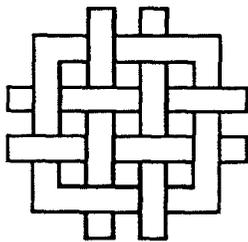


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Collaborative Projects on Integrated Pest Management:

A Global Directory of Partnerships for Sustainable Agriculture

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Sustainable Agriculture
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THE PARTNERSHIPS PROJECT

This directory is part of a project called *Partnerships for Sustainable Agriculture* carried out by the World Resources Institute (WRI), working with organizations around the world. "Collaboration" and "partnerships" are ever more frequently upheld in agricultural development; yet there has been little research and documentation of the actual effects of this cooperation. The *Partnerships* project evaluated the on-the-ground impact and keys to success of collaborative initiatives in sustainable agriculture, focusing on ecologically based Integrated Pest Management (IPM). The project identifies the challenges and rewards of forging new partnerships, and aims to help promote the successes and overcome the constraints in this field.

The project included publication of *New Partnerships for Sustainable Agriculture*, a report edited by Dr. Lori Ann Thrupp and published by WRI in September 1996. The report contains case studies and lessons learned from nine collaborative projects in various countries (see summaries below), and identified the following common keys to project success:

- participation of farmers and communities,
- effective partnering among institutions,
- policy and political support for sustainable agriculture,
- people-oriented approaches to learning, and
- applying principles of agroecology

The report also shows that considerable work is needed to expand and multiply these successful approaches.

When selecting and undertaking the case studies, it became apparent that additional experiences around the world — besides the nine cases highlighted in the report — are making progress implementing IPM through collaborative approaches. WRI staff felt it would be useful to compile general information on such collaborative efforts, as part of the *Partnerships* project. This global directory was therefore designed and developed, with the aim to promote the exchange of ideas on and information about influential IPM efforts.

The information included in the directory summaries is much less detailed than that documented in the nine original case studies. Nevertheless, these summaries give a general sense of the main project activities and characteristics. Coinciding with the "partnerships" project themes, the

projects included here involve collaborative approaches and are implementing ecologically-based IPM practices that are helping to reduce agrochemical inputs while sustaining production.

Methodology

The information for the 49 projects included in the directory was collected by distributing a brief survey form (see Appendix A) to more than 200 projects involved in pesticide use reduction and/or promotion of sustainable practices. These projects were identified through WRI's extensive network of nongovernmental and governmental organizations involved in sustainable agriculture, with additional suggestions from the *Partnerships* project's informal advisory group (see Appendix B). Respondents were also asked to provide contact information for additional projects that might be included in the directory. This is not a comprehensive directory, many effective, collaborative projects have surely been inadvertently overlooked. The directory also emphasizes projects in developing countries, with only a few cases in the U.S. and Canada included. Information on European projects was not collected, a comprehensive European database with similar information has been compiled and is available through the Natural Resources Institute (UK) and the international IPM Working Group.

Sixty-five surveys were returned. To be included in the directory, projects were required to provide evidence of on-the-ground impact (e.g., pesticide use reduction, adoption of alternative controls, number of farmers involved, etc.), and to have two or more institutions involved in project implementation. Some respondents provided diagrams of institutional linkages, which have been included with the project descriptions below. The information included here is self-reported by project coordinators, and has not been independently verified by WRI researchers.

Observations

The summaries in the directory provide the following basic information about each project:

- (a) main crops, pests and alternatives involved in the project,
- (b) main institutions involved in the partnership,
- (c) impacts of the project, and
- (d) constraints and challenges

While the summaries provide a useful snapshot, they skim the surface of the information needed if a reader is to truly understand the nature of collaboration and full project impact. Some projects, for example, included information about their approach in working with farmers (e.g., whether they employ participatory approaches and/or involve teamwork between scientists and farmers), while others did not. Many of the projects were initiated quite recently, and full documentation of project impacts is not yet available. WRI hopes to periodically update this directory with more details, and encourages interested readers to contact the institutions listed for updates and more detailed information.

Respondents were asked to identify the main challenges and constraints confronting their initiatives. The most commonly cited constraint was a lack of sufficient funding to maintain or expand project operations (see box). Other commonly identified challenges include resistance to new approaches among technicians and farmers, lack of qualified technical staff, lack of supportive government policies, and competing messages from pesticide company representatives.

