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 936-4111
 PAGE 1 OF 1

MODIFICATION OF GRANT

DUNS NO. 99-900-9491

1. Modification Number 07	2. Effective Date of Modification January 1, 1988	3. Grant No. DAN-0865-G-IN-3020-00	4. Effective Date of Grant March 7, 1983
5. Grantee: (Name and Address)		6. Administered By:	

The International Center for Tropical Agriculture (CIAT)
 Apartado, Aereo 6713
 Cali, Colombia

Agency for International Development
 Office of Procurement
 OP/W/FA:WPG
 Washington, D. C. 20523

7. PIO/T No.: 936-4111 - 8308006 Appropriation No.: 72-1181021.3 Allotment Symbol: 843-30-099-00-20-81 Budget Plan Code: FDNA-88-13000-KG-11 Amt. Oblig. Prior to this Mod. \$26,960,000 Amt. Oblig. by this Mod. \$ 4,820,000 Total Obligated Amount \$31,780,000	8. Previous PIO/T's: 931-0865-3631114 931-0865-3631114, A1 936-0865-3631114, A2 931-0865-3641124 936-4111.04-5303091 936-4111.04-6302104 936-4111.7361181
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9. Description of Modification:

A. The purpose of this modification is to provide \$4,820,000 in funds for the partial support of the International Center for Tropical Agriculture Calendar Year (CY) 1988 core operations, research, and program activities. These activities are fully described in Attachment A to this modification. These funds are estimated to be sufficient from January 1, 1988 through approximately December 31, 1988.

B. All other terms and conditions remain unchanged.

Attachments:

- A. Core Program for CY 1988.
- B. Estimated Budget for 1988.

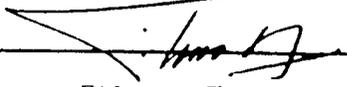
10. AID TECHNICAL OFFICE: S&T/AGR

11. This modification is entered into pursuant to the authority of the Foreign Assistance Act of 1961, as amended. Except as herein provided, all terms and conditions of the Grant referenced in Block #3 remain unchanged and in full force and effect.

12. Grantee is required to sign this document and return 7 copies.

13. GRANTEE: The International Center for Tropical Agriculture (CIAT)

THE UNITED STATES OF AMERICA
 AGENCY FOR INTERNATIONAL DEVELOPMENT

BY: 
 Filemon Torres
 (Name typed or printed)

BY: 
 Jay M. Bergman
 (Name typed or printed)

TITLE: Acting Director General

TITLE: Grant Officer

DATE: 22 June 1988

DATE: 6/3/88

Attachment A

MANDATE OF CIAT, AND PROGRAM FOR 1988

The purpose and approach of CIAT is given in the following statement of objectives:

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

CIAT's strategy emphasizes enhanced production through increased resource productivity on farms with limited resources and on underutilized land areas. By contributing to the improvement of productivity on small- and medium-scale farms the Center seeks to provide for increased rural income and employment, moderate and stable food prices, and improved diets, especially of the low-income, urban and rural population. Technology which contributed to expansion of agricultural production of suitable commodities on the less fertile frontier lands makes possible the release of the more fertile lands for maximum crop cultivation, thus achieving more efficient food and animal production using both poor and fertile land resources, to meet consumer demands.

In order to achieve the objectives and apply the strategy described above, and taking into account the results of socioeconomic studies and the mandates of other centers, the CIAT programs have evolved to currently encompass the following responsibilities within the CGIAR system:

1. Global responsibilities for beans (Phaseolus vulgaris and related species) and cassava (Manihot esculenta);
2. Area-specific responsibilities for Tropical Pastures (specific responsibilities for the acid, infertile soils of the American tropics);
3. Regional responsibilities for Rice (specific responsibilities for the American tropics).

BEAN PROGRAM

The goal of the Bean Program is to improve food availability and income for the poor by working together with national agricultural research systems in the development of technology that increases the production and productivity of beans in countries where beans are an important food.

More specifically, the Program seeks to: (a) produce scientific innovations that overcome major productivity-limiting constraints in beans; (b) strengthen indigenous research and technology transfer capacity through collaborative research and selective training; and (c) accelerate the diffusion of new technology by encouraging international research networks facilitating exchange of germplasm, scientific techniques and methodologies, and information.

