). La escala horizontal representa en semanas, el tiempo transcurrido desde la iniciación del curso.

Teniendo en cuenta su experiencia personal, marque con "X" el porcentaje que al finalizar cada semana reflejó su NIVEL DE SATISFACCION TOTAL DEL CURSO.

Dibuje la gráfica.



A) Cauando su nivel de satisfacción fue bajo, cuál o cuáles fueron las causas ?

1. Falta de interés (personal). (5)

2. Poco énfasis y tiempo en prácticas de malezas. (5)

3. Algunas conferencias con poca información. (4)

4. Problemas personales. (3)

B) Cuando su nivel de satisfacción fue alto cuál o cuáles fueron las causas ?

1. Calidad de instructores. (17)

2. Aumento de conocimientos. (17)

3. Aumento de experiencias. (11)

4. Conferencias relacionadas con el área de mi trabajo. (9)

5. Cumplimiento en la programación. (3)

C) A continuación encontrará una lista de las disciplinas sobre las cuales usted recibió información; señale, numerando de OPTIMO (primero) a DEFICIENTE (último), el órden en que fueron tratados estos temas en forma conjunta (conferencias, laboratorios, campo, talleres, materiales recibidos, audiotutoriales, etc.).

Temas	Orden
- Morfología	3
- Diversidad Genética	4
- Fisiología	5
- Economía	6
- Suelos	4
- Fitopatología	1
- Entomología	2
- Fitomejoramiento	1
- Asociación	4
- Biometría	4
- Semillas	5

2. ASPECTOS ACADEMICOS

A) Consulte el programa del curso. Considerando contenido, participación de la audiencia, utilidad en su trabajo futuro; indique:

a) Las CINCO MEJORES conferencias del curso

1. Estrategia general del mejoramiento del fríjol en CIAT (9)

2. El diagnóstico de problemas de fertilidad suelos fríjol (9)

3. Morfología de la planta de frijol (8)

4. Conceptos básicos de la introducción y selección de nuevas variedades (7)

5. Divercidad genética del genéro Phaseolus. (7)

b) Las CINCO conferencias MAS DEFICIENTES

1. Manejo y control de malezas (6)

2. Sifri (4)

3. Protección de la calidad de semilla (4)

4. Análisis Económico de pruebas de finca (4)

5. Principios básicos de la asociación de cultivos (3)

( ) Frecuencia

B) Considerando contenido, participación de la audiencia, habilidades aprendidas, utilidad, indique:

a) Las CINCO MEJORES prácticas

1. Gruzamiento de fríjol (15)

2. Trabajos de campo en la finca Las Guacas (10)

3. Las de reconocimiento de plagas (9)

4. Reconocimiento de enferemedades (9)

5. Fitopatología (8)

6. Diversidad genética de las especies cultivadas de Phaseolus (8)

b) Las CINCO prácticas MAS DEFICIENTES

1. Siembras experimentales y demostrativas malezas (8)

2. Práctica semillas (2)

3. Práctica de volubles (2)

4. Determinación de hábitos en fríjol (2)

c) De acuerdo con su criterio, enumere las cinco unidades audiotutoriales de fríjol más útiles para los técnicos de su institución:

1. Enfermedades del fríjol causada por hongos y su control (19)

2. Descripción y daño de los insectos que atacan el fríjol (13)

3. Enfermedades de la raíz (12)

4. Morfología de la planta de fríjol (10)

( ) Frecuencia

E) Considere sólamente aspectos ACADEMICOS (conferencias, prácticas, material escrito, unidades audiotutoriales, viajes, etc.) y señale los aspectos del curso:

a) POSITIVOS

1. Material escrito. (12)

2. Unidades audiotutoriales. (11)

3. Conferencias. (10)

4. Prácticas. (8)

b) DEFICIENTES

1. Viajes. (10)

2. Poco tiempo para prácticas. (6)

3. Poco tiempo a fisiología. (2)

3. SUGERENCIAS

A) En que forma podemos evaluar mejor el aprendizaje de los participantes ? Explique sus ideas al respecto.