CHALLENGES & CONSTRAINTS

Funding (lack of resources, project cycle too short) -- 19 respondents
Resistance from farmers and technicians -- 11
Lack of qualified technical staff -- 10
Lack of supportive policies/government commitment -- 8
Pressure from pesticide companies/mixed messages reaching farmers -- 6
Insufficient project infrastructure (transportation, labs, training materials) -- 6
Weak extension/lack of experience with participatory methods -- 6
Lack of government capacity/flexibility -- 5
Difficulties with coordination -- 3
Lack of access/availability of alternative inputs -- 3
Need to broaden public understanding/support -- 3
Time constraints (technicians and producers) -- 3
Project sustainability - turnover to local control -- 2
Limited access to information -- 2
Weak project evaluation systems -- 2
Lack of field research on alternatives -- 2
Overcoming perception of farmers as "backward" -- 1
Insufficient follow-up training -- 1
Cosmetic standards -- 1
Personnel changes, lack of continuity -- 1

The diagrams of institutional linkages supplied by some respondents provide interesting insights into the structure of collaboration. In most cases, farmers are shown at the bottom of the diagram, a position which is interpreted by some analysts to indicate that the farmers "receive" the project's technologies, rather than participating in the development and application of new approaches which meet their needs. The diagrams and listings of partner organizations for each project also illustrate a wide spectrum of collaboration, the groups involved range from international research institutions to NGOs to farmers' groups and agribusiness interests.

Respondents were also asked to give a breakdown of the project participants by gender, and results are included in the project descriptions. Women farmers and technicians are included in most projects but are clearly in the minority. In terms of technicians, this probably reflects the gender imbalance among extensionists and other professional staff working in agriculture. For farmer participants, particularly in Africa where women farmers are often the majority, the representation of women in the projects is strikingly low. The information collected here highlights the need for more participation of women farmers in sustainable agriculture projects.

Further Information

The innovative projects summarized here hold promise for the future development of sustainable agriculture. Challenges remain, however, in gaining wider influence and visibility for such efforts,

and spreading their impacts worldwide. This directory can serve as a starting point to promote information exchange about effective approaches to reducing reliance on pesticides.

Many of these initiatives are evolving rapidly, and additional impacts or developments may have occurred since the survey information was collected. Readers are encouraged to contact project implementors directly for more information. WRI staff can provide additional details as well, and the directory is available in a searchable database format on-line through WRI's website. <http://www.wri.org/wri/> Readers are also encouraged to contact the Sustainable Agriculture program at WRI with information about their project if they would like to be included in future editions of the directory.

To order *New Partnerships for Sustainable Development*, call WRI Publications at 1-800-822-0504 or 1-410-516-6963. To order additional copies of this directory or for further information about the *Partnerships* project, contact the Sustainable Agriculture program at WRI's Center for International Environment and Development.

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CASE STUDY SUMMARIES

Below are brief summaries of the case studies included in the *New Partnerships* report. A full description of the methodology used in documenting these cases is included in the report, as well as an overview of lessons learned and recommendations for strengthening and multiplying such projects. The cases are listed here alphabetically by region.

Kenya - Community-Based Tsetse Control

Main Crops/ Pests/ Alternatives

Cattle/ tsetse fly/ NGU trap

Partner Organizations

International Center for Insect Physiology and Ecology (ICIPE), KISABE (community organization), Ministry of Agriculture and Livestock Development, Ministry of Culture and Social Services, Natural Resources Institute

Description, Impacts and Challenges

The tsetse trapping project in Lambwe Valley, Western Kenya involves close collaboration between researchers and the community. Hundreds of non-chemical traps have been set up and are maintained by community members, 43% of the 8000 households in the area are actively participating. The community participants are balanced geographically and in terms of gender. Between July 1994 and March 1995, densities of tsetse flies in the project area were reduced by nearly 100%. Trypanosomiasis (sleeping sickness) rates in cattle declined dramatically. Farmer-perceived benefits include improvement of livestock productivity, decrease in sleeping sickness, greater use of land and forest resources, and decline in emigration from the project area. Challenges include ensuring a smooth turnover process of project to full community control and weak capacity of some government institutions in the partnership. Project implementors noted that the sustainability of the project depends on its ability to persuade individuals to participate, even when benefits are perceived to be more generalized to the community.