In order to determine the Bean Program's strategies to achieve these objectives, the salient characteristics of the crop must be considered. Beans are the most important food legume in Latin America and the highlands of eastern and southern Africa where, for scores of millions of people, especially among the poor, beans are the main source of dietary protein as well as one of the leading sources of calories. There are, however, strong local preferences for many distinct grain types. Production systems are also highly varied due to major differences in soil/moisture/temperature regimes as well as in the objectives and resource endowments of producers. Poor farmers, for whom capital is a scarce resource, produce a large share of the beans in semi-subsistence systems.

Of the major food crops, beans are among the most susceptible to disease. Bean productivity is limited by an array of pathogens and pests, while growth in productivity has been slow in the tropics where farmers' traditional landraces are still widely grown. Beans are frequently grown intercropped with other food staples (e.g., maize, plantains, cassava). With few exceptions beans have not been the subject of extensive research or improvement in the tropics where research resources have been generally meager. Consequently, the program strategy focuses on research to improve bean productivity; training to increase research capacity in tropical bean research institutions; and networking to speed the generation and diffusion on improved bean production technology. Program research is strategically oriented to maximize impact in the context of research being carried by NARS and by basic science institutions. Thus, while the program concentrates on applied research of broad applicability, it also undertakes either basic or adaptive research where this serves as a valuable complement to the efforts of others, both capitalizing on strengths and filling in gaps.

Genetic improvement is the Program's main research effort given its substantial potential impact and its broad adaptability. In particular, the Program emphasizes the genetic improvement of resistance to diseases and insects, while minimizing reliance on purchased inputs and giving priority to important widespread production constraints including

potential drought resistance, earliness, nitrogen fixation, and adaptation to acid and low phosphorous soils. Research in pathology, virology, entomology, physiology, microbiology, agronomy and economics--all interact with and support the Program's plant breeding effort. Improved cultural practices to accompany new germplasm is a second-order priority, and agronomic research is conducted to address problems for which genetic solutions are not readily available.

The Program's research is carried out in close collaboration with the NARS, which have the additional responsibility of adapting new technologies to the specific circumstances of their diverse production systems. Furthermore, some program research is conducted in coordination with developed country research institutes in order to exploit the latest advances in basic science. The NARS research capacity is strengthened by their partnership with the Program in research, as well as through training and participation in bean research networks. The Program sponsors selective training of NARS researchers through mid-career internships, short courses and workshops, as well as higher level degree training. Moreover, the Program actively foments the exchange of information, scientific techniques and methodologies, and germplasm. This network approach makes the results of advances in basic science more accessible in an applied form. Network relationships among tropical countries capitalize on specialization in research based on comparative advantage while also facilitating the horizontal transfer of technology they generate.

In order to implement these strategies, the Bean Program has formed a critical mass of scientists at headquarters. The principle activity of this effective interdisciplinary team is to conduct research to find practical solutions to major widespread bean production problems. The close coordination of activities across disciplines is crucial to the Program's research strategy: pathology, virology, entomology, physiology and microbiology work closely with plant improvement (breeding) in the identification of parental sources of desirable characters and in the selection of progeny for high expression of these traits. Agronomy and economics conduct diagnostic farm-level studies to help set design priorities for new technology and also to evaluate the performance of promising technology coming out of the Program.

Research is first organized around a set of character improvement projects, in each of which a breeder works closely with at least one disciplinary scientist. Products of these specific character projects are then made available to all Program breeders including those who are outposted; and multiple characters are combined into improved cultivars with commercially acceptable grain type and appropriate agronomic adaptation. These are evaluated in uniform nurseries by the entire headquarters team. Only through an essential mass of top research scientists working in tight integration can rapid and significant progress be made in finding solutions to the diverse factors that limit bean productivity.