1. Dejar al participante desarrollar un tema particular. (4)

2. Conformidad con el sistema actual. (3)

3. Aumentar evaluaciones de campo. (3)

B) Cuál sería para usted la distribución de tiempo IDEAL para un DIA PROMEDIO DE UN CURSO SIMILAR A ESTE ?

1. Conforme con el actual. (16)

2. 60% teoría. 40% práctica. (3)

3. Mesas redondas. (2)

C) Qué sugerencias puede dar usted al CIAT para que la vida social (fin de semana, horas de la noche) de participantes en cursos similares sea más agradable y se complemente efectivamente con el aprendizaje y desarrollo de trabajos futuros ?

1. Proyectar más y mejores películas. (5)

2. Aumentar deportes. (5)

3 Más horario Biblioteca. (5)

4. Organizar más salidas. (4)

5. Desarrollar más juegos como ajedréz, billar, etc. (3)

D) Sugiera algunas recomendaciones precisas que permitan mejorar los aspectos deficientes del curso.

1. Programar más tiempo de prácticas. (6)

2. Complementar los aspectos teóricos con las prácticas. (5)

E) Qué temas considera usted que debieron haberse tratado en forma más amplia ?

Mejoramiento (10) Suelos (7) Malezas (5)

F) Cuáles temas no se trataron y debieron tratarse ?

Maquinaria (3) Adop.tec.por agricultores (3) Ecología (2)

G) Cuáles temas deberían eliminarse ?

_____ _____ _____

H) Sugiera algunos títulos de unidades audiotutoriales que usted desearía fueran producidas.

Mejoramiento (3) Genética (2)

I) Sugiera algunas prácticas que deberían incluirse.

Ampliar trabajos de interés al Becario. (3)

Descripción del mejoramiento. (3)

Técnicas de extensión. (2)

J) Sugiera algunas prácticas que deberían eliminarse.

K) Utilice este espacio para hacer o ampliar cualquier sugerencia, comentario u observación que considere importante:

1. Horario de Biblioteca. (3)

2.

( ) frecuencia

4. ASPECTOS GENERALES

Califique los siguientes aspectos del curso:	Calificación: No satisfactorio 1	Pobre 2	Regular 3	Bueno 4	Excelente 5	OBSERVACIONES
1. Número de temas				X		
2. Equilibrio teórico-práctico			X			
3. Calidad del contenido				X		
4. Metodología del curso				X		
5. Audiotutoriales					X	
6. Biblioteca		X				
7. Conferencias				X		
8. Prácticas de laboratorio			X			
9. Viajes de estudio			X			
10. prácticas de invernadero				X		
11. Talleres			X			
12. Relación con científicos			X			
13. Utilidad de la información recibida				X		
14. Grado de aprendizaje				X		
15. Alimentación			X			
16. Deportes				X		
17. Viajes recreativos		X				
18. Prácticas de campo				X		

CIAT - VIII CURSO - CALIFICACIONES OBTENIDAS

Febrero 2 - Marzo 13 de 1981

	Exámen Inicial	Morfol.	Malezas	Entomol.	Patolog.	Mejoram.	Promedio
MARIO ANTONIO QUIROZ	50	90	38	94	84	89	79
MARIO JARAMILLO PELAEZ	50	94	38	89	84	100	81
GILBERTO ARAYA SOTO	31	86	45	72	91	89	77
JORGE MILTON RAMIREZ	42	77	48	79	89	92	77
ROBERTO OCHOA	37	91	38	89	89	97	80
PEDRO ALEMAN RUIZ	38	80	52	68	80	89	74
PABLO FERNANDEZ H.	44	100	31	79	84	80	75
ARTURO DURAN PRADO	41	69	29	83	89	89	72
CARLOS GONZALEZ	46	90	26	66	82	89	71
JOSE PERALTA	44	73	47	74	91	94	76
MIGUEL ALEXIS ROMAN	31	81	26	72	84	89	70
LEANDRO OLIVEIRA E SILVA		81	38	85	84	94	76
JOSE FRANCISCO APARICIO		19	17	53	87	94	54
ELIAS LOPEZ		76	24	70	91	92	71
JAVIER REGULO MORALES		76	22	70	84	92	69
EARLE VICTOR LARIOS		86	29	79	84	94	74
CESAR GUILLERMO MORALES		76	53	79	93	97	80
LUIS ANTONIO CERNA		83	52	89	89	97	82
RAMON RODRIGUEZ			26	72	95	94	72
RICARDO ANTONIO CERRATO			33	60	87	100	70
DAVID JIMENEZ A.				85	78	87	86
AURELIO LLANO					93	45	69
P R O M E D I O	41	79	36	76	87	90	

