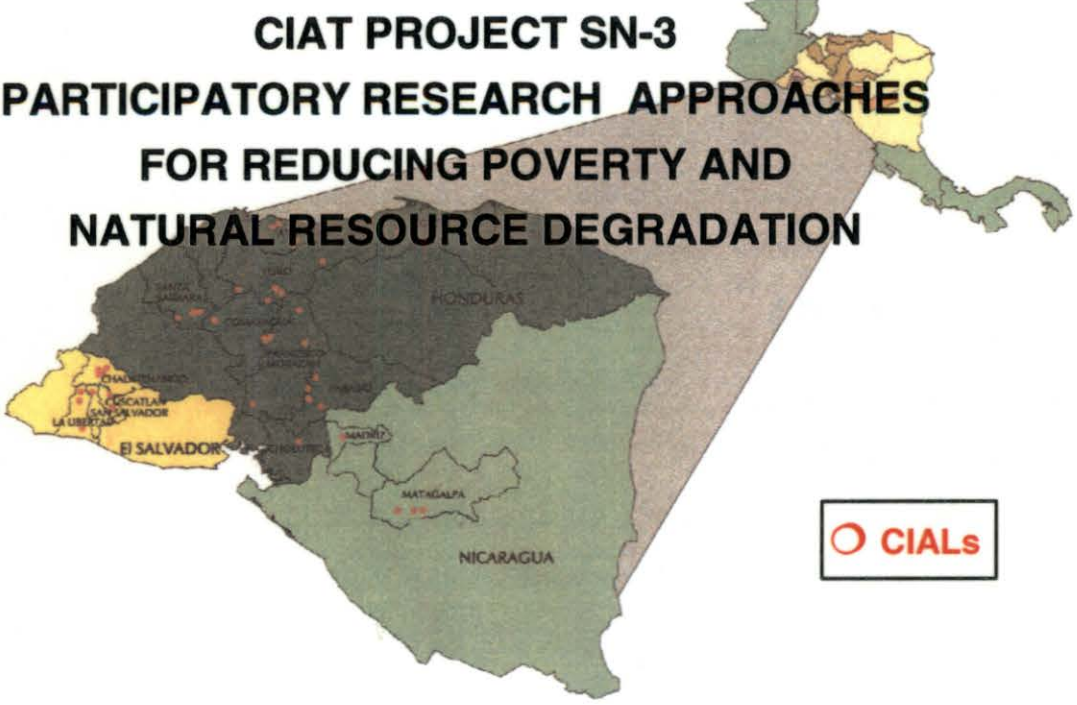
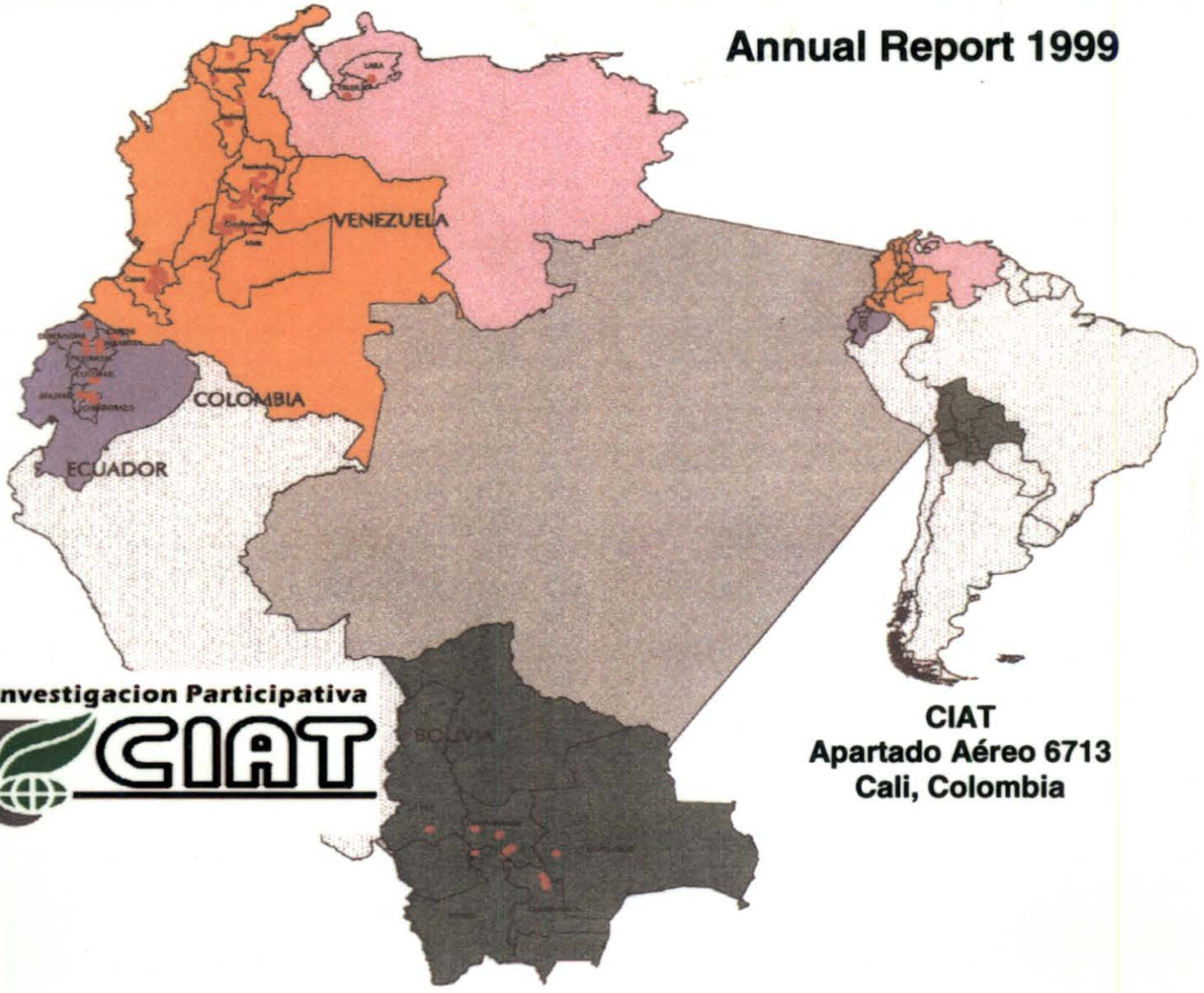
CIAT PROJECT SN-3
PARTICIPATORY RESEARCH APPROACHES FOR REDUCING POVERTY AND NATURAL RESOURCE DEGRADATION



Annual Report 1999



Investigacion Participativa

CIAT

CIAT
Apartado Aéreo 6713
Cali, Colombia

ANNUAL REPORT 1999

CIAT PROJECT SN-3

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Project overview

Objective

To develop and disseminate participatory research approaches, analytical tools, indigenous knowledge and organizational principles that strengthen the capacity of R&D institutions to respond to the demands of stakeholder groups and that contribute to improving levels of well-being and integrated agroecosystem management and conservation (IAM).

Description

Details of the Project 's seven major outputs for the years 1999-2002 are given in the logical framework matrix. Specific activities on a per-output basis are shown in the following abbreviated work breakdown structure for this year.

Outputs

- Participatory research approaches, analytical tools and indigenous knowledge that lead to the incorporation of farmers' and other end-users' needs in IMA, developed for interested R&D institutions.
- Organizational strategies and procedures for participatory research (PR) developed.
- Professionals and others trained as facilitators of PR.
- Material and information on participatory research approaches, analytical tools, indigenous knowledge and organizational principles developed.
- Impact of SN-3 activities, documented.
- CIAT projects and other institutions supported and strengthened in conducting PR.
- Capacity of the SN-3 team strengthened.

Gains

- Users involved at early stages in decisions about technology development.
- Methods available for incorporating end-user preferences.
- Participatory methods applied on a routine basis in CIAT research.
- At least three universities in Latin America with capacity to teach PR methods.
- At least 1000 trainees and 40 trainers able to apply these methods in the region.
- Contribution of PR to technology adoption rates measured in targeted areas.
- Lessons learned, methodologies and materials disseminated globally in conjunction with the Systemwide Program on Participatory Research and Gender Analysis (SP-PRGA) convened by CIAT and through the Farmer Participatory Research for IPM project of the Systemwide IPM Program (SP-IPM).

Milestones:

1999 18 trainers prepared in the CIAL approach. Innovations, publications and training tools related to the CIAL approach developed by 9 institutions from 5 countries identified and disseminated among trainers. Approach for testing the extrapolability of participatory research products and information developed.

2000 CIAL approach scaled up over a large geographic region in at least one NARS. CIAL approach pilot tested in Africa and Asia. Systemwide projects have published results on impact assessment of FPR and GA in PPB, NRM and IPM. Pilot testing of participatory approaches for rural agroenterprise development in at least one site.

2001 Watershed organizational models replicated in at least two countries (beyond the three pilot sites). Participatory plant breeding approaches institutionalized in at least three NARS (in Africa, Asia, LAC) on a national scale. At least 15 CGIAR and NARS IPM project leaders trained in participatory approaches.

2002 Participatory IPM projects established in at least 5 CGIAR and NARS centers. Pilot organizational model for rural telecenters established in one site. Methods for participatory research on NRM at the landscape scale applied in at least one site.

Users: This work will benefit poor farmers, processors, traders and consumers in rural areas, especially in fragile environments. Researchers will receive more accurate and timely feedback from users about acceptability of production technologies and conservation practices. Researchers and planners will profit from methods for conducting adaptive research and implementing policies on natural resource conservation at the micro level.

Collaborators:

NARS, NGOs, universities, CGIAR SP-PRGA members, SP-IPM members.

CGIAR Linkages:

Organization and management (70%); training (30%) Convenor of SP PRGA, Coordinator of FPR-IPM project.

CIAT Linkages:

Inputs to PE-1, PE-3; PE-4, PE-5, IP-1, IP-2, IP-3, IP-5, SN-1, BP-1; Outputs from: PE-3, PE-4, IP-3, BP-1, SN-1.

1999 WORK BREAKDOWN STRUCTURE - PROJECT SN-3

Project Objective:

To develop and disseminate participatory research approaches, analytical tools, indigenous knowledge and organizational principles that strengthen the capacity of R&D institutions to respond to the demands of stakeholder groups and that contribute to improving levels of well being and integrated agroecosystem management (IAM) and conservation.

OUTPUTS	1. Participatory methodological approaches, analytical tools and indigenous knowledge that lead to the incorporation of farmers' and other end-users' needs in IAM, developed for interested R&D institutions	2. Organizational strategies and procedures for participatory research developed	3. Professionals and others trained as facilitators of participatory research approaches
ACTIVITIES	▪ Conduct poverty surveys and participatory diagnoses in Honduras; analyze potential for extrapolability of results ▪ Implement institutional evaluation of logit regression software tool for preference ranking ▪ Develop proposal for case studies on agroecosystem health ▪ Write paper comparing FFS and CIAL approaches in FPR	▪ Develop strategies for concerted collective action among watershed users and other stakeholder groups ▪ Strengthen local group's capacity to manage NRM project in Cauca ▪ Develop concept note and write proposal for rural telecenters ▪ Develop proposal for strengthening CIAL sustainability (second-order associations) ▪ Tabulate information and conduct preliminary analysis of inactive CIALs	▪ Train NARS & NGO staff as trainers in CIAL approach ▪ Prepare talks, exercises & other materials for CIAL trainer course ▪ Follow up professionals trained in CIAL approach (Bolivia, Colombia, Ecuador, Honduras, Nicaragua, Venezuela) ▪ Do SWOT analysis with CIAL trainees in different settings ▪ Train professionals in use of preference-ranking matrix (Bolivia, Ecuador, Honduras & Peru) ▪ Train staff from local, national & international organizations in use of decision-making tools for NRM (Colombia, Dom. Rep. & Honduras) ▪ Train facilitators for community-level PDMs ▪ Write proposal for IPM study tour ▪ Train survey interviewers, Honduras.

OUTPUTS	4. Material and information on participatory research approaches, analytical tools, indigenous knowledge and organizational principles, developed	5. Impact of SN-3 Project activities, documented	6. Internal projects and other institutions supported and strengthened in conducting participatory research
ACTIVITIES	▪ Finish book on "Investing in farmer-researchers: Experiences in Latin America ▪ Translate into English and publish CIAL Handbooks 1-7 ▪ Prepare for publication vol. I of materials for training in PR ▪ Systematize Training of Trainer-Facilitators workshop to produce training materials ▪ Develop Web site on PR in Latin America, IPM and the CIALs ▪ Provide input into case study on CIPASLA consortium ▪ Distribute software for statistical application of preference ranking (beta version 1.0) ▪ Update and translate into Spanish "CIALs at a Glance" brochure ▪ Prepare video on CIAL annual meetings to promote CIAL associations ▪ Write final report for IDB on extrapolation of participatory diagnosis & technology evaluation ▪ Collaborate in writing chapter for book on PPB ▪ Prepare Web sites for online consultation	▪ Define indicators for benchmarking progress towards scaling up and institutonalization of CIAL approach ▪ Analyze 1999 CIAL benchmark data for impact case study ▪ Conduct participatory evaluation of live barriers in CIPASLA Project area, Cauca, Colombia	▪ Contribute toWB concept on integrating IPM with integrated soil & fertility management approaches ▪ Carry out diagnosis of PR focus and capacity in Technology Transfer Division, CIAT-Bolivia as input to institution building proposal ▪ Participate in PR and NRM workshop, sponsored by SP-PRGA & NRI ▪ Prepare presentation for int'l workshop on participatory development of forage innovations, Philippines ▪ Develop presentation on PR and IPM ▪ Collaborate on workshop design, implementation: Gender & Stakeholder Analyses for PR, Peru ▪ Support seed capital fund, ASOBESURCA, Colombia ▪ Participate on Boards of CIPASLA ASOBESURCA ▪ Support CORPOCIAL in organization of national CIAL meeting ▪ Assist CORPOCIAL with proposal for developing CIAL agroenterprises ▪ Participate in PRGA workshop on PPB, Quito Ecuador. ▪ Support SOH project, Honduras ▪ Support Coffee Growers Fed. in R&D activities for earthquake zone

OUTPUTS	7. Capacity of the SN-3 team strengthened		
ACTIVITIES	▪ Update and expand internal database ▪ Hold planning workshop for SN-3 ▪ Provide training in team building with emphasis on communications skills ▪ Create functional structure for horizontal leadership (co-coordinators) ▪ Organize cross-Program seminar series to exchange experiences and training in new approaches, methodologies and analytical tools		

SN-3 Project LOG FRAME 1999-2002

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal: Develop and apply knowledge, tools, technologies, skills and organizational principles that contribute to improving IAM[1] and low levels of well-being	▪ Application of participatory methods, analytical tools and organizational principles by R&D organizations that result in incorporating farmers' and other end-users' needs in IMA ▪ Use of Project products at additional reference sites in two agroecosystems (hillsides and forest margins) of CIAT's mandate in 5 years ▪ Use of Project products by a minimum of 3 institutions outside the LAC region at end of Year 5 ▪ Improvement in end-users' well-being at the respective reference sites	▪ Projects, plans and reports of public sector entities, donors, NGOs, grassroots organiza-tions at reference sites and in the agroeco-systems of CIAT's mandate, which refer to the use of Project products	▪ Institutions committed to the principles of PR ▪ Stable institutional leadership ▪ Favorable environmental and agrarian policies ▪ Absence of social conflict at reference sites ▪ Data from reference sites, available
Project purpose: Develop and disseminate participatory methodological approaches, analytical tools, autochthonous knowledge and organizational principles that strengthen the capacity of R&D institutions to respond to the demands of stakeholder groups that contribute to improving *levels of well*-being and IMA	▪ No. R&D organizations applying participatory methods, analytical tools and organizational principles ▪ No. entities in the LAC region teaching participatory methods ▪ No. meetings among stakeholder groups ▪ No. participatory projects implemented by R&D institutions	▪ Impact study ▪ Institutional reports ▪ Publications ▪ Proceedings	▪ Institutional economic stability ▪ Financing for training activities and publication/ dissemination of materials ▪ Institutions willing to prepare and support facilitators and to share information ▪ End-users—above all, producers—willing to participate

[1] IAM = Integrated Agroecosystem Management

Outputs	Measurable Indicators	Means of Verification	Important Assumptions
1. Participatory methodological approaches, analytical tools and indigenous knowledge that lead to the incorporation of farmers' and other end-users' needs in IAM, developed for interested R&D institutions	▪ No. methodological approaches developed or adapted and analytical tools developed for IMA	▪ Project reports ▪ Publications	▪ Good coordination & integration among collaborators ▪ Minimal conflicts for meeting demands ▪ Full participation of stakeholder groups ▪ Field staff fulfilling true facilitator role ▪ Data available from reference sites
2. Organizational strategies and procedures for PR, developed	▪ No. strategies and organizational procedures for PR adopted and adapted.	▪ Project reports ▪ Publications	
3. Professionals and others trained as facilitators of PR	▪ No. professionals, technicians and farmer-researchers trained in PR methodology	▪ Project reports	▪ Institutions willing to train & support facilitators ▪ Funding available
4. Material & information on PR approaches, analytical tools, indigenous knowledge and organizational principles, developed	▪ No. visits to Web sites ▪ No. requests for materials and information ▪ No. materials published	▪ Project reports ▪ Publications	
5. Impact of SN-3 Project activities, documented	▪ Dependent on nature of study; e.g., in CIALs: no. host countries, total no. initiated, no. inactive, no. mature, research capacity, self-management capacity, no. & diversity of facilitating institutions, gender composition, diversity of research themes, no. people benefited, no. microenterprises formed, no. community service actions performed, no. facilitators & trainers trained, no. 2nd-order organizations formed, no. requests for publications & training materials	▪ Case studies, M&E reports & databases, impact studies	▪ Staff have time, suitable methodologies and funds available

Outputs	Measurable Indicators	Means of Verification	Important Assumptions
6. Internal CIAT projects and other institutions supported and strengthened in conducting PR	▪ No. internal projects supported ▪ No. external entities strengthened ▪ No. participatory projects carried out by internal projects and other institutions	▪ *Project reports* ▪ Publications of internal projects and of other institutions	
7. Capacity of the SN-3 team, strengthened	▪ No. team meetings ▪ No. team-organized seminars and workshops	▪ Project reports	

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OUTPUT I: Participatory research approaches, analytical tools and indigenous knowledge that lead to the incorporation of farmers' and other end-users' needs in Integrated Agroecosystem Management, developed for interested R&D institutions

Person Responsible: Luis Alfredo Hernandez

Researchers: Ann Braun, Jorge Luis Cabrera, James Garcia, Luis Alfredo Hernandez, Maria del Pilar Guerrero, Greg Leclerc, Michael Peters, Carlos Arturo Quirós, Olaf Westermann.

Milestones for 1999

* Analytical tool for preference ranking developed and tested by interested R&D institutions developed
* Participatory methodology for community-level analysis and ranking of wealth, production problems and technological preferences developed
* Strategy for extrapolating results of participatory diagnoses and evaluation of technology developed
* Methodological issues to be addressed in CIALs doing research on landscape-scale such as agroecosystem health, identified through participatory diagnosis
* Comparative analysis of FFS/CIAL developed in concept paper as preliminary Methods for diagnosing poverty

Beta-testing of analytical tool for preference ranking

Description. Logistic regression for analyzing preference ranking is a user-friendly application for computer, designed to run in Excel 7.0. This tool makes it possible to analyze decision criteria. One application relates to analyzing the acceptance or rejection of technologies through identification and ranking of user evaluation criteria. The tool facilitates the participation of producers in the early stages of technology design of the technology, and permits the systematic organization of producer feedback to researchers. The application consists of a matrix, used to record the frequency and rank of farmer's criteria. A logistic regression program calculates probabilities, generates graphs and runs statistical tests. Management of the program is described step by step in an instructional booklet accompanied by a evaluation form.

Evaluation by institutions. During 1999 this software was tested by the following institutions as a decision-support tool for Participatory Plant Breeding (PPB):

Commodity	Organizations
Potatoes	INIAP-Ecuador
	PROINPA-Bolivia
	INIA-PNICA and INIA-PNIMA-Peru
Cassava	CNPMF-Brazil
	FIDAR-Colombia
Common beans	Dept. of Agronomy;EAP Zamorano- Honduras
Maize and common beans	Undergraduate thesis project, EAP Zamorano-Honduras
multiple commodities	CORPOICA-Colombia
	FONAIAP - Venezuela

Institutional impact. The systematization of the information for PPB and the capacity for interpretation of user preferences offered by this tool have facilitated its diffusion and acceptance by plant breeders. It has also contributed to the greater acceptance of the PPB model in germplasm development by breeders with conventional profiles.

- Plant breeders and pathologists from the semiarid and subhumid regions of Brazil describe the tool as facilitating the interpretation of subjective information in the selection of cassava varieties tolerant to water stress and root rots, respectively. At CNPMF, the use of the tool has become routine in development of new varieties for the aforementioned conditions.
- Limitations. As this tool is available in Spanish only at this time, its distribution has been limited. There is a potential demand, for example, in Africa with respect to PPB in common beans.

Extrapolation of participatory diagnoses and technology via GIS and Poverty Mapping

Problem and preference ranking in Honduras

It is difficult to separate clear causes and effects among poverty, hunger, disease, misery and the degradation of natural resources, but it is clear that these arise in an interdependent fashion. Any strategy aimed understanding and poverty should develop and test methods for extrapolating information and products from participatory research and georeferenced diagnostic data from target communities.

Taking Honduras as a case for testing the extrapolability of the information and products of participatory research the research team developed the following strategy:

- Formulate hypotheses about possible interactions between the poverty, natural resource degradation and factors contributing to these.

- Define a representative population sample covering a range of contrasting environments and socioeconomic conditions. The basis for this was a previous study on regional poverty and natural resources in three watersheds, involving 100 villages and ten contrasting factors.
- Prepare and implement a survey, collecting data on classification variables (gender, age and levels of well-being) and research questions (NRM, opportunities for innovation, research questions and technological preference rankings).
- Carry out participatory diagnoses, to rank major agricultural and natural resource management problems in representative communities. Record gender and determine the well-being level of each participant.
- Analyze the interactions existing among the factors influencing poverty, agricultural problems and opportunities, and natural resource degradation
- Using a GIS approach, evaluate the extrapolability of information generated through participatory diagnosis, evaluation of technology and problem ranking.

Training: Staff from DICTA-Honduras and from the CIAT Regional Office (Tegucigalpa) were trained to carry out participatory diagnoses, well-being and problem rankings and to apply the survey.
Limitations: Insufficient time available for analyzing the results before closure of this reporting period.

Accomplishments: Development of participatory research approach that could be extrapolable to similar agroecological and socioeconomic environments. The approach permits ranking of wealth, agricultural and natural resource management problems and opportunities, and technological preferences. The tools developed have potential as key elements for adaptation and use by diverse R&D institutions. Such institutions could be included in integrated projects, focused on poverty alleviation in Honduras and in other areas of Latin America.

Methodology[2]. Building on the well-beingranking method developed by Ravnborg[3], and on the resulting poverty maps developed using GIS, community-level participatory diagnoses and household surveys were used to identify and rank problems and preferences related to food security, land tenure and use, crop and animal husbandry, market opportunities and integration, farm labor patterns, and NRM. The resulting georeferenced database represents 15 of Honduras's 18 states and covers a wide spectrum of biophysical and socioeconomic conditions. The database can be mapped and queried by gender, well-being level, location and biophysical condition. It can be used to map the spatial distribution of problems as perceived by local communities and to explore hypotheses about how these correlate with biophysical and socioeconomic

[2] This study was designed and conducted by a team consisting of three CIAT projects (PE-4 Land Use, IP-5 Tropical Forages, and SN-3) with the collaboration of DICTA, EAP-Zamorano and FAO-Honduras and logistical and technical support from the CIAT PE-3 Hillsides Project. The CIAT BP-1 Impact Assessment Project provided support on data analysis.
[3] Ravnborg, H. 1999. Desarrollo de perfiles regionales de pobreza basados en percepciones locales. CIAT, Cali, Colombia. (in press).

conditions. It represents a prototype information system and tool for targeting policy and prioritizing R&D agendas.

Development of the database. Based on the sampling strategy discussed below, 95 villages were selected. Then about 10 households/village were selected randomly by walking a transect through the village from its center (school, health center or community center), moving radially outward in order to interview a random, representative sample of the inhabitants. A trained four-member team was responsible for conducting household interviews based on a survey instrument . Embedded in the survey were a series of questions developed by Ravnborg (1999) that permit classifying each household's poverty level based on locally meaningful criteria. A total of 968 surveys were conducted.

The strength of the survey instrument is its capacity to capture gender- and well being-differentiated data on problems and preferences from a large sample of households. Participants were asked to rank problems according to their importance and to order criteria for agricultural technology options according to the strength of their preferences. A number of open-ended questions were included in order to learn the reasons for different preferences and NRM practices. A limitation of the survey format as a diagnostic tool is that it may fail to capture topics that are not addressed.

A participatory diagnostic meeting (PDM) has the potential to capture much richer information from open-ended questions and the interaction resulting from discussion. However, considerable advance planning is required in order to convene the participants, and the quality of the meeting depends heavily on the facilitator's skills. Disaggregation of information by gender or poverty level is more difficult than in a survey as it requires more time, effort and training to convene groups that are homogenous with respect to these categories.

In this study the strengths of both approaches were combined by relying on the survey method in order to obtain the opinions of a large number of people from a diverse set of communities and complementing the data with PDMs from12 of the communities. Conclusions from the PDMs are also intended to serve as a crosscheck on the interpretation of survey results. Although participants were not organized into gender and well-being groups, aggregate poverty level was determined by the meeting facilitators, who were specially trained for this purpose. Gender composition of the group was also recorded. Guides for facilitators, a flowchart for guiding the meeting process, forms for determining poverty level and for summarizing and recording the information generated were designed.

The facilitators applied the following guidelines when convening community members to the PDMs. Participants should:

- include representatives from as many community stakeholder groups as possible (eg. men, women, young, old, rich, poor, organized groups)
- be drawn from the full range of land use/type areas present in the community

- include people from as many different livelihood types as possible (e.g., subsistence farmers/commercial farmers/ storekeepers/wage laborers)
- not include political groups or leaders as they can limit the participation of others

The full database will be used to identify geographic areas where gender and poverty differentiation will be important in identifying farmers' problems and priorities and for evaluating technologies. It may be possible to use the database to predict where a certain cluster of problems or priorities is likely to occur. It will be an important research tool for testing hypotheses such as the following:

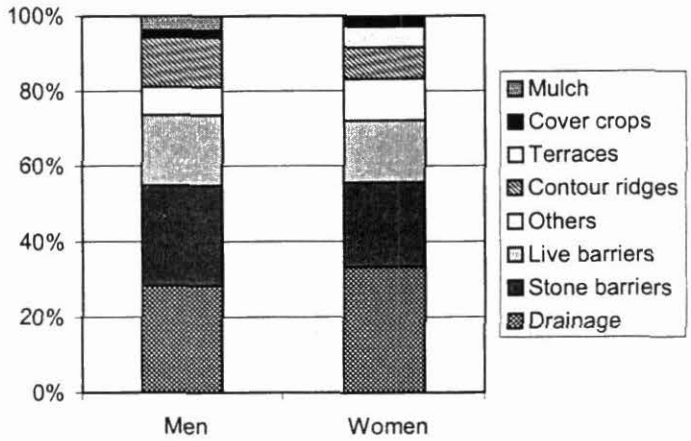
- Problems prioritized by farmers will vary by level of poverty, gender and age.
- The poorest farmers will give low priority to resource-degradation problems.
- In areas where poverty and serious degradation occur, poor and well-off farmers will give more similar priority to resource degradation problems.
- Poor women will prioritize food security problems over resource degradation problems.
- Varietal preferences will vary by gender in areas with low levels of market integration; but gender will be less important in areas with high market integration.
- Varietal preference ranking is a more powerful diagnostic method for participatory plant breeding than asking farmers questions about their problems in a crop.
- Varietal preferences can be described by a spatial distribution.
- Farmers' indigenous knowledge will vary by poverty level and by gender.

Results. To date, 717 of the 968 surveys have been digitized. A full analysis will be published as soon as the data analysis process is completed. Here we present a descriptive overview of selected elements of the data.

Soil conservation practices. People who reported planting beans and/or maize were asked whether they had ever taken action to prevent soil erosion or conserve the soil. Of the 147 men and 90 women who reported planting these basic staples, 51 (35%) and 35 (39%), respectively, described one or more practices (*Fig. 1*).

Various types of drainage canals, stone barriers, live barriers and contour ridges were the most common practices reported by both men and women. The majority of both men (32%) and women (31%) who responded that they took no action to conserve the soil reported that they had no land of their own. Lack of resources or of knowledge of soil conservation practices was reported by 35% of men and 18% of women.

Figure 1. Preferences related to soil conservation management practices disaggregated by gender.



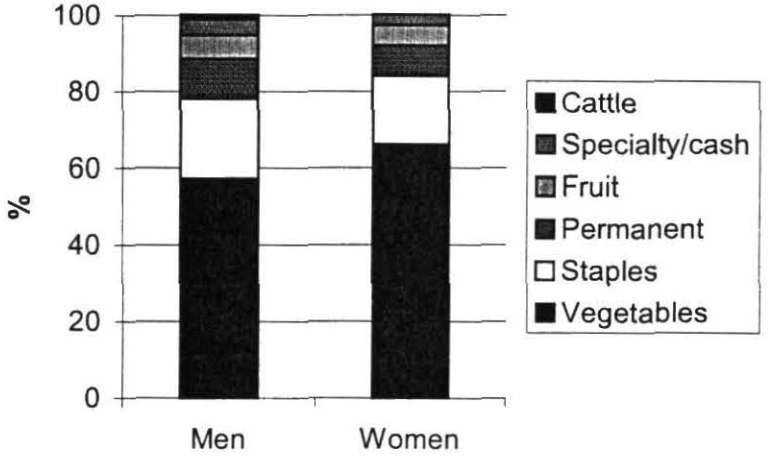
Soil-fertility management. When farmers who reported planting beans or maize were asked whether they had done anything to improve soil fertility, 74% of 290 men and 75% of 185 women reported that they had. Of these, 16% of men and 5% of women reported that they had stopped burning their fields; and the majority (74% of men and 80% of women) reported using fertilizers. Nearly all respondents (96% of men and 95% of women) reported that they had used chemical fertilizers. Use of green manures, animal manure or other organic fertilizers was the exception, reported by only 6% of people who reported using fertilizer. The reason given by nearly all respondents (94% of both men and women) for preferring chemical fertilizers was that they are better and more efficient than other kinds. This strong preference for chemical fertilizers is striking and should be taken into consideration planning research or development interventions.

Commercialization of agricultural commodities and opportunities for improving well-being level. Of the men, 72%, and women, 55%, considered that they had problems in commercializing their agricultural products. Both men and women identified low prices and transportation difficulties as the major obstacles.