Contact Dr JW Ssenyonga, International Centre of Insect Physiology and Ecology (ICIPE), PO Box 30772, Nairobi, Kenya. Phone - 802501/3/9, fax - 254-35-43779 or 254-2-803360

Senegal - Collaborative Pest Management Project

Main crops/ pests/ alternatives

Vegetables, millet/ various pests/ building soil with organic matter, neem extracts

Partner Organizations

Rodale Senegal, farmers' association, National Research Institute of Senegal

Description, Impacts and Challenges

The Regenerative Agricultural Resource Center (RARC) of Rodale Senegal promotes ecologically based farming throughout the country. Based in Gad Khaye, a small community in an arid region near the city of Thies, this project involves collaboration with a local women's group as well as scientists from the national research institute. Adoption of the natural crop protection and soil conservation techniques promoted by the project is high, with farmers not directly involved in the project learning the techniques as well. Reduced use of pesticides lowers production costs and has led to a general improvement in village health (fewer cases of illness from pesticide residues/spray). Yield is also reported to have increased. Challenges include competition for project leadership when the roles of collaborating institutions are unclear, and conflicting information being given to farmers from varied sources of technical support. Those involved in the project found that effective collaboration requires synergy, adaptability, and openness, and that an open and healthy dialogue among participating institutions is essential.

Contact Amadou Diop, Rodale Institute, 222 Main Street, Emmaus, PA, 18098, USA Phone - 610-967-8405, fax - 610-967-8959

Bangladesh - INTERFISH Project

Main crops/ pests/ alternatives

Rice/ various pests/ rice-fish cultivation, dyke cropping, farmer training in rice ecology

Partner Organizations

CARE, Food and Agriculture Organization, Government of Bangladesh's Department of Agricultural Extension, Overseas Development Association, European Community, Farmers, Research Institutes, Local NGOs

Description, Impacts and Challenges

Government, nongovernmental, and international organizations have been working together in Bangladesh to help thousands of farmers apply sustainable rice production practices. INTERFISH has educated small and marginal rice farmers on agro-ecological concepts, promoting integrated pest management, fish cultivation and vegetable growing on dikes between rice paddies. One thousand four hundred and fifty women and 4,791 men participated in the project in 1994. Compared to the same cropping season the previous year, 88% of project participants eliminated pesticide use after participation in the project. INTERFISH participants also experienced yield increases of between 6.5% and 8.25%, plus the economic benefits of lower expenditures on chemical inputs. Challenges include avoiding conflicting messages to farmers from the project and the government extensionists, and insufficient follow-up training. CARE reports that personal

motivation and commitment is more important to making collaboration work than institutional policies “Diligent attention to maintaining and cultivating partnerships” is required.

Contact Kevin Kemp, CARE Bangladesh, GPO Box 776, Dhaka, Bangladesh Phone - 81-4195/98 or 81-4707/09, fax - 81-4183, email - “carebangla@driktap.tool.nl”.

The Philippines - National and Community IPM Projects

Main crops/ pests/ alternatives

National project: Rice, corn & vegetables/ various pests/ farmer field school experiential learning approach, promoting variety of farmer pest management skills
Community project: Various crops/ various pests/ farmer training on pest life-cycle, chemical-free agriculture

Partner Organizations

National project Government agency, inter-governmental organization, state universities, local government units, NGOs, farmers groups

Community project NGO, church, citizens groups, private schools, farmers’ groups, co-ops

Description, Impacts and Challenges

Although the two projects use differing approaches to promote integrated pest management, both the national and community-level initiatives have prompted thousands of farmers to adopt non-chemical integrated farming methods. From 1993-94, 3,861 farmers were trained in farmer field schools under the national project. Among these participants, a 60-98% reduction in the volume of pesticide use was documented, and rice growers saw a 5-15% increase in yields. Evidence of pesticide use reduction has been collected at the community level as well. Loan applications for pesticide use are no longer submitted by project participants, and frogs and mudfish have reemerged in rice paddies, verifying declining pesticide use. Farmers have adopted physical controls and botanical pesticides as alternatives. Challenges include differing philosophies at the national and community levels (reduced pesticide use vs. purely non-chemical approaches), and lack of flexibility at the government level. According to project implementors, a participatory approach facilitates wide acceptance of new technologies and speeds dissemination, and partnerships must be born out of respect for each organization’s capabilities and common needs.