Nota: el promedio por persona no incluye el Exámen Inicial.

Appendix D

Responsibilities of Training and Conferences Staff

Appendix D

RESPONSIBILITIES OF TRAINING AND CONFERENCES STAFF

SENIOR STAFF

The Coordinator, Training and Conferences, is responsible for:

1. Providing leadership regarding philosophy organization planning programing and conduction of Training and Conferences Activities of the Center.

2. Insuring the maintenance of uniform general standards and criteria in the identification and selection of participants and in the conduction of training programs.

3. Developing,implementing and overseeing the application of effective training methods and conference procedures.

4. Administering core and special project funds for scholarships.

5. Developing a yearly plan and schedule for training courses and conferences and providing effectively and efficiently the necessary logistic support.

6. Asisting the coordinators of commodity programs (or Units) to stablish priority countries and institutions and to make plans for building the research capability of national programs,through various types and levels of training at CIAT and in-country.

7. Maintaining contact with officials from national institutions regarding their scientific manpower development and needs for training.

8. Assisting the members of the senior staff in the identification and selection of professionals to be trained.

9. Making the arrangements for bringing participants selected.

10. Assisting the coordinators of commodity programs (or Units) in the organization of conferences and on any matters regarding training within the commodity program.

11. Organizing conferences not specific of a commodity.

12. Planning the necessary steps for the development of appropriate training materials of various kinds to be utilized as instruction aids at CIAT and in countries and aproving these materials in regard to quality, content and effectiveness for teaching.

13. Concerting with specific universities the conduction of MS or PhD thesis research at CIAT.

14. Assisting the Director of International Cooperation in matters of outreach involving training and conferences.

15. Integrating training efforts of the various commodity programs (or Units) focused on individual institutions.

GAS STAFF

Registar is responsible for:

1. Channeling training aplications for consideration by prospective supervisors.

2. Processing admissions of candidates proposed by national programs or identified by staff members and approved by coordinators.

3. Corresponding with officials of national programs regarding standard information of training programs available.

4. Processing charges to financial sponsors of individual scholarships.

5. Keeping and processing records of persons trained.

6. Compiling and processing and providing information on scientific manpower profiles of client countries.

Conferences Manager

Conferences Manager is responsible for:

1. Providing the logistic support for conference events.

2. Assisting the program coordinators or chairman of the organizing committee of each conference, in the planning, scheduling invitation and other administrative arrangements needed.

3. Developing a yearly schedule for internal seminars.

4. Assisting training associates in administrative and logistic needs of training courses.

5. Assisting other organizations in the conduction of a limited number of hasted conferences at CIAT.

SUPPORT STAFF

Training Orientation Officer, is responsible for:

1. Receiving arriving participants.

2. Familiarizing new trainees with the facilities and procedures at the Center.

3. Counseling and assisting trainees with specific personal problems afecting on their training or research work.

4. Organizing sports and social events for trainees.

5. Administering health services for trainees.

6. Assisting married persons with children to find appropriate housing in Cali or Palmira.

7. Assisting trainees with departure arrangements.

8. Overseeing the general well being and comfort of training participants to help maintain a friendly relatioship between them and personnel at the Center.