Of the male and female respondents, 39 and 26%, respectively, perceived opportunities for improving their standard of living (*Fig. 2*). Only 4 women and 2 men reported that they had identified an opportunity other than field or horticultural crop cultivation. This unusual group mentioned fish farming, an ornamental plant nursery, production of grafted fruit trees and flowers, shopkeeping and a food-selling enterprise. Men and women had similar perceptions of categories of opportunities: 57% of men and 66% of women perceived vegetable cultivation as a source of opportunity. Among the vegetables, tomatoes and peppers were seen as having particularly high potential. Cultivation of staples such as common beans, rice, maize, plantains, potatoes and cassava was viewed as an opportunity by 21 and 18% of men and women, respectively. Among the staples, rice was viewed slightly more favorably than the other crops by 5%

of men and 3% of women. Among those who saw opportunity in permanent crops, the establishment or expansion of coffee planting was perceived as having potential by 9% of men and 6% of women. A few people (<2 % of both men and women) saw a future in specialty and cash crops such as sugarcane, sesame, annatto tree (*Bixa orellana*) and tobacco. Among these sugarcane was the most preferred. Watermelon was the most preferred among the fruit crops, being perceived favorably by 4 and 3% of men and women, respectively.

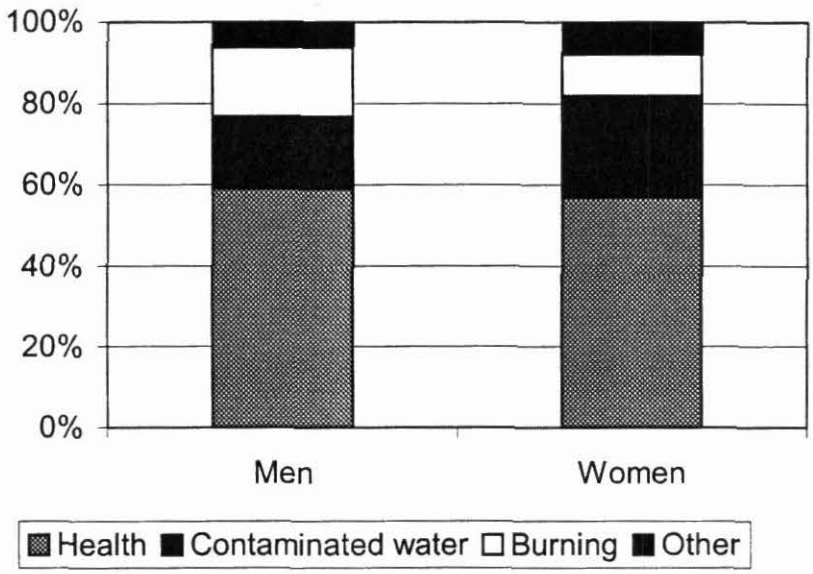
Figure 2. Perception of opportunities for improving well-being level by men and women.



Environmental pollution Of those surveyed, 28% (110 men, 92 women) stated that environmental pollution was a problem. Respondents identified three major problem categories: agricultural burning practices, contamination of water and health (*Fig. 3*). Health was by far the major pollution-related problem for both men (60%) and women (62%). More women were concerned about contaminated water; while men were more concerned about agricultural burning practices. The main concern for both men (10%) and women (8%) relating to burning was about diminishing water supplies. Men (5%) were also concerned about reduced soil fertility as a result of burning.

Most men and women who said that they suffered health problems as a consequence of environmental pollution cited no specific examples, but they did mention disease resulting from contaminated water, from mosquitoes, smoke from agricultural burning practices and pesticide poisoning. The negative effect of forest-fire smoke on health was a specific concern mentioned by 7% of those surveyed. Water contamination for lack of latrines (16%) and agrochemical use involving pesticides, herbicides and fertilizers (16%) were the most frequently mentioned problems. Negative consequences of burning were mentioned by 17 and 11% of the male and female respondents, respectively, with water scarcity and soil destruction due to burning being the most commonly cited problems.

Figure 3. Problems related to environmental pollution disaggregated by gender.



Of the respondents who felt affected by environmental pollution, 12% (41 men, 47 women) reported having acted to reduce or prevent these problems (*Fig. 4*). The most frequently reported practices were related to waste disposal: 47% of women and 29% of men reported collecting, burning or burying rubbish. Of these, 29% reported avoiding agricultural burning or participating in fire-prevention activities such as brigades. Some men (10%) and women (13%) reported having been involved in training or awareness activities. Water purification by chlorination (men, 10%) or boiling (women, 4%) and a series of other practices such as constructing latrines and isolating water sources were reported by 22% of men and 8% of women.

People who reported taking no action to reduce or avoid pollution were asked why they had not acted (*Fig. 5*). Of the 73 people who responded, the main reason given (48% of men and 44% of women) was that they did not know how to solve the problems they were facing. Men felt they lacked time (17%), while 24% of women were frustrated by the non-cooperation of others. Men and women shared a common perception of

powerlessness to act—lack of authority, organization and resignation were mentioned by a total of 12% of men and 16% of women.

Figure 4. Practices to prevent or reduce environmental pollution disaggregated by gender.

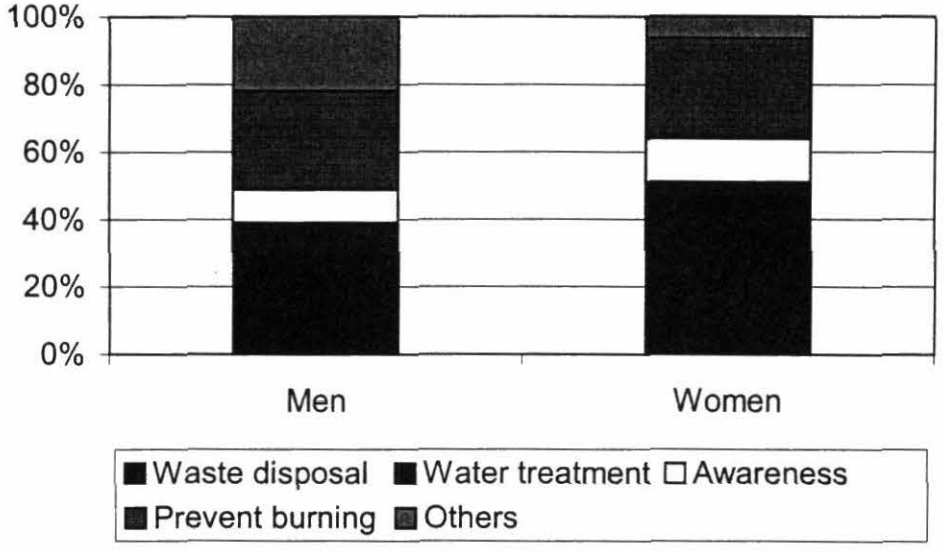
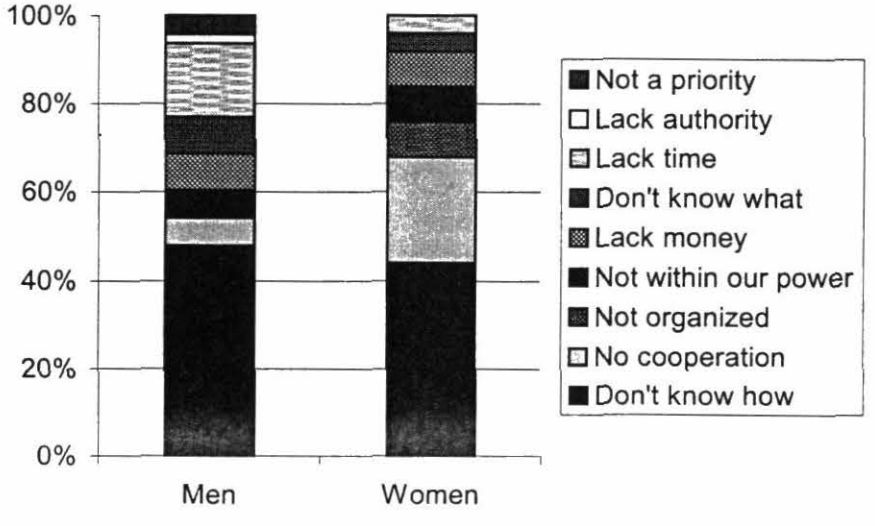


Figure 5. Reasons given by men and women for not acting to prevent or reduce effects of environmental pollution.



Participatory diagnosis of problems. Problem rankings related to farming and to NRM from 6 PDMs conducted in the state of Yoro (N. Honduras) and 2 in Lempira (S.W.) are presented here. Lists of the problem rankings developed at the PDMs were prepared, and a master list of common problems was compiled. Only those problems mentioned in all 8 PDMs were included in the analysis (*Col. 1, Table 1*). Cols. 1-9 indicate the degree of importance that participants assigned to each problem: ranking orders 1-4 have highest importance; those of intermediate and lower importance, 5-7 and 8-9, respectively. These frequencies are organized in a matrix for analysis via logit regression (*Table 1*). The distribution of frequencies for each problem with the cumulative frequency are shown in the far right column. For example, deforestation was ranked as the most important problem in two of the PDMs and as the 3rd, 4th, 5th and 6th most important problem in the other four. The null hypothesis is that all the problems common to Yoro and Lempira are of equal importance to the participants.

Table 1. Logistic regression matrix applied to problems ranked via participatory diagnoses in Yoro and Lempira, Honduras.

DISTRIBUTION OF FREQUENCIES BY PROBLEM RANK

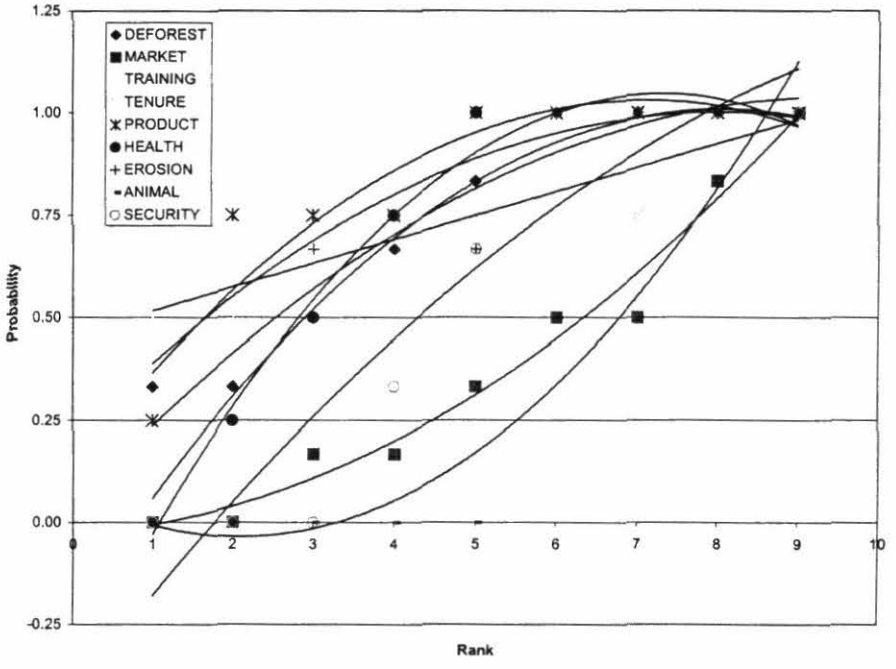
PROBLEM[1]	RANKING ORDER										Total
	1	2	3	4	5	6	7	8	9	10	
DEFOREST	2	0	1	1	1	1	0	0	0		6
MARKET	0	0	1	0	1	1	0	2	1		6
TRAINING	1	2	0	0	0	1	0	0	0		4
TENURE	2	0	1	0	0	0	0	1	0		4
PRODUCT	1	2	0	0	1	0	0	0	0		4
HEALTH	0	1	1	1	1	0	0	0	0		4
EROSION	0	1	1	0	0	1	0	0	0		3
ANIMAL	0	0	0	0	0	1	0	1	0		2
SECURITY	0	0	0	1	1	1	0	0	0		3
TOTAL	6	6	5	3	5	6	0	4	1		36

[1]Deforestation (DEFOREST), marketing (MARKET), training (TRAINING), land tenure (TENURE), production (*PRODUCT*), health (HEALTH), erosion (EROSION), animals (ANIMAL), food security (SECURITY).

Figure 6 shows regression curves for each problem. The greater the slope of the curve, the greater the importance of the problem and vice versa. It can be seen that deforestation, training and production problems are of significantly greater importance (P= 15%) than problems related to animal production (e.g., disease management, feeding) or marketing. The latter were of less importance to the participants in the PDMs (same level of significance). We reject the null hypothesis and accept that there are significant differences in the degree of importance assigned to common problems identified via PDM in Yoro and Lempira. The agricultural production problems identified by the participants referred to paucity of technologies, financing, technical assistance and irrigation systems.

This analysis considers only those problems common to both regions (Yoro and Lempira); nevertheless, identification of the hierarchical structure of common problems permits prioritization of proposed development interventions for a specific region.

Figure 6. Hierarchical structure of agricultural and NRM problems common to Yoro and Lempira, Honduras.



Technology-preference ranking. Ranking the preferences of users for technology options and reaching an understanding of user criteria and their reasons for accepting or rejecting technologies are critical to participatory technology development. The development of tools and methods for eliciting and analyzing user criteria and preferences has long been a priority for researchers working in this area. The tools and methods used in this study are based on Guerrero et a[4] and Hernandez[5] (see this report as well).

This study focused on ranking preferences and eliciting preference criteria for maize and common bean varieties as these are the principal staple crops in Honduras. Soil-management preferences—including the use of organic and inorganic fertilizers,

[4] Guerrero, M. del P., J. A. ASHBY & T. GRACIA. 1991. Farmer evaluations of technology, Instructional Unit No. 2, CIAT, Cali, Colombia.

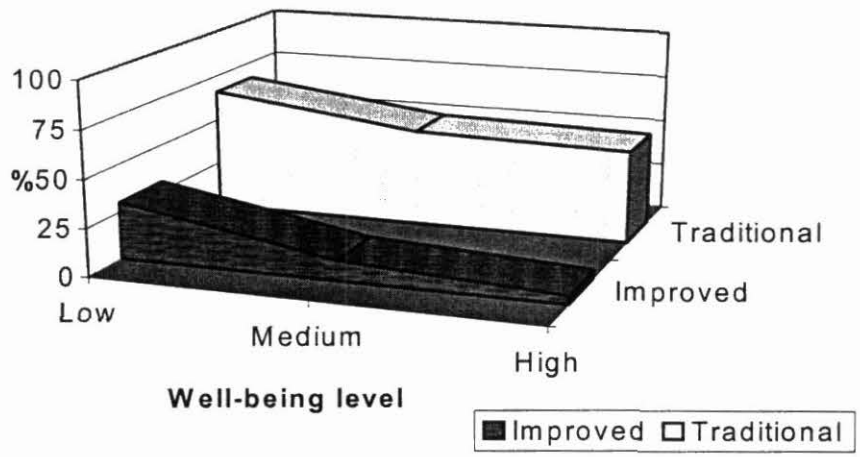
[5] Hernández, L.A. 1998. Regresión logística en análisis de preferéncia. Una aplicación para EXCEL v.7.0 para Windows 95. Manual de instrucciones. Version beta.

barriers, other practices—were also included. Technology-preference ranking was not handled separately from problem rankings. Both were approached in an integrated way via the aforementioned survey and PDM methodology.

Maize varietal preferences. Most of the maize planted by the respondents consists of traditional varieties. A single traditional variety was planted by 245 men and 162 women. Only 2 men and 1 women reported planting more than one traditional variety. One improved variety was planted by 64 men and 29 women. Only one woman reported planting more than one improved variety. This indicates that maize genetic diversity on individual farms is extremely low. Of those who plant one traditional variety, 78 and 66% of men and women, respectively, reported doing so because it costs less. The second most frequent reason given was that traditional varieties yield better than improved ones (7% of men and 11% of women). The main reason for planting improved varieties given by both men and women was that they yield better than traditional varieties.

The well-being levels of 643 of the households surveyed were categorized as low, medium and high. Planting of both traditional and improved maize varieties decreases as well-being level increases (*Fig. 7*). Planting of improved maize is less frequent than planting of traditional maize at every well-being level. At all well-being levels the main reason given for planting traditional maize was that it cost less to do so

Figure 7. Preferences for traditional vs. improved maize varieties differentiated by well being level.



Bean varietal preferences. A preference for traditional varieties was also apparent among those who reported planting beans. Planting a single traditional variety was reported by 135 men and 95 women vs 35 men and 17 women who planted a single improved variety. Only 12 people reported planting more than one variety of beans. As with maize, the main reason given by 74% of men and 56% of women for planting a

traditional bean variety was than it cost less. The second most common reason was that traditional varieties yield better than improved ones. Among the men who planted an improved variety, there was a greater diversity of reasons for their decision: yield advantage over traditional varieties (63%), better yields in dry years (29%), and greater resistance to pests and diseases (34%). Fewer households at all well-being levels plant beans than maize (*Table 2*). As with maize, planting of beans declines with well-being level.

Table 2. The effect of well-being level on planting of beans.

Well-Being Level	No. Households	% Planting Beans
Low	152	42.1
Medium	314	33.4
High	159	23.9

Exploratory evaluation of CIALs researching agroecosystem health topics

Issues

Challenges of agroecosystem health (AH) research. After varieties, AH is the most frequent research theme among CIALs. This broad area includes pest, disease, soil, water and crop management. Training in IPM is the support most frequently requested by CIALs from their partner organizations. Despite the popularity of IPM and agroecosystem health as a research theme, anecdotal information about difficulties faced CIALs in confronting such research has come from various sources, particularly from PROINPA-Bolivia and CORPOICA-Colombia. Most of the CIALs that have chosen an AH-related research theme are in Bolivia or Colombia, and the majority of these are in potato-growing areas. Dependence on pesticide use in potato cultivation is notorious worldwide, presenting a tremendous challenge to IPM. The anecdotes have various thrusts, the main ones being:

- AH/IPM research doesn't give tangible results as quickly as research on varieties; in some cases this leads to CIALs becoming demoralized or losing community support.
- The experimental designs recommended for CIALs (very small plots, single factor experiments) do not give meaningful results.
- The "I" in "IPM" is missing -- CIALs are focusing on pesticide trials.
- The CIALS need training in AH/IPM before they can do meaningful experiments.

Participatory diagnostic assessment (PDA). The issue of challenges faced by CIALs in conducting AH research was addressed by conducting a PDA of the situation in Bolivia, involving visits to 3 CIALs and a technology evaluation group, evaluating solutions to nematode problems in potatoes. The output of the PDA was the following concept note, which has been submitted to DFID for consideration:

Ttitle: Adjusting the CIAL approach for agroecosystem health research

Executing agencies: CIAT-Colombia, PROINPA Foundation-Bolivia

Partners: CIALs and NGOs, to be defined

Possible donors: Socioeconomic Methodology Program, DfID (UK)

Project duration: 3 years

Rationale: CIALs are community-based research services staffed by farmer volunteers. Over 250 have been established in 8 Latin American countries, and the number is expanding rapidly. Over 60% of existing CIAL communities have prioritized research on varieties. CIALs function well for varietal evaluation and other relatively simple, "closed" agricultural problems that can be managed at the plot scale. After varieties, crop health including IPM is the next most frequently prioritized research (14%). Community-based investigation related to crop health management requires an approach that reflects the complex, open nature of the problems and their greater spatial scale. The CIAL approach has not been adjusted for crop health research, which is perhaps the most concrete and tangible of NRM problems. Crop health is a good starting point for extending the CIAL approach beyond varietal testing to community-based NRM research. Making this extension will require addressing the following:

> There is no mechanism in the CIAL approach for discovery and learning about ecological principles and key biological processes related to crop health management or for integrating these concepts with existing knowledge.
> Crop health management requires a cyclical process of field monitoring, analysis of the information, and action based on the analysis. Currently the CIALs have no mechanism for developing these skills.
> Crop health management requires integration among different technological components and within farm enterprise management as a whole. The CIAL process focuses on stepwise comparison of a few treatments in controlled experiments. Some CIALs are evaluating components for managing crop health problems involving pests, diseases and frost, but there is no clear mechanism for integrating the components as they are evaluated.
> Collective action is frequently required in order to solve crop health problems. CIALs do not currently analyze whether collective action is required. There is a need to strengthen analytical skills in order to facilitate collective action for esolution of problems that involve spatial scales beyond a single field.

> There are indications that men and women have different knowledge about crop health problems and that their management strategies are different. At the moment CIALs do not explicitly contemplate these differences or other gender-related aspects linked to their research processes.

Strategies. Initiate case studies of CIALs that work with IPM; identify their strengths and weaknesses with respect to IPM; propose modifications to the methodology, initiate pilot-scale work with CIALs that have an crop health focus and evaluate changes accomplished with said modifications.

Expected results (at end of 3 years). Case studies published on how the CIALs have worked with IPM to date, their achievements and difficulties. Develop mechanisms for:

> integrating the analytical and decision-making skills required for crop health management
> discovery and learning of ecological principles and key biological processes and integrating these with existing local knowledge
> integrating crop health management components
> analyzing the need for collective action and strengthening the CIAL linkage with the community for carrying them out
> Incorporating the gender perspective in a systematic fashion
> Indicators for measuring the effectiveness of CIALs working with crop health issues
> CIAL crop health manual for technicians and handbook for farmers
> Increased capacity for conducting crop health research in PROINPA and other participating NGOs
> Evolution of the CIAL approach so that it can be applied in community-based research on NRM problems

Roles of Farmer Field Schools (FFS) and CIAL in participatory research

FAO and CIP have introduced IPM-FFS in Latin America. Both Bolivia and Peru now host field schools. The Peruvian FFS are a collaborative effort between CIP and CARE-Peru, and FAO is developing FFS-related plans with the Ministry of Agriculture. In Bolivia PROINPA is working with both CIALs and FFS. Bolivia is the only country where both approaches exist side-by-side. There is confusion in various NARS and NGOs in Central and South America about the advantages/ disadvantages and similarities/differences of the FFS and CIAL. This issue was addressed in an invited paper entitled "The IPM Farmer Field School and the Local Agricultural Research Committee: Complementary platforms to foment integrated decisions for sustainable agriculture," published in Sept. 1999 in the Forum section of CATIE's journal *Manejo Integrado de Plagas*. The following is the abstract of the paper:

The Farmer Field School (FFS) for IPM and the Local Agricultural Research Committee (CIAL) are participatory platforms that foment improved decision-making capacity and stimulate local innovation for sustainable agriculture. FFS offers nonformal education related to agroecological principles through a participatory learning process that lasts an entire crop cycle. Each FFS has 25 farmers from a single community. The CIAL is a permanent agricultural research service staffed by a voluntary team of 4 or more farmers. Each CIAL belongs to a community and creates a link between local and formal research. FFS and CIALs were initiated for different reasons and have different objectives, but they share various principles and processes. Both result in concrete solutions for local problems, but they apply different styles of experimentation and analysis for developing these. Both increase the capacity of individuals and local groups for critical analysis and decision-making. Both stimulate local innovation and emphasize principles and processes rather than recipes or technology packages. The strength of the CIALs lies in the systematic evaluation of technological alternatives and their ability to influence the research agendas of formal research and extension systems on behalf of economically disadvantaged communities. In addition some CIALs stimulate the development of small rural enterprises. FFS fill gaps in local knowledge and increase awareness and understanding of phenomena that are not obvious or easily observable. Their strength lies in increasing farmers' skills as managers of agroecological processes. Depending on the problem or opportunity to be address one or the other may be a more appropriate entry point. A challenge for the future will be to integrate the complementary elements of the FFS and CIALs and/or to employ them in parallel in order to expand the creative capacity of farmers to resolve problems and seize opportunities.

223711

OUTPUT 2: Organizational strategies and procedures for PR developed

Person Responsible: Olaf Westermann

Researchers: Ann Braun, Jorge Luis Cabrera, Eduardo Figueroa, Maria del Pilar Guerrero, Carlos Arturo Quirós, José Ignácio Roa, Nathan Russell, Olaf Westermann

Milestones for 1999

* Strategies for accomplishing concerted collective action in NRM on a watershed scale, identified
* Local organizations prepared to assume responsibilities for project management
* Research themes related to organizational strengthening identified and concept notes developed and presented to donors

Fostering concerted collective action in NRM among watershed users-Colombia

Objectives. The research objective with respect to the collective management of watershed natural resources in Colombia is to "find ways to foster collective or concerted action among watershed users and other stakeholder groups in their day-to-day NRM and thereby enable them to deal with problems that cannot be solved effectively by individuals acting alone" (Annual report, SN-3, 1998).

In 1998 work that dealt with problems related to water management and conservation, erosion control and pest control (white grubs and leaf-cutting ants) was reported. The stakeholder methodology was also developed and published.

The objectives for 1999 were to identify new activities and strengthen ongoing activities through participatory evaluation and organizational strengthening. However, these objectives were changed during the year mainly due to problems of social unrest in the focus area and project has initiated a phasing-out process in order to turn over full control of financial resources, decision-making and responsibility to the local farmers organization.

Activity progress report. At the onset of 1999 the following capacity-building activities:

Presentation of ant-control experience and results by local farmers at a seminar on organic agriculture at the University of Cauca in Popayán. Paper sent for publication: Munk Ravnborg, H. et al, "Collective action in ant control" (submitted to the Systemwide Program on Collective Action and Property Rights, CAPRI).

Visit to CIAL working with maize. The CIAL provided farmers with seed and manure. A local farmer with a large piece of unused land offered it to the group so they could

cultivate the maize collectively. To strengthen ongoing activities, an ant-control competition was completed with good results.

Cultivation of sugarcane live barriers (In collaboration with CIAT Project PE-2). The objective was to analyze the impact of collectively implemented live barriers at the landscape level (soil erosion, soil fertility and water quality) besides strengthening the farmer organization's capacity to analyze and organize collective NRM. Due to external factors (social unrest), however, work had to be suspended for long periods of the year, affecting daily contact and the farmers' trust and confidence, which is critical to this kind of work.

A phasing -out process was initiated in order to enable the local farmers to control and manage the project and its resources independently. Thus far, action-research activities have been financed by a so-called "Green Fund" managed by CIAT. The independent local management of this fund is perceived to be essential for the success of locally based initiatives. At meetings with local farmers from both microwatersheds, the Cabildo and ASOBESURCA, it was suggested that an executive committee manage the fund with members from the local community and the aforementioned locally based organizations. Another committee with the participation of local NGOs and CIPASLA would supervise the community committee. It was agreed that only the interest from the fund could be used and only for research or activities related to collective NRM. It was suggested that project coverage should be the entire Rio Cabuyal watershed and that the preparation and selection of appropriate projects should be done in collaboration with the field assistant (secondary school graduate) who has been assisting CIAT from the onset of this research program (1996). Furthermore it was suggested that she train other members of the local community in identifying stakeholders, problems and conflict as well as in how to carry out participatory trials. At a later meeting the communities selected an executive committee, but decided to limit initial activities to the municipality of La Laguna. Later on, other parts of the watershed will be included.

The output of these activities will be a contract between the local population and CIAT, leaving project control and management with the farmers upon the conditions that:

- Resources are applied to activities and research related to collective NRM only.
- Only interest from the Green Fund is used.
- Feedback about processes and outputs are given to CIAT every six months for the next two years.
- Resources and the knowledge obtained through their experience will eventually benefit other parts of the Rio Cabuyal watershed as well.

Telecenter concept note

(submitted to IDRC, Sept. 1999)

Important principles related to information and communication technologies (ICTs) include the concept of universal access. This project addresses this issue within a rural setting.

Title: Fostering sustainable development in Cauca State (Colombia) through community telecenters; a project concept note.

Project goal: To test appropriate telecenter models for building local capacity to obtain and use information about agricultural production, processing, marketing, NRM and other topics relevant to sustainable development in a marginalized, hillside region of southwestern Colombia.

Challenge: About half of the predominantly rural inhabitants of this state live in absolute poverty. Some are driven into narcotics production and processing or guerilla groups. Most of the population—including Cauca's numerous indigenous groups—are caught in the crossfire between guerillas, drug traffickers, paramilitary groups and the army. Many have abandoned the countryside, only to join the ranks of the urban jobless. Those who remain use farming practices that result in soil erosion and deforestation, threatening agricultural productivity, biodiversity and water supplies—both locally and downstream. Meeting these challenges is also a high priority for nearby urban areas and for Colombian society as a whole. Numerous towns and cities in Southwest Colombia receive food supplies as well as water from rivers in Cauca State and therefore have a direct stake in the management of agricultural land in its hillside watersheds.

Democratizing agricultural development. Some rural Cauca communities are finding new ways to cope with the region's economic, social and environmental ills. Using a variety of participatory methods, they are solving problems in agricultural production through local research; identifying and creating opportunities for developing small agroenterprises; and organizing community initiatives for NRM. These developments are nothing short of revolutionary, amounting to the democratization of activities that have traditionally been driven from the top down by institutions and central government policies.

Democratizing information access and management. For these approaches to gain strength and fulfill their potential, there must be a parallel democratization of information access and management. Activities such as agroenterprise development and land management planning at the local, regional and national scales are extremely information intensive. Communities that remain information-poor will be unable to participate fully in and benefit from those activities. Fortunately, in recent years there has been an explosion of information that could help the country address its daunting economic, social and environmental problems. There is, however, little material directly relevant to marginalized communities in the region and what could be useful to them is not readily accessible or exists in fragmentary form.

Modern information and communication technologies, including access to the World Wide Web, could help overcome these barriers; but they are still mostly beyond the reach of the poor. Even if these technologies were more accessible, poor communities would not necessarily benefit because of their limited capacity to find, organize, use, create and exchange relevant information.

Telecenters are public facilities, often integrated into the programs of local grass roots organizations, that offer a combination of telecommunications, information, multimedia and computing functions to help deal with a variety of community problems and needs. They appear to be an effective way of broadening access to new information tools and improving local capacity to use them. The challenge is to adapt this approach to a diverse array of geographic, social, economic, cultural and institutional settings, leading to the development of appropriate models for particular situations, regions and countries.

The global telecenter movement, particularly recent work in Colombia, offers an important opportunity to promote democratization of information in Cauca and other rural areas. This project will work toward that end through an innovative, cooperative training and research program, focused mainly on the development of telecenters in selected rural communities of Cauca. These will be linked with an urban telecenter in a poor neighborhood of Cali, with a view to establishing new market links between producers and consumers of agricultural and other products.

Specific objectives

- Form partnerships among local, national and international organizations to provide institutional frameworks for establishing and monitoring community telecenters and for drawing lessons from their experience.
- Characterize perceptions of information needs and current patterns in the acquisition and use of information in selected communities to provide a baseline for subsequent comparison.
- Locate and develop information relevant to community needs, focusing initially on agricultural production and NRM, but eventually including other topics such as health.
- Establish 3 telecenters in selected rural communities, linked with a single urban telecenter, and integrate these with local community radio programs.
- Build a training program around the telecenters for enhancing community and local institutional capacity to access, use, produce and exchange information in electronic and conventional forms.
- Monitor the experience, measure the telecenters' impact on local capacity to use information for sustainable development, and assess their institutional and financial sustainability.
- Derive, document and disseminate lessons and insights from this experience as contributions to the their development elsewhere in Latin America.