Contact Ms Analee T Coralde and Fr Antonio Francisco Lucas, ANGOC, 14A Eleventh Jamboree St, Barangay Sacred Heart, Kamuning, Quezon City 1103, Metro Manila, Philippines Phone - 632-993-3315, fax - 632-921-5122, email - angoc@igc.apc

Cuba - National Alternative Agriculture Project

Main crops/ pests/ alternatives

Sugar cane, sweet potato, plantain, others/ sugar cane borer, sweet potato weevil, black plantain weevil, others/ microbial biocontrol products, natural enemies, resistant varieties, crop rotation, cover cropping, integration of grazing animals

Partner Organizations

Ministry of Agriculture, Ministry of Sugar, Ministry of Science, Technology and Environment, Extension Service, Centers for the Production of Entomophages and Entomopathogens, state farms, farmer co-ops, NGOs, Association of Small Farmers

Description, Impacts and Challenges

Cuban-made biopesticides and biofertilizers are being combined with integrated pest management, vermiculture, waste recycling, rational pasture management, biological pest control, cover cropping, and other ecologically sound practices in an attempt to avert a catastrophic shortage of food due to economic crisis. Cuba is producing and using remarkably high levels of biological products and biocontrol organisms; these inputs are produced in artisanal facilities maintained by local technicians. Throughout the country, producers have adopted nonchemical alternatives and soil restoration methods. These changes, combined with policy reforms, have allowed Cuba to increase food production despite shortages of conventional inputs and serious economic difficulties. Challenges include overcoming the widespread perception of peasants as “backward,” and recognizing that the strong institutional linkages between research and extension can lead to quick spread of both successes and errors. Many project participants interviewed for the case study agreed that the most remarkable part of the recent changes in Cuban agriculture is the rediscovery of the traditional values and knowledge of farmers.

Contact Peter Rosset, Director, Institute for Food and Development Policy (Food First), 398 16th Street, Oakland, CA 94618, USA. Phone - 510-654-4400, fax - 510-654-4551, email - foodfirst@igc.apc.org

Nicaragua - CATIE/INTA IPM Project

Main crops/ pests/ alternatives

Tomato, banana, coffee, other/ white fly, coffee weeds, other/ microbial biocontrol products, neem oil, parasitic wasps, cover crops, better pest management decisions based on ecological and biological knowledge

Partner Organizations

Tropical Agricultural Research and Higher Education Center (CATIE), Nicaraguan Institute for Agricultural Technology, Universities, Ministry of Agriculture and Ranching, producers' groups

Description, Impacts and Challenges

The CATIE/INTA IPM Project has reached a large number of farmers through on-farm technology development and participatory training related to farm decisions. The project joins forces with field technicians from interested organizations to support farmer field groups, which identify plant-protection problems and goals, select possible IPM control options to be tested, run comparison plots to be maintained by a volunteer farmer, and collect data on the results of the trial. An estimated 2000 producers are involved in the work groups, and participation has led to high levels of technology adoption. An increase in use of non-chemical controls has reduced grower and farmworker exposure to pesticides, and has had a positive socio-economic impact. Challenges include the fact that technicians lack experience working directly with producers, and often don't have training in communication skills. Some participating scientists also lack experience with

participatory methods Project organizers found that an interdisciplinary approach is central to effective IPM implementation, and that economic incentives play an important role in convincing small and medium scale producers to try new techniques

Contact Eric Ramirez, SIMAS, Apartado Postal A-136, De la CST, 1 cuadro abajo, 75 vrs.sur, Managua, Nicaragua Phone - 505-2-68-2302, fax - 505-2-22-5652, email - simas@uni.rain.ni.