Training Associates are assigned to separate commodity programs and are responsible for:

1. Planning programming and conducting intensive courses and group training in each program.

2. Collaborating with the Coordinators of the commodity program and the Administrator of Admissions in selecting participants for courses and group training.

3. Making the necessary arrangements for classroom teaching and for field proactices.

4. Providing orientation to instructor on teaching methodologies.

5. Assisting in coordinating and teaching in-country courses.

6. Conducting field experimentation dealing with regional trials and validation tests.

7. Coordinating and assisting the production of audiotutorial units and other training materials.

Appendix E

Number of professionals trained

at CIAT by commodity programs

and support units

1969 - 1980

NUMBER OF PROFESIONALS THAT HAVE BEEN TRAINED AT CIAT UNTIL 1980

BEANS PROGRAM

Latin America and the Caribbean	Total
ARGENTINA	10
BELIZE	1
BOLIVIA	11
BRAZIL	69
CHILE	20
COLOMBIA	45
COSTA RICA	18
CUBA	15
DOMINICAN REPUBLIC	15
ECUADOR	17
EL SALVADOR	18
GUATEMALA	26
HAITI	3
HONDURAS	23
MEXICO	23
NICARAGUA	6
PANAMA	4
PERU	23
PUERTO RICO	1
VENEZUELA	12
Total	360

Other Countries	Total
BELGIUM	1
CANADA	1
SPAIN	1
HOLLAND	4
IRLAND	1
KENYA	2
TANZANIA	2
UNITED KINGDOM	1
UNITED STATES	13
WEST GERMANY	1
Total	27

NUMBER OF PROFESIONALS THAT HAVE BEEN TRAINED AT CIAT UNTIL 1980

CASSAVA PROGRAM

Latin America and the Caribbean	Total
BOLIVIA	4
BRASIL	76
COLOMBIA	56
COSTA RICA	7
CUBA	5
DOMINICAN REPUBLIC	14
ECUADOR	7
EL SALVADOR	2
GUYANA	4
HAITI	3
HONDURAS	4
MEXICO	25
NICARAGUA	1
PANAMA	4
PARAGUAY	1
PERU	7
TRINIDAD Y TOBAGO	1
VENEZUELA	13
Total	234

Other Countries	Total
Asia:	
INDIA	5
INDONESIA	12
JAPAN	1
MALAYSIA	13
PHILLIPPINES	11
REPUBLIC OF SEYCHELLES	1
THAILAND	21
Africa:	
CAMEROON	3
NIGERIA	2
SOUTH AFRICA	3
SRI LANKA	4
TANZANIA	1
Developed Countries:	
HOLLAND	5
ITALY	1
UNITED KINGDOM	3
UNITED STATES	4
WEST GERMANY	3
Total	93

NUMBER OF PROFESIONALS THAT HAVE BEEN TRAINED AT CIAT UNTIL 1980

RICE PROGRAM

Latin American and the Caribbean	Total
ARGENTINA	3
BELICE	3
BOLIVIA	4
BRAZIL	56
CHILE	1
COLOMBIA	19
COSTA RICA	10
CUBA	4
DOMINICAN REPUBLIC	7
ECUADOR	34
EL SALVADOR	4
GUATEMALA	7
GUYANA	2
HAITI	4
HONDURAS	11
JAMAICA	1
MEXICO	8
NICARAGUA	1
PANAMA	5
PARAGUAY	3
PERU	17
URUGUAY	1
VENEZUELA	4
Total	209

Other Countries	Total
FRANCE	2
HOLLAND	4
UNITED STATES	3
WEST GERMANY	1
Total	10

NUMBER OF PROFESIONALS THAT HAVE BEEN TRAINED AT CIAT UNTIL 1977 *

COMBINED CROPS

Latin America and the Caribbean	Total
BOLIVIA	3
COLOMBIA	23
COSTA RICA	2
DOMINICAN REPUBLIC	5
ECUADOR	5
EL SALVADOR	1
GUATEMALA	11
HONDURAS	2
MEXICO	1
NICARAGUA	1
PANAMA	5
PARAGUAY	4
PERU	3
Total	66