Project duration: 3 years

Partners:

- Colnodo (operated by the Asociación Colombiana de Organizaciones no Gubernamentales para la Comunicación Vía Correo Electrónico), Santafé de Bogotá
- Consorcio Interinstitucional para una Agricultura Sostenible en Laderas (CIPASLA), Crucero Pescador, Carretera Panamericana Cali-Popayán, Cauca
- Corporación Universitaria Autónoma de Occidente, Cali

CIAL Associations concept note

(submitted to W.K. Kellogg Foundation, June 1999)

Title: Sustaining CIALs: Extending lessons learned from community-based agricultural research services in Latin America

Purpose: To ensure sustainability of community-based research services through their consolidation into second-order associations integrated with broader community-based development efforts and with strong linkages to the formal research sector

Strategy: Develop, strengthen and establish network linkages of local research organizations that mobilize volunteerism, include the disadvantaged, integrate with and create linkages to other community development efforts, and that are locally led, managed and accountable to their communities

Importance: CIAL failures relate to lack of continuity in program goals, staffing and funding among supporting organizations, as well as to paternalistic policies, resulting in violations of the principles of mutual accountability and risk-sharing by partners. In search of a stabler institutional framework for the CIALs, CIAT facilitated the establishment of an association of the Cauca CIALs as a means of stimulating a higher degree of self-management and autonomy. With a membership of more than 50 CIALs, CORFOCIAL has absorbed many CIALs that were inadequately supported or abandoned by their counterpart organizations. CORFOCIAL has organized 4 of 8 annual CIAL get-togethers in Cauca and has sponsored numerous cross-training visits and other enrichment activities. It has also financed 5 small agroenterprise development projects and helped obtain funding for others. It now has legal status, is learning to manage administrative and technical responsibilities, and is developing a solid bridge between member CIALs and research organizations. These accomplishments testify to the capacity of a second-order organization to contribute to sustainability and to overcome limitations of formal research organizations, whose narrow mandates constrain their role in development.

There is a risk that the instability of formal institutions will have an adverse effect upon the sustainability of the CIALs as community-based services linking formal and local research. Organizations in Latin American countries that have not been involved in the CIAL movement are seeking training in order to establish pilot experiences of their own. There is also interest in Asia and Africa.

Objectives:

- Develop responsible second-order organizations of CIALs in several South and Central America countries so that the sustainability of CIAL process in this region is assured and the CIAL movement can fulfill its potential for impact.
- Identify and develop sustainable self-financing mechanisms for CIALs and CIAL associations.
- strengthen monitoring and evaluation (M&E) processes in existing CIALs and establish them in second order organizations so that learning from experience, accountability to the community can be enhanced and local leadership in these capacities can be developed.
- continue facilitating the pilot experiences that various institutions are undertaking with the CIALs in Central and South America and exploring ways to extrapolate from the institutional lessons learned in other countries.
- learn lessons from the consolidation and scaling-up processes in countries like Honduras, Bolivia and Colombia that can be applied towards the development of community-based organizations on a wider scale in Latin America and beyond.

Partners: Local communities, CIAL associations, CIALs, national agricultural research organizations, NGOs and universities in Central and South America.

Duration: 3 years.

Beneficiaries: At least 450 poor rural communities and some 650,000 disadvantaged individuals.

Study of inactive CIALs

CIALs can fail if timely, quality support is not consistently available during the early formation and the intermediate consolidation stages (*Fig. 1*). From 1991-96, 29 CIALs in Cauca (Colombia) became inactive and/or ended. As part of the M&E process, a survey instrument was designed to explore possible explanations underlying CIAL deactivation such as the following:

- lack of continuity as a result of changes in policies that leave institutions without financial support for facilitating CIALs
- job instability of professionals working with CIALs
- institutional paternalism, where material benefits are exchanged for passive participation in on-farm research
- difficulties of maintaining continuity in the CIAL processes in communities that are too small or too disperse

- conditions of insecurity that do not permit facilitators to travel in the region.
- adverse climatic conditions (e.g., the Niño phenomenon in 1994 and 1997)
- overcommitment of CIAL members due to excessive institutional presence
- conflicts among families in the community that affect the continuity of participation of CIAL members
- failure of supporting organizations to respect the essential principles underpinning the CIAL approach

Survey. The instrument was applied in the 29 Cauca communities where CIALs became inactive and/or ended. At least one ex-CIAL member and the facilitator of each of these CIALs were interviewed. Questions were oriented towards the following issues:

- selection of candidate communities for establishing CIALs.
- selection of the CIAL members by the community
- internal dynamics of the CIAL
- evolution of the research process
- relationship between the CIAL and the community
- relationship between the CIAL and formal R&D institutions

Findings. The survey confirmed that most CIAL failures occurred in newly formed CIALs and in those of intermediate maturity that had been active from 1-3 years. Detailed anyalsis of the data is still under way. *Table 1* lists inactive CIALs in Cauca, Colombia, their location, dates, organiztions involved and reasons expressed for cessation of activities.

Figure 1. Frequency of CIAL failures by length of time they were active before folding, Cauca, Colombia, 1990-99.

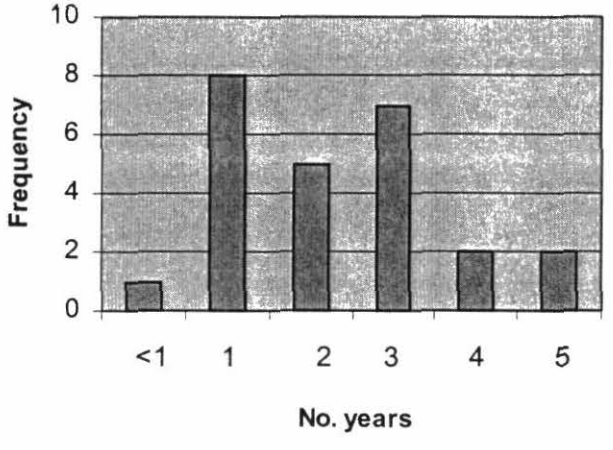


Table 1. Inactive CIALs in Cauca, Colombia

CIAL	Community	Yr Began	Facilitating Organization	Reason for Becoming Inactive	Date Ended
Camposanto	Timbío	1994	GO	A member died	1997
Octavio	Piendamó	1991	NGO	Some members left	1994
Cinco Días	Timbío	1990	SN-3	Some members left	1994
San Miguel	Piendamó	1993	CÖRFOCIAL	Did not name replacements after members left	1996
Arrayán	Piendamó	1994	NGO	Some members left	1996
Farallones	Piendamó	1992	SN-3	Inexperience of technician	1994
Atamira	Tunía	1995	NGO	Problems w/ supporting organization	1996
Loma Corta	Piendamó	1991	NGO	Lack of time	1996
San Rafael	Morales	1993	NGO	Problem with supporting organization	1996
El Centro	Caldono	1995	CORFOCIAL	Interested only in coffee cultivation	1997
Las Piedras	Tambo	1991	NGO	NGO left the zone	1993
La Florida	Cajibío	1992	NGO	Some members left	1996
La Laguna	Caldono	1993	SN-3	Technician did not return	1994
Ventanas	Caldono	1996	CORFOCIAL	Death of two members	1997
El Tablón	Timbío	1996	CORFOCIAL	No support from community	1997
Potrerillo	Caldono	1993	CORFOCIAL	NGO entered with housing program	1994
La Llanada	Caldono	1996	CORFOCIAL	Guerrilla presence, no support from technician.	1997
Caimito	Caldono	1992	SN-3	Economic support	1995
Palermo	Caldono	1992	SN-3	Economic support	1995
Santa Elena	Piendamó	1992	Corpotunia	No support from community	1993
La Conquista	Piendamó	1993	Corfocial	No support from community	1995
Guambía	Silvia	1994	GO/NGO	Unmotivated	1995
San Isidro	Sotará	1991	NGO	Some members left	1995
La Esperanza	Sotará	1991	NGO	Some members left	1996
La Buitrera	Caldono	1996	NGO	Guerrilla presence	1996

223712

OUTPUT 3: Professionals and others trained as facilitators of participatory research approaches

Person Responsible: José Ingácio Roa and Carlos Arturo Quirós

Researchers: Trudy Brekelbaum (consultant), Ann Braun, Jorge Luis Cabrera, Maria del Pilar Guerrero, Luis Alfredo Hernandez, Carlos Arturo Quirós, José Ignácio Roa, Olaf Westermann

Milestones for 1999

* In-country cadres of trainer-facilitators prepared to disseminate CIAL methodology in 5 Latin American countries
* In-service training and follow up of trainees from CIAL courses provided in 5 Latin American countries
* SWOT analysis of institutional experiences in implementing CIAL methodology, compiled
* Over 400 CIAL facilitator trained including over 100 trained by other institutions.
* Innovations, publications and training tools developed by institutions working with the CIAL methodology, identified and diffused among trainer-facilitators
* Institutions strengthened in the use of NRM decision-support tools
* National training teams created in stakeholder analysis methodology in 3 Latin American countries
* Technicians and professionals trained in use of preference ranking matrix
* Facilitators for community-level participatory diagnosis meetings, trained in Honduras

Course for CIAL Trainer-facilitators: Strengthening skills

In 1990 SN-3 formed the first five CIALs in the State of Cauca in Colombia. The CIAL approach was welcomed by farmers, who felt for the first time that their needs and priorities were being taken into account by agricultural professionals, and local organizations requested more detailed information on how to apply the CIALs in the communities where they worked. The demand has gone beyond state and national borders (see *Appendix 1)*. From 1994-98, the Kellogg Foundation supported the Project entitled: "Diffusion of a model for developing agricultural technology at the community level, using a participatory approach." Contacts were made with the interested institutions in several countries so that once their staff had been trained, they would begin to form new committees in their work zones. As a result of the training and diffusion of the approach in Honduras, Nicaragua, El Salvador, Venezuela, Colombia, Ecuador and Bolivia, the CIALs increased in number and so did the demand.

Consequently, institutions and technicians were identified in order to form country-level teams of CIAL trainer-facilitators. Eighteen candidate trainers, representing 9 institutions from 5 countries, attended a course given at CIAT from 26 July-4 August 1999 (*see Table 1, Photo 1*).

Photo 1. Participants in training course for CIAL Trainer-facilitators

Table 1. Participants in CIAL trainer-facilitator course.

Name	Institution	Country
Jorge Cusicanqui	IBTA	Bolivia
Juan Almanza	PROINPA Foundation	Bolivia
Alfonso Truque	CORFOCIAL	Colombia
Luis Humberto Fierro	CORPOICA Reg. 1	Colombia
Manuel Arévalo	CORPOICA Reg. 1	Colombia
Fabio Sierra	CORPOICA Reg. 1	Colombia
Gustavo Basto	CORPOICA Reg. 1	Colombia
Roberto Alvarez	CORPOICA Reg. 1	Colombia
Beatriz Franco	CORPOICA Reg. 1	Colombia
José Antonio Corredor	CORPOICA Reg. 1	Colombia
Manuel Romero	CORPOICA Reg. 3	Colombia
María Elena Morros	CIAE/Lara	Venezuela
Angela Bolívar	FONAIAP	Venezuela
Dominga Tijerinos	CIAT/Hillsides	Nicaragua
Juan González	IPCA	Honduras
Fredy Sierra	IPCA	Honduras
Nelson Gamero	UNIR/Zamorano	Honduras
Carlos Amaya	FEPROH	Honduras

Course Objectives

- Share skills and abilities to be trainer-facilitators and planners of training events.
- Expand knowledge in certain aspects of the CIAL methodology.

Criteria for selecting participants

- Prior completion of course for CIAL facilitators, including certification
- Responsibilities include training in CIAL method
- Recognized skills as a trainer, based on performance in Level 1
- Outstanding skills in communication and management of interpersonal relationships with professionals, trainees and farmers
- Institutional support and willingness to work as trainer-facilitator for at least one year

Methodology. In line with the philosophy of nonformal education, the selection of course topics took into account the experience that the technicians had acquired. Prior to the course, technicians from organizations applying the CIAL approach were surveyed to identify the topics in which they felt weakest or wished to strengthen. Information also resulted from SN-3's follow-up activities in the field, where it was possible to identify other points that needed to be explored in greater depth in the preparation of trainer-facilitators.

Processes inherent in working with groups: (communication skills, group dynamics), problem-solving skills and analysis of experimental results were emphasized. In addition to talks and discussion, opportunities were provided for the future trainer-facilitators to practice their skills in numerous practical group exercises. Some activities were filmed in order to provide direct and immediate feedback. The material used in the course was compiled in a loose-leaf two-volume handbook for the participants and is currently being edited by for publication in a CD-ROM format.

Expected outcomes. As a result of participating in the course trainer-facilitators should be capable of:

- identifying differences between a traditional trainer and a facilitator
- understanding principles of formal and nonformal education
- expanding perceptions and abilities as facilitators of group processes
- knowing how to prepare a training event
- increasing skills for communicating with farmers
- supporting and justifying work based on the CIAL approach
- maximizing use of CIAL handbooks with the farmers
- interpreting results from the CIAL research and the participatory planning of feedback to the community

Results obtained. The following are the highlights of the results obtained from the course:

Training materials prepared. As this course was being offered for the first time, it was important to prepare training materials that met expectations and needs identified by the participants and reflected SN-3's experience as CIAL facilitators and master trainers. For this purpose, an expert in nonformal education was contracted, the course was prepared, and new materials were developed in four specific areas:

- Nonformal education.
  The development of knowledge is a continuous process, that involves development of the whole person, both outwardly and inwardly, stimulating the mind to draw on the innate capabilties of each person. Collaborating and sharing stimulates learning and learning is accelerated when there is joy, curiosity and passion. The talks developed for this area were:

  - clarification of expectations.
  - principles of nonformal education.
  - Facilitation skills

- Preparation of training events:
  The overall objective of this topic was to guarantee the organization and planning of activities related to training (i.e., prior to, during and after). The following new materials were developed:

  - preparation of training events
  - responsibilities of a facilitator
  - use of the physical space
  - budgeting training events

- Facilitation skills
  The purpose of this topic was to increase the abilities of the participants as facilitators of the CIAL training process. Specific areas covered included:

  - communication and feedback styles
  - the preparation of audiovisual materials
  - techniques for increases the participation of the different types of audiences

  In order to accomplish this objective, the following materials were prepared:

  - presentation and organization of talks
  - audiovisual aids
  - group processes
  - nonformal education and participatory techniques
  - conscientization
  - the art of communicating

- The CIAL concept.
  The objective of this topic was to expand participant knowledge of aspects identified as weak points or that required greater depth. Based on their own experiences, discussions were held around the topics of selection of communities, motivation of the community, participatory planning of CIAL experiments and analysis of results. An overall theme of primary importance when working with farmers is communication techniques.

  - the CIALs at a glance
  - experiences in use of the handbooks
  - meeting to motivate farmers
  - planning the trial
  - statistical concepts
  - force-field analysis in evaluating technologies with farmers
  - preference ranking and its interpretation
  - analysis and interpretation of CIAL trial results

- Audiovisual aids included slides, overheads and filming. There was constant interaction between the participants and the SN-3 team in the implementation of the exercises.

- Another important objective was to share plans, information, approaches and methodologies among course participants. *Table 2* gives the tentative programming of events that participating institutions plan to offer during 1999.

Table 2. Tentative programming of events offered by participants in the CIAL trainer-facilitator course.

Institution	Country/City	Event	Date
CORPOICA	Colombia:	Follow-up	23-28 Aug.
		CIAL course	20-30 Sept.
IPCA	Honduras	National CIAL Meeting	14-15 Dec.
UNIR/Zamorano	Honduras	CIAL course	8-19 Nov.
FONAIAP	Venezuela	CIAL regional course	8-12 Nov.
		Course on participatory research	15-19 Nov.
IBTA	Bolivia	Course on participatory research	Oct.

Follow-up of facilitators trained in CIAL courses

As part of the Kellogg Foundation project (1994-98) project, training of facilitators in the CIAL approach was provided in the countries of Honduras, Nicaragua, Colombia, Ecuador and Bolivia. Later this training was extended to the countries of El Salvador and Venezuela (financed with their own resources). The training for CIAL facilitators consisted of two phases:

- a theoretical classroom segment including exercises, practice, reading materials and videos
- visits and interaction with CIALs and field practice to be carried out by each participant in his/her work zone. This involved forming and facilitating at least one CIAL.

Over the three-year period, 257 technicians from 105 institutions in 7 countries were trained. The majority applied the CIAL approach in their respective work areas. SN-3 is committed to monitoring the trainees' activities in the field to assess their skills, the need for further training, as well as identify any modifications or adaptations made with respect to the CIAL approach. Feedback is provided to facilitators. Different methodological areas in which the groups require strengthening are also identified for inclusion in future training events.

Objective. In-service training of facilitators in the CIAL approach through the monitoring of their work with farmers groups that wish to conduct research in their communities.

Methodology. As part of the course, each facilitator presents a proposal for application of the CIAL approach, including a tentative schedule of activities. Monitoring activities are scheduled for the period when the CIALs plant their trials or are about to evaluate them. Monitoring of these processes is given priority because of their their importance in the CIAL research process and their direct contribution to the accomplishment of the CIAL's objectives. Visits to monitor facilitators' work with CIAL include:

- Meetings with facilitators who are implementing the CIAL approach in their work areas. Each facilitator presents the results obtained thus far, discussing the progress made, difficulties and accomplishments with respect to both the CIAL and themselves as facilitators.

- Field visits to the CIALs. SN-3 staff implement a follow-up program planned with the facilitator of each community where a CIALhas been established. Committee members (i.e., leader, secretary, treasurer, extension officer and other participants) are convened in order to share experiences and comment on the results obtained to date. There should be at least three Committee members in order to apply the follow-up survey, which is based on group responses. An SN-3 team member asks each CIAL member a series of questions and then probes or verifies the answers within the group. The survey covers five broad topics:

- comprehension of the CIAL process
- comprehension of the research process
- the degree of self-management
- the evolution of group maturity
- feedback to the community

The results are tabulated and analyzed. Those topics that require strengthening or greater effort by the CIAL and/or the facilitator are identified by the SN-3 team. These points are shared with the facilitators so that they can take corrective action as necessary.

Results. Table 3 shows the organizations and facilitators involved in the CIAL follow-up activities conducted in 1999. The current status of the CIAL approach is presented on a country basis. Table 4 provides a synthesis of the strengths, opportunities, weaknesses and threats identified by facilitators in implementing the CIAL approaches.

Honduras. The rate of expansion has been considerable this past year. At present there are 58 active CIALs, working on 11 crops or systems. The commodities of greatest interest are common beans and maize—basic dietary staples in Honduras. The local empowerment achieved by CIALs, participating institutions and facilitators is readily seen. Initially CIAT assumed the role of catalyst and convenor; whereas today, several local organizations have assumed responsibility. At least six meetings have been held by local organizations to discuss issues related to the CIALs. Two universities (EAP-Zamorano and CURLA) have assumed an active role in disseminating the approach, now being presented as part of the curriculum for *ingeniero agronomo* studies. Six students from CURLA and one from EAP-Zamorano are doing thesis research related to the CIALs.

A group of CIAL facilitators (*Photo 2*) is promoting the formation of state-level CIAL associations as an effective means of ensuring the sustainability of the CIALs. IPCA has already formed regional associations in Sta. Barbara and Yoro; UNIR/Zamorano has requested SN-3's assistance and that of the CORFOCIAL Coordinator from Cauca, Colombia.

In December representatives from CIALs from across the country will hold a national-level meeting to form an ASOCIAL. Through the ASOCIAL, they expect to be able to attract more resources and to seek more effective strategic alliances with institutions from the Honduran agricultural R&D sector. As part of the Kellogg Project, US$30,000 was earmarked for initiating the ASOCIAL Fund, which will be managed by a commission of representatives from participating institutions. US$25,000 was placed in a savings account and the remaining funds were destined to support projects to motivate CIALs to continue with their research projects.

Various CIALs have already developed projects to increase their CIAL fund through commercial production ventures. These projects have stimulated and strengthened them organizationally.

Table 3. CIALs, organizations and facilitators involved in follow-up activities during 1999

Country/ Organization	Month	No. facili-tators	No. CIALs Visited	Research Themes (No. CIALs/topic)
Honduras IPCA FEPRHO IHDER SERTEDESO UNIR/Zamorano Fund. Pico Bonito PRR	Feb	16	23	• Evaluation of bean varieties (10) • Evaluation of maize varieties (6) • Evaluation of cassava varieties (2) • Evaluation of onion varieties (1) • Evaluation of soybean varieties (1) • Soil conservation in common beans (1) • Phase of the moon for planting maize (1) • Storage of maize (1)
Fund. PROINPA CEDEAGRO	Mar	5	7	• Evaluation of potato varieties resistant to frost (2) • Integrated management of the Andean weevil (*Premnotrsypes* spp., *Rhigopsidius tucumanus*) in potatoes (1) • Evaluation of potato varieties resistant to *Phythoptora infestans* (1) • Evaluation of bean varieties (1) • Control of sclerotinia in onions (1) • Evaluation of potato varieties resistant to the nematode *Naccobbus aberrans* (1)
Nicaragua INPRHU UNICAM	Apr	3	8	• Evaluation of bean varieties (5) • Evaluation of maize varieties (3) • Evaluation of soybean varieties (1) • Types of organic fertilizer in maize (1)
Colombia CORPOICA: Regional 3 and 7 SENA	Aug	15	8	• Evaluation of tomato varieties (2) • Evaluation of maize varieties (2) • Evaluation of maize varieties and their agronomic management (1) • Evaluation of papaya varieties (1) • Evaluation of cowpea varieties (1) • Evaluation of rice varieties (1)
Ecuador: INIAP IIRR	Aug.	3	8	• Evaluation of potato varieties (4) • Evaluation of guinea pig breeds (2) • Evaluation of blackberry varieties (1) • Evaluation of tomato varieties (1)

Photo 2. Honduran facilitators participating in SN-3 follow-up events during 1999

In general the CIAL approach has gained a great deal of ground in Honduras. Greater emphasis needs to be placed on the use of the training handbooks in order to strengthen the CIALs' comprehension and command of the CIAL process and to facilitate their interactions with the facilitator. In some communities limited access to land has made it difficult to set up experiments with sufficient replications. It has been suggested that CIALs with land access problems use smaller plots and establish replications on the same farm.

Several CIALs have reached the production or commercial experiment stage, and are ready or nearly ready to make recommendations to their communities. Communication between the CIAL and the community needs to be intensified given that some of them have not been holding meetings with due periodicity. Facilitators need to stimulate this activity; otherwise the results will not be socialized and the information will remain in the hands of only a few, contrary to the CIAL principles.

Bolivia. After visiting the states of La Paz and Cochabamba, it was easy to appreciate the differences in the application of the CIAL approach among the diverse institutions and projects that are applying it.

- PROINPA Foundation: As part of a restructuring process PROINPA changed its operational structure from Departments to Projects. This has meant that some

CIALs, attended by facilitators from the Technology Innovation Department (now called the Technology Innovation and Gender Project, ITG), have been reassigned to other projects, whose status was not made clear in the annual operational plan. Some CIALs were left on their own because it was believed that they would be able to manage on their own. During the establishment of a new CIAL, frequent visits (ca. 2/mo) are required. Facilitators need to monitor CIAL progress, and to provide reinforcement whenever they note deficiencies. CIALs become more autonomous through a process of maturation that requires passing through several cycles of planning, conducting and evaluating experiments and presenting results to the community. The issue of commitment by PROINPA projects that are facilitating CIALs to should be resolved in the near future since all have expressed motivation to continue applying the approach.

Interesting linkages have been established between CIALs, local institutions and several new actors. The new linkages involve with animal traction projects, PROTRIGO, the National Bean Program, ASAGRO, agribusiness firms and university students doing thesis projects with CIALs. These new relationships are the result of the respect and credibility that the CIALs have earned; nevertheless, it is important that CIALs not be sidetracked from their research plans.

The CIALs attended by ITG-PROINPA are progressing well. Several are testing IPM components for nematodes and frost problems. Their analytic capacity and comprehension of the CIAL process have evolved, as well as their ability to communicate their results to the community. Their commitment to the *Sindicato*[6] that elected them is clear. The CIALs make progress reports or meet every two weeks, taking advantage of regular *Sindicato* meetings. This linkage could be an entry point for stimulating collective action and should contribute to the continuity of CIAL research. The CIAL of Boquerón Alto, a recently formed and highly motivated group, has progressed with respect to the clarity of their concepts and objectives. Cebada Jichana has more experience and has produced clear results with their research on chemical control of the Andean weevil. They are beginning trials on varietal resistance to frost. They have established good linkages with several institutions in the region, with which they are testing technologies prioritized by the community; e.g., management to prevent soil degradation with the CIAT Hillsides Project. The CIAL of Kewiña Pampa is the only one in the country formed by women from the local Mothers Club. The group is well organized and clearly knows where they want to go with their research. They are about to initiate the harvest of their trial of varieties resistant to the nematode *N. aberrans*.

Based on results obtained via the CIAL approach in several of their projects, PROINPA has established a clear commitment to institutionalize participatory evaluation of technologies and participatory plant breeding. The foundation is pursuing plans (through their Marketing Project) to obtain funds for participatory research approaches. Several projects are planning to providing resources to

[6] Local associations of smallholder farmers who originally organized around issues such as land tenure or colonization.

support a facilitator from the ITG project, who will act as coordinator for participatory approaches and advisor to the other PROINPA projects.

CEDEAGRO. This NGO from Mizque is in the process of refinancing their next phase and have had to let some of their CIAL facilitators go. This has affected the continuity of the process of some CIALs, which are clamoring for support. Although the CIALs continue to show great interest and dynamism, a great deal of valuable information is being lost for lack of a major follow-up and analysis of their evaluations. One of these groups is Tucma Baja, the oldest CIAL in Bolivia. They have begun a crop diversification process, which is already spreading to other communities and neighboring regions. The Tin-Tin CIAL has suffered as a result of deficiencies in their planning of the work involved in carrying out the experiment and misunderstandings among their members. These problems have been solved (one member was changed), and they are now preparing their confirmation trial on chemical control of *Sclerotinia* sp., despite the fact that there is no facilitator responsible for the zone.

The CEDEAGRO Director has expressed great interest in expanding the CIAL program to new communities. Until the expected resources arrive, however, they will require continued support from the PROINPA Foundation for training new facilitators.

Universities: One student from the Universidad Tecnica de Oruro and 4 from the Universidad Mayor de San Simon are doing thesis projects related to the CIALs. The U. San Simon projects relate to soil fertility management and conservation issues.

Nicaragua: On the visit made in April, SN-3 observed that some CIALs—despite their location in communities with a very low level of well being—are highly motivated to do research and improve their agriculture. Their level of self-management is evolving. A women's CIAL is raffling items to increase their CIAL petty cash fund. In another community they are selling soap and sugar in the local shop at a slightly higher price, and commiting the margin to the CIAL fund.

A weakness is the deficient communication among the facilitators of participating institutions. Another important problem is the lack of technology alternatives for testing, especially improved germplasm of common beans and soybeans.

Colombia: CORPOICA, through its Transfer and Development Program, has taken the initiative of disseminating the CIAL approach nationwide with support from SN-3. In line with this objective, a course for CIAL facilitators was given by SN-3 to CORPOICA staff the end of 1998. It was attended by 32 people, including 4 from SENA, the institution funding CORPOICA's work with CIALs. In addition to the 26 CIALs set up by CORPOICA by mid-1998, they have formed another 29 groups in Regions 3 and 7 in northern and northeastern Colombia (*Photo 3*). CORPOICA also held their first regional

meeting of CIALs where each group shared the results obtained with other CIALs and with facilitators from CORPOICA and interested staff from other institutions. The new CIALs have progressed substantially despite the short time that they have been in existence. They are mastering the process, although they still require more training expecially in the use of the CIAL handbooks. A number of CIALs have benefited from study tours to visit other CIAL with more advanced research – this is particularly important as a means to stimulate CIALs who are just beginning. Many CORPOICA CIALs have established good levels of contact with the their communities and with neighboring communities. This has stimulated many requests for the formation of new CIALs.

Photo 3. Members of the CIAL from Guaracaca, Guajira, Colombia, and CORPOICA technicians (right) at the harvest of their papaya trial.

Follow-up activities by CORPOICA and SN-3 identified the need to strengthen facilitator capacity related to experimental design for the CIAL trials and analysis of the participatory evaluations with the farmer groups. A special course was designed around these topics. The course given in Paipa, Boyacá, was attended by 23 facilitators.

The CIALs must respond effectively to the interest and expectations created in their communities around the results expected from their research. In order to facilitate the mastery of the CIAL process, CORPOICA has placed a high priority on providing follow-up to faciltators and CIALs at each stage of the CIAL research process (trial, confirmation, production and commercial-scale lots). Facilitators are responsible for helping CIAL members to understand the process and the reasons behind it. SN-3 has

suggested that greater attention should be given to in-depth analysis of the qualitative information developed through participatory work with farmers. This requires a radical departure from traditional research priorities, which generally stress quantitative results only. CORPICA plans to co-publish a book based on their experiences in research with farmers as partners.

Institutionally a great deal has been gained. In the CRECED methodology[7] and in the two regional offices where CORPOICA's CIAL Project is being carried out, the importance that the CIAL approach has acquired is readily perceived. Many of their facilitators are highly motivated and are exploring methodological aspects in greater depth. Important advances have been made in developing criteria (via a matrix approach) for selecting the communities where facilitators hold motivational meetings to explore the possibility of establishing a CIAL. CORPOICA is seeking resources to establish a network of CIALs (similar to CORFOCIAL) and to develop an information management system to support their work with CIALs.

Ecuador: In the recent follow-up visit to the institutions implementing the methodology, the following was observed:

- INIAP.
  Considerable progress has been made in institutionalization of participatory approaches within INIAP, in the potato, maize and quinoa projects. INIAP places great emphasis on farmer participation in all stages of varietal development. INIAP also maintains a high level of communication and interchange with counterpart organizations in Bolivia and Peru with respect to participatory plant breeding.
- IIRR
  Today the CIAL Project forms part of the routine activities of this international NGO. The CIALs complement the "farmer-to-farmer" approach, which this IIRR has been developing for several years. An important highlight is the agreement IIRR has made with the University of Loja to train their farmer-promoters in distance courses on agricultural technology and the CIAL approach. The final element in the training of farmer-promotors is the formation of a CIAL in their community. The weakness of this modality is that when the promoters graduate, the CIAL has just reached the trial stage and may be left alone if they do not receive prompt assistance from a facilitator. SN-3 has recommended that the CIAL should be formed at the onset of the training course so that over the three years of their course of study and practice, farmer-promotors can provide adequate levels of training and follow-up to the CIALs and the process will not be interrupted just as it is being consolidated.