Peru - Integrated Pest Management for Potatoes

Main crops/ pests/ alternatives

Potatoes/ potato tuber moth, andean potato weevil, leaf miner fly/ farmer observation of life cycle, various non-chemical controls, sticky traps (leaf miner fly only)

Partner Organizations

International Potato Center (CIP), NGOs (CARE-Peru, Centro de Investigación y Desarrollo, Tallpuy, Arariwa) Farmers' organizations

Description, Impacts and Challenges

Since 1992, CIP has worked with several NGO partners to spread research results on IPM to farmers throughout the country Implementation of the IPM project to control the andean potato weevil led to a drop from 31% crop damage to 10% over the course of three farming seasons in one community, from 50% to 15% in another Estimated net benefits were \$154 per hectare Adoption of IPM approaches to control the leaf miner fly grew from 3.5 hectares in 1992 to 48 hectares in 1994 and over 300 acres in 1996 Potato yields among the commercial farmers participating in this project have increased and production costs have decreased with the use of sticky traps Benefits per hectare are estimated at \$162 Challenges include the promotion of chemical use by private companies, which brings conflicting messages to farmers, and different philosophies of IPM among project partners In developing the case study, CIP analysts found that the sustainability of IPM projects depends on both farmers' abilities to communicate information to other farmers and the ability of institutions to coordinate efforts

Contact Fausto Cisneros, Project Leader, IPM, International Potato Center (CIP), PO Box 5969, Lima, Peru Phone - 51-14-366920 or 354354, fax - 51-14-351570, email - cip@cipa.org.pe

USA - California BIOS Program

Main crops/ pests/ alternatives

Almonds, walnuts/ navel orangeworm, peach twig borer, southern fire ant/ building soil and attracting beneficial insects with cover crop mix, substitution Bt applications for broad-spectrum insecticides, and encouraging monitoring of pests and beneficials

Partner Organizations

Community Alliance with Family Farmers Foundation, University of California Sustainable Agriculture Research and Education Project, Environmental Protection Agency, Merced County Cooperative Extension, private consultants, US Department of Agriculture, farmers

Description, Impacts and Challenges

The Biologically Integrated Orchard Systems (BIOS) program grew out of local farmers' desire to reduce agrochemical use without sacrificing agricultural productivity, the willingness of several institutions to launch a new project, and support from funders and government agencies. Among participants in one county (about 30 producers) cover crop use increased from 12 to 92% over the course of the project, releases of beneficial arthropods rose from 60 to 80%, and use of Bt rose from 41 to 65%. Chemical inputs also decreased among participants. organophosphate insecticide use fell from 35% to 0, preemergence herbicide use from 24 to 6%, and there was a 46% drop in applications of synthetic nitrogen fertilizer. Mean yields and worm damage levels were unaffected. The primary challenge for the program is the need for intensive coordination, which puts long term sustainability in question. The synthesis of scientific information and actual farming experience is a cornerstone of the BIOS program.

Contact Mike Spezia, BIOS Program Coordinator, Community Alliance with Family Farmers Foundation (CAFF), PO Box 363, Davis, CA 95617, USA. Phone - 916-756-8518, fax - 916-756-7857, email - caff@igc.apc.org

USA - Practical Farmers of Iowa

Main crops/ pests/ alternatives

Corn, soybeans/ weeds/ ridge tillage systems, intercropping, other crop and pest management methods

Partner Organizations

Practical Farmers of Iowa, Iowa State University

Description, Impacts and Challenges

Practical Farmers of Iowa and Iowa State University have been collaborating on sustainable agriculture research since 1987. They work together to turn farmer-driven, on-farm research into sustainable agriculture practices, offer educational outreach, and facilitate community-based programs to support both farmers and the communities in which they live. Corn and soybean trials from 1987-1994 indicated no reduction in yields when ridge tillage systems were used in place of herbicides for weed control. Chemical input costs are also lower among PFI farmers when compared to conventional farmers. Total costs were \$61 per acre for PFI farmers, \$93 for conventional, pesticide costs specifically were \$9.74 per acre for PFI farmers, \$27.04 per acre for conventional growers. Challenges for the project include broadening understanding and support for their findings, both within the university and among the general public. Farmer control of on-farm research efforts was found to be critical to the success of the partnership, and has resulted in increased confidence and leadership skills among participating farmers.