Outposted staff are a critical complement to the Colombia-based activities. With regard to research, outposted staff have a major responsibility for evaluating improved characters for their local performance and for developing and selecting improved cultivars with local adaptation. Moreover, strategic studies of major problems in the regions provide information needed to set central research priorities. Outposted staff work closely with NARS scientists on a daily basis, and training and networking activities are as important as research. While Colombia-based staff devote more effort to research, they also are heavily involved in training and network support. Both headquarters and outposted staff collaborate in cultivar improvement projects, local evaluation, training and networking.

CASSAVA PROGRAM

The Cassava Program seeks to contribute materially to increased income and food supplies of small farmers and to improve food availability in tropical developing countries. The Program forms part of a global network dedicated to exploiting cassava as an important traditional rural and urban staple and to developing new forms of utilization suitable for changing agronomic circumstances.

Cassava research operates within an evolving context, where principal constraints to the development of the crop often shift from production to utilization to processing and marketing. The CIAT Cassava Program is an interdisciplinary team pursuing the following areas of endeavor:

Assembly of a Basic Body of Knowledge of the Crop

In order to develop new technology for any crop, it is necessary to have a systematic understanding of it. This includes knowledge on the basic biology and growth processes; reactions to different environmental conditions; interactions with pests and diseases and an intimate knowledge of their biology and epidemiology; and the physical and chemical characteristics of the plant. Before engaging in strategic research in any of these areas, the Cassava Program first of all evaluates the comparative advantage it has to carry out the work and the possibilities of cooperating with other agencies. Only when there is a clear advantage or it is likely that no other agency will become involved, does it proceed with the setting up of a research effort to increase the knowledge base in the particular area under consideration.

Genetic Conservation and Improvement

It is evident that any attempt to develop efficient production technology is highly dependent upon the existence of a good variety. The development of effective varieties, in turn, is dependent upon the availability of a gene pool that possesses desirable characteristics. CIAT is in a unique position to collect, characterize and conserve the world's cassava germplasm in such a manner that it can readily be used by other agencies. In this context, the process can be made much more efficient if the desirable characters for specific ecosystems or end uses are already concentrated in elite gene pools, which are then distributed to national breeding programs.

Integrated Pest Management

The reduction of losses caused by diseases and pests in a long growth-cycle, small farmer crop is most effectively achieved through an integrated approach to pest management. As a first step, the Cassava Program evaluates the importance of individual pests or pest complexes in terms of losses caused and the potential area over which they can cause damage. Work is then concentrated on developing the basic building blocks of an integrated pest management program for the most damaging pests and diseases. This includes a thorough knowledge of the organisms and the cassava plant's response to them, as well as the evaluation of alternative strategies such as phytosanitary control, biological control and host plant resistance. The Cassava Program is in a unique position to develop integrated control systems as it is located in the center of origin of cassava and the pests and diseases that have co-evolved with it. The economies of scale that result from having one center collect and evaluate the source of resistance and the biological control agents are considerable.

Sustainable Agricultural Production Systems

Production systems are inherently location specific; nevertheless, certain basic technological components and principles can be applied over a wide range of conditions. Of particular importance here are measures to reduce and control soil erosion (which range from appropriate management practices to the use of intercropping and a variety of ground covers) and to counteract soil depletion (through appropriate crop rotation and the use of fertilization at the minimum threshold level). The Cassava Program utilizes some of the more basic knowledge developed through its strategic research efforts to understand the crop in applied research on crop management. Most of this research is carried out in close cooperation with the national programs. The results of the multiple efforts by the national programs and CIAT are compiled and analyzed by the Cassava Program in order to develop the principles of improved crop management. These findings are then used by national programs in their own adaptive research programs.

Improved Root Quality

The development of new varieties and the rapid move of cassava into new end uses have highlighted the fact that there are considerable varietal differences with regard to quality characteristics. No one characteristic can be selected as optimal for all end uses. The situation is further complicated by the fact that little is known about the basic nature of differences in quality. This makes screening and selection not only slow, but also a haphazard process. Given that the varietal component is of such paramount importance in determining root quality, additional systematic attempts to improve root quality must be based on CIAT's world germplasm collection. This research will be carried out in conjunction with various agencies with expertise in this field, including the Tropical Development and Research Institute (TDRI) and a food research institute in the UK.