  The Farmer Field Schools (FFS) are being introduced in Ecuador, and CIAL members are being coopted as trainers for the formation of FFS. This could create confusion among the farmers about goals and objectives of the different

[7] A CRECED is a decentralized unit for research and transfer of technology established in order to better meet the needs of the farmers in each region. A limitation is that they are obliged to cover certain commodities of institutional priority that may not reflect the priorities of consitutent communities communities.

approaches. SN-3 has suggested that the opportunity be given to other people from the community to receive training in the FFS methodology.

Institutional Impact of the CIAL approach

Over 400 facilitators have been trained in the CIAL approach (see Output 5 for details). Over 24% of these (115) have been trained by other institutions, indicating a high level of commitment to the approach. Several institutions have begun to produce their own promotional and training materials. The following examples of materials generated by other organizations working with the CIALs, constitutes further direct evidence of the impact the approach is having on R&D institutions in Latin America.

Videos

- Investigation participativa en Centro América. 1998. II Encuentro Nacional de CIAL en Honduras.
- Fundación PROINPA. 1998. Primer Encuentro Nacional de CIAL en Bolivia.
- FONAIAP. 1998. Visita al CIAL del Alto.
- CORPOICA/SENA. 1999. El Comité de Investigación Agrícola Local, CIAL.

Technical notes

- Gandarillas, E. 1997. Evaluación absoluta. Serie fichas técnicas 2/97. Programa de Investigación de la Papa, PROINPA. 7p.
- Gandarillas, E. 1997. Cartilla de evaluación abierta. Serie fichas técnicas 3/97. Programa de Investigación de la Papa, PROINPA. 5p.
- Gandarillas, E. 1997. Orden de preferencias. Serie fichas técnicas 4/97. Programa de Investigación de la Papa, PROINPA. 4p.
- Gandarillas, E. 1997. Qué es el CIAL? Serie fichas técnicas 5/97. Programa de Investigación de la Papa, PROINPA. 4p.
- Gandarillas, E. 1998. Cómo escoger técnicas para evaluar alternativas tecnológicas con la participación de agricultores. Serie fichas técnicas 6 Socioeconomía. Programa de Investigación de la Papa, PROINPA. 4p.

Handbooks

- Alvarez, R.; Fierro, L.H.; Arévalo, M. 1999. Investigation agrícola participativa con productores. Convenio CORPOICA-SENA. Subdirección Sistemas de Producción. Programa Nacional de Métodos y Transferencia. Programa Transferencia de Tecnología Regional Uno. 30p.

CD-ROM

- Arévalo, M. & Fierro, L.H. 1999. Investigación agrícola participativa. Aprendizaje personalizado de la metodología CIAL. Convenio CORPOICA-SENA.

Table 4. Synthesis of strengths, opportunities, weaknesses and threats identified by the participants when implementing the CIAL approach.

Strengths	Opportunities
- Persons trained, motivated - Pioneers of the CIAL approach in their respective countries - Institutions share vision of participatory research approaches - CIALs are appreciated in the countries - Multiplier effect of training - Good approach for evaluating technologies - Farmers' technical knowledge recovered - Stimulates interest within communities - Stimulates cirect communication with the communities	- Current situation of the farmers motivates them to seek new alternatives - Change in the orientation of the institutional missions, from supply to demand driven - Inform managers and technicians of CIAL experiences - Financial entities that support participatory research - Many NGOs and other institutions interested in participatory research approaches - The NARS require feedback from farmers
Weaknesses	**Threats**
- Lack of specific projects for institutionalizing the approach, as well as for supporting/coordinating or conducting follow-up of participatory research - More facilitators need to be trained - Lack of knowledge of participatory approaches at managerial/directorial level - Experiences not systematized and documented - Lack of coordination in the municipal environment - Lack of inter- and intra-institutional communication	- Proposals that are not really participatory - Incorrect implementation of the approaches - Difficult cconomic, political and social situation in some countries - Lack of committed institutional support - Institutional rivalries - Lack of continuity in the facilitators support to CIALs - Qualitative information from farmers' research not systematized

Training in the use of NRM decision-support tools, Cauca, the Dominican Republic and Honduras

The NRM decision-support tools consist of 8 guides developed by various projects at CIAT in collaboration with farmers and professionals from national counterpart institutions. As part of its objective to strengthen local institutions in their rural development work, a training process was initiated in Colombia and several Central American countries—specifically Honduras and Nicaragua. The main objective was to

train trainers in order to diffuse knowledge, capacity and the final application of the methodologies by a range of different local institutions, NGOs and GOs.

Santander de Quilichao workshop, 14-23 April. This workshop consisted of a process of identifying partners, training them and presenting the methodologies for the end-users. The workshop was organized by CIAT and its partner organizations from CIPASLA and organizations related to the Guadalajara watershed in Buga. A total of 33 technicians from 20 organizations and 20 farmers were trained in the decision-support tools (see also final report by Olaf Westermann & Vicente Zapata)/

As a follow up to the workshop, the participants were asked to prepare action plans, specifying how and when they were going to apply the methodologies.
At meetings in May and July, agreements were reached to carry on with two larger projects:

- Ex-ante analysis of the economic feasibility of forage technologies and systems for conserving and recovering degraded soils in the Andean Region of Colombia. This analysis had been requested by international donors before final approval of the main project to be executed by FIDAR (Foundation for Agricultural Research and Development), a Cali-based NGO, and CIAT Project IP-5 (Tropical Grasses and

Photo 4. Participants in the Santander de Quilichao workshop

Legumes). Furthermore, institutions such as SENA, CVC, Comité de Cafeteros, UMATA, CORPOCUENCAS and the Producers' Environmental Association will participate. The final project will allow some of the research results obtained by CIAT projects (IP-5 and Laderas) to reach at least 150 farmers and more than 20 extension officers.

August 25-27, a Strategic Planning Workshop (using SWOT analysis) was held to form an interinstitutional consortium and develop a project proposal for its initial activities. This initiative emerged because some of the participating institutions at the Santander de Quilichao workshop wished to join forces in the use and application of the decision-support tools. At the moment the consortium COMVALLE (Consorcio Interinstitutional para el Manejo de los Recursos Naturales del Norte y Centro del Valle del Cauca) consists of more than 11 organizations: Eco-Futuro, CORPOCUENCAS, Planeación Departamental, INTEP, CIAT, CIPASLA, CORPOICA, FIDAR, UMATA, ASIAVA and ITA. Participants worked on the Consortium's vision, mission and objectives, as well as its strengths, opportunities, weaknesses and threats against it and its projects. Based on a summary of the workshop and a project proposal previously prepared by Eco-Futuro in collaboration with CIAT (Vicente Zapata), members had until 20 September to make comments on the strategic plan and the first project proposal.

The proposed project aims to incorporate the 8 decision-making tools in the member organizations' daily work in rural development and NRM. A first step will be to train from 40-56 professional, extension officers and community leaders within the consortium's area of action in the application, adoption and evaluation of the methodologies. Training will be done by the members already trained at the Santander de Quilichao workshop from 16-26 November. The next step will be to stimulate the formulation and execution of action plans that will be selected according to criteria established by the Consortia. Another important objective of the Consortia will be to coordinate and evaluate these action plans.

Training courses in the Dominican Republic and in Honduras

The training course in the Dominican Republic took place from 22 June-3 July. More than 40 participants from 20 different organizations participated in the course, which basically had the same objectives as the course in Santander de Quilichao (See final report by Vicente Zapata).

The course in Honduras took place from 12-22 September and differed slightly in that it aimed at creating a national training team in the use and training of the decision-support tools for Honduras (and later on for Nicaragua and Colombia). Participants in previous courses have only trained professionals and extension officers within their own organizations. This team will carry out a series of national training events for local users of the tools. After their training, users will design "action plans" as was done in the case of Colombia and the Dominican Republic.

Training of interviewers for country-wide survey and facilitators for community-level Participatory Diagnostic Meetings (PDM) in Honduras

Table 5 summarizes the training events for preparing facilitators for community-level PDMs conducted as part of the process of developing an approach for extrapolating results of participatory diagnoses and evaluation of technology (See Output 1)

Table 5. Training events in 1999 related to community-level participatory diagnosis meetings.

Date	Location	Participants	
		No.	*Type*
27 July, 1999	CIAT-Tegucigalpa	2	Regional directors of DICTA and FAO-Honduras
5 Aug., 1999	DICTA-Tegucigalpa	9	DICTA, FAO and CIAT agronomists

Training Objectives

- Obtain support from regional directors for the participation of their staff in this project.
- Enable facilitators to convene a representative cross-section of the community to a Participatory Diagnosis Meeting (PDM).
- Enable facilitators to follow a flowchart for guiding the PDMs.
- Enable facilitators to organize and summarize information generated during PDMs.
- Enable facilitators to handle plenary and small group sessions.
- Enable facilitators to determine aggregate well-being ranking and gender composition of PDM participants.

Training objectives for survey team

A team of interviewers was trained to conduct surveys in Honduras related to the project on extrapolation of information and results from participatory research. Three secondary school graduates with some agricultural training were trained in June 1999 by SN-3 team members. The training objectives included:

- Able to understand content of survey questions.
- Able to adjust the vocabulary used in the survey so that it is understandable to household members interviewed.
- Capable of paraphrasing survey questions as necessary so that they are comprehensible to household members interviewed.
- Capable of checking surveys for errors and making necessary adjustments and corrections before leaving the area.
- Capable of applying the entire survey within a reasonable time frame.

In-service training in use of the preference ranking matrix

Actors. A total of 60 technicians and professionals have been trained to use the matrix.

Procedure. Teach the philosophy of logit analysis and how the information is processed so that the user can construct and interpret the graphics of acceptance. Then the entities participating in the training evaluate it and provide feedback to made the necessary adjustment required to obtain the alpha version.

Accomplishments. CNPMF in Brazil has been the leader in managing this tool, with a potential that goes beyond what was originally visualized. It is being applied in the selection of varieties in both the breeding and pathology programs.

Workshops: Statistical analysis of information generated in PB and PR work on highland crops in the Andean region (Ecuador, Bolivia, Peru).

223713

Output 4: Material and information on participatory research approaches, analytical tools, indigenous knowledge and organizational principles developed

Person Responsible: Ann Braun

Researchers: Helena Aizen (consultant), Ann Braun,Trudy Brekelbaum (consultant) Jorge Luis Cabrera, Simon Chater (consultant), Silvia Caicedo (consultant) Maria Fernandez, Maria del Pilar Guerrero, Luis Alfredo Hernandez, Carlos Arturo Quirós, José Ignácio Roa, Alexandra Walter, Olaf Westermann, Vicente Zapata (consultant)

Milestones in 1999

* CIPASLA case documented
* San Bosco CIAL case documented
* Software for statistical application for analyzing preference ranking tested and disseminated
* Training materials developed for new CIAL trainer-facilitator course
* CIAL Training materials and promotional brochure, translated into English
* 3 Web sites designed and on line in Spanish and English
* Video about the CIAL national meetings available for promotion of CIAL associations
* 3 papers and book chapters published or in press
* 9 Powerpoint presentations in English and Spanish available
* 3 final project reports and 5 research proposals written and presented to donors

Book

The CIAL experience. The draft of the book entitled ""Investing in Farmer Researchers: Experience in Latin America" was sent to 30 reviewers. Modifications were developed based on their feedback. The book will go to press in December. The following is a summary of the book:

Participatory approaches to research and development appropriate to the needs of small-scale farmers have become widespread in the past decade. This book describes experiences with one such approach, the Comité de Investigación Agrícola Local (CIAL) or local agricultural research committee.

The concept of the CIAL was developed in the hillsides of Latin America by a team at the Centro Internacional de Agricultura Tropical (CIAT). In essence, the CIAL is a

farmer-based research service answerable to the local community. The committee (four or more people) is democratically elected to conduct research on priority topics identified through a diagnostic process in which all are invited to participate. After each experiment, the committee reports its results back to the community, who decide whether they wish the CIAL to continue its work. Each CIAL has a small fund to offset the costs and risks of research. At least initially, CIALs are supported by a trained facilitator.

Experience in the Cauca Department of Colombia, where the concept was first tested, showed that the CIAL approach can benefit the wider community as well as individual CIAL members. The benefits vary according to the topic under research, but include increased crop production, greater availability of improved seed, the introduction of milling equipment, and improved access to credit, training and other inputs from the formal research and development system. The results of CIAL research may become widely disseminated and there is strong participation by marginalized groups, including women, landless laborers and indigenous communities. Many CIALs develop into small businesses, selling improved seed or other products or services.

Over 200 CIALs have now been launched in eight countries by various types of organization, including non-government organizations, universities and national research institutions. The CIAL process has proved replicable in different countries and by different types of supporting institution, provided its basic principles are adhered to. The most important of these is provision of the fund, which empowers farmers to take control of the research process. Other principles include the generation of knowledge by building on experience and learning by doing, and mutual respect and shared decision making between the CIAL and external actors.

Institutions launching a CIAL program need to invest in training if their staff is to facilitate the CIAL process effectively. Second-order organizations, formed by the CIALs of a specific region or country, appear to be a cost-effective way of providing additional support.

The CIAL movement is still young and its future evolution is uncertain. If properly managed, CIALs seem likely to deliver substantial growth and equity benefits, although their effects on the sustainability of production are less predictable. By allowing adaptive research to be devolved to the farming community, CIALs may also cut the costs of formal research while increasing its impact. The long-term financial sustainability of the CIALs and their second-order organizations is a major challenge for the future.

Video

The video entitled "SEMBRADORES DE ESPERANZA" (Planting Hope) was filmed at the 2nd National Meeting of the CIALs in Honduras, a forum where farmer researchers present the results of their experiments to other CIALs and to agricultural professionals. The video also features interviews in which CIAL members talk about what the CIAL

national meeting and their participation in community research means to them and how it has affected their lives.

Analytical tools

Version 1.0 beta (in Spanish) of the statistical application for analyzing the preference ranking using the computer. For more information, see Output 1.

Case studies

CIPASLA. This case study on CIPASLA (Spanish acronym for Interinstitutional Consortium for Sustainable Hillside Agriculture) was initiated by a consultant in February. The objective was to describe the experience of the Consortium's work for the past 7 years. The following aspects were addressed:

- Historical overview of the development of CIPASLA.
- Organizational development of the Consortium and of the Association of Beneficiaries of the Cabuyal River Microwatershed, ASOBESURCA
- Analysis of the results of CIPASLA with respect to:
  - Interinstitutional coordination
  - Projects implemented
  - Financial resources obtained.
  - Conservation, management and recovery of the natural resources of the Cabuyal River microwatershed
  - Community participation in the implementation of projects and resulting benefits in terms of:
    - agricultural production
    - conservation of the resources
    - quality of life.
    - other specific indicators

In addition to existing documents (e.g., project reports, committee meeting minutes, financial statements), a series of interviews were conducted with representatives of entities that participated actively from the beginning, CIPASLA staff, Board members of ASOBESURCA, as well as members of other grassroots groups that have had something to do with CIPASLA (e.g., the Indian Council from La Laguna-Siberia).

It has not been possible to finish this case study because of problems of social unrest, which have made fieldwork difficult. In order to overcome some of these impediments, two structured surveys were conducted: one with representatives from the participating entities and the other community members who participated in the execution of ASOBESURCA projects. It is expected that the final report will be finished by the end of the year.

Training materials

English version of CIAL Handbooks 1-7 in process of translation and will go to press by the end of the year. Handbooks 8-13 will be translated in early 2000.

CIAL Facilitator Training Resources. Two volumes of resource materials for CIAL facilitators are in the process of being revised for subsequent publication. As a consequence of the CIAL training-of-trainers course given in August, it was decided to publish these materials, together with the specific materials developed for training trainers in the form of a CD-ROM. These materials will be ready in early 2000. For details on course orientation, see Output 2.

MUNK R., HELLE; WESTERMANN, OLAF; GUERRERO, MARIA DEL PILAR.1999. Metodologia de análisis de grupos de interés para el manejo colectivo de recursos naturales en microcuencas.Guia 4.En:*Instrumentos metodológicos para la toma* de decisiones en el manejo de los recursos naturales.133p.

Brochure

The CIALs at a Glance. The 1998 version is being updated for printing by the end of 1999 in both English and Spanish.

Web sites

CIALs: This Web site (http://www.ciat.cgiar.org/cials) has been online since 1 April. The site contains information on CIAL principles, practices and processes in Spanish and English. A case study of the San Bosco CIAL is available in the English section of the site. Plans for expansion include addition of:

- directory of institutions facilitating CIALs with email links
- more case studies
- impact indicators
- photo library
- document library containing materials created by a diversity of institutions working with CIALs

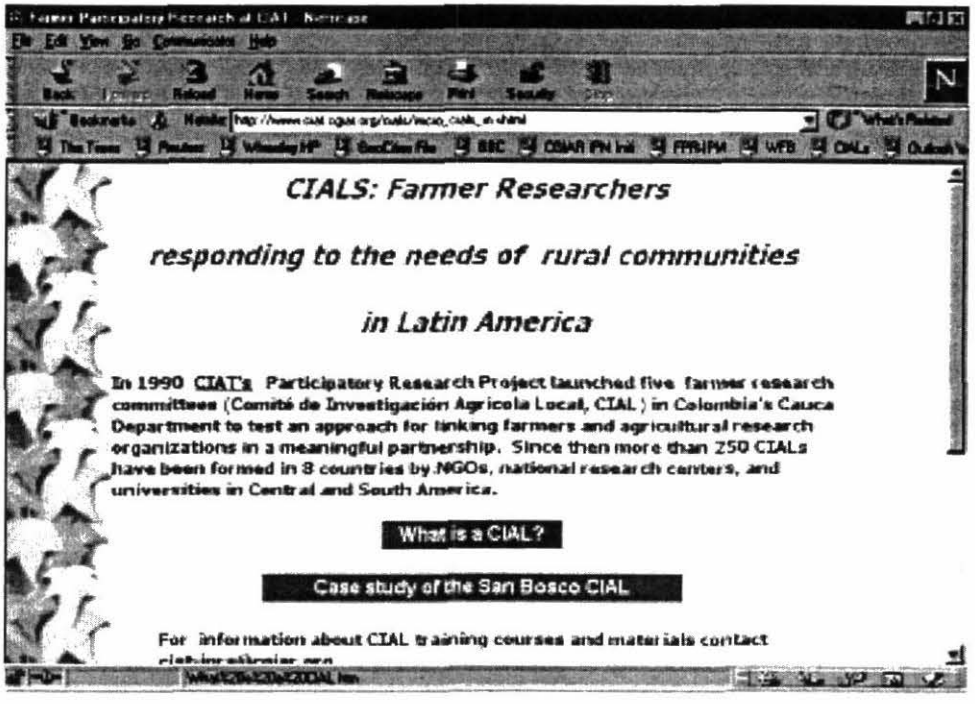


Figure 2. The CIAL Web site: http://www.ciat.cgiar.org/cials

FPR-IPM: This Web site (http://www.ciat.cgiar.org/fpr-ipm) has been online since February 1997. The site and the related listserver (fpr-ipm@cgiar.org) are the principal communication media for the task force on Farmer Participatory Research for IPM of the CGIAR Systemwide IPM Program. The site features information in Spanish and English on the history, objectives and activities of the task force, a file library and links to related sites.

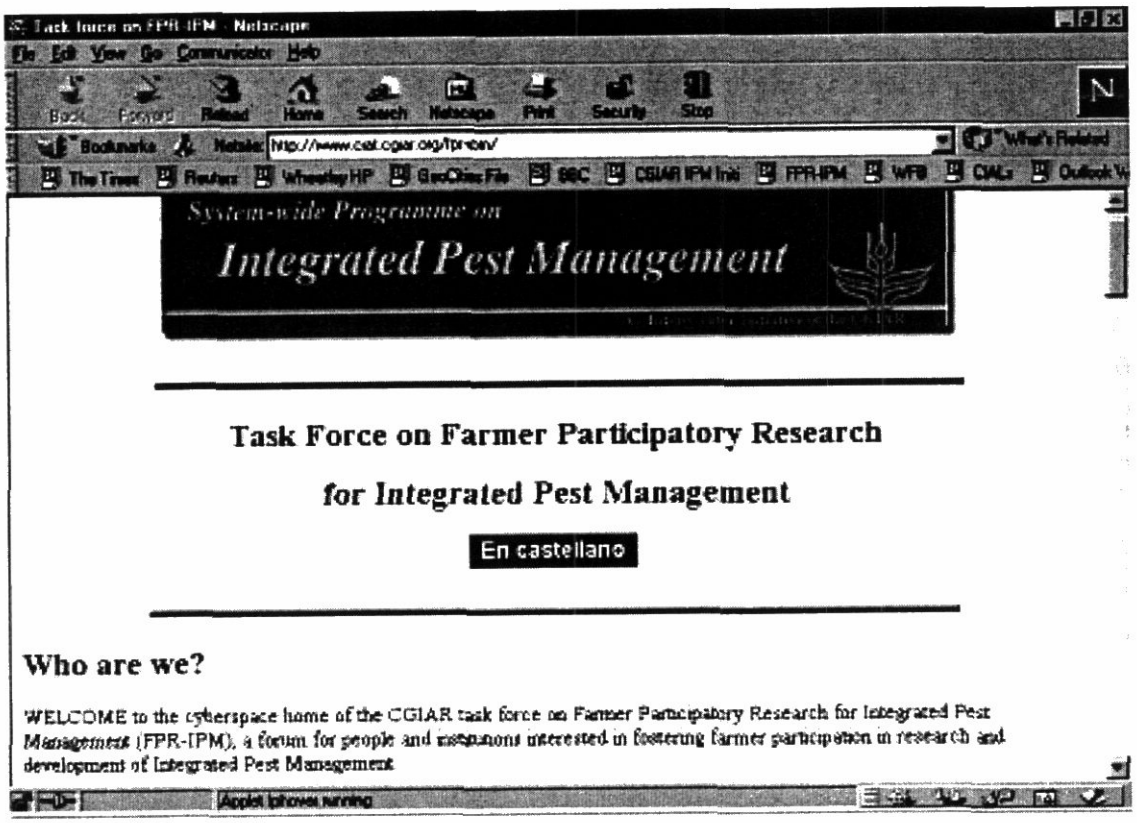


Figure 3. The FPR-IPM website: http://www.ciat.cgiar.org/fpr-ipm

Participatory research in Latin America: The idea for this Web site emerged from an invitation to give a paper on PR in Latin America at the Forages for Smallholders Workshop to be held in Cagayan de Oro, the Philippines in Oct. 1999. Contacts were established with some of the main protagonists including PRIAG, DIP, Experimentación Campesina, MIP-CATIE, COSECHA and EAP-Zamorano. The Web site, which is currently in the planning stage, is scheduled to go on line in January 2000. It will include basic information and/or links to these and other projects and experiences.

Papers and book chapters

BRAUN, A. R., G. THIELE & M. FERNANDEZ. 1999. La escuela de campo para MIP y el Comité de Investigación Agrícola Local: Plataformas complementarias para fomentar decisiones integrales para la agricultura sostenible [The IPM Farmer Field School and the Local Agricultural Research Committee: Complementary platforms to foment integrated decisions for sustainable agriculture], *Manejo Integrado de Plagas*. (CATIE Costa Rica) 53:1-23. See Output 1 for summary.

IGLESIAS, C. & L.A. HERNÁNDEZ. 1999. Mejoramiento de yuca en Latin America y el Caribe: Interface entre los mejoradores y mercados de la yuca [Cassava breeding in Latin America and the Caribbean: Interface between the breeders and the markets for cassava] Chapter on participatory breeding: In J.A. Ashby & L. Sperling (eds), Participatory Plant Breeding and Rural Development, Systemwide Program on Participatory Research and Gender Analysis, CIAT, Cali, Colombia. (English and Spanish versions in revision).

BRAUN, A.R. 1999 Participatory Research in Latin America. Proceedings. Forages for Smallholders Workshop. Oct. 1999, Cagayan de Oro, Philippines. CSIRO.

Presentations

The following presentations are available as Powerpoint shows:

- Participatory Research and IPM: CIALs and Farmer Field Schools
- Farmer Participatory Research Approaches for Technology Development and Natural Resource Management
- Community Telecenters and Participatory Research
- What is a CIAL?
- Approaches to Participatory Research
- Participatory Research in Latin America
- Los CIAL en Breve
- El Proyecto CIAT sobre Enfoques Participativos en la Investigación

Project reports and proposals

SUSTAINING CIALS: Extending Lessons Learned from Community-based Agricultural Research Services in Latin America; Concept note, submitted to W.K. Kellogg Foundation, June 1999.

Extrapolation of participatory diagnoses and evaluations of technology via GIS and Poverty Mapping. Final report to IDB on the Poverty Mapping Project, Sept 1999.

Stake and stakeholders: Analysis of the benefits and beneficiaries of building capacity for collective NRM in hillside watersheds (SN-3, BP-1). Concept note submitted to CGIAR Systemwide program for collective action and property rights (CAPRi).

Landscape management: Between consensus and conflict. Collaborative research proposal involving CIAT projects SN-3, PE-3, PE-4; Institute of Research Assessment –

Tanzania; Center for Development Research, Roskilde U., U. of Copenhagen-Denmark. Includes the outline of a PhD proposal. Submitted to the Danish Council for Development Research (RUF).

InforCauca - Community Telecenters: A Strategy to Foster Sustainable Development in Southwestern Colombia; concept note, submitted to IDRC, Sept 1999.

Enabling IPM Programs to include Farmers as Partners in Research and Learning FPR-IPM concept note; Collaborative effort among SP-IPM, GIPMF, SP-PRGA.

Westermann, O y V. Zapata. 1999. Informe del Curso sobre Instrumentos Metodológicos para la Toma de Decisiones en el Manejo de los Recursos Naturales, Cali, Colombia. Centro Internacional de Agricultura Tropical, CIAT

Zapata, V. 1999. Instrumentos Metodológicos para la Toma de Decisiones en el Manejo de los Recursos Naturales: Informe del Curso Realizado en colaboración con el CEDAF, República Dominicana. Cali, Colombia. Centro Internacional de Agricultura Tropical, CIAT.

BRAUN, A. Participatory research approaches. Response to a survey of successful sustainable agricultural development projects, conducted by the Centre for Environment and Society, University of Essex SAFE-World Research Project. 8 p.

223714

Output 5: Impact of SN-3 Project activities documented

Person Responsible: Ann Braun

Researchers: Ann Braun, Elias Claros, Jorge Luis Cabrera, James Garcia, Maria del Pilar Guerrero, Luis Alfredo Hernandez, Carlos Arturo Quirós, José Ignácio Roa, Olaf Westermann

Milestones in 1999

* Indicators for benchmarking progress towards scaling up and institutionalization of CIAL approach, defined
* CIAL benchmark data processed and systematized
* Case study by IPCA, a Honduran NGO, on their experiences with CIALs
* Second-order associations created in three states of Honduras; national-level federation, forthcoming
* Farmer participatory evaluation of live-barrier technology disseminated by CIPASLA, initiated.

Indicators for benchmarking progress

During 1999 progress was made in defining a series of indicators for benchmarking progress towards scaling up and institutionalization of the CIAL approach. The Indicators fall into 3 categories:

CIAL capacity as a community-based research service: For CIALs to have impact they must successfully provide a research service to their communities. Their capacity to do so depends upon their comprehension of the research process, their progress towards maturation, their capacity for self-management and whether their research products are taken up by the community: Indicators of maturity in CIALs include the number of experiments completed, diversity of research themes, involvement in community service, formation of microenterprises and formation of regional associations.

Scaling up:

Indicators include

- Number of countries hosting CIALs
- Total number of CIALs
- Number and diversity of facilitating organizations
- Estimated number of people benefited

Institutionalization:

Indicators include:

- Number facilitators trained
- Number of trainers trained
- Number of requests for publications and training materials
- Number of participatory research projects initiated by organizations forming CIALs

Gender and poverty class equity. Equity is a concern in the process of disseminating and scaling up the CIAL approach to participatory research. Of particular concern is whether CIALs are reaching poor groups and women. Indicators include:

- Participation of women in CIALs
- Perceptions of poorer community members regarding local impact of CIALs

1999 benchmark data

Comprehension of the research process: (learning curve index) *Figure 1* shows the learning curve for the 53 CIALs established in Cauca from 1990-98. The data originate from routine monitoring and evaluation (M&E) visits to the CIALs in which the level of understanding of the research process is explored. CIAL members are asked to explain the experimental objective and design, its relevance and the expected results. They are asked about the role of treatments, the control and replications. The CIAL approach minimizes the economic risk associated with experimentation by initiating the research process with a very small-scale experiment and gradually increasing the scale in successive experiments. The M&E process also explores the CIAL's understanding of the reasoning behind this risk management tactic.

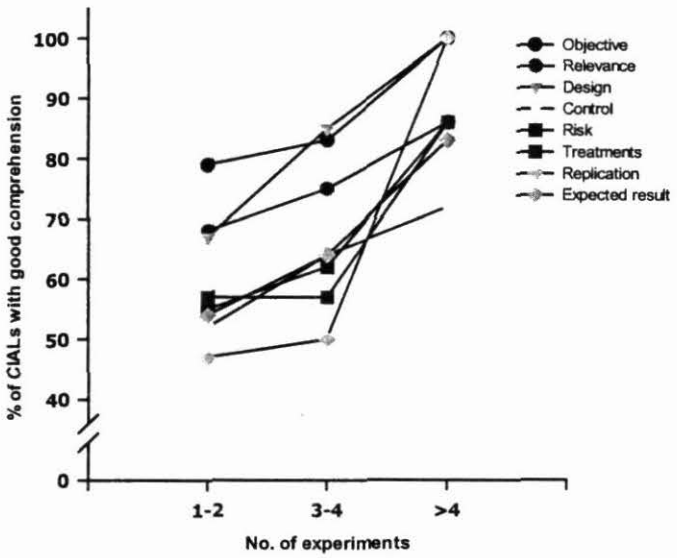


Figure 1. The learning curve of 53 CIALs located in Cauca, Colombia.

The learning curve demonstrated that some concepts such as the role of replication, control, risk and comprehension of the kind of results expected from an experiment are less easily understood than the objective, concept and design. The curve suggests that comprehension of the research process develops as a consequence of conducting several experiments and that under the conditions of Cauca State, 5 or more experiments were required by 70% or more of those CIALs in order to understand the research process fully. This pattern suggests that a mature CIAL is one that has conducted more than 4 experiments.

CIAL maturity. Based on the learning curve, a simple classification typology was developed (*Novice*: 1-2 experiments completed; *Intermediate*: 2-4; *Mature*: >4). From 1998-99, a demographic shift occurred with respect to maturity in the CIALs (*Fig. 2*). In 1998 the majority of CIALs were in the novice stage and only 14% were mature. By 1999 the majority of CIALs were in the intermediate stage, having completed 3-4 experiments, and 74 (30%) of the 244 CIALs in existence had reached the mature stage.