Contact Rick Exner, Practical Farmers of Iowa (PFI), Agronomy Hall Room 2104, Iowa State University, Ames, Iowa, 50011. Phone - 515-294-1923, fax - 515-294-9985, email - dnexner@iastate.edu

DIRECTORY OF PROJECTS

AFRICA

Bénin

Projet Bénino-Allemand "Protection des Végétaux"
(Benin-German Crop Protection Project)

Main crops/ pests/ alternative controls

Vegetables/ various insects/ neem

Cowpeas/ thrips and other insects/ neem

Maize/ greater grain borer and others/ biological control

Manioc/ cassava mealybug and others/ biological control

Partner organizations

Service de la Protection des Végétaux du Bénin - Project coordinator

International Institute of Tropical Agriculture (IITA) - Cooperation in biocontrol projects

GTZ Sector Program - Cooperation in biological-integrated control of the larger grain borer

Funding GTZ

Initiation 1984

Description, Impacts and Constraints

Extension, farmer training, professional training, and policy work are included in the project. Nearly 3,000 local community members have participated in the project (approx. 2,500 men and 500 women). One hundred sixty-six technical staff (both men and women) have been trained. No concrete data on pesticide use reduction is available; general use levels are low. Reduced damage from the cassava/mango mealybug has been documented with the alternative controls, as well as reduced loss of stored cowpeas with neem oil. Adoption rates are not high, partly due to the lack of availability of the alternative control agent (neem oil); one small NGO is the only institution

marketing the product This and the general lack of public awareness of the environmental and health hazards of pesticides are the project's primary constraints

Contact M Jean Charles Heyd, Service de la Protection des Végétaux Bénin, B P 1073, Porto Novo, Bénin Phone - 229-213765, 213937, fax - 229-300446

Service de la Protection des Végétaux et du Contrôle Phytosanitaire
(Crop Protection Service)

Main crops/ pests/ alternative controls

Maize (post-harvest)/ *Prostephanus truncatus*/ hygiene, biological control
Mango/ *Phenacoccus manhot*, *Mononychellus tanajoia*/ biological control
Manioc and yam/ *Prostephanus truncatus*/ hygiene, biological control
Cowpeas (post harvest)/ *Callosobruchus maculatus*/ neem extracts
Mango/ *Rastacoccus invadens*/ biological control
Cabbage/ *Plutella xylostella*/ integrated control

Partner organizations

Service de la Protection des Végétaux et du Contrôle Phytosanitaire (SPV) - Project coordinator
Institut National des Recherches Agricoles (INRAB) - Research
International Institute of Tropical Agriculture (IITA) - Research, training
Université Nationale du Bénin (UNB), Faculté des Sciences Agronomiques (FSA) - Training, research
Centres d'Actions Régionales pour le Développement Rural (CARDER) - Practical training, simplification and diffusion of new approaches to plant protection, investment in popular materials explaining these measures
Société Nationale pour la Promotion Agricole (SONAPRA) - Management and distribution of plant protection materials

Funding GTZ, IITA, FAO

Initiation 1961

Description, Impacts and Constraints

Activities include training of trainers, training of groups/organizations interested in the protection and production of crops (farmers, producers, merchants, distributors), applied research in a field setting, on-farm demonstrations, and simplification and distribution of technical information
Pesticide use reduction ranges from 100% in manioc production to 80% for mango, 20% for cowpeas, and 5% for maize This reflects the adoption rates for alternative controls in each crop
Problems in the project include institutional factors which limit independent action in the field, and lack of specialized professionals and technicians

Contact Chakrou Lawani, Agricultural Engineer, Service de la Protection des Végétaux et du Contrôle Phytosanitaire (SPV), B P 58, Porto Novo, Bénin Phone - 229-214413, fax - 229-213290

Recherche-Action en Agriculture Durable
(*Research-Action in Sustainable Agriculture*)

Main crops/ pests/ alternative controls

The project is not limited and depends on the relevant themes identified through the action-research. But the emphasis is on use of natural pesticides (vegetable extracts) in the management of plant and animal pests.