* Training discuntned after 1977

NUMBER OF PROFESIONALS THAT HAVE BEEN TRAINED AT CIAT UNTIL 1980

TROPICAL PASTURES PROGRAM

Latin America and the Caribbean	Total
ANTIGUA	1
ARGENTINA	1
BELIZE	3
BOLIVIA	19
BRAZIL	29
CHILE	1
COLOMBIA	82
COSTA RICA	3
CUBA	11
DOMINICAN REPUBLIC	10
ECUADOR	15
EL SALVADOR	4
GUATEMALA	15
GUYANA	1
HONDURAS	5
MEXICO	7
NICARAGUA	6
PANAMA	8
PARAGUAY	16
PERU	18
URUGUAY	1
VENEZUELA	16
Total	272

Other Countries	Total
AUSTRALIA	1
CANADA	1
FRANCE	1
HOLLAND	9
INDONESIA	1
UNITED KINGDOM	2
UNITED STATES	16
WEST GERMANY	5
Total	36

NUMBER OF PROFESIONALS THAT HAVE BEEN TRAINED AT CIAT UNTIL 1980

SWINE PROGRAM

Latin American and the Caribbean	Total
ARGENTINA	2
BOLIVIA	9
BRAZIL	4
COLOMBIA	23
COSTA RICA	5
DOMINICAN REPUBLIC	1
ECUADOR	9
EL SALVADOR	2
GUATEMALA	3
HONDURAS	3
MEXICO	6
NICARAGUA	3
PANAMA	3
PARAGUAY	7
PERU	9
VENEZUELA	2
Total	91

Other Countries	Total
NIGERIA	2
THAILAND	2
UNITED STATES	1
WEST GERMANY	1
Total	6

NUMBER OF PROFESIONALS THAT HAVE BEEN TRAINED AT CIAT UNTIL 1980

SUPPORT UNITS

Latin America and the Caribbean	Total
Audiotutorials:	
BRAZIL	1
COLOMBIA	3
COSTA RICA	1
CUBA	2
ECUADOR	1
EL SALVADOR	2
Total	10
Documentation Services:	
ARGENTINA	1
BELIZE	1
BOLIVIA	1
BRAZIL	5
CHILE	1
COLOMBIA	5
CUBA	2
DOMINICAN REPUBLIC	8
ECUADOR	1
EL SALVADOR	4

(Continued)

SUPPORT UNITS (Continuation)

Latin America and the Caribbean	Total
GUATEMALA	4
HONDURAS	1
JAMAICA	1
MEXICO	3
NICARAGUA	1
PANAMA	1
PERU	4
Total	44

Station Operation:

BOLIVIA	1
BRAZIL	5
CHILE	2
COLOMBIA	20
DOMINICAN REPUBLIC	1
ECUADOR	2
EL SALVADOR	2
GUATEMALA	2
HONDURAS	1
MEXICO	1
VENEZUELA	1
Total	38

(Continued)

SUPPORT UNITS (Continuation)

Latin America and the Caribbean	Total
Seed Unit :	
BOLIVIA	12
BRAZIL	14
CHILE	5
COLOMBIA	51
COSTA RICA	2
CUBA	1
DOMINICAN REPUBLIC	11
ECUADOR	16
EL SALVADOR	2
GUATEMALA	6
HAITI	2
HONDURAS	5
JAMAICA	1
MEXICO	3
NICARAGUA	1
PANAMA	7
PARAGUAY	1
PERU	14
VENEZUELA	5
Total	159

Appendix F

Report of the work group on Training at the Consultation Seminar on Research and Training Strategies, attended by Directors of Research and Research Institutes of countries from Latin America

6 to 9 April 1981

SEMINARIO DE CONSULTA SOBRE ESTRATEGIAS DE INVESTIGACION Y ADIESTRAMIENTO

Abril 7 - 9, 1981

Informe del Grupo de Trabajo sobre Adiestramiento

Resumen de las discusiones sobre el Programa de Desarrollo de Personal Científico