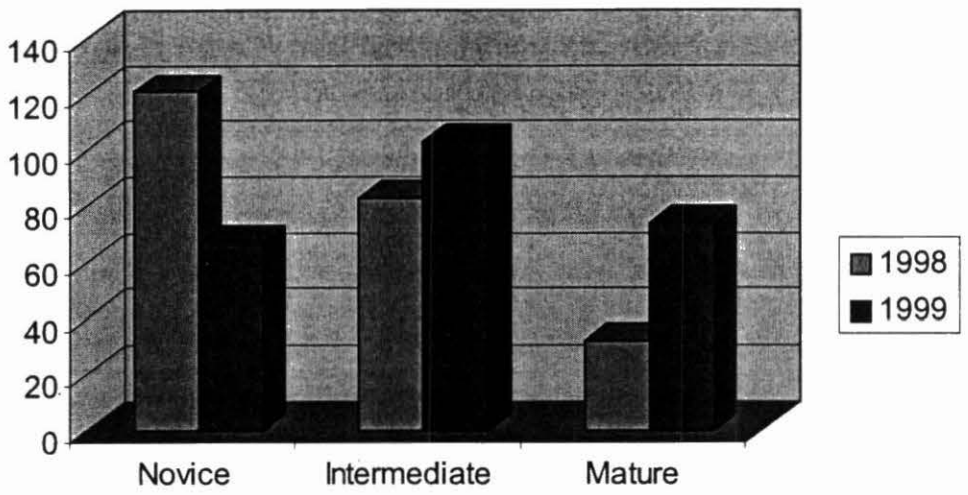


Figure 2. CIALs by maturity level in 1998 (n = 236) and 1999 (n = 244).

*Self-management capacity: (*self-management index). The CIAL M&E process includes exploration of the development of self-management capacity (*Fig. 3*). The dimensions considered include: administration and status of the CIAL fund, ability to seek external support directly, ability to manage the CIAL process independently; member attendance record, group cohesiveness and capacity for internal conflict resolution. The 1998 data for Cauca CIALs (n=53) reinforces the conclusion that maturity requires a process involving the implementation of 5 or more experiments. Good performance in most of the self-management dimensions required the experience of managing at least 5 experiments for the majority of Cauca CIALs. In this particular regional group, the most difficult challenge was related to replenishment of the CIAL fund. The fund consists of a small amount of money ($50-120 depending on research theme) that is provided to the CIAL as seed money. The CIAL is responsible for assuring that the fund is not decapitalized by reinvesting earnings from the sale of the harvest from the experiments. If the cost of the experiment cannot be recovered directly, the CIAL and the community are jointly responsible for finding other mechanisms to prevent decapitalization of the fund.

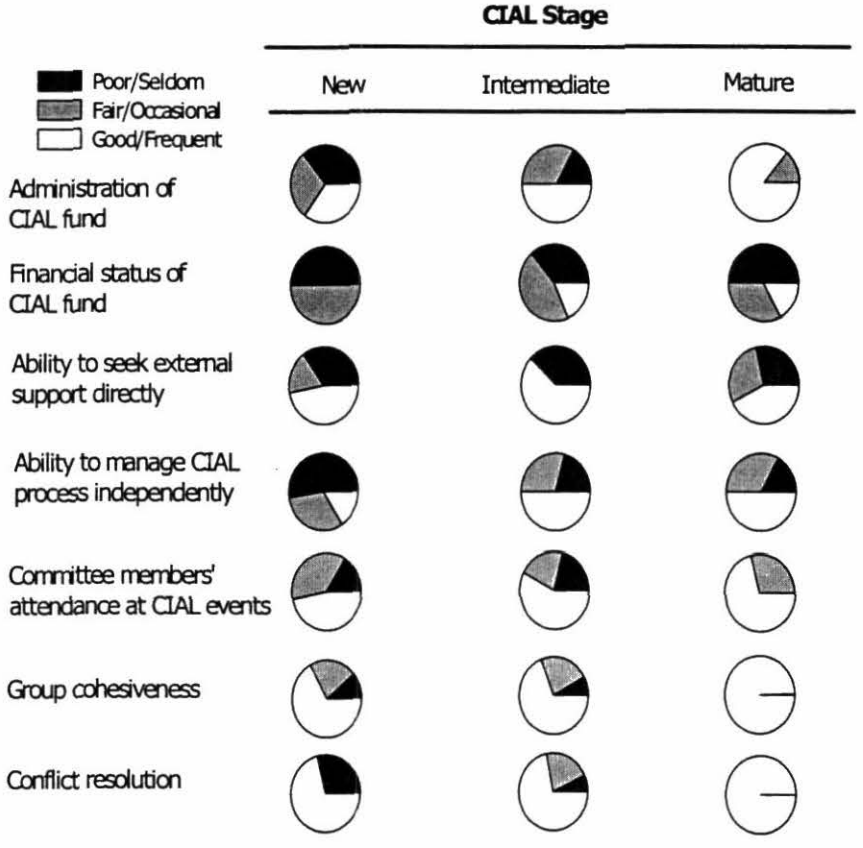
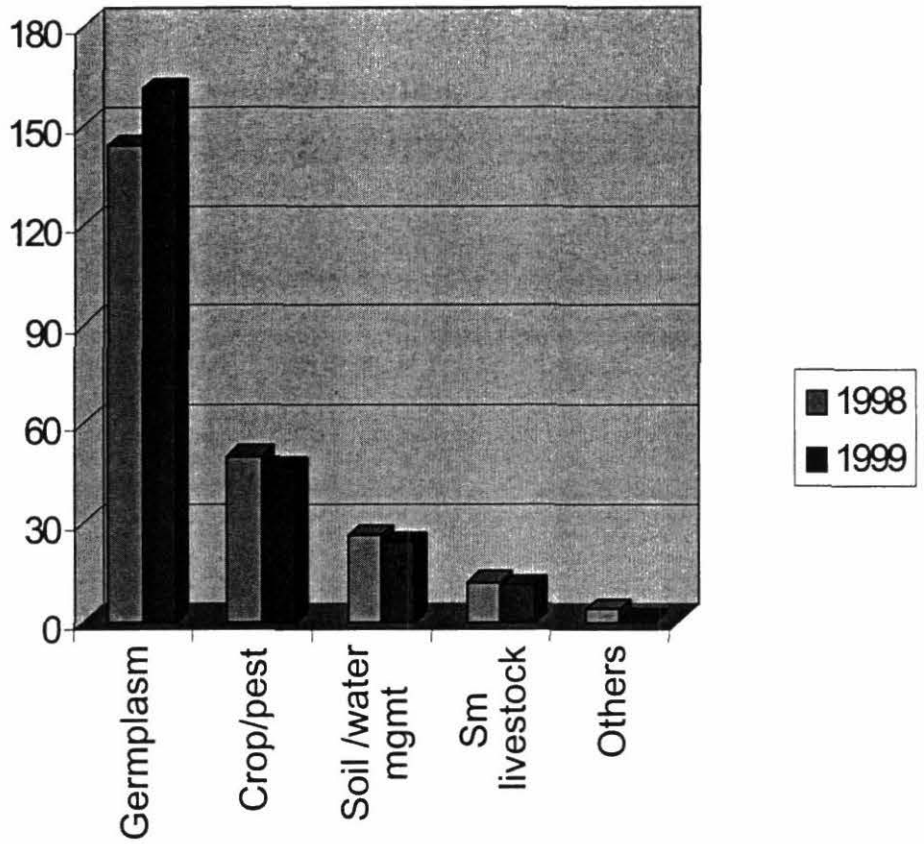


Figure 3. Capacity for self-management in Cauca CIALS (n=53, 1998).

Diversity of CIAL research themes. In both 1998 and 1999 experimentation with germplasm involving evaluation of varieties or new crops was the most frequent research theme chosen by the CIAL communities (*Fig 4*). Other main research themes were crop, pest and disease management, soil and water management, and small livestock. During 1999 there was an explosion in the diversity of experimentation with germplasm. In 1999 the number of CIALs experimenting with fruits (blackberries, *lulo* or *naranjillo*[8] and papaya) jumped from 13 to 20 (*Table 1*). Another 10 CIALs initiated experiments with vegetables (broad common beans, bell pepper), small grains (rice, wheat, oats), coffee and flowers. Experimentation with varieties of common beans, maize and plantain remained the same or increased slightly; that with cassava and potatoes declined by 41%.

[8] *Solanum quitoensis.*

Figure 4. Main CIAL experimental themes in 1998 and 1999.



No. of microenterprises created by CIALs. A total of 11% of the CIALs have created small businesses based on the products of their research (*Table 2):* 14 in Colombia, 10 in Honduras, 2 in Ecuador and 1 in Bolivia. The majority are seed enterprises (common beans, maize, potatoes, blackberries, snap beans). Six CIALs in Honduras have established community shops to reduce the cost of acquiring basic products and to increase opportunities for commercializing local products. The San Isidro women's CIAL in Cauca originally formed because of women's concerns about child nutrition in the community. After experimenting with soybean varieties and solving problems like the difficulty of shelling them so that they could be processed, the women initiated experimentation with several different soy products.

Table 1. Diversity of CIAL experimentation with germplasm in 1998 and 1999.

Crop	No. CIALs Experimenting	
	1998	1999
Common beans	36	41
Maize	31	32
Fruits	13	20
Potatoes	30	14
Cassava	28	10
Onions	7	6
Plantain	4	4
Snap beans	2	4
Soybeans	2	4
Sugarcane	4	4
Tomatoes	4	4
Forages	3	3
Peas	6	3
Broad beans	0	2
Flowers	0	2
Bell peppers	0	1
Coffee	0	1
Oats	0	1
Rice	0	1
Tobacco	0	1
Wheat	0	1

Table 2. Small businesses created by CIALs

Product or Business	No. Microenterprises
Improved common bean seed	7
Improved maize seed and processed maize in different presentations	2
Seed potatoes	2
Community shop	7
Improved maize seed	2
Organic *panela*[1]	1
Guinea pig meat	1
Sunflower oil	1
Soy products (milk, flour and bread)	1
Blackberry fruit and seed	1
Snap bean seed	1
Rental of oxen for land preparation	1

[1] Non-centrifuged brown sugar patty.

No. of community service activities performed by CIALs. IPCA (Participatory Research for Central America) is an NGO that has formed 28 of the 56 CIALs in Honduras. IPCA reports 3 community development projects conducted by CIALs during 1999.

Project 1. Twenty CIALs in the Yorito area have set up internal rotating savings and credit systems to increase savings capacity and provide a source of credit that does not require extensive paperwork or collateral. Each CIAL has established rules and regulations for operating the rotating fund. The CIAL treasurer maintains records of the savings and loans made by each participant. Additionally each CIAL organizes fund-generating activities. Proceeds are divided and deposited in the accounts of the participants according to prior agreement.

Project 2: In order to diversify the activities of each CIAL and provide a means of replenishing and incrementing the CIAL fund, 17 CIALs developed and submitted a project to ASOCIAL, the second-order organization formed by the IPCA CIALs in Honduras. The projects revolve around commercially oriented production of maize, beans, pig or chickens. Each CIAL could request up to LP$2500 (US$). Upon sale of the produce raised via the project, the CIAL agreed to return 50% of their loan to ASOCIAL and to deposit the remainder in their CIAL fund. A spin-off benefit is the building of local capacity in the formulation and presentation of projects.

Project 3: Seven CIALs in Honduras have established community shops with the objective of reducing the cost of purchasing basic products—thereby increasing opportunity for commercialization of local products and reducing the time and money spent on travel to commercial centers. The CIALs involved are those that have been the most successful in managing their CIAL fund and in envisioning their evolution towards a commercial enterprise. These CIALS have held consultative meetings with representatives from COMAL, a Honduran network that provides advice and other support services to small enterprises.

- In Colombia CORFOCIAL, the second-order organization of CIALs in Cauca State, reports six community service projects as of 1999.
- Ten CIALs have been promoting the planting of live barriers in their communities. One has established a germplasm and multiplication bank for four live barrier species.
- Eight CIALs have organized community participation in Agricultural Expos. The San Isidro Women's CIAL won a trophy for these efforts.
- Three CIALs have provided training on the cultivation of soybeans and/or on the preparation of soy-based food products.
- One CIAL has organized a rotating savings/credit fund.
- Two CIALs have organized community drives to clean up a local lake.
- Two CIALs have facilitated the formation of other CIALs
- One CIAL has organized vaccination campaigns to protect village children from disease.
- One CIAL has been offering their experiments as a learning lab where local school children can experience the research process firsthand
- One CIAL has involved the community in protecting and conserving local water resources.

No. of second-order organizations (CIAL associations) formed

- CORFOCIAL was formed in 1994 with technical assistance from CIAT (SN-3). Membership stands at 46 CIALs today.
- ASOCIAL was formed with 28 CIALs in 1999 with technical assistance from IPCA.

Examples of uptake of research products by CIAL communities. In 1988 a sociologist, studied local experimentation in a number of Cauca communities (Patiño 1988). He found three main types of farmer experiments:

- new crop varieties and species.
- cultural practices.
- inputs (mainly fertilizers and pesticides).

Patiño found that about half of all farmer experiments were related to new crop varieties and species.

Four of the communities in Patiño's study went on to form CIALs. To examine how the establishment of the CIALs had influenced local experimentation beyond the CIAL itselfSN-3 revisited these communities (145 people interviewed) and four others from Patiño's study that did not form CIALs (91 people).

In 1988 farmers were experimenting with varieties of beans, maize, coffee, plantain, forages and sugarcane. In 1998, the range of crop varieties being tested had increased to include cassava, potatoes, snap beans, peas, tomatoes, blackberries, onions, *lulo* or *naranjillo*, soybeans, squash, cilantro and bell peppers (*Fig. 5*). More experimentation was occurring in communities with CIALs than in communities where there were none.

In 1988 farmers trying new species mentioned experiments with tomatoes, snap beans, potatoes, squash, bell peppers, peas, cucumbers, cabbage, beets and soybeans. In 1998 the range of new crops tested was slightly more diverse. New species were being tested by 51 and 35%, respectively, of the farmers in communities with and without CIALs. More intense experimentation was occurring in the CIAL than in the non-CIAL communities, particularly with horticultural and fruit crops including tomatoes, beans, blackberries, snap beans, potatoes, bell peppers, squash, peas, cabbage, cucumbers, beets and carrots (*Fig. 6*).

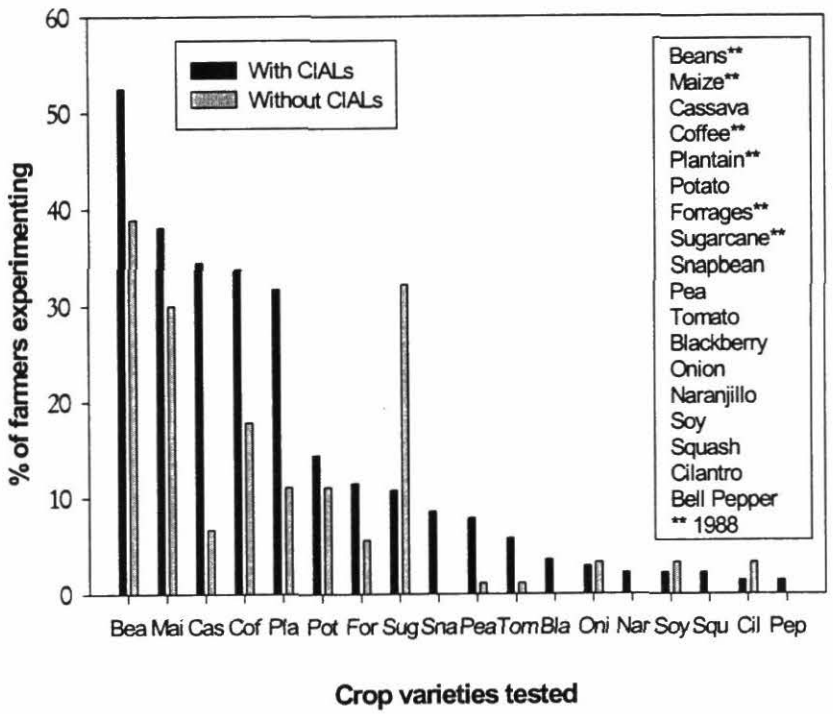


Figure 5. Farmer experimentation with crop varieties in communities with and without CIALs, 1998, Cauca, Colombia. ** indicates that experimentation was reported with varieties of this crop in 1988 (Patiño 1988).

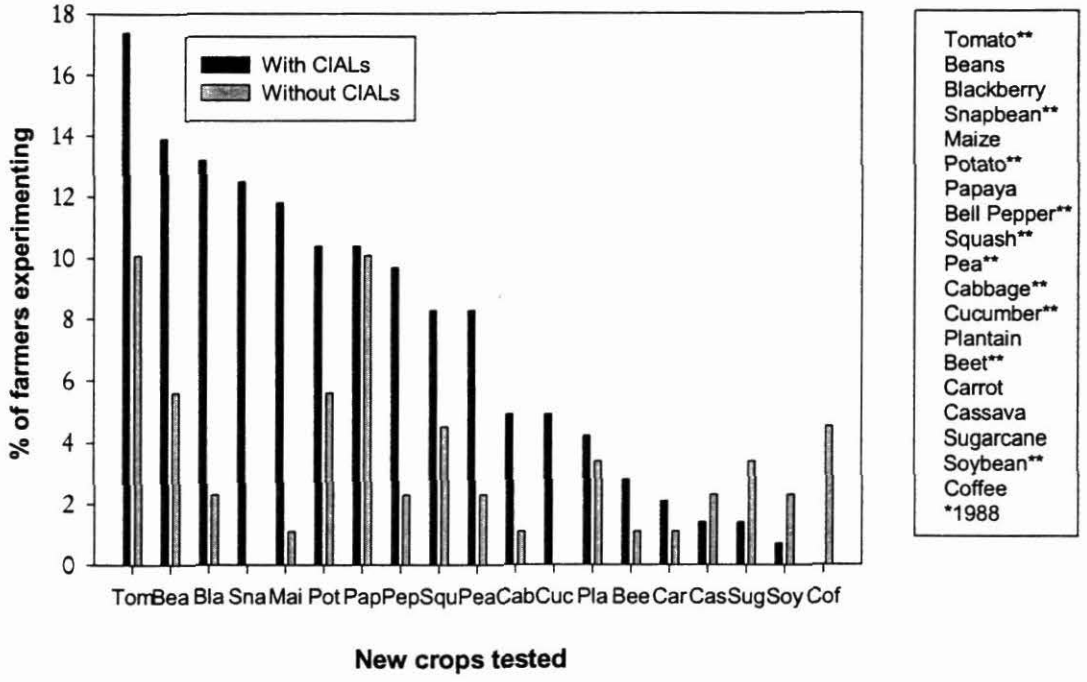


Figure. 6. Farmer experimentation with new crops in communities with and without CIALs, 1998, Cauca, Colombia. ** indicates that experimentation was reported on this crop in 1988 (Patiño 1988).

In addition to stimulating local technological innovation and enabling farming communities to leverage external resources, CIALs increase local experimentation with varieties and new species. The CIAL farmer-researchers are trying new varieties and crops as a way of spreading risk while raising their incomes. At the same time their experiments augment agricultural biodiversity and contribute to local development and enhanced utilization of genetic resources. Other farmers often mimic the small plots with controls, treatments and replications, which they observe in CIAL experiments.

In 1990 the Pescador CIAL (Cauca, Colombia) included seeds of the variety, Caucayá, in an experiment comparing local and improved varieties of beans. Seeds of Caucayá were not available commercially and were not distributed to any other CIAL or to individual farmers. By 1998, 87% of Pescador farmers had experimented with Caucayá and 79% continued planting it as a result (*Fig. 7*). Levels of experimentation and adoption of Caucayá were studied in the 8 communities from Patiño's original study. These communities are all within a three-hour traveling radius (by automobile) from Pescador. In communities that had formed CIALs, just under 50% of farmers had tried

Caucayá by 1998 and just over 40% of those who tried the variety continued planting it. Penetration of Caucayá occurred to a significant extent even in the 4 communities without CIALs. In non-CIAL communities 38% of farmers had tried Caucayá by 1999, and 20% of those who tried it, adopted it.

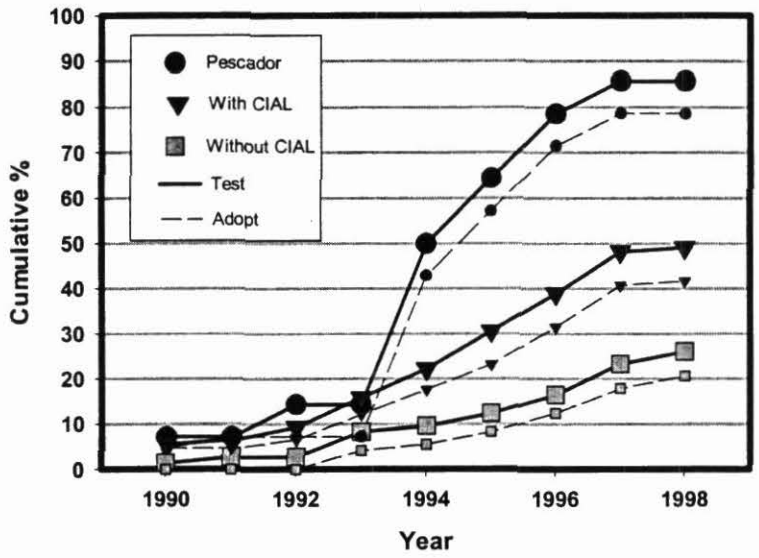


Figure 7. Experimentation with and adoption of the *Caucayá* bean variety in the community where it was first tested by a CIAL (Pescador) and in 4 communities with and 4 without CIALs.

Scaling up

Countries hosting CIALs. Colombia and Honduras have 65% of the CIALs between them (*Fig. 8*). CIALs were initiated there in 1990 and 1996, respectively. In Ecuador, El Salvador Bolivia and Nicaragua the first CIALs were also established in 1996; and in Venezuela, 1997.

During 1999 SN-3 received inquiries from organizations in Panama, Mexico, Argentina, Peru, Bolivia and southern Brazil about the possibility of initiating training in the CIAL approach. A CIAL course was held in Mexico in October, and funds are being sought for training by IAPAR in Southern Brazil.

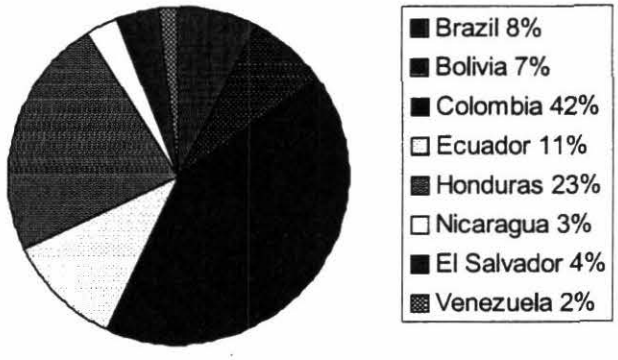


Figure 8. CIALs by country.

Total number of CIALs. This year saw an increase in the number of CIALs from 236 to 244 in Colombia, Honduras, Ecuador, Venezuela and Nicaragua (*Fig. 9*).

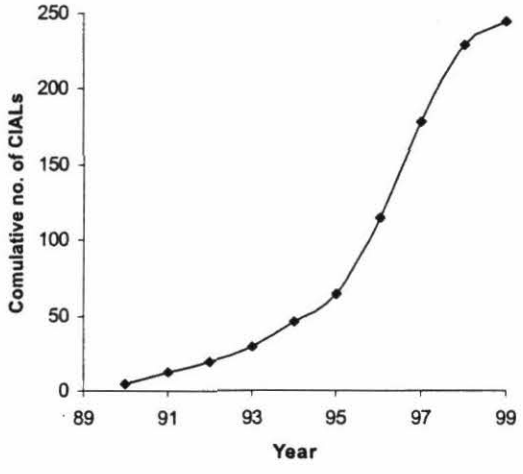


Figure 9. Growth of CIALS during the 1990s.

Number and diversity of institutions facilitating CIALs. There are 21 NGOs, 16 governmental organizations (GOs) and 2 universities are facilitating CIALs (*Table 3*). CIAT's Hillside Program is facilitating four CIALs in Nicaragua. The greatest diversity of facilitating organizations is found in Ecuador, where a number of NGOs have been trained by the international NGO, IIRR. Colombia and Honduras also have high organizational diversity with GOs predominating in Colombia and NGOs in Honduras.

Table 3. Number and type of organizations facilitating CIALs, by country.

	No. Organizations Facilitating CIALs				
Country	**NGOs**	**GOs**	**Univ.**	**Intl.**	**TOTAL**
Bolivia	2	2	0	0	4
Brazil	0	4	0	0	4
Colombia	3	5	0	0	8
Ecuador	7	2	1	0	10
El Salvador	1	0	0	0	1
Honduras	7	0	1	0	8
Nicaragua	2	0	0	1	3
Venezuela	1	3	0	0	4
TOTAL	21	16	2	1	40

Overall, NGOs have facilitated the greatest proportion of CIALs, with 49% compared to 41% for GOs (*Fig. 10*). Mixed partnerships involving 2 different types of organizations have facilitated 5% of the CIALs. University involvement has been much weaker that that of other organizations.

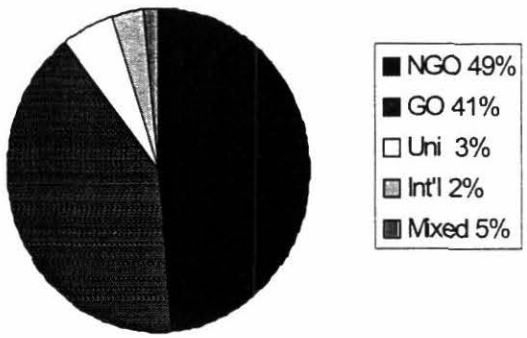


Figure 10. Percent CIALs by type of facilitating organization.

Estimated number of people benefited. Four is the minimum number of members for forming a CIAL, but many CIALs have more than four members. In Honduras, for example, CIALs range in size from 5-25 members, and the average CIAL is staffed by 10 members. This pattern is becoming increasingly common in other countries as well. Newly formed CIALs benefit their members directly through the training they receive on information-gathering, planning, execution, evaluation, analysis and record-keeping related to the research process. A series of CIAL handbooks (13) were specifically designed to support this process. An average of 10 households are estimated to benefit directly from the participation of one of their members in a newly formed CIAL.

By the time CIALs have reached the intermediate stage of development, 83% (Cauca CIALs) have held at least one meeting to report their progress and results to the community which typically consists of 50-100 families. This is the first in a series of benefits that go beyond the CIAL members themselves. Many CIALs perform community service or community development roles. For example, 20 of the 28 CIALs formed by IPCA in Honduras have organized rotating savings/credit funds, and 7 have set up cooperative shops where basic products are sold.

Mature CIALs have typically made recommendations to their communities based on the results of their research, and 80% report major changes occurring in their communities as a result of the CIAL process. Many have participated in local and regional forums such as the CIAL "Encounter" organized by ASOCIAL (Honduras) and CORFOCIAL (Colombia) A quarter of the CIALs that have reached the mature stage have created a small enterprises that reach beyond the CIAL community.

As a first step in estimating the number of people benefitted from the establishment of a CIAL as acommunity-managed research service, a scenario approach was taken. The driving forces for the scenario approach were based on inputs from experienced CIAL facilitators who participated in the 1999 course for trainer-facilitators (see Output 3). CORPOICA identified the importance of consolidating the CIAL maturation process by providing monitoring and evaluation input at each step of the research process. Their observations support the learning curve concept identified by SN-3 for the Cauca CIALs. The rate of maturation of the CIALs was therefore considered as a driving force in constructing scenarios around the issue of benefits. The second driving force was identified by the IDRC-funded IPCA Project in Honduras. The increase in CIAL membership in Honduras and elsewhere has been driven by the need to ensure that a small group does not privatize the benefits. A second driving force for the benefit scenario was therefore considered to be the capacity of CIALs to extend benefits within and outside the community. The rate of development from the novice to the intermediate to the mature CIAL stage was projected from the CIAL database and 2 scenarios were constructed by assuming conservative and more expansive capacity to extend benefits. In the conservative scenario it was assumed that new, intermediate and mature CIALs benefit 10, 50 and 200 families respectively. In the more liberal scenario new, intermediate and mature CIALs were assumed to benefit 10, 100 and 400 families respectively. The results for 1998 and 1999 are shown in Table 4 the full projection of the two scenarios starting with the first 5 CIALs formed in 1990 is shown in Figure 11. The projections estimate that the current number of beneficiaries is between 22,000 and 41,000 families.

The benefit of this scenario approach is that it suggests concrete, testable hypothesis for measuring the impact of the CIAL approach.

Table 4. Estimated number of families benefiting from the CIAL process.

CIAL Stage	1998			1999		
	New	Intermediate	Mature	New	Intermediate	Mature
No. CIALs/stage	121	83	32	67	103	74
No. beneficiaries*	1,210	8,300	12,800	670	10,300	29,600
TOTAL	22,310			40,570		
Average no. families benefitted per CIAL	95			166		

* It is estimated that new, intermediate and mature CIALs benefit 10, 100 and 400 families, respectively

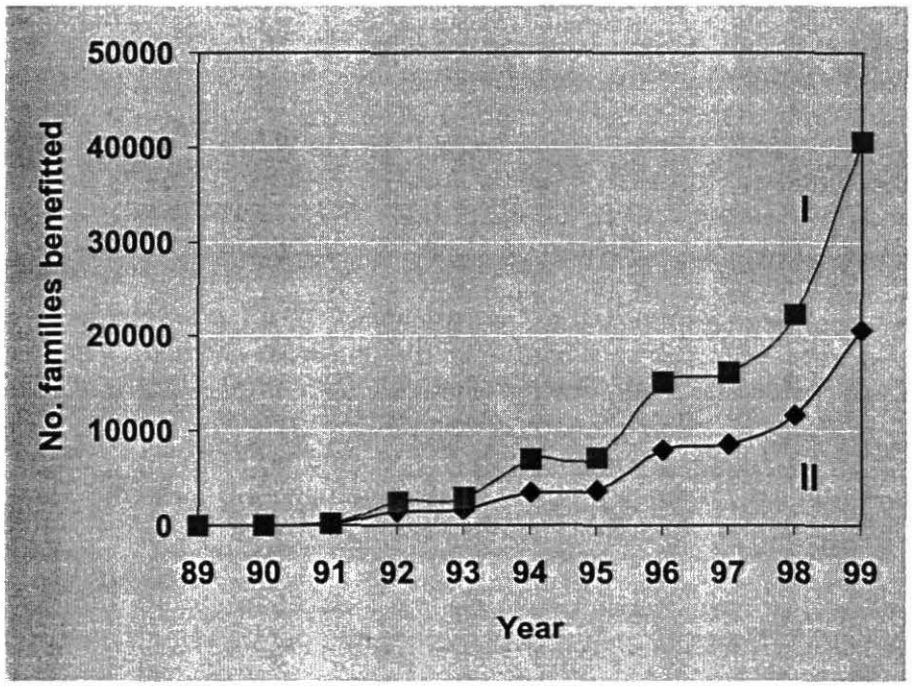


Figure 11. Two scenarios for estimating the number of *families benefitted* by the CIAL process. Both assume the a rate of maturation from the novice to the mature stage extrapolated from the CIAL database. Scenario I (high impact) assumes that new, intermediate and mature CIALs benefit 10, 50 and 200 families respectively. Scenario II (low impact) assumes that new, intermediate and mature CIALs benefit 10, 100 and 400 families respectively.