Partner organizations

Réseau de Développement d'Agriculture Durable (REDAD) - Project coordinator

A dozen NGOs

Sixty farmers' organizations

Resource people working in the national and international technical services

Funding Organisations Inter-Eglise de
Coopérations au Développement (ICCO), Pays-Bas

Initiation July 1995

Description, Impacts and Constraints

Project activities are wide-ranging, including support of successful on-farm efforts (creation of "farm schools"), technical and financial support for farmer organizations, meetings/visits related to national, regional or international activities, and production and screening of educational videos. Farmer training, demonstrations, policy-related and education activities, research field days, and extension are also included. Activities are coordinated by an executive committee of five members. The principle goal is exchange of information and experiences, each member is an autonomous organization, but there are some regional and thematic networks. The executive committee assures the exchange and diffusion of information and active interrelations among members. Exact numbers of people influenced by the project are not available, but estimating a minimum of 30 persons per farmers' organization, roughly 1800 people have participated – the majority women (70%). Data on pesticide use reduction, adoption rates and yield changes is being collected but is not yet compiled. Challenges include lack of specialists and qualified technicians as permanent personnel.

Contact Aruelien Atdegla, Réseau de Développement d'Agriculture Durable (REDAD), B P 04-0670, Cotonou, Bénin Fax - 229-31-3809

Cameroon

Alternative Pest Management

Main crops/ pests/ alternative controls

Maize/ weevil/ cultural controls

Eggplant and tobacco/ stinging insects/ cultural controls

Tomato/ aphids/ use of compost and natural pesticides made with tobacco, garlic, onion and papaya leaves

Partner organizations

Cercle International pour la Promotion de la Création (CIPCRC) - Project coordinator

Farmers groups - Trained on various techniques

Funding. CIPCRE

Initiation 1993

Description, Impacts and Constraints

Farmer training, demonstrations and research are the project's primary activities. Technical staff have also been trained, including 15 male and three female technicians. Pesticide use is estimated to have fallen 30-60% as a result of the project, without significant yield losses. Farmers are not resistant to adopting IPM techniques. Constraints include the need for technical training on new techniques and effective research methods in rural areas. The weather, which favors the pests, is another constraint.

Contact Flaubert Djateng, National Director, Cercle International pour la Promotion de la Création (CIPCRE), B P 1256, Bafoussam, Cameroon. Phone - 237-446267, fax - 237-446669, email - cipcre@geod.geonet.de

Ghana

Ecologically Sound Cassava

Main crops/ pests/ alternative controls

Cassava/ insects/ biocontrol

Cassava/ mites/ biological control using predatory mites

Cassava/ diseases/ resistant varieties

Cassava/ weeds/ land preparation

Partner organizations

Plant Protection and Regulatory Services Department - Implementing agency

IITA - Research and coordination

UNDP - Funding agency

Funding UNDP

Initiation 1993

Description, Impacts and Constraints

The Ecologically Sound Cassava project involves training of extension staff, research and advocacy activities. Four hundred male farmers and 250 female farmers have participated in the project and 16 extensionists (12 male, 4 female) have been trained. Pesticide use has been completely eliminated among participants, from an average pesticide input expenditure of \$50 per hectare. Although adoption rates of alternative practices have not been documented, the farms look healthy despite the elimination of pesticides, indicating that farmers are adopting the use of bioagents. Farmers also frequently request bioagents from extension staff. Key problems include insufficient technical personnel, a need for increased capacity in the predatory insect rearing facilities, and lack of transportation.

Contact Director, Plant Protection and Regulatory Services Department, PO Box M37, Accra, Ghana

Integrated Pest Management of Rice

Main crops/ pests/ alternative controls

Rice/ various insects/ agronomic, cultural practices, and relying on natural enemies

Partner organizations

Plant Protection and Regulatory Services Department - Implementing agency -
FAO - Funding agency

Funding FAO

Initiation April 1995

Description, Impacts and Constraints

The Rice IPM project involves demonstrations and field days, extension, training of extension workers, and policy activities. Seventy-five farmers have participated in the project (65 men, 10 women), and 25 extension officers have been trained. Project impact has not been documented, but there is evidence of changing land preparation and water management techniques for weed control, use of natural enemies to control insects, and application of improved agronomic practices among participants. Constraints include lack of government commitment and support, lack of enthusiasm from extension workers and farmers, and inadequate facilities.