Improved Preservation and Processing Technology

The movement of cassava into new markets is dependent on its being converted into a competitive, low-cost and convenient production product. This requires the development of improved methods of postharvest handling. These technologies should be relatively nonlocation-specific, and their transfer to new application sites should require only minimal adaptive research. Certain postharvest technologies for cassava are already well developed or are being investigated by other agencies. In general these technologies are for large-scale industrial use--an area in which the Cassava Program does not, and will not, play an active role. In the development of small-scale processing technology, however, the Program has already taken a lead role. In the future emphasis will be on refining the techniques for fresh cassava conservation and the development of technology for producing high-quality flours. This latter product will then form the basic raw material for developing a variety of new food products. In the area of animal feed, efforts will be largely limited to refining technologies so as to ensure continuous availability of cassava in an appropriate form for use either in the feed industry or on the farm. Other agencies are expected to carry out feeding trials and adaptive testing of available technologies.

New Products and Alternative Markets

The changing economic and social conditions in the developing work are leading to changes in people's habits and life-styles and the products they purchase. The Cassava Program will monitor the overall patterns of these socioeconomic parameters, with a view toward identifying likely new markets for cassava-based products or ways of bringing traditional products more effectively into the changing market structure, in such a manner that they improve the nutritional status and/or economic well-being of low-income urban consumers. This work will provide a constant input into the other efforts of the Program to ensure that new varieties and processing technology are appropriate to the new marketing niches as they emerge.

National Program Capacity

The future ability of cassava to fulfill national agro-economic policy goals is dependent upon the capacity of national programs to implement policy decisions. Thus strong national programs are an essential part of the cassava-based development process. The Cassava Program plays an active role in strengthening national programs, not by attempting to carry out functions that are naturally their domain, but rather through assisting them to develop the capacity to function effectively. This will be accomplished by various means. Information on cassava, for example, is widely dispersed; and many national programs do not have effective means of easily obtaining information on cassava from other countries. CIAT's strategy is to compile the available information in its specialized documentation center and then summarize and package it in such a manner that it is readily usable by the national programs.

This information exchange is also facilitated by providing national program staff the opportunity to participate in a series of workshops in which they can interchange ideas with cassava workers from other national and international centers. These workshops are organized in cooperation with national programs, frequently away from CIAT headquarters, so that national program staff can obtain a broader perspective of cassava development in other countries or regions.

The workshops are normally attended by national program staff who are already experienced in cassava; however, many new cassava programs do not have such staff. Consequently, CIAT offers intensive training opportunities for them. Upon their return to their respective programs, CIAT staff provide follow-up support and advice, particularly in the critical early years of national program development.

Through its regional outreach programs, the Cassava Program also fosters the establishment of specific networks in a variety of fields, ranging from germplasm development to the methodology for integrating cassava production, processing and marketing projects.

RICE PROGRAM

The Rice Program seeks to contribute to the improvement of the nutritional and economic well-being of rice growers and consumers in Latin America by supporting national programs to increase sustainable rice production and productivity through the development, dissemination and implementation of appropriate germplasm, technology, information, and training.

The Program's strategy is conceived within the context that the future demand for rice in Latin America will exceed current production capabilities. As improved varieties already predominate in irrigated and favored upland systems, little sustainable impact on production in these systems can be expected by simply replacing traditional varieties with improved ones. Production costs indicate that modern varieties, while possessing yield potential, lack adequate resistance to key biotic stresses. Moreover, even the yield potential of the modern varieties is not being realized because of poor agronomic practices. Thus agronomic practices must be improved for the varieties to express their yield potential, and characteristics of the varieties must be improved while retaining their yield potential.

Ideally, the National Agricultural Research Systems should respond fully to this need; however, most are quite small, unstable, severely underfunded, and/or without the expertise and facilities to conduct research beyond basic varietal testing and release. Production systems and consumption patterns vary widely over the region; consequently, the research and crop improvement strategy implemented by the Rice Program, in conjunction with national rice programs, is tailored for specific needs.

Where technology is lacking and/or new problems arise, the ongoing research programs in each section address methodologies, generating necessary baseline information on problems specific to the

region/subregion and assessing promising techniques in biotechnology. Of particular importance is the gathering of necessary information on rice pests required to successfully implement the integrated pest management (IPM) portion of integrated crop management.