Institutionalization

No. of CIAL facilitators and trainers trained. As of October this year, 313 people were trained by CIAT as CIAL facilitators and 18 as CIAL trainers (*Table 5*). In addition, CORPOICA (Colombia) has trained 33 facilitators, IIRR (Ecuador) has trained 64 and EAP-Zamorano (Honduras) has trained 18.

Table 5. Training of CIAL facilitators and trainers (indicated with italics).

Year	Country	Participating Organizations		No. Participants
1995	Colombia	UMATA Sec. of Agriculture, Valle CORPOICA		14
1996	Honduras	IPCA FEPROH ROLANSATE IIRR EAP SERTEDESO CARITAS	FUNAPIB CURLA PDBL Tawka Indigenous Foundation IHDER CENTA	19
	Colombia	UMATA CORPOICA CRECED	Sec. of Agriculture CORFOCIAL CIAO	36
	Nicaragua	CIEETS FARENA FEPROH NPRHU	UNICANC INTA UNA CATIE	17
	Ecuador	FUNAN FLACSO CONDESAN UATAPPY ENCORAE CATIE CARE	IDEAS SUBIR INIAP CEDEGE Min. of Social Welfare U. of Ambato	25
	Bolivia	CEDEAGRO IDEAS UMSS CARE:	IBTA PROINPA CIFP Pairumani	17
1997	Nicaragua	INPRHU PCAC		13
	Salvador	CENTA CORDES UNICO	ENLACE FASTRAS CIAT-Nicaragua SENASA	17

Year	Country	Participating Organizations		No. Participants
1997	Venezuela	FONAIAP CIAELARA PROSALAFA Centro Gumillas MAC SHYQCA	Min. of Agriculture & Natural Resources FUNACITE CIARA CEDELEA	25
1998	Venezuela	CIAE FONAIAP CIARA INPRABEL-CHACA SIPACA CENIAP Govt. of Aragua State	School of Agronomy, U. Venezuela Min. of the Environment & of Renewable Resources Association of Agricultural Producers of Belén Carabobo FUNDACITE	52
	Colombia	SENA CIAT CORPOVERSALLES CORPOICA		34
	Bolivia	PEIRA School of Agronomy, Higher Technical School PROINPA	Natural Resource Management *Office of U. Social Interaction*	25
1999	*Colombia*	*IBTA* *CORPOICA* *CORFOCIAL* *IPCA*	*FONAIAP* *CIAE* *CIAT-NICARAGUA* *UNIR-ZAMORANO*	18

Requests for publications and training materials

See Table 6.

Publications and training materials produced by institutions facilitating CIALs *(see Output 3).*

Participatory research projects initiated by institutions working with the CIAL approach.

The following institutions have initiated participatory research projects working with the CIAL approach. For greater detail, see Output 3.

- Nationalization of the CIAL approach, CORPOICA
- Participatory maize and bean breeding, Dept. of Agronomy, Panamerican Agricultural School-Zamorano, Honduras
- PROINPA, Bolivia
- INIAP, Ecuador
- FONAIAP, Venezuela

Table 6. Requests for CIAL publications and training materials in 1999.

Date	Institution	Publication
Jan. 19	SUAS Swedish U. of Agricultural Science - Sweden	Vídeo IPRA Vídeo of the CIALs
Jan. 26	FAO - Vietnam	Evaluating technology with farmers, a handbook
Feb. 1	CIRAD-France	Manual in English Annual report Hillsides Program
Feb. 24	WARDA - Ivory Coast	PR Workshop: Farmer evaluation of technology, Instructional Unit 1 Farmers evaluations: methodology for preference ranking. Instructional Unit 2 Evaluating technology with farmers, a handbook
March 1	CIRAD - France	Scaling up from local perceptions of poverty to regional poverty profiles - developing a poverty profile for Honduras. Helle Ravnborg
March 8	Bolivia	Cartillas CIAL Farmer evaluation of technology, Instructional Unit 1 Farmers evaluations: methodology for preference ranking. Intructional Unit 2 Evaluating technology with farmers, a handbook
April 12	ASO-COSUDE- Peru	Investing in farmers as researchers: Experiences with Local Agricultural Reseach Committees in Latin America; Selectiojn of articles published on CIALs ODI paper Gowing Affinities (A bulletin about cooperation in agricultural research) CIAT, May 1999 Laboratory for fertile fields - T. Pratt (America, April 1999)
May 6	IDS - England	Instrumentos metodológicos para toma de decisiones; Overview CIPASLA
May 11	USA	ODI paper (CIAL) Cartillas CIAL
May 7	ICA - Ghana	Video IPRA
August 19	PROMSA - Ecuador	Metodología CIAL - Artícle: Cuando la comunidad decide. Los CIAL se arraigan en América Latina (Growing Affinities)
Sept. 3	ICRISAT - Zimbabwe	Preference ranking software
Sept.3	Kathmandu - Nepal	Material on farmer-led experimentation and diffusion
Sept. 3	INDES - Peru	Metodología CIAL - Artículo: Cuando la comunidad decide. Los CIAL se arraigan en América Latina (Growing Affinities)
Sept. 7	IAPAR - PR, Brazil	Manual evaluación de tecnología Video IPRA Unidad Instruccional No. 1 y 2 Regresión Logística en el Análisis de Preferencia Cartillas CIAL en español (1-13)
Sept. 27	Universidad Autónoma de Yucatán - Mexico	Regresión Logística en el Análisis de Preferencia. Working Draft. Logistic Regression in Ranking Analysis. Instruction Manual.
Sept. 28	IPGRI	Manual Evaluación de Tecnología Unidad Instruccional 1 y 2 ODI Paper; Cartillas CIAL)

Equity

Equity is a concern in the process of disseminating and scaling up participatory research approaches. In this case the question is whether the CIALs are reaching poor groups and women. Benchmark data (1999) on CIALs by gender for all CIALs and for Colombia and Honduras, where 65% of the CIALs are located, are presented (*Figs. 12 & 13)* as a baseline for tracking women's participation in CIALs. Currently most of the women's participation occurs *through membership* in mixed CIALs although 17% of the Committees are composed solely of women.

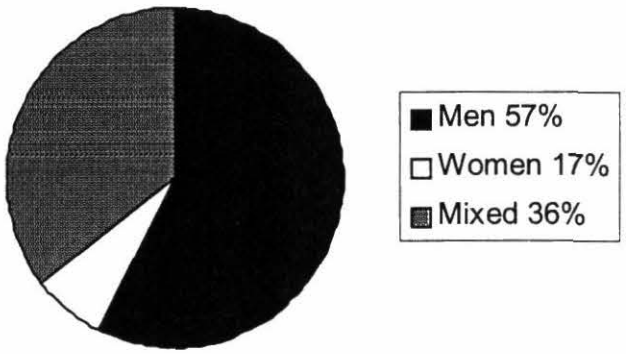


Figure 12. CIALs by gender (n=244).

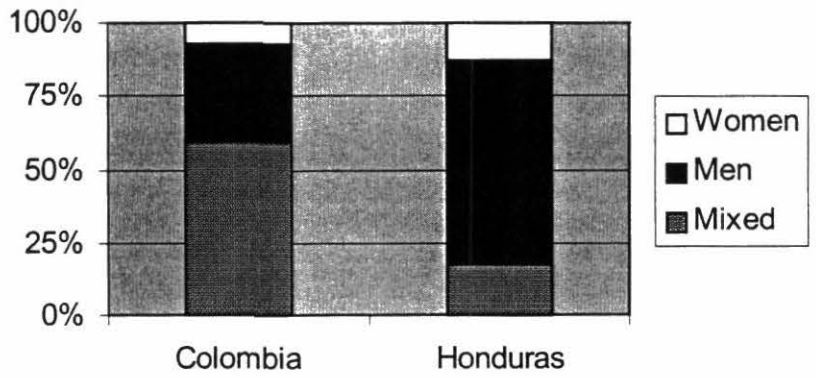


Figure 13. CIALs by gender in Colombia (n=102) and Honduras (n=56).

To examine whether the benefits of the CIAL process are reaching poor groups, respondents from the 8 communities included in the 1998 CIAL impact study in Cauca (Colombia) were classified into poverty classes based on local indicators of well-being. The composition of the poverty classes is given in *Table 7* and shown graphically in *Figure 14*. In the 4 communities with CIALs, 45, 40 and 17% of the respondents were of the poorest, intermediate and nonpoor groups (*Table 8*), respectively. The proportion of respondents in the poorest group in the 4 CIAL communities is the same as that in the overall sample of 8 communities. This classification will facilitate analysis of respondents' opinions about the CIALs according to their poverty level and will permit testing of hypotheses about whether the benefits of the CIAL research process are reaching the poorer segments of the community. These preliminary results show that the 4 communities with CIALs are composed mainly of poor and intermediate-level people. *Table 9* gives the costs associated with backstopping CIALs.

Table 7. Well-being indicators and composition of poverty classes.

Cluster	Poverty Class	Food Security Problems	Work as Day Laborer	Contract Laborers	Permanent Laborers	Size of Farm (ha)
1	Poor	Yes	Yes	No	No	2.32
3	Inter-mediate	Yes	Yes	Up to 6 mo/yr	No	5.15
2	Inter-mediate	Yes	Yes	Up to 6 mo/yr	No	7.38
4	Not poor	No	No	Up to 12 mo/yr	Yes	4.84

Cluster	Mean area under cultivation (ha)	Have cattle	No. home improvements	No. electronic appliances	Have business	Occupation other than farming
1	1.17	3.85%	0	<2	12.50%	8.65%
3	1.96	17.54%	>0	>2	26.32%	24.56%
2	2.12	29.41%	0	>2	14.71%	23.53%
4	2.93	48.78%	>0	>2	39.02%	26.83%

Table 8. Distribution of respondents participating in CIAL impact study according to poverty class.

Poverty Class	No./% Respondents (all 8 communities)		No./% Respondents (communities with CIALs)	
Poor	104	44.07%	63	43.45%
Intermediate	34	14.41%	22	15.17%
Intermediate	57	24.15%	36	24.83%
Not poor	41	17.37%	24	16.55%

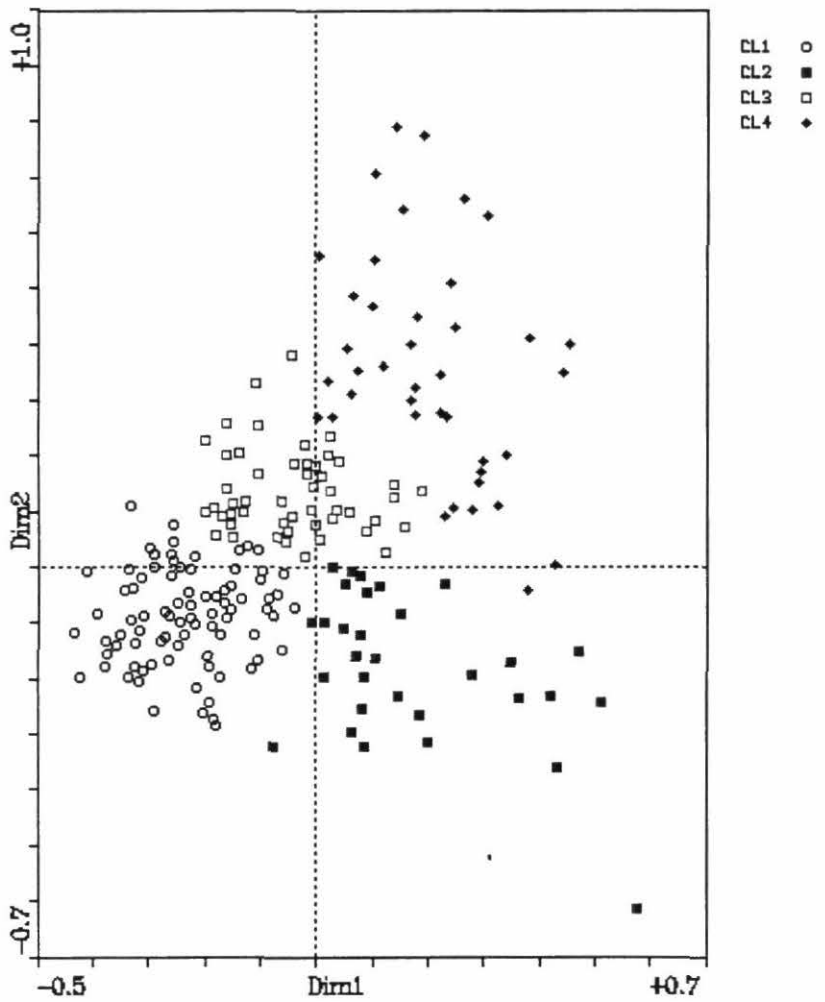


Figure 14. Distribution of respondents from the Cauca CIAL impact study into poverty classes according to local indicators of well being (Cluster 1 = poor; Clusters 2,3 = intermediate; Cluster 4 = not poor).

Table 9. Institutional costs (US$) associated with facilitation of CIALs
(*Source*: CORPOICA-Colombia and PROINPA- Bolivia 1999).

	CORPOICA	PROINPA
Average no. facilitator visits to a CIAL during first year	20-24	20
Average no. facilitator visits to a CIAL in subsequent years	4-6	4-6
Average no. CIALs/facilitator	2-3	2
Facilitator costs • Salary (first year) • Transportation, materials (first year)	 $1000 $1500	 $450 $400
Facilitator training (first year)	$500	$500
CIAL fund (seed capital provided once when CIAL is formed)	$50-150	$50-150

IPCA: Lessons from CIAL Hillside Program[9]

In Honduras the IPCA Project, which supports more than half the country's CIALs, is financed by IDRC-Canada, through the Sociology and Anthropology Department at the University of Guelph. The project coordinator is a Canadian rural sociologist; she is backed by three Honduran agronomists.

The CIALs have mushroomed rapidly over the past few years in Honduras. In 1999 there were 58, up from two pilot CIALs established in 1993-94. These CIALs are located in distinct agroecological zones ranging from very humid (3000 mm rainfall/yr) conditions in the Atlantic coastal hillsides to drier conditions involving seasonal rains (1400 mm/yr) in the south. The CIALs are made up of poor hillside farmers, supported by a variety of NGOs and research programs[10]

IPCA supports more than 50% of the CIALs, some of which were "adopted" in the absence of consistent support from other entities. The formal nature of the methodology, involving the application of carefully controlled comparisons through split-plot trials and replicates, requires a significant amount of agronomic support at the outset, which is costly. In Colombia, for example, the NARS (CORPOICA) estimates that four or more experiment cycles are necessary to permit more than 60% of CIAL members to grasp the methodology fully. This cost of $830-$1250[11]. In Honduras the set-up period is likely to be particularly long because illiteracy in the countryside is much higher than in Colombia (*Table10*). According to the 1988 Honduran census, 42.4% of the rural population is illiterate and therefore likely to take longer than this to fully understand the CIAL methodology. Thus unless organizations supporting the CIALs are reasonably well financed and dedicated to research, the CIAL method is unlikely to find easy acceptance. Of the 12 organizations trained by SN-3 in Honduras, only three can be said to be practicing it seriously with 6 or more CIALs.

Baseline data collected in CIAL communities suggest that CIAL members come disproportionately from the two upper welfare categories, while the lowest ranking group is under-represented. The sample consisted of 113 individuals drawn from 11 communities spread across the three regions[12], 55 individuals, or just under half the respondents, were CIAL members (members of the executive or members at large).

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[9] Summarized from unpublished report to IDRC by S. Humphries, Juan Gonzales, Jose Jimenez y Fredy Sierra. Searching for sustainable land use practices in Honduras: Lessons from a program of participatory research with hillside farmers.

[10] These institutions and projects are the Escuela Agrícola Panamericana, Zamorano (EAP-UNIR), Fomento Evangélico para el Progreso de Honduras (FEPROH); Instituto Hondureño de Desarrollo Rural (IHDER); Investigación Participativa en Centroamérica (IPCA); Programa de Reconstrucción Rural (PRR); Programa de Desarrollo de Area (PDA), a program of World Vision in Honduras; Servicios Técnicos para el Desarrollo Sostenible (SERTEDESO).

[11] See Braun et al 1999.

[12] The sample consisted of 4 CIAL communities located on the north coast, 4 located in the Lago de Yojoa region and 3 in the Tascalapa watershed, Yorito.

Table 10. Breakdown of costs for supporting 20 CIALs in Yorito, Honduras.

Activity	# CIALs	Cost/CIAL (US$)	Total Yearly Cost (US$)
1. Agronomist salary	**20**	420.00	8,400
2. Agronomist food		80.85	1,617
3. House rental		21.30	426
4. Motorbike depreciation		25.00	500
5. Motorbike maintenance		35.50	710
6. CIAL experiment costs		30.00	600
7. Paraprofessional salaries		187.20	3,744
8. Office materials		8.55	171
TOTAL		**808.40**	**16,168**

Analysis of land ownership showed that only 7% of the members were landless (vs 19% in the nonmember group), 47% had 3.2 ha or less (vs 34% for nonmembers). The landless and "extremely poor" were under-represented in the CIALs, while the "medium poor" (≤ 3.2 ha) were somewhat over-represented. These land-ownership categories are correlated with diet, another important component of welfare ranking. Of those who have >3.2 ha consume meat/dairy products once a week or more, while only 9% of the landless do, and 28% of those with ≤3.2 ha (IPCA baseline data). These results are not surprising given that the landless must work on a regular basis as wage labor and do not have the time to become involved in voluntary research activities; nor do they likely have the political standing to get themselves elected.

A key characteristic of Committee members (N=41) is that they are joiners: 85% have been involved in past projects; 81% have served their communities as leaders. In contrast nonmembers are less involved in projects: only 35% have previously been in projects and 40% have held community leadership roles. Among CIAL noncommittee members (N=14), 50% have experience in past projects but only 21% have served in a community leadership capacity. Literacy rates are key in explaining these differences. In our sample, 60% of heads of household were literate (similar to rural average). Among the Committee members, however, 81% are literate vs 52% among nonmembers, and 42% among noncommittee members. Literacy is key to being elected onto a committee or assuming a local leadership role although it has not prevented a group of individuals, with below average literacy, from becoming involved in the work of the CIAL in a nonexecutive capacity.

Gender. Most of the women's CIALs were formed after the baseline data were collected. In rural Honduras, as in other poor Central American countries, gender relations are strongly affected by machismo, characterized by excessive male jealousy and an overly sensitive ego. They are also affected by the very different daily activities performed by men and women in largely different physical spaces. The women's domain is in the home and patio garden; men take primary responsibility for the cultivation of basic grains, generally conducted a good distance from the house. For many Honduran women, movement outside their homes is severely restricted by their husbands' sense of their rightful place and fear of unwanted attention from other men. Women who have joined the CIALs or were previously members of other projects, have often had to

endure long struggles with their husbands over their right to associate. They also have to combat community disapproval around the appropriate female role. Women who join CIALs are criticized as having weak husbands whose virility is questionable. Most women CIAL members are active in the Church and have been able to branch out into taking on community projects. Women involved in organizations all report much higher levels of personal freedom than other women in the community.

Broadening the CIAL process. Baseline data, collected through in-depth interviews in 11 communities within the first three years of the project, led IPCA staff to adopt a new tactic in forming CIALs. Those outside the CIAL tended to feel that members were receiving special help; and as the data showed that CIAL members, particularly those on the Committee, are among the more privileged members of the communities, it was necessary to address this perceived inequality in the membership. Thus IPCA sought to increase the number of people present at the initial motivation and election meetings. The number of women's CIALs that have developed in the Yorito area, where most of the CIALs were formed after 1997, is likely a consequence of this change of orientation as women have been personally invited to the meetings with the knowledge that they may form CIALs, independent of men. Average membership in the newer CIALs is 12; and in 6 communities there are both men's and women's teams.

Opening up the CIAL process is likely to increase the amount of time involved in acquainting people with the methodology. Non-commitee members are more likely to be illiterate, which will, of course, increase the costs of establishing a CIAL. On the other hand, a larger CIAL provides continuity when people leave for one reason or another. Another effect of the more open CIAL process is that more people are likely to be aware of their work. Because the newer CIALs are achieving a higher profile in their zone, surrounding communities have begun to request CIALs. This indicates a certain level of social capital or capacity for collective action present in the community. This capacity is critical to the functioning of a successful CIAL. This means that projects need good data characterizing communities before they begin.

Successful experiments help make the transition to more sustainable farming more likely. CIAL farmers consistently reported using smaller amounts of seed and employing closer spacing on their own plots. Not all had switched to contour planting because of the extra labor time involved in sowing across the slope or because their land was too rocky to make this feasible. This is an area where more assisted learning is required; farmers need to be sensitized to the problem of soil loss. Other areas of learning acquired through the CIAL process include the following:

- stopped burning
- planting more on less land
- producing more with less work
- use of organic manure (chicken manure, cane bagasse, liquid cattle manure, coffee pulp, Gliricidia leaves)
- zero and minimum (in-row) tillage
- use of legumes (Mucuna, Canavalia, pigeon pea, Erythrina)
- recognizing different soils
- live and dead barriers
- covering soil and incorporating weeds into soil to slow erosion and increase fertility

- working with herbicides and a machete instead of burning and using a hoe
- selecting seed
- improving traditional cultivars through plant and seed selection practices
- use of chemical and natural (neem, Gliricidia) insecticides

These different components of the assisted learning process demonstrate how the CIAL is functioning as a small-scale learning or field school. These components are the building blocks of more sustainable land use and offer a partial solution to the "fallow crisis." The CIAL approach makes farmer adoption of these components more likely.

Building research capacity and social capital through the CIAL. Based on the findings it appears that the CIALs function successfully as research committees when they are closely tied to longer term social programs. While farmers are fairly easily motivated by research that has short-term payoffs (e.g., varietal research that leads to the rapid selection of new materials that outperform local cultivars), farmer enthusiasm tends to wane over repeated trials unless there is a longer term goal of building group resources for agreed-upon purposes. Where experiments are long term, such as those involving soil improvement and conservation, agreed-upon social goals and the social organization needed to attain these should be in place from the outset. Good leadership, clear rules and regulations regarding members obligations to the group, etc. are a *sine qua non* of farmer ability to undertake longer term experiments. The effectiveness of the CIALs at building social capital in rural communities was evident from survey responses. Along with the agricultural skills and practices listed earlier, people also reported:

- learning how to manage funds and make savings plans
- using the CIAL step process to diagnose and analyze social problems in the home and in the community
- learning how to plan time (mentioned by women's groups who reported that normally their time was not their own)
- women reported that men had learned to be more respectful of their work and to lend them a hand
- women reported earning greater freedom for their activities outside the home
- learning public-speaking skills
- learning not to be intimidated by outsiders such as agronomists and other professionals

Agricultural research is but one element of a broader process of social change leading to empowerment, which the CIALs are helping to stimulate in the communities. Organizational and leadership skills required for conducting the weekly or monthly meetings held in many of the CIALs are also critical elements that also serve to involve members in a number of social and economic activities beyond research.[13]

[13] A good example of organizational maturity and empowerment was exhibited by one women's CIAL which succeeded in organizing to get the men in the community to build a house for a homeless mother of ten children.

Federating the CIALs. In 1998 a decision was taken by the various organizations supporting the CIALs to form a federation across the country. IPCA has led this process, which has resulted in ASOCIAL (Asociación de CIALs). CIAT donated US$25,000 to be invested in perpetuity for the CIALs. The ASOCIAL models itself after the Colombian CORFOCIAL. While current funding does not permit the federation to underpin CIAL operations in Honduras, a start has been made. In Yorito and Lake Yojoa, where most of the IPCA-supported CIALs are located, regional chapters were set up at the start of 1999. CIAL Committee members attended the inaugural meetings and selected a regional executive committee. In Yorito this is a subcommittee of the locally organized watershed committee, thereby providing a strong community presence at that level.

Each local chapter will be responsible for selecting participants to present their findings at the annual national gathering of CIAL groups. When the number of CIALs in Honduras was smaller, each group reported the results of their research at this meeting. Given the current number of CIALs and the potential for future growth, presenters will be selected by ASOCIAL on the basis of diversity of research theme and findings. Given the popularity of this event, selectivity may help encourage communities to elect topics other than varietal selection of maize and beans. The diversity of presentations should also stimulate interest in new research areas and in the idea of sharing research results instead of necessarily replicating the same experiments in adjacent communities.

In the Yorito area, Hurricane Mitch donations from the Unitarian Service Committee of Canada were used as credit to fund productive projects elected by each CIAL. The monies loaned on credit will be returned to separate CIAL and ASOCIAL funds; profits will be kept by each CIAL. The goal is to build up capital at the community and regional levels. CIAL capital maintained in the petty cash fund is being used to finance the purchase of goods in bulk, which are then being resold locally in small quantities at a profit. Members may also use the CIAL Fund for savings and loans purposes. In this case, the amount of loan money available to members will depend upon their previous investment in the Fund. The rate of interest on savings will be set by the rate established on loans. When sufficient funds have been accumulated in the local CIAL, they may transfer a portion of their funds to the ASOCIAL federation fund. ASOCIAL savings will be used to finance productive projects undertaken by each CIAL as is currently being done with Mitch monies. As with the village stores in the communities of California and Paraíso, these CIAL and ASOCIAL funds are visualized as a means of building up local and regional capital to enable the members to undertake community development projects that the members themselves are helping to fund. This is being tried on an experimental basis to see whether it is generally viable within the CIALs. This may well prove to be a powerful cohesive ingredient permitting the CIALs to undertake longer term research while ensuring their sustainability as research institutions.

Agronomic and farmer participatory evaluation of live barriers *of Axonopus scoparius* and *Saccharum officinarum*

This undergraduate research project is being conducted in the area covered by the interinstitutional consortium CIPASLA in the township of Caldono, Cauca, Colombia.[14] Given the importance of soil degradation in hillside areas where smallholders strive to subsist, a number of organizations are introducing a participatory planning approach to the integrated management of hillside agriculture. One of the areas where considerable work is being done is the introduction of live barriers in the farmers' traditional crops such as cassava, common beans, coffee and blackberries. This thesis research is evaluating the performance of two forage species: imperial grass (*Axonopus scoparius*) and noble cane (*Saccharum officinarum*). They were selected because they are found on many farms in the region (*Fig. 14*) and are also established on CIAT's Inter-Program demonstration farm.

Specific objectives

- Detect farmers' perceptions and identify their criteria for evaluating live barriers
- Determine reasons why farmers decided to include (or not) live barriers in their farming system
- Evaluate quantitative production of barriers, taking into account nutrient content, digestibility and dry matter content

Reasons for establishing barriers. Survey results showed that farmers used live barriers to control erosion, feed animals, meet credit requirements, manage rainwater runoff, retain and increase effect of fertilizers applied to associated crops, and take advantage of organic matter generated when live barriers are cut and incorporated in the soil.

Negative aspects of barriers. Some farmers discontinued live barriers for the following reasons: aggressiveness of some species (compete with crops and difficult to manage, see *Fig. 15*), poor adaptation of some species, others not consumed by animals. It is also interesting to note that those farmers who had adopted live barriers in order to obtain credit, abandoned them afterwards.

[14] Progress report of BS thesis research by Elías Claros Trujillo, National University of Colombia-Palmira.

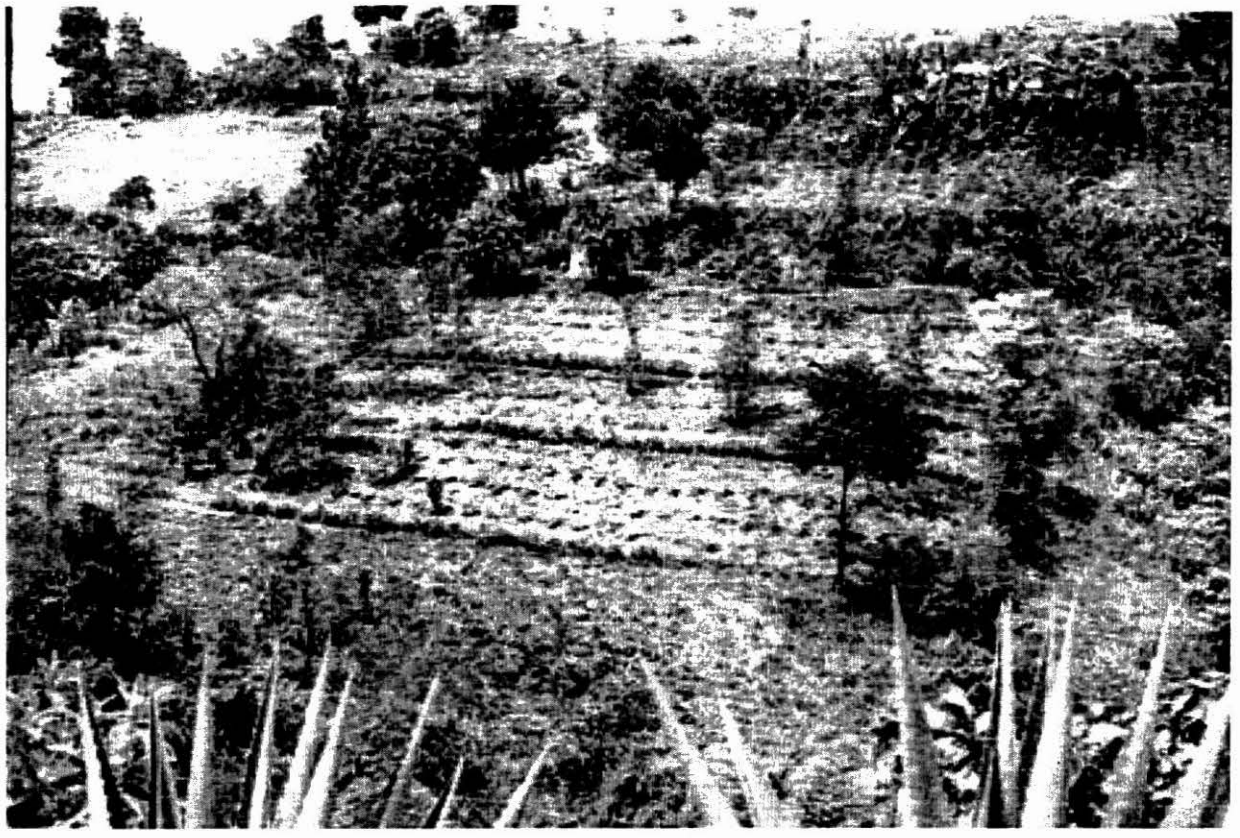

Figure 14. View of farm with live barriers in Cauca.

Figure 15. Difficulties in managing live barriers in farmers' fields.

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Output 6: Internal CIAT projects and other institutions supported and strengthened in conducting PR

Person Responsible: José Ignácio Roa
Researchers: Ann Braun, Jorge Luis Cabrera, Maria del Pilar Guerrero, Luis Alfredo Hernandez, Carlos Arturo Quirós, José Ignácio Roa, Olaf Westermann.