El grupo de trabajo adoptó el siguiente marco de referencias para efectos de análisis y recomendaciones:

a. El fortalecimiento de los programas nacionales a través del desarrollo del personal científico de estos.

b. El reconocimiento que el Desarrollo de Personal Científico debe atender a las necesidades de los programas nacionales y de las responsabilidades de dicho personal.

c. El Desarrollo de Personal Científico a nivel de posgrado debe contemplar tanto especialización como estudios que conllevan a títulos.

d. El programa constituye uno de los mejores medios de enlace entre las instituciones nacionales y el CIAT y es también un parámetro que sirve para medir la efectividad de este último en el cumplimiento de sus objetivos.

El grupo está satisfecho con la conducción del programa y apoya la estrategia futura expuesta en la Sección 5 del documento "Adiestramiento y Conferencias", con los siguientes comentarios y recomendaciones:

1. En lo referente a las estrategias

   a. Para los estudios avanzados de Investigación (M.S., Ph.D.)

      . CIAT deberá hacer todo el énfasis posible en los estudios posgraduados conducentes principalmente a la maestría y también al doctorado.

      . CIAT debe estudiar la forma cómo integrarse con y fortalecer las universidades o centros de excelencia que ofrezcan cursos de posgraduados, a fin de ampliar la cobertura de entrenamiento. Una alternativa podría ser promocionando estudios avanzados de investigación posmaestría y doctorados y posdoctorados.

b. Para los estudios de especialización posgrado

. Se recomienda que el CIAT conjuntamente con instituciones nacionales busque un reconocimiento de créditos académicos para su enseñanza, por parte de las escuelas posgraduados.

. Se recomienda un incremento en el desarrollo de profesionales que están dedicados a resolver problemas integrales de la producción agropecuaria así como de aquellos que están ligados a las actividades de Transferencia de Tecnología.

. Se recomienda que CIAT fortalezca algunos programas nacionales en países que tengan ventajas comparativas para enseñanza, a fin de que puedan ofrecer estudios de especialización en los cultivos del mandato CIAT, pero en agroecosistemas diferentes.

c. Para los cursos intensivos

. Se recomienda que dentro de los cursos por cultivos se incluya aspectos relacionados con los sistemas integrados de producción agrícola, dentro de los contextos socioeconómicos culturales.

d. Para conferencias de varios tipos

. Se sugiere se prepare seminarios sobre organización y administración de la investigación, tanto a nivel de líderes de programas de investigación como administradores o directores de instituciones.

2. En lo referente a las relaciones interinstitucionales

. Se recomienda al CIAT busque un mecanismo que fomente las relaciones entre los programas nacionales.

. Se recomienda al CIAT después de una concertación con las instituciones nacionales, discuta con el ISNAR, una estrategia que permita compensar los problemas de descapitalización de recursos humanos especializados que actualmente afrontan las insituciones nacionales.

. El grupo respalda, lo propuesto sobre el análisis conjunto con instituciones nacionales de la estructura de su personal y la planeación a corto y largo plazo de sus necesidades de capacitación.

. El grupo ve con agrado la nueva imagen de filosofía del llamado "Programa para el Desarrollo de Personal Científico" y las denominaciones de "investigador visitante", "especialista" y "participantes en cursos" que van de acuerdo con dicha imagen.

3. Finalmente

Reconociendo que el CIAT busca fortalecer los programas nacionales y que esto puede lograrse efectivamente entre otros medios con un agresivo programa de desarrollo científico de los profesionales; el grupo de países ve con preocupación que los recursos presupuestales para esta actividad ha sido disminuido sustancialmente. Los países usuarios del sistema del grupo consultivo solicitan al CIAT, que plantee a dicho grupo, la necesidad de efectuar un análisis para diseñar estrategias para financiar mejor y a largo plazo tan vital actividad para que los centros internacionales logren su objetivo final ya que de no fortalecerse simultáneamente los programas nacionales, se reduciría la eficacia de los centros internacionales que podrán debilitarse con riesgo de frustrar su mandato.