Regionalization

The Program's mandated region is divided into four subregions: the Caribbean, Mexico and Central America, the tropical Andean Zone, and Brazil and the Southern Cone. Research activities are developed and coordinated based upon the requirements specific to the subregions and are undertaken within the context of the predominant production systems: irrigated, favored upland and unfavored upland. A regional program is underway in the Caribbean with a regional coordinator/breeder and three junior scientific staff. Other regionally directed activities are conducted from the CIAT headquarters base. In cooperation with the International Rice Research Institute's (IRRI) International Rice Testing Program (IRTP), the Rice Program facilitates direct interaction with the NARS through regional networks and projects.

Varietal Improvement

This continues to be a key component of the Program's strategy. Breeding objectives are defined according to the varietal requirements for the production systems within the regions. Breeding responsibilities correspond to the relative importance of the principal systems in the region. Improved germplasm is conceived, developed, advanced and selected with active participation of the NARS scientists.

Breeding strategy is designed to incorporate tolerance and/or resistance to biotic and abiotic stresses specific for target areas. In keeping with the regional/production system strategy focus, germplasm distribution is carefully targeted so that it will be adapted to the conditions of the production systems in the target area and incorporate culinary and milling characteristics appropriate for local tastes. Long-range breeding strategies are developed to introduce exotic germplasm to contribute to diversifying the genetic base of commercial varieties while retaining yield potential. Ultimately, by developing methodologies appropriate for the NARS to evaluate their germplasm, certain regional varietal improvement responsibilities should be transferred to strong NARS, permitting the Rice Program to concentrate on more advanced breeding methodologies.

Integrated Crop Management

To realize the yield potential of modern varieties at a competitive cost, crop management practices must be adequate and conducted based upon rational analysis of the constraints present at the farm level. Research on agronomic practices and pest and disease management (IPM) is directed to the most important problems on a regional and production system basis.

Socioeconomics

The economics component of the Program is responsible for studying countries' policies and other factors such as farm size, available technologies and subsistence farmers. Policies influencing the rice sector may be viewed as "macro" and "micro." While the Program cannot and should not enter deeply into the realm of macroeconomic government policies, complete ignorance of this aspect of the rice sector could lead to fundamental strategic errors. Micro-level policies, such as the organization of the seed-producing sector or the relationship between extension and research organizations, are nontechnical areas where the Program can and should exert influence.

Country Research Plans

In high-priority countries, Program scientists work closely with NARS scientists analyzing production constraints as a means of developing research and development strategies relevant to their needs. Constraints are addressed as those for which technology already exists and those for which specific research is required. When current activities of the NARS are not directed to the problems identified in the assessment, adjustments in strategy are proposed and corresponding research plans developed. The component of technology transfer typically brings disparate research and extension programs together with development projects.

Training and Information

The traditional training activities of general rice production courses continue both at CIAT and in-country. These are designed specifically to provide introduction to rice production, improvement and research to entry-level NARS scientists. However, the strategies of focusing Program activities on specific countries and orienting these activities according to the results of rice sector analyses require a more sophisticated and targeted training component. Courses tailored to country needs enable NARS scientists to analyze the rice production environment in their countries to establish research and development priorities. Furthermore, training courses for extension and development personnel are custom-designed to address specific problems and/or situations as part of Program activities within a country, following the recommendations of the country plan. These courses may be offered at CIAT or in-country, with limited direct Rice Program involvement after the initial stages. As part of country plans, the Rice Program provides advanced training in specific disciplines required for the successful implementation of priority research strategies.

TROPICAL PASTURES PROGRAM

The objective of the Tropical Pastures Program is to develop and transfer, together with national programs, improved, low-input pasture technology in the acid, infertile lowlands of the humid and subhumid tropics, with the principal responsibility being for tropical America.

The aim is to increase beef and milk production, conserve and improve soil resources of tropical ecosystems, and provide a basis for an economically and ecologically sound utilization of underexploited land resources.