Milestones in 1999

* Case study of CIPASLA consortium developed as a support tool for the replication of similar community-based watershed management initiatives
* Concept note (as a joint venture of CGIAR Systemwide Programs (SP-IPM and Sp-PRGA) and the Global IPM Initiative) to develop a study tour mechanisms for exchanging knowledge and experience among participatory learning and research approaches and projects, developed
* FPR-IPM Web site maintained, updated, Spanish version added
* FPR-IPM listserver moderator/assistant coordinator, appointed
* Collaborative research program to integrate biophysical and social/institutional aspects of landscape-level NRM, developed and presented to Danish Council for Development Research
* PhD proposal for research on conflicts, institutions and collective research, developed and presented to Danish Council for Development Research
* 2 external consultancies carried out for a donor (WB) and a NARS (CIAT-Bolivia)
* Support projects for disaster zones in Central America and Colombia
* 4 workshop and conference presentations

There has been a greatly increased demand—both internal and external—for support from SN-3. Consequently, the Project developed an internal policy for charging for services including training. When providing a service, charges include all costs including the opportunity cost of the person's time. When it is a joint project, no opportunity costs are charged. Should it be part of a strategic research alliance, travel and per diem costs should be reimbursed.

CIPASLA Case Study

(see Output 4)

CGIAR Systemwide IPM Program task force

Farmer Participatory Research for Integrated Pest Management (FPR-IPM). SN-3 is responsible for coordinating the CGIAR Systemwide Program's task force on FPR. The sponsor of this task force is the Systemwide Program for Integrated Pest Management (SP-IPM), and the convening center is IITA-Nigeria. The task force is in the process of developing an FPR-IPM project as a joint venture of the SP-IPM, the Global IPM Facility (GIPMF) and the CGIAR Systemwide Program on Participatory Research and Gender Analysis (SP-PRGA). The project will develop strategies that will reduce the gap between IPM research and implementation, by enabling IPM projects around the world to involve farmers as decision-making partners in their activities (see concept note below).

A art-time consultant was hired for a six-month period to serve as listserver moderator and assistant coordinator of the task force.

The main products of the coordinatorship this year were as follows:

FPR-IPM Web site (http://www.ciat.cgiar.org/fpr-ipm). The FPR-IPM Web site has been online since February 1998. A Spanish version was added in February of this year. (See Output 4)

Concept note entitled "Enabling IPM programs to include farmers as partners in research and learning." An executive summary follows:

Proponents. This project is joint venture of:

1. CGIAR Systemwide Program on Integrated Pest Management (SP-IPM), convened by IITA
2. Global Integrated Pest Management Facility (GIPMF), based at FAO in Rome
3. CGIAR Systemwide Program on Participatory Research and Gender Analysis (SP-PRGA), convened by CIAT
4. CIAT's Participatory Research Project as host for SP-IPM Task Force on Farmer Participatory Research

Duration: 6 months

Goal: To contribute to sustainable agricultural development by increasing the number and quality of IPM programs/projects undertaking PR with farmers and improving farmer agroecosystem management skills.

Purpose: To enable IPM programs and projects to incorporate participatory learning and research strategies in their approach and design and to strengthen linkages with IPM implementation by farmers.

Outputs:

1. Effective model for facilitating learning exchanges among IPM projects
2. Collaborating systems/institutions given an in-depth, firsthand view of IPM projects where participatory learning and research are central strategies

3. IPM professionals from collaborating systems/institutions enabled to apply a variety of participatory methods, tools and approaches in order to involve farmers as decision-making partners in their activities
4. Analysis and synthesis published of the main concepts, principles and best practices currently applied in IPM experiences based on participatory learning and research worldwide
5. Horizontal and vertical linkages established among participating projects

Project strategy:

Many IPM professionals are convinced that increasing the impact of IPM depends on greatly enhancing the participation of farmers as partners in research and learning. Despite this favorable attitude towards participatory processes, they may not know how to initiate and sustain them. This project will address this need by providing frontline IPM professionals with opportunities to visit and learn firsthand from projects where participatory learning and research have contributed to improved agroecosystem management by farmers and more client-oriented responses by R&D systems. This is envisioned as taking place in two stages. The initial pilot phase is the subject of this proposal. The replication phase would have the following additional outputs:

1. Concepts and principles of participatory learning and research translated into practice so that IPM professionals can:
2. Evaluate the costs and benefits of participatory approaches for themselves
3. Identify ways of making their work agendas more responsive to farmer priorities
4. identify ways to strengthen links between farmer and conventional research
5. A dynamic online database and resource materials established containing documents, video data, publications and narrated participatory IPM experiences
6. A resource guide for IPM research and training programs focused on developing and maintaining linkages between farmer learning groups and researchers
7. An increased number of participatory IPM projects
8. A platform established for convincing colleagues, donors, decision-makers, extension agents and farmers that a participatory IPM approach can result in implementing IPM more quickly and effectively than nonparticipatory approaches.

<u>Outputs of FPR-IPM listserver moderator/assistant coordinator</u>

- Brochure on FPR-IPM project, developed
- Different interest groups within listserver and task force for support on developing proposal and for assistance in identifying potential project partners, lobbied

- national NGOs and GOs
- international organizations including NGOs and Global IPM Facility
- key IPM contacts in Asia, Africa and Latin America

- Internet-based AltaVista Systrans interlanguage translation program among listserver members, publicized
- brochure text translated into Spanish
- listserver discussion issues/topics prepared with respect to
  - definitions, concepts
  - project objectives
  - criteria study tour participants and stops
  - pre- and post-tour components
- Preparations made for SP-IPM meeting in Rome
- FPR-IPM Web site updated

Collaborative research

Integration of both biophysical and social/institutional aspects of landscape-level NRM as a new approach to the sustainable increase of poor farmers' agricultural production in Nicaragua. The central research problems are the landscape-level interdependencies of the various elements and the recognition of landscape users' diverse interests in different natural resources and potential common benefits from managing them collectively at the landscape level. The program is based upon a comparative approach between sites in Nicaragua and Tanzania, drawing upon the partners' extensive research experiences in Central America (Honduras and Nicaragua, SN-3, PE-3 and PE-5) and Tanzania (Institute of Resource Assessment (Tanzania), Center for Development Research (Denmark), Institute of Geography at Roskilde University Center (Denmark) and University of Copenhagen.

Basically the program will be divided into three research themes:

- Conflicts, institutions and collective action
- Delimiting and understanding the landscape
- Technologies for landscape-level NRM

A doctoral student from Denmark will contribute directly to the program on issues related to the first research theme "conflict, collective action and institutions." Given that the focus is on collaborative interaction among the different actors, it is expected that there will be a two-way flow of information to the benefit of all concerned. The general objective of the doctoral dissertation and related research will be to contribute to the understanding of long-term NRM to the benefit of rural communities. The specific objectives include:

- Analysis in retrospect of collective NRM, focusing on landscape perspectives and NRM institutions
- Comparative analysis of landscape perspectives and NRM institutions in four watersheds of the municipality of San Dionisio, Nicaragua with emphasis on stakeholder-group differences

- Contribution to long-term NRM in specific watersheds within San Dionisio, through applied action research

Research questions include:

- Under what conditions collective will action emerge
- How to raise consciousness about landscape and collective NRM
- How to institutionalize and organize people around collective NRM
- Strategies to negotiate collective NRM—those that have succeeded or failed and why

The strategy is to identify four NRM cases or problems that require collective action to be solved; e.g., water, soils, biodiversity, pests. The four cases should differ with regard to the level of action that has been taking place to solve NRM problems. Ideally, collective activities to solve NRM problems should have been initiated in two of the cases for purposes of comparison. The first step will be to make a comparative analysis of the 4 watersheds based on the existence of collective NRM in 2 communities and the defined need for NRM in 2 communities where no action has taken place. The second step will be to initiate an action research process in order to investigate how and if these local principles of collective NRM can be transferred from one microwatershed to another.

The research program including the outline of the doctoral proposal has been sent for approval to the Danish Council for Development Research (RUF) and may thus be subject to changes.

Stake and stakeholders. At the beginning of the year a project proposal ("Stake and stakeholders: An analysis of the benefits and beneficiaries of building capacity for collective NRM in hillsides watersheds"), prepared in collaboration with CIAT Project BP-1 (Impact Assessment), was sent to the Ford Foundation. The proposal was not approved, but a new application can be submitted in 2000, depending upon the response to the collaborative research program received from the RUF.

Support provided to CIAT internal projects

Statistical analysis in participatory projects at CIAT; e.g., Rural Agroenterprises and Cassava Pathology, in the selection of varieties resistant to root rot in Mitú (E. Plains of Colombia)

External consultancies

World Bank consultation on a combined approach for IPM and ISFM. In June 25 participants including representatives from national and international organizations, research organizations, donors and NGOs participated in an expert consultation of the methodology development related to a combined IPM/ISFM approach incorporating

participatory approaches to working with farmers. CIAT project leaders [SN-3 and PE-2 (Soils)] were invited to participate in the creation of a common vision of the problem and provide input[15] into the concept note developed by David Gibbon,[16] extracts of which are presented here.

Five key components are crucial for the success of this type of initiative (see *Fig. 2*):

Natural resources orientation. An agroecological systems approach to understanding farm and village level contexts and a broader systems conceptual framework

Farmer participatory focus. Mutual learning, opportunities, exercises and action, essential ingredient of research, extension and development programs on NRM. It is accepted that farmers should be active participants in multidisciplinary teams at all stages of planning, monitoring, reviewing and replanning of activities and that farmer knowledge is an important input into the process of learning.

Multi-stakeholder participation. Involvement of concerned stakeholders and institutions in the analysis of problems and in the development of options and alternative solutions. This may involve all key actors from farmers and farmers organizations, NGOs, NARS, regional and international development organizations. There are now well-developed methods of resolving conflict and interests through forms of stakeholder analysis.

Multidisciplinary and multi-perspective scientific approach. Combination of reductionist scientific methods with adaptive action research, hard and soft systems approaches within an iterative co-learning process.

Integrated institutional and policy perspective. An international and national policy framework that is supportive of the approach and that seeks to reduce or reverse the impact of older policies that are particularly antagonistic to poorer farmers. It is important that the IPM/ISFM approach be placed in an appropriate institutional "home," both to enable effective facilitation of the approach and to ensure effective dissemination of the principles and lessons from experience.

It was recommended that the World Bank seek opportunities to encourage the incorporation of these principles in existing pilot projects. A joint WB/Global IPM/ISFM Web site will be set up to facilitate dissemination of information and papers presented at the meeting.

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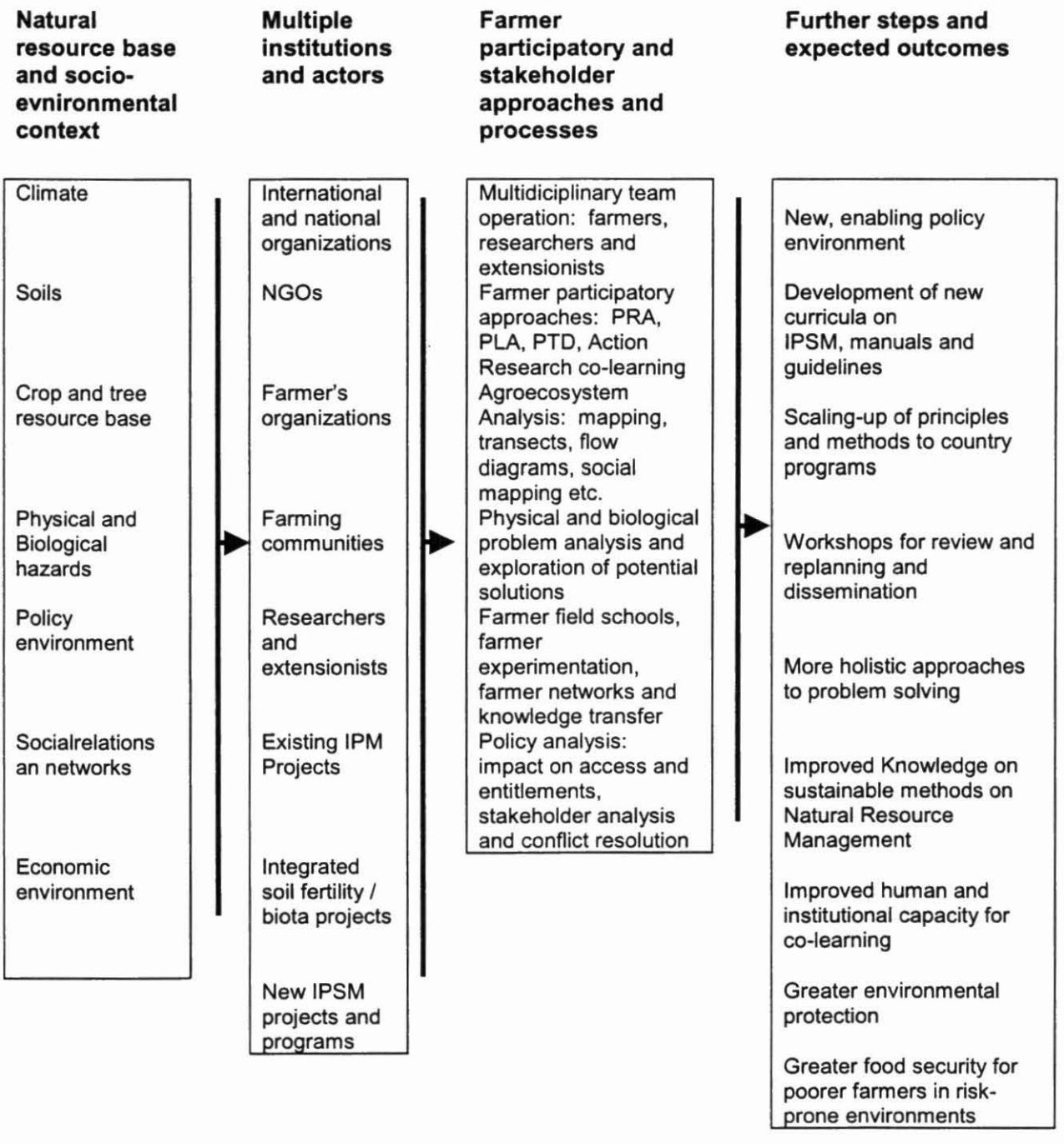
[15] Braun, A. R, (1999) Contribution to an Expert Consultation on combining IPM and Soil Management. Presented to the Expert Consultation 14-15 June 1999. World Bank, Washington.
Thomas, R.J. & M.J. Swift. (1999) Towards sustainable land management - a rationale for linking soil fertility with pest and disease management. Joint proposal: CIAT and TSBF. Presented to the Expert Consultation 14-15 June 1999. World Bank, Washington.

[16] Dept. of Rural Development Studies, Swedish U. of Agricultural Sciences, Uppsala, Sweden. Concept paper on Integrated Pest and Soil Management, commissioned by the Rural Development Department of the World Bank. Final Draft, Aug. 1999. Includes extensive bibliography.

Figure 2. Conceptual framework for integrated pest and soil management



Centro de Investigación Agrícola Tropical (CIAT)-Santa Cruz, Bolivia.

From 15-17 September a visit was made as part of a first phase of a consultancy contracted by FORCIAT (Institutional Strengthening Project, U. of Wolverhampton) to carry out an initial diagnosis of CIAT-Bolivia's actual PR capacity and potential demand, interinstitutional linkages, status of the existing CIAL, and strategies for enhancing the participatory generation and transfer of technology. This information will be used as input into a proposal for training. There is also the potential for developing a PR model at the level of the townships given that the government has established funds for agricultural development but has not yet devised an efficient way to implement this scheme. There is great interest in the CIAL model, in small agroenterprises linked to production and commercialization, methodologies for M&E, impact studies and systematizing qualitative results. The report will be presented in mid-October for discussion by both parties, followed by the design of a joint project that CIAT-Bolivia would use to search for funds.

Other services

Support for the project "Seeds of Hope" for Honduras and Nicaragua[17] Hurricane Mitch is considered the worst natural disaster in Central America in this century. Damage to infrastructure came to about 70%, equivalent to a 50-year delay in their development. Bean harvest losses ranged from 60-80%; maize, 40%maize. With respect to seed production, it is considered that most of the genetic materials were lost, especially in Honduras and Nicaragua. Low-resource farmers use seed from their own harvests. This means that they will not have common beans or maize—basic staples in their diet—either to eat or to plant in the first growing season. Another problem is the loss of their native varieties, many of which are only in their hands.

CIAT, CIMMYT, CIP and IPGRI presented a proposal to several donors to contribute to the restoration of agricultural production in an area apt for seed production. Each Center acquired responsibilities in their respective mandates. CIAT's commitment was with respect to the bean crop. The special Task Force requested the collaboration of SN-3, given its experience in the region, its institutional contacts and the CIAL structure at the community level.

Objectives:

- Obtain basic seed to multiply seeds in Honduras, Nicaragua and neighboring countries
- Produce commercial-quality seed to meet farmers' needs for the 1999 planting seasons, beginning in ?

[17] See also "Semillas de esperanza para América Central; un acto de solidaridad después del huracán Mitch. In *Cultivando Afinidades* (CIAT), mayo 1999, p. 5.

- Distribute the seed through national institutions, NGOs and farmers groups, giving preference to the poorest farmers and zones where crops have suffered most damage

Institutional contacts. At least 12 institutions were contacted to mount a strategy for carrying out the plan.

Results obtained. Seed was obtained from CENTA (El Salvador), Zamorano (Honduras) and DICTA (Honduras). Farmers preferred varieties DOR 364 and Tío Canela, materials being evaluated by some CIALs in the region with very good results. Sufficient seed was acquired to plant about 130 ha for commercial-quality seed.

- Outstanding collaboration from the Technology Generation Office of DICTA, and technical assistance was backstopped by SENASA's technicians in Seed Certification.
- HONDUGENET S.A. processed the seed for distribution to the farmers.

Support of CENICAFE-Caldas in zone affected by earthquake.

SN-3 was invited to make a series of presentations on PR and the CIAL methodology to the directors of research of the 13 committees that make up the Coffee Growers Federation, the directors of research at CENICAFE and UMATA technicians. The purpose was to respond to a movement of solidarity in the coffee-growing regions of Armenia, heavily affected by an earthquake in February. Three CIALs were formed in the zone and are doing research on common beans and maize .

Preference ranking analytical tool.

Diffusion of the statistical application for the preference ranking analytical tool (vers. 1.0 beta, in Spanish) to other entities for application to other research areas (see Output 1).

Workshop and conference presentations

- Paper on roles of FFS and CIALs in IPM presented to the VII LAC Workshop on Whiteflies and Geminivirus, held in Managua, Nicaragua, 26-30 Oct. 1998.
- Statistical analysis, presented at Workshop on PPB in Latin America and the Caribbean. CGIAR Systemwide Program on PR and Gender Analysis of the Role of Men and Women in the Development of Technologies and in Institutional Innovation, Quito, 31 August-3 September.
- PRGA/NRI Workshop on NRM: The CGIAR Program for Participatory Research and Gender Analysis for Technology Development and Institutional Innovation (PRGA Program) CIAT organized the 1st International Workshop on Participatory Research in Natural Resource Management. The meeting, which was organized in cooperation with the Natural Resources Institute (NRI-UK), was held at the University of Essex from 1-3 September. The Program focuses on the direct involvement of stakeholders in the process of doing research, developing technology and institutional innovations to improve NRM. A group of scientists conducting innovative participatory NRM research, including the SN-3 Project Manager, exchanged experiences and identified future directions for collaboration in this area.

The themes addressed three broad areas:

- management of common property and protected areas
- landscape and watershed scales
- soil and water nutrient management, land care and rehabilitation

- Braun, A. Farmer participatory research in Latin America. keynote presentation at Forages for Smallholders Project Workshop on "Working with farmers: the key to adoption of forage technologies, Cagayan de Oro, the Philippines, 12-15 October. A brief overview is given of the educational and sociological roots of farmer participatory research (FPR) in Latin America. The terminology, principles, strategies, R&D areas, researchers' & farmers' roles, types of activities and end results are discussed briefly. Based on a literature review and an email survey, the following approaches to FPR were identified: Farmer-to-farmer experimentation and technology transfer (e.g., PcaC-UNAG-Nicaragua, World Neighbors, PRIAG); farmer research committees (CIALs) developed by CIAT, farmer field schools (FFS) promoted by FAO, participatory innovation and technology development (DIP-Mexico, Ideas-Bolivia and Peru), farmer inventors of IPM technologies (Panamerican Agricultural School at Zamorano-Honduras. Based on the institutional experiences, an overview is presented of lessons learned with respect to project strategies, approaches and methodologies, farmers' capacity and motivation, researcher-farmer relationships, appropriateness of technology, gender issues and overall results. This is followed by a discussion of issues related to FPR: development agenda vis-à-vis community empowerment and self-reliance, capacity to ensure broad stakeholder participation, traditional scientific research methodologies vs FPR, the quality and nature of participation, cost-benefits, impact assessment, scaling up and out. References were compiled from the materials consulted.

CORFOCIAL Agroenterprises proposal

SN-3 and SN-1 assisted CORFOCIAL, Cauca, Colombia in the formulation of a proposal to the CHORLAVI Fund with the following objectives

- Document, systematize and analyze the microenterprises establised by 12 of the CIALs in Cauca, Colombia in order to identify lessons learned, key success factors, and to identify key principles that will assist in the creation of future microenterprises associated with the CIAL process..

- Construct a vision for each of the 12 microenterprises based in strategic planning as a first step in their future development.

Visitors attended

Appendix Table 2 provides information on the visitors attended by the SN-3 team during the year.

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Output 7: Strengthening team capacity

Milestones in 1999

* Administrative responsibilities and decision-making shared, with monthly rotation of co-coordinators
* Information system, updated and expanded
* 5 cross-Program seminars organized by team to interchange experiences and receive training in new approaches, methodologies and analytical tools
* Internal cross-training fostered via 5 sessions of "Dare to Learn" hypermedia education developed for the team by a team member

A great deal of time and effort have been invested this year in strengthening the SN-3 team and enabling members to understand and participate in the different R&D activities being implemented. There have been several main thrusts:

- updating the internal information system and databases,
- organizing internal networking
- training in team building and shared responsibilities (co-coordinators are rotated on a monthly basis);
- cross-training through internal seminars and hypermedia education to develop skills within SN-3 and among CIAT projects.

Information systems

Inventory completed

Documentation of formal and grey literature that should be consolidated and shared

Databases

CIAL database designed in Microsoft Access. Contains information on CIALs in the following countries: Brazil, Bolivia, Colombia, El Salvador, Ecuador, Honduras, Nicaragua, Venezuela. The information includes geographic data, gender, research topics (e.g., treatments, varieties, type of crop, supporting organization, evaluation of trials for each treatment), The database permits consultations(queries), randomization of treatments for experimental designs and faciltates data input and with both internal and external information.

Internal networking, centralization and management of information

- Analyses
- Reports
- Maps generated in ArcView, GIS
- Presentations

Availability of information enhanced via

- Central data file
- Local Area Network
- Team listserver
- Regular team meetings

Organization of the SN-3 team

Responsabilities of the Coordinating Committee ("Co-Coordinators")

- Mechanisms for setting group norms
- Management of shared resources
- Solving of conflicts and problems as they arise
- Attending visitors
- Organizing meetings
- Logistical support
- Organization and facilitation monthly team meetings
- Scheduling of events
  - individual
  - assignation of responsibilities

Content of monthly team meetings

- shared decision-making
- assignation of responsibilities
- updating others on work in progress
- providing feedback via email

Team-building activities

Workshops

- Team retreat
- Team-building workshops
- Hypermedia training "Dare to learn" – 5 sessions

Seminars organized by team

- Training on topics of interest for team growth and strengthening (via consultancies)
- Interchange of experiences
- presentations by specialists:
  - cerebral dominance and its impact on behavior;creativity and identification of skills
  - participatory mapping using MAPMAKER
  - marketing opportunities
  - methods for participatory diagnosis

Staff

Ann R. Braun	Senior Scientist/Project Manage (100%)
Elias Claros	Thesis student, Animal Science, U. Nacional-Palmira
Freddy Escobar	Technician (80%), jointly with SP-PRGA)
Luis Alfredo Hernandez	Associate (75%, jointly with IP-3)
Ligia García	Secretary (100%)
María del Pilar Guerrero	Assistant (50%)
Carlos Arturo Quirós	Associate (100%)
José Ignácio Roa	Professional (100%)
Olaf Westermann	Research Fellow (50%), jointly with PE-3

Donors SN-3 (1998-1999)

- DANIDA, Copenhagen, Denmark
- Department For International Development, London, UK
- Interamerican Development Bank, Washington DC
- International Development Research Centre (IDRC), Ottawa, Canada
- W.K. Kellogg Foundation, Michigan

Publications

See Output 3

APPENDIX TABLE 1: INSTITUTIONS AND PROFESSIONALS[18] WORKING WITH CIALs

September 1999

Contact	Country	Institution	Address	Tel.	Fax	E-mail
Juán Almanza Edson Gandarillas	Bolivia	Fundación PROINPA	Av. Blanco Galindo Km 12.5 Cochabamba	360800 360801	360802	proinpa@proinpa.org jalmanza@proinpa.org
Graham Thiele Rudy Torrez T.	Bolivia Bolivia	Fundación PROINPA	Man Cesped #293. Casilla postal 4285 Av.Blanco Galindo Km.12.5, Calle Prado, Cochabamba	49013-49506 360800-360801	(591)(42) 45708 360802	Gthiele@proinpa.org Rtorrez@proinpa.org
Osvaldo Soruco	Bolivia	CIAT, Centro de Investigación Agricola y Transferencia	Ejercito Nacional 131, Casilla 359 Santa Cruz	321523-346556	591-3-350315	
Alfonso Truque Diaz	Colombia	CORFOCIAL	Timbio Cauca	238106		corfocia@emtel.net.co
José Antonio Corredor	Colombia	CORPOICA Reg.1	CI Tibaitatá Km 14 via Mosquera Bogotá	(091) 3443000 Ext. 1234	(091) 3443000	jacorredor@ corpoica.org.co
Beatriz Franco	Colombia	CORPOICA Reg. 1	CI Tibaitatá Km 14 via Mosquera Bogotá	3443000 Ext. 1440		
Fabio Sierra	Colombia	CORPOICA Reg. 1	Calle 4a No. 3-11 Cáqueza	091 8480465	091 8480865	
Gustavo Basto	Colombia	CORPOICA Reg. 1	Cra. 7a No. 6-60 Fusagasugá	091-8674077	091-8674077	

[18] This is a partial list.

Contact	Country	Institution	Address	Tel.	Fax	E-mail
Luis Humberto Fierro	Colombia	CORPOICA Reg 1	CI Tibaitatá Km 14 via Mosquera Bogotá	3443000 Ext. 1437	3443000	
Manuel Arévalo A.	Colombia	CORPOICA Reg. 1	CI Tibaitatá Km 14 via Mosquera Bogotá	3443129 Ext. 1231	3443000 Ext. 1464	marevalo@ corpoica.org.co
Manuel Romero	Colombia	CORPOICA Reg. 3	calle 15 salida a Santa Marta Riohacha	273698 (casa)	270875	
Roberto Alvarez	Colombia	CORPOICA Reg. 1	CI Tibaitatá Km 14 via Mosquera Bogotá	3443123 3443000 Ext.1206	2828947 3443000	lalvarez@corpoica. org.co
Verónica Proaño	Ecuador	DIPEIB-IIRR	Av. América 4451 y pasaje Muirriagui Donoso, Apartado Postal 17-08-8494 Quito	(593-2) 443763/ 458263	(593-2) 443763	
Nelly Endara, Isabel Murillo	Ecuador	FUNAN-IIRR	Av. América 4451 & Muirriagui Donoso, Apartado Postal 17-08-8494 Quito	(593-2) 443763/ 458263	(593-2) 443763	
Héctor Andrade	Ecuador	INIAP-FORTIPAPA	Estación Experimental Santa Catalina Panamericana Sur Km. 14 Quito	(593-2) 690 990 690 695/364	(593-2) 692 604	andrade@fpapa.org. ec
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APPENDIX TABLE 2. VISITORS ATTENDED BY SN-3 DURING 1999

Date	Name	Position	Country	Staff member
September	Gilles Chiche	IDRC Project Officer	Canada	A. Braun
September	Jean-Marc Fleury	IDRC – Principal writer	Canadá	A. Braun
August	Timothy Dalton	Agricultural Economics - Purdue University	USA	C.A. Quirós
August	Wicki Wilde	Program Leader CGIAR Gender and Diversity Program	USA	A. Braun
July	Elver H. Garcia José Fernando Libreros	Director Comite Cafeteros del Valle	Colombia	J.I.Roa
July	Ian Willett	Research Program Manager, ACIAR	Australia	O. Westermann
July	Simon Anderson	Wye College	England	C.A. Quirós
June	Jorge Luis Ibarra	UMATA – Unidad Municipal de Asistencia Técnica Agropecuaria	Colombia	C.A. Quirós
June	Cesar Augusto Garcia	NOVARTIS	Colombia	J.I.Roa
June	Oscar Hurtado	ASPROMEC	Colombia	J.I. Roa
May	Beatriz Morales	La 14 Foundation	Colombia	J.I.Roa
May	Mark Lundy	Community and Regional Planning - Univ. of Texas	USA	A. Braun
May	Oscar W. Freudenthal	Agribusiness Specialist	Bolivia	A. Braun
May	Linden Vincent	Professor of Irrigation and Water Engineering – Wageningen University	Netherlands	A. Braun
May	Nina K. Lilja	Ag. Economics – Purdue U.	USA	A. Braun
May	Harold Guerrero			C.A. Quirós
May	Nina K. Lilja	Ag. Economics - Purdue U.	USA	O. Westermann
May	Timothy Dalton	Agricultural Economics - Purdue U.	USA	A. Braun

Date	Name	Position	Country	Staff member
May	Paola Amadei	InternationalCooperation – European Union	Colombia	A. Braun
May	Lisandro Camacho Gerardo Martínez Carlos Novoa Kinsaku Yabe	IDB – Bogotá IDB – Washington IDB– Bogotá Vicepresidente - Asociación Colombo Japonesa	Colombia	A. Braun
May	Yoshiyuki Kubo Lisandro Camacho	Asociación Colombo Japonesa	Colombia	J.I.Roa
May	Orlando Lara P.	MA in Development Studies, Wageningen	Netherlands	A. Braun
May	Jan Beniest	Principal Training Officer, Capacity & Institutional Strengthening Programme - ICRAF	Kenya	A. Braun
May	Elias Fereres Nicholas Mateo Derek Byerlee	TAC Ecoregional Review Mission	USA	O. Westermann
April	Jeff Brewer	Anthropologist - University of California	USA	A. Braun
April	María Elena Cuellar		Colombia	C.A. Quirós
March	Rodrigo Guerrero	Director - FIP - Fondo de Inversiones para la Paz	Colombia	A. Braun
March	Bernardo Velosa	Department of Planning	Colombia	C.A. Quirós
March	Group of students (30)	Universidad Autónoma de Occidente	Colombia	J. L. Cabrera
March	Carlos Costa	Vah Humboldt Institute	Colombia	A. Braun
March	Nelson Infante Néstor Romero	ASIAVA – Asociación de Ingenieros Agrónomos del Valle	Colombia	C.A. Quirós
February	Angela Forero	Universidad del Valle	Colombia	C.A. Quirós

Date	Name	Position	Country	Staff member
February	Roberto Tisnes Alvaro Arias Y. Eduardo Jaramillo Sergio Valencia	ASOGRANDE	Colombia	J.I. Roa
January	Antonio Dorado	Video producer	Colombia	A. Braun
January	Simon Carter	IDRC	Canadá	A. Braun
	Tracie Hoeffel	Principal - International Business Development	USA	O. Westermann
	Niels Holst	Danish Institute of Agricultural Science	Denmark	O. Westermann
	Gladys Buenavista	Rural Sociologist/Site Coordinator - SANREM CRSP/Philippines	Philippines	O. Westermann

The CIALs in 1999

Bolivia

CIAL	Location	Research Topic	Institution	Initiation
Th'olapampa	Mizque	Evaluation of oat vars.	CEDEAGRO	9/97
Tukma Baja	Mizque	Control of potato pests	CEDEAGRO	2/94
Poligino	Callejas altas	Control of onion pinkroot	CEDEAGRO	3/97
Tin Tin	Tin Tin	Control of garlic pinkroot	CEDEAGRO	1/98
Buena Vista	Mizque	Evaluation of maize	CEDEAGRO	7/97
Incañasi	Mizque	Control of onion diseases	CEDEAGRO	1/98
Mizquepampa	Mizque	Multiplication of potato seed	CEDEAGRO	2/98
Cebada Jichana	Cebada Jichana	IPM of Andean potato weevil	PROINPA	10/97
Piusilla Morachata	Piusilla	Evaluation of potato vars.	PROINPA	9/97
Pomani	Aroma	IPM of Andean potato weevil	PROINPA	3/97
Kollana	Tarakollo	IPM of Andean potato weevil	PROINPA	8/96
Leuquepampa	Chuquisaca	Resistance to potato late blight	PROINPA	10/97
Monte Grande	Monte Granof	Resistance to potato late blight	CARE	7/97
Pozuelos	Pozuelos	Resistance to bean angular leaf spot	PROINPA	9/96
El Tapial	Belisario	Varietal resistance to late blight	PROINPA	10/97
Parte Libre	ayopaya	Evaluation of potato vars.	PROINPA	7/97
Wallata	Ayopaya	Varietal resistance to late blight	PROINPA	7/97
Boqueron Alto	Tiraque	Varietal resistance to frost	PROINPA	9/96

Brazil

CIAL	Location	Research Topic	Institution	Initiation
Buril	Alagoinhas	Resistance to cassava green mite	EBDA	3/94
Chapada	Alagoinhas	Resistance to cassava root rot	EBDA	3/94
Cadeté	Aporá	Cassava fertilization systems	EBDA	3/94
Roberto Santos	Inhambupe	Resistance to cassava green mite	EBDA	3/93
Barra	São Miguel das Matas	Resistance to cassava whiteflies	EBDA	7/95
Sumaré	Piritiba	Production of cassava planting material	EBDA	4/95
Caldeirao	Piritibá	Production of cassava planting material	EBDA	6/94
Umbuzeiro	Feira de Santana	Effect of green manure on cassava production	EBDA	6/94
Nova Veneza	Ubajará	Resistance to witches' broom	EMATER	10/94
Valparaiso	Tianguá	Effect of green manure, compost on cassava production	EMATER	3/95
Vila Moura	Acarau	Effect of green manure, compost on cassava production	EMATER	2/95
Lagoa Grande	Acarau	Evaluation of cassava vars.	EMATER	2/95
Gameleira	Alagoa Nova	Resistance to cassava root rot	EMATER	7/95
Souza	Salgado de S. Felix	Resistance to cassava root rot	EMATER	10/94
Quiteria	Alagoa Grande	Resistance to cassava root rot	EMATER	10/94
Tatu	São Bento do Una	Cassava fertilization	EMATER	10/94
Boa Vista	Araripina	Effect of green manure on cassava production	EMATER	2/96
Campina Nova	Vitoria de Santo Antao	Resistance to cassava root rot	EMATER	11/94
Gameleira	Gloria de Goitá	Resistance to cassava root rot	EMATER	10/94

Colombia

CIAL	Location	Research Topic	Institution	Initiation
Betania	Betania	Evaluation of vars.	CORFOCIAL	6/91
Cabuyal	Cabuyal	Green manures	CORFOCIAL	9/91
El Diviso	El Diviso	Evaluation of plantain vars.	CORFOCIAL	9/91
La Esperanza	La Esperanza	Evaluation of pea vars.	CORFOCIAL	9/93
San Bosco	San Bosco	Evaluation of maize vars.	CORFOCIAL	2/91
Santa Bárbara	Santa Barbara	Evaluation of maize vars.	CORFOCIAL	2/91
Asopanela	Asopanela	Evaluation of sugarcane vars.	CORFOCIAL	4/92
Cinco Días	Cinco Días	Evaluation of blackberry vars.	CORFOCIAL	3/92
Santa María	Santa María	Propagation of Passiflora	CORFOCIAL	9/92
Buenavista	Buenavista	Organic fertilizers for beans	CORFOCIAL	6/93
Pescador	Pescador	Evaluation of bean vars.	CORFOCIAL	10/98
Pan de Azúcar	Pan de Azúcar	Evaluation of cassava vars.	CORFOCIAL	8/93
La Paz	La Paz	Evaluation of papaya vars.	CORFOCIAL	6/93
La Paz	Cajibio	Evaluation of maize vars.	CORFOCIAL	4/92
Campo Alegre	Campo Alegre	Evaluation of maize vars.	CORFOCIAL	2/92
Crucero del Rosario	Crucero del Rosario	Evaluation of plantain vars.	CORFOCIAL	8/94
Nuevo Amanecer	El Porvenir	Comercialization of beans	CORFOCIAL	10/93
El Moral	El Moral	Evaluation of sugarcane vars.	CORPOTUNIA	9/93
Frontino	Frontino	Evaluation of bean vars.	CORFOCIAL	3/93
Quebrada Azul	Quebrada Azul	Evaluation of snap bean vars.	CORFOCIAL	1/90
El Turco	El Turco	Evaluation of plantain vars.	ORFOCIAL	9/94
Los Quingo	Los Quingos	Evaluation of maize vars.	CORFOCIAL	1/90
San Isidro	San Isidro	Evaluation of maize vars.	CORPOTUNIA	1/91
El Jardín	El Jardín Cerro Alto	Evaluation of bean vars.	CORFOCIAL	9/93
Andalucía	Andalucía	Evaluation of bean vars.	CORFOCIAL	7/95
La Palma	Pueblo Nuevo	Diseases of naranjillo	CORFOCIAL	5/95
San Antonio	San Antonio	Evaluation of maize vars.	CORFOCIAL	8/95
La Floresta	Silvia	Evaluation of bean vars.	CORFOCIAL	
Altamira	Totoró	Fertilization for peas	CORFOCIAL	12/95
Carpintero	Carpintero	Evaluation of bean vars.	CORFOCIAL	10/95
Portachuelo Alto	Portachuelo Alto	Evaluation of guinea pig diets	CORFOCIAL	8/95
Chambimbe	Chambimbe	Intercropping Cassava/beans/maize	CORFOCIAL	9/96
El Centro	El Centro	Evaluation of potato vars.	CORFOCIAL	1/96
Betania	Totoró	Evaluation of wheat vars.	CORFOCIAL	10/96
Bellavista	Bellavista	Evaluation of bean vars.	CORFOCIAL	3/97
Santa Isabel	Santa Isabel	Staking of peas	CORFOCIAL	10/97
La Aurora	El Tengo	Evaluation of maize vars.	CORFOCIAL	2/97
La María	La María	Evaluation of maize vars.	CORFOCIAL	8/96

Colombia

CIAL	Location	Research Topic	Institution	Initiation
Pioyá	Pioyá	Evaluation of onion vars.	CORFOCIAL	4/96
San Isidro	San Isidro	Evaluation of cassava vars.	CORFOCIAL	9/96
San Isidro	San Isidro	Evaluation of soybean vars.	CORFOCIAL	10/96
El Carmen	Piendamó	Evaluation of bean vars.	CORFOCIAL	9/94
El Placer	El Placer	Evaluation of maize vars.	FUNCOP	
Michinchal	Cajibio	Evaluation of bean vars.	CORFOCIAL	
La Cabana	La Cabana	Evaluation of soybean vars.	CORFOCIAL	8/98
Jurpa	Ventaquemada	IPM of potato tuber moth	CRECED	5/96
San Pedro	Macanal	IPM of potato tuber moth	CRECED	6/96
El hato	Tibasosa	IPM of potato	CRECED	9/98
Boquerón	Umbita	IPM of potato tuber moth	CRECED	5/96
S. Pedro de Muceño	Macanal	IPM in naranjillo	CRECED	7/96
El Olivo	Sta.Rosa	IPM of potato late blight	CRECED	6/96
Motavita	Motavita	IPM of potato tuber moth	CRECED	5/96
Siativa	Tinjacá	Fertilization of naranjillo	CRECED/UMATA	7/96
Portachuelo	Sta. Rosa de Viterbo	Evaluation of forage vars.	CORPOICA	6/96
Mata de Mora	Saboya	IPM of potatoes	CORPOICA	6/97
Turmeque Abajo	Turmeque	Sunflowers	CORPOICA	10/98
Maria Auxiliadora	Mongui	Easter lily	CORPOICA	10/98
San Luis	Belén	IPM of potatoes	CRECED	6/97
Nemogá	Fúquene	Evaluation of pea vars. & staking	CRECED	5/96
Cumba	Chipaque	IPM of potato bacterial wilt	CRECED	7/95
Salitre	Une	IPM of potato late blight	CRECED	5/96
Potrero Grande	Choachí	Control of onion diseases	CRECED/UMATA	6/96
Rodeo	La Peñas	Evaluation of sugarcane vars.	CRECED	1/97
Bojacá	Chía	Evaluation of guinea pig diets	CRECED/UMATA	5/96
Apulo	Apulo	Evaluation of poultry diets	CRECED	7/97
El Cucubo	Duitama	Evaluation of alfalfa vars.	CRECED	5/96
Pacho	Pacho	Evaluations poultry diets	CRECED	6/97
Santa Bárbara	Arbeláez	Evaluation of snap bean vars.	CRECED	5/97
Volsalice	Fusagasugá	Rational use of water resources	CRECED	9/97
Mesitas	Fusagasugá	Forages	CRECED	5/97
Bocas de Monte	Pasca	IPM of potato tuber moth	CRECED	5/97
Usatama	Fusagasuga	Drinkable water	CORPOICA	3/97
Pilacabajo	Sasaima	Control of leaf-cutter ants in cassava	CORPOICA	
Rincon Santo	Zipacon	IPM in potatoes	CORPOICA	6/98
Pantanos	Apulo	Chicken diets	CORPOICA	7/97

Colombia

CIAL	Location	Research Topic	Institution	Initiation
Viena	Fusagasuga	Evaluation of papaya vars.	CORPOICA	5/98
San Luis	Quipile	Evaluation of blacberries	CORPOICA	3/99
Paeces Abajo	Jesamo	Chicken diets	CORPOICA	9/98
Turtur	Utica	Evaluation of sugarcane vars.	CORPOICA	8/98
El Carmen	San Juanito	Varietal resistance of peas	CRECED	7/97
San Antonio	El Calvario	Control of in naranjillo	CORPOICA	6/97
Espino	La Mesa	Evaluacion of tomato vars.	CORPOICA	
San Antonio	Portachuelo	Blackberries	SENA	8/98
Gambita	Gambita	Evaluation of maize vars.	CORPOICA	9/98
Morario	Confines	IPM in plantains	CORPOICA	9/98
San Benito	San Benito	Evaluation of plantain vars.	CORPOICA	9/98
La Meseta	Floridablanca	Soursop (Annona muricata)	CORPOICA/SENA	8/98
La Judia	Floridablanca	IPM in plantains	CORPOICA/SENA	11/98
Valle de Ritoque	Floridablanca	Diets for swine	CORPOICA/SENA	10/98
Bolarqui	Bucaramanga	Evaluation of snap bean vars.	CORPOICA/SENA	10/98
Aguaclara	Cucuta	Evaluation of plantains	CORPOICA/SENA	2/99
El Cucano	Pamplonita	Tomatoes	CORPOICA/SENA	2/99
Hatillo	Ocana	Fertilizetion of onions	CORPOICA/SENA	10/98
Los Angeles	Rio de Oro	Evaluation of maize vars.	SENA	2/99
El Trebol	El Banco	IPM in cassava	CRECED	9/98
EL Bajo	El Plato	IPM in cassava	CRECED	9/98
Zacama	El Reten	IPM in chillis	CRECED	9/98
La Rivera	Pailitas	Evaluation of rice	CORPOICA/SENA	8/98
Rosa Maria	Remolino	Resistance to melon tuber moth	CORPOICA/SENA	8/98
Vuelta a la Mica	El Plato	Black tobacco leaf miner	CORPOICA/SENA	8/98
La Pena	Curiti	Evaluation of bean vars.	CORPOICA/SENA	9/98
San Lorenzo Alto	San Benito	Planting density in plantains	CORPOICA/SENA	10/98
Mundo Nuevo	Puente Bomba	Evaluation of papaya vars.	CRECED	9/98
Guaracaca	Riohacha	Deformation of papaya fruit	CORPOICA/SENA	9/98

Ecuador

CIAL	Location	Research Topic	Institution	Initiation
Las Playas de Pulpaná	San Francisco	Evaluation of fruit vars.	UNOCANC/IIRR	6/97
S. Luis de la Campiña	Cusabamba	Resistance to potato late blight	IIRR	6/97
Nuevo Amanecer	San Agustín	Guinea pig breeds	IIRR	3/96
Nuevo Amanecer	Baeza Napo	Evaluation of fruit vars.	IIRR/FUNAN	6/97
El Cóndor	San Alfonso	Evaluation of guinea pig breeds	IIRR/FUNAN	5/96
Shingashina	Aloguincho	Resistance to potato late blight	MAG	4/96
La Victoria	La Playa	Evaluation of potato vars.	MAG	5/96
S. Pedro de Anagumba	Anagumba	Evaluation of guinea pig breeds	IIRR/MAG	6/97
Futuro Mejor	San José de las Minas	Fertilizers	IIRR/MAG	5/96
Las Orquideas	Las Orquideas	Evaluation of blackberry vars.	IIRR/MAG	6/97
Las Palmas	Las Palmas	Dairy cattle milk/meat production	FUNAN/MAG	6/97
El Aliso	El Angel	Evaluation of blackberry vars.	FLACSO	7/97
Chambapungo	Chambapungo	Evaluation of guinea pig breeds	INIAP	6/97
Guaranda	Bolivar	Evaluation of maize vars.	INIAP	8/97
Flor Naciente	Guabug	Evaluation of potato vars.	NIAP	8/97
El Progreso	Llacud	Resistance to potato late blight	INIAP/FORTIPAPA	5/96
11 de Noviembre	Pusnia	IPM in potatoes	INIAP/FORTIPAPA	4/96
Chanchalo	Chanchalo	Evaluation of potato vars.	INIAP	8/97
Chaupi	Cotopaxi	Evaluation of potato/pastures	INIAP	8/97
El Progreso	Pichincha	Evaluation of carrot vars.	INIAP	9/97
San José de la Huaca	Carchi	IPM in potatoes	INIAP	8/97
Grupo de Mujeres de	San Esteban	IPM in tomatoes	IIRR/DFC	9/97
San Esteban	Yanajaca	IPM in potatoes	Vision mundial	
Santo Domingo	Cayambe	Evaluation of potato vars.	Univ. de Loja	
San Pablo Urco	San Pablo Urco	Evaluation of pea vars.	Univ. de Loja	
Ayora	Cayambe	Fertilization of potatoes	Univ. de Loja	
Tamboguasha	San Juan	Profitability of faba bean system	DFC	
Achig Vaqueria	Macag Grande	IPM in potatoes	IIRR	
Muyurco	Cayambe	Humus fertilization	Univ. de Loja	
San Jose de La Huaca	Carchi	IPM in potatoes	INIAP	8/97

Honduras

CIAL	Location	Research Topic	Institution	Initiation
Mujeres en Acción	San Antonio	Evaluation of cassava vars.	SERTEDESO	7/96
Tierra Fría	Tierra Fría	Evaluation of maize vars.	FUPNAPIB	5/96
La Playa	Concepción	Evaluation of bean vars.	IIRR	4/96
4 de Marzo	California	Evaluation of bean vars.	IPCA	3/96
El Pital	La Ceiba	Evaluation of bean vars.	IPCA	3/96
Luz y Vida	Yorito	Evaluation of bean vars.	IPCA	
Nueva Suyapa	Yorito	Evaluation of onion vars.	IPCA	11/97
El Zapote	Jesús of Otoro	Evaluation of maize vars.	IHDER	3/96
Cafetales	Victoria	Diagnosis	SERTEDESO	2/98
Santa Cruz	Yorito	Diagnosis	SERTEDESO	3/98
San José de Mora	S. José de Mora	Evaluation of bean vars.	FEPROH	4/96
San Isidro	Vallecillos	Evaluation of bean vars.	FEPROH	4/97
El Esfuerzo de Tuliapita	Vallecillos	Evaluation of bean vars.	FEPROH	9/97
El Encinal	El Encinal	Resistance to bean pests, diseases	FEPROH	2/97
Nuevo Paraiso	Tabla Grande	Evaluation of bean vars.	UNIR/ZAMORANO	3/96
Silisgualagua	Guinope	Evaluation of bean vars.	UNIR/ZAMORANO	9/97
Los Limones	Morocelí	Evaluation of bean vars.	UNIR/ZAMORANO	9/97
La Lima	La Lima	Evaluation chemical of onion	UNIR/ZAMORANO	9/97
Nuevos Horizontes	Lavanderos	Evaluation of bean vars.	UNIR/ZAMORANO	3/96
Sagrado Corazón de Jesús	El Ocotal	Evaluation of bean vars.	UNIR/ZAMORANO	9/97
Unión del Llano del Ocotal	Llano Ocotal	Evaluation of bean vars.	UNIR/ZAMORANO	9/97
Chaguite Grande	Oropolí	Evaluation of bean vars.	UNIR/ZAMORANO	9/97
Luquigue	Luquigue	Evaluation of bean vars.	IPCA	2/96
Palmichal	Taulabé	Maize organic fertilizers	IPCA	3/96
El Paraíso	Concepción del Sur	Diagnosis	IPCA	3/98
Sabana de San Pedro	Yorito	Evaluation of bean vars.	IPCA	2/98
Nueva Espranza	Nueva Esperanza	Evaluation of maize vars.	IPCA	3/96
Los Aguajes	Las Vegas	Evaluation of maize vars., fertilizers	IPCA	5/95
El Tontolo	Las Vegas	Evaluation of maize vars.	IPCA	5/96
Guaco	Yorito	Evaluation of maize vars.	IPCA	11/97
Jalapa	Yorito	Evaluation of onion vars.	IPCA	11/97
Vallecillos	Yorito	Evaluation of maize vars.	PDA	2/97
Mina Honda	Yorito	Evaluation of bean vars.	PDA	3/97
Guaco Hombres	Yorito	IPM in beans	PDA	11/97
Rio de la Puerta	Vallecillos	Evaluation of bean vars.	IPCA	2/99

Honduras

CIAL	Location	Research Topic	Institution	Initiation
El Plantel	La Victoria	Evaluation of bean vars.	IPCA	2/99
Mina Honda	Yorito	Evaluation of bean vars.	IPCA	
Ojo de Agua	Concepcion del Sur	Evaluation of bean vars.	IPCA	1/99
Patastera	Yorito	Organic fertilization of chillis	IPCA	2/98
Turin	Turin Yorito	IPM in cabbages	IPCA	12/98
Santa Marta	Yorito	Evaluation of lablab vars.	IPCA	12/98
Portillo	El Portillo Yorito	Evaluation of bean vars.	IPCA	12/98
Guachipilin	La Victoria	IPM in bean vars.	IPCA	4/98
Rio Bonito	Rio Bonito	Evaluation of maize vars.	IPCA	3/98
Monte de Dios	Siguatepeque	Evaluation of maize vars.	IPCA	3/99
El Sauce	Siguatepeque	Fertilization of maize	IPCA	3/99
Brisas de Bacadia	Brisas de Bacadia	Evaluation of maize vars.	IPCA	3/99
Diviso	San jose	Fertilization of beans	IPCA	3/99
Quebrada Vieja	Yorito	IPM in maize	IPCA	12/98

El Salvador

CIAL	Location	Research Topic	Institution	Initiation
San José de las Flores	S. J. de las Flores	Evaluation of maize vars.	CORDES	6/97
San Francisco	San Francisco	Evaluation of maize vars.	CORDES	6/97
Papaturro	Papaturro	Evaluation of maize vars.	CORDES	7/97
Las Peñas	Las Peñas	Evaluation of maize vars.	CORDES	6/97
Teosinte	San Francisco	Evaluation of maize vars.	CORDES	5/97
Nueva Esperanza	Tejutla	Evaluation of maize vars.	CORDES	6/97
Izotalillo	La Reyna	Evaluation of maize vars.	CORDES	6/97
Cooperativa El Tronador	El Paisnal	Chicken raising	CORDES	5/97
San Carlos Lempa	Tecaña	Evaluation of tomato vars.	CORDES	5/97
Pepeto	Tenancigo	Evaluation of maize vars.	CORDES	6/97

Nicaragua

CIAL	Location	Research Topic	Institution	Initiation
Nuevo Pensamiento	Cuyas	Evaluation of bean vars.	INPRHU	8/96
Las Mesas	San Dionicio	Evaluation of maize vars.	INPRHU	8/96
Guaylo	San Lucas	Evaluation of bean vars.	INPRHU	9/96
El Jícaro	Matagalpa	Green manures for maize	CIAT/Hillsides	9/97
Piedras Largas	Matagalpa	Evaluation of bean vars.	CIAT/Hillsides	8/97
Wibuse	Matagalpa	Evaluation of bean vars.	CIAT/Hillsides	9/97
Las Jagüitas	Esquipulas	Green manures for plantains	CIEETS	9/96

Venezuela

CIAL	Location	Research Topic	Institution	Initiation
Curari	Torres	Evaluation of bean vars.	FONAIAP	2/98
El Aliso Alto	Guarico	Organic fertilization of coffee	Centro Gumillas	2/98
El Solitario	Urumaco	Bell peppers	MRNR	
Ovejera	Pampan	Evaluation of coffee vars.	FONAIAP	2/98

ACRONYMS AND ABBREVIATIONS

Acronym	
ASIAVA	Asociación de Ingenieros Agrónomos del Valle (Colombia)
ASOBESURCA	Asociación de Beneficiarios de la Subcuenca del Río Cabuyal (Colombia)
ASOCIAL	Asociación de CIAL (Honduras)
BMZ	Der Bundesminister für Wirtschafliche Zusammenarbeit (German Federal Ministry for Economic Cooperation and Development)
CADET	Comité Agrícola de Desarrollo Tecnológico (Colombia)
CAPRI	Systemwide Program on Collective Action and Property Rights
CARE	Cooperative for American Relief Everywhere
CARITAS	Proyecto de Comercialización (Honduras)
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza (Costa Rica - Nicaragua)
CEDEAGRO	Centro de Desarrollo Agropecuario (Bolivia)
CEDEGE	(Ecuador)
CEDELEA	Centro Educativo para el Desarrollo Local Extensión Agrícola (Venezuela)
CENIAP	Centro Nacional de Investigaciones Agropecuarias (Venezuela)
CENICAFE	Centro Nacional de Investigaciones de Café (Colombia)
CENTA	Centro Nacional de Tecnología Agropecuaria (Honduras, Salvador)
CETEC	Corporación para Estudios Interdiciplinarios y Asesoría Técnica (Colombia)
CGIAR	Consultative Group on International Agricultural Research
CIAE	Centro de Investigaciones Agropecuarias del Estado (Venezuela)
CIAE-LARA	Centro de Investigaciones Agropecuarias del Estado de Lara (Venezuela)
CIAO	Centro Internacional de Agricultura Orgánica (Colombia)
CIARA	Fundación para la Ciencia y la Investigación Aplicada a la Reforma Agraria (Venezuela)
CIAT	Centro de Investigación Agrícola Tropical (Bolivia)
CIAT	Centro Internacional de Agricultura Tropical (Colombia)
CIAL	Comité de Investigación Agrícola Local (CIAT, Colombia)
CIEETS	Centro Intereclesial de Estudios Teológicos y Sociales (Nicaragua)
CIFP	Centro de Investigaciones Fitoecogenéticas de Pairumani (Bolivia)
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo (Mexico)
CIP	Centro Internacional de la Papa (Peru)
CIPASLA	Consorcio Interinstitucional para la Agricultura Sostenible en Laderas (Colombia)
CIPAV	Centro para la Investigación en Sistemas Sostenibles de Producción Agropecuaria (Colombia)
CNPMF	Centro Nacional de Pesquisa de Mandioca e Fruticultura Tropical (Brazil)
COLNODO	Colombian communications network serving non governmental organizations dedicated to community development

COMVALLE	Consorcio Interinstitutional para el Manejo de los Recursos Naturales del Norte y Centro del Valle del Cauca (Colombia)
CONDESAN	Consorcio para el Desarrollo Sostenible de la Ecoregión Andina (Ecuador)
COPAL	Comités de Pesquisa Agropecuaria Local (Brasil)
CORDES	Fundación para la Cooperación y el Desarrollo comunal de El Salvador (Salvador)
CORFOCIAL	Corporación para el Fomento de los Comités de Investigacion Agrícola Local (Colombia)
CORPOCUENCAS	Corporación para la recuperación de cuencas (Colombia)
CORPOICA	Corporación Colombiana de Investigación Agropecuaria
CORPOTUNIA	Corporación para el Desarrollo de Tunia (Colombia)
CORPOVERSALLES	Corporación Versalles (Colombia)
CORSICEN	Corporación de la Sierra Central (ECUADOR)
COTESU	Cooperación Técnica Suiza
CPAC	Centro de Pesquisa Agropecuaria dos Cerrados (Brazil)
CRECED	Centro Regional de Estudios de Capacitación, Educación y Desarrollo (Colombia)
CURLA	Centro Universitario Regional del Litoral Atlántico (Honduras)
DANIDA	Danish International Development Assistance
DfID	Department for International Development (UK)
DICTA	Dirección de Ciencia y Tecnología Agropecuaria de Honduras
DIP	Diagnóstico, Investigación y Participación (Mexico)
DISU-UMSS	Dirección de Interacción Social Universitaria (Bolivia)
EAP	Escuela Agrícola Panamericana at Zamorano (Honduras)
ENCORAE	Instituto para el Ecodesarrollo de la región Amazonica Ecuatoriana (Ecuador)
ENLACE	Entidad Nacional Latinoamericana de Cooperación Estratégica (El Salvador)
ETSA	Escuela Técnica Superior de Agricultura (Bolivia)
FARENA	Facultad de Recursos Naturales y del Ambiente (Nicaragua)
FEPROH	Fomento Evangélico para el Progreso de Honduras (Honduras)
FIDAR	Fundación para la Investigación y el Desarrollo de la Agroindustria Rural (Colombia)
FITH	Fundación Indigena Tawaka (Honduras)
FLACSO	Facultad Latinoaméricana de Ciencias Sociales (Ecuador)
FONAIAP	Fondo Nacional de Investigaciones Agropecuarias (Venezuela)
FORTIPAPA	Fortalecimiento de la Investigación y Producción de Semilla de Papa (Ecuador)
FUNDACITE	Fundación para el Desarrollo de la Ciencia y la Tecnología del Estado Lara (Venezuela)
FUNAN	Fundación Antisana (Ecuador)
FUPNAPIB	Fundación Parque Nacional Pico Bonito (Honduras)
FUNCOP	Fundación para la Comunicación Popular (Colombia)
IAPAR	Instituto Agronómico do Paraná (Brazil)

IBTEN	Instituto Boliviano de Tecnología Nuclear (Bolivia)
IDEAS	Centro IDEAS (Investigación, Documentación, Educación, Asesoría y Servicios (Bolivia, Ecuador)
IDRC	International Development Research Centre (Canada)
IHDER	Instituto Hondureño de Desarrollo Rural (Honduras)
IIRR	International Institute of Rural Reconstruction (Ecuador)
IITA	International Institute of Tropical Agriculture (Nigeria)
INIA	Instituto Nacional de Investigación Agropecuaria (Peru)
INIAP	Instituto Nacional Autónomo de Investigacion Agropecuaria (Ecuador)
INIVIT	Instituto de Investigaciones de Viandas Tropicales (Cuba)
INPRHU	Instituto de Promoción Humana (Nicaragua)
INTA	Instituto Nicaragüense de Tecnología Agropecuaria (Nicaragua)
IPCA	Investigación Participativa en Centro América (Honduras)
IRA	Institute of Resource Assessment (Tanzania)
PDBL	Proyecto de Desarrollo del Bosque Latifoliado (Honduras)
PROINPA	Fundación Promoción e Investigación de Productos Andinos (Bolivia)
PROSALAFA	Proyecto de Apoyo a Pequeños Productores y Pescadores Artesanales de a Zona Semi-Arida de los Estados de Lara y Falcón (Venezuela)
PRR	Programa de Reconstrucción Rural (Honduras)
PROLANSATE	FUNDACION PARA LA PROTECCION DE LANCETILLA,PUNTA DE SAL Y TEXIGUAT (Honduras)
RUF	Danish Council for Development Research
SAVE	Sustainable Agriculture and Village Extension (CARE Program)
SENA	Servicio Nacional de Aprendizaje (Colombia)
SENASA	Servicio Nacional de Sanidad Agropecuaria) (Salvador)
SHYQCA	Sistema Hidráulico Yacambu - Quibor C.A. (Venezuela)
UNA	Universidad Nacional Agraria (Nicaragua)
UNICAM	Universidad Campesina (Nicaragua)
WWW	World Wide Web

Abbreviations

AH	Agroecosystem health
FPR	Farmer Participatory Research
FFS	farmer field schools (FAO)
GO	governmental organization
IAM	Integrated Agroecosystem Management
IPM	integrated pest management
ISFM	integrated soil fertility management
LAC	Latin America and the Caribbean
M&E	monitoring and evaluation
NARS	national agricultural research systems
NGO	non-governmental organization
NRM	natural resource management

NRMG	natural resource management working group
PDA	Participatory diagnostic assessment
PB	plant breeding
PDM	participatory diagnosis meeting
PPB	participatory plant breeding
PR	participatory research
PRGA	participatory research and gender analysis program
R&D	research and development
SP-IPM	Systemwide Program on Integrated Pest Management (CGIAR)
SP-NM	Systemwide Program on Soil, Water and Nutrient Management (CGIAR)
SP-PRGA	Systemwide Program on Participatory Research and Gender Analysis (CGIAR)