The Program's research team is organized into three functional groups: germplasm evaluation (including sections for germplasm, agronomy, plant pathology, entomology and breeding); pasture evaluation (including sections for soil plant nutrition and microbiology, ecophysiology, pasture development, pasture quality and production); and pasture evaluation in production systems (including sections for seed production, farming systems, and economics). These three units coordinate their work to ensure a dynamic flow of germplasm in which characterization of germplasm screening by ecosystems, assembly of appropriate pasture production technology, and economic evaluation of new pasture technology in farm systems constitute major research areas. While thousands of germplasm entries are worked with during the initial phases of the flow of germplasm through the Program activities, only very few highly promising germplasm materials succeed in being selected for the assembly of pasture technologies and further evaluations.

The Program exploits the natural variability of germplasm to identify grass and legume species adapted to the various ecosystems in the region. Germplasm is assembled from a wide range of conditions throughout the acid infertile soil regions of tropical America as well as Southeast Asia and Africa. At present, the CIAT germplasm bank contains some 18,000 accessions. This germplasm is screened for tolerance to high soil aluminum and acidity, low phosphorus availability, and tolerance to diseases and insects. Ecotypes which pass this first screening are characterized in terms of tolerance to drought, flooding, burning, grazing, minimum nutrient requirements, nutritive value, and compatibility in grass/legume mixtures. Subsequently, pastures based on highly promising ecotypes are assembled, relevant establishment technology is developed, and cattle liveweight gains are measured. The most promising pasture combinations undergo long-term productivity and economic evaluation, and the respective technological packages are further adapted to the requirements of the predominant farm system in the area. Finally the improved technology is evaluated in economic terms. This entire research process is carried out in close collaboration with national programs throughout the area of interest.

The International Tropical Pastures Evaluation Network (RIETP) has been developed in cooperation with national programs to evaluate promising germplasm in sites which represent subecosystems in the Llanos, the Cerrados, the humid tropics (including the poorly drained savannas), and moderately acid soils. This allows the Program, in collaboration with national programs, to test germplasm throughout the area of interest and to evaluate the adaptation and productivity of promising germplasm to the different ecosystems and subecosystems in the lowlands of tropical America. The information obtained through this evaluation network is recorded in computerized data banks which allow for effective analyses of germplasm performance across locations. Periodically, participants to the network are brought together in workshops to discuss alternative methodologies for germplasm evaluation

and to exchange data recorded in different regional trials. These network activities allow for a high degree of feedback which assists in moving germplasm significantly faster to more advanced stages of evaluation under grazing for eventual release by national programs.

TRAINING

To date, CIAT has provided training to some three thousand professionals. Throughout the years, CIAT has emphasized training in research methodology and production technology as related to the commodities in the Center's mandate. Recent survey data show that 60% of former CIAT training participants are actively working with the commodities on which they received training; an additional 15% continue to be active in agricultural research, albeit not directly related to CIAT's commodities. Nevertheless, the continued growth of national programs and the shift of their personnel to other institutions, including the private sector, continuously renews the demand for training of new personnel.

CIAT training has helped national programs of numerous countries in Latin America, Asia and Africa to become stronger and to increase their capacity to engage in applied, adaptive, and validative research. CIAT-trained scientists increasingly are playing major roles in the selection and release of new varieties and attendant technologies. Training has also been a key contributing factor in the establishment and development of international and regional research networks on beans, rice, tropical pastures and cassava. These networks facilitate exchange of germplasm and technical information, and play an important role in the organization and conduct of cooperative research with CIAT and among participative countries. Conferences are the principal tool for the exchange of information and the coordination and development of concerted research strategies in the networks.

In the last two years the training and conference activities at CIAT have streamlined operation to focus more clearly than ever on concerted collaboration with national research programs and private industry to inter-link the various research efforts, and to get newly available technology moving towards the producers' fields. Three sets of action programs have been put into practice:

- 1) A progressive shifting of emphasis from courses at Palmira headquarters to in-country courses conducted by national institutions with the assistance of CIAT. Such courses are frequently coordinated with the release of new varieties and/or agronomic and plant protection practices.
- 2) The development of training plans based on expressed medium- and long-term interests of national programs and their scientific manpower needs with regard to CIAT's commodities.
- 3) The regionalization of courses to increasingly focus on the circumstances of specific regions.

Degree-related training continues to receive high priority but actual increases in this type of training are difficult to realize due to scarcity of funds for academic study.

After many years of predominantly focusing attention in training on Latin America, CIAT's increasing role in Asia (cassava) and Africa (beans) have caused the Center to receive for training an increasing number of professionals from developing countries outside of Latin America and to organize relevant training opportunities in the respective regions.

COMMUNICATION

CIAT's communication effort seeks to make agricultural information from all over the world readily accessible to the Center's staff and to its national program collaborators in the commodity research networks. The Unit also supports all of the Center's communication efforts with publications, training materials, graphic arts, and audiovisual materials.

CIAT presently employs four communication strategies in support of increased production and productivity in the area of its four mandated crops. They can be summarized as follows:

Communication is used to catalyze collaboration and to increase and reinforce networking among research groups working in CIAT's commodity areas and sharing similar objectives.

Educational and informative materials are used to disseminate the technologies that are developed through collaborative research and the new methodologies for conducting research. The materials are also to reinforce the research network's capacity to conduct research, through training its new members.

Members of the network are kept informed and up to date about relevant technologies being developed outside the network through information retrieval and delivery systems.

Communication is also used to inform administrators and policymakers about the work of the research networks, to keep them aware of its importance, and to show them the value of supporting agricultural research.

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL - CIAT
 PROPOSED BUDGET 1988
 SUMMARY OF MAN-YEARS AND COSTS BY PROGRAM AND ACTIVITY

OPERATION PROGRAMS	M-Y	87\$000	
<hr/>			
RESEARCH PROGRAMS			
<hr/>			
Beans	18	3,289	
Cassava	10	2,198	
Rice	7	1,230	
Tropical Pastures	18	3,319	
Sub-Total	53	10,036	
<hr/>			
RESEARCH SUPPORT			
<hr/>			
Visiting Scientists & Post.Doc.		639	
Genetic Resources	1	406	
Biotechnology Research	3	530	
Research Services		267	
Stations Operations	1	767	
Carinagua Station		595	
Data Services	1	519	
Agroecological Studies	1	170	
Seed Unit	2	487	
Sub-Total	9	4,380	
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TOTAL RESEARCH	62		14,416
<hr/>			
INTERNATIONAL COOPERATION			
<hr/>			
Training and Conferences	1	1,404	
Communication & Info. Support	3	1,422	
TOTAL INTERN. COOP.	4		2,826
<hr/>			
ADMINISTRATION			
<hr/>			
Board of Trustees		150	
Director General	2	524	
Directors	3	554	
Administrative Support	1	1,473	
TOTAL ADMINISTRATION	6		2,701
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GENERAL OPERATING EXPENSES			
<hr/>			
Physical Plant		1,090	
Motor Pool		799	
General Expenses		536	
TOTAL GENERAL EXPENSES			2,425
<hr/>			
OTHER			
<hr/>			
Contingency		229	
Provision for Price Changes		898	
TOTAL OTHERS			1,127
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TOTAL OPERATIONS	72	88\$	23,495
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<u>CATEGORIES OF EXPENSES</u>	<u>87\$000</u>
Personnel Costs	14,751
Honoraria, Stipends and Allow.	1,514
Supplies and Services	3,561
Travel	1,522
Equipment	641
Other	379
Contingency	229
Sub-Total	<u>22,597</u>
Provision for Price Changes	898
TOTAL CORE	<u>88\$ 23,495</u> *****
<u>CAPITAL</u>	
Capital Development	88\$ 1,077
Working Capital	116
TOTAL CORE BUDGET	<u>88\$ 1,193</u>
Minus Offsetting Items	88\$ 568
Funds Requested from Donors	<u>88\$ 24,120</u> *****

Proposed CIAT-CY 1988 Operations Budget.

- | | | |
|----|----------------------|---------------|
| A. | Total Support Budget | \$ 23,495,000 |
| | A.I.D. Contribution | 4,820,000 |
| | Other Sources: | 18,675,000 |
- B. The A.I.D. contribution shall not be used for Capital Development.