Contact Director, Plant Protection and Regulatory Services Dept, PO Box M37, Accra, Ghana

National Biological Plant Protection Project

Main crops/ pests/ alternative controls

Vegetables/ Lepidopterous pests/ use of neem seed extracts and *Bacillus thuringiensis*
Maize/ larger grain borer/ biological control with bioagent *Tentiosoma nigrescens*
Mangos/ mealybugs/ biological control with bioagent *Anagyrus mangicola*

Partner organizations

Plant Protection and Regulatory Services Department - Implementing agency
International Institute for Tropical Agriculture - Research and regional coordination
Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) - Funding agency

Funding GTZ

Initiation August 1992

Description, Impacts and Constraints

The national project involves demonstration projects, field days, farmer training, research and extension. The majority of participants are farmers (320 men, 190 women), 120 male farmworkers and 50 female farmworkers have also benefited from the project, and a total of 53 technical staff (42 men, 11 women) have been trained. Pesticide input costs on participating farms has dropped from \$110 per acre to \$10 per acre, with lower costs, farmers' overall profits are higher. Extension staff and participating farmers are spreading the message on alternatives to other farmers. Key constraints include insufficient staffing of the project (both technical staff and extension officers), lack of transport, and the short duration of the funding period.

Contact Director, Plant Protection and Regulatory Services Dept, PO Box M37, Accra, Ghana

Ivory Coast

Implementation of Integrated Pest Management in Rice

Main crops/ pests/ alternative controls

Rice/ various pests/ IPM practices with minimal use of pesticides

Partner organizations

West Africa Rice Development Association (WARDA) - Project coordinator
Department of Agricultural Extension, Ministry of Agriculture, Ghana
Ministry of Agriculture Abidjan, Ivory Coast
Ministry of Agriculture Ouagadougou, Burkina Faso
FAO Regional Office Accra, Ghana

Funding FAO/TCP, Ghana, Ivory Coast

Initiation May 1995

Description, Impacts and Constraints

Training of technicians and farmers is the primary activity of WARDA's rice IPM program. Participants include 70 male and 5 female farmers, and 28 male technicians. Rice farmers in the project areas have adopted IPM practices and reduced pesticide use in rice fields significantly. Project constraints include difficulties in initial acceptance of IPM at both the policy and farm level.

Contact Prof. Anthony Youdeoweri, West Africa Rice Development Association (WARDA), 01 B P 2551, Bouake, Cote d'Ivoire, Phone - 225-635960, fax - 225-634714, email - warda@cgnet.com

Kenya

Community-Based Tsetse Control

See *Case Study Summary* above

Iteme-Ini Organic Farming Self Help Group

Main crops/ pests/ alternative controls

Vegetables/ various insects/ repellents and companion planting
Maize/ stock borer, weevils/ administer tobacco at early age to kill larvae, mixture of ash and peppers to protect grain from weevil
Tomatoes/ white fly/ pye mar, a pyrethrum by-product

Partner organizations

Rural Based Community Self Help Project - Project coordinator
Kenya Institute of Organic Farming (KIOF)
Environmental Liaison Center International (ELCI)

International Federation of Organic Agricultural Movements (IFOAM)
Pesticide Action Network (PAN)

Funding Depends solely on individual contributions Initiation December 1993

Description, Impacts and Constraints

Project activities include farmer training, field days, and promotion of organic production for food self-sufficiency. Participants include 47 male farmers and 61 female farmers. Reduction of pesticide use on vegetables, maize and beans is estimated at 30%, and increased production levels have been documented. Constraints include lack of funding, training materials, access to information, and extension services from other NGOs and government agencies.

Contact Stephen Wachirir Waikwa, Rural Based Community Self Help Project, P.O. Box 543, Othaya, Kenya

Kenya Institute of Organic Farming

Main crops/ pests/ alternative controls

Various crops/ various insects/ natural pesticides

Partner organizations

Kenya Institute of Organic Farming - Project implementation
Donors - Provide funds for the projects and consultancy services to KIOF
IFOAM - Policy/advocacy activities and strategies
Organic Matter Management Network - Carries out needs assessments
Research Institutions - Collaborative research

Funding American, European and local donors, farmer contributions, publication sales Initiation July 1986

Description, Impacts and Constraints

KIOF promotes pesticide use reduction through research and extension activities, farmer and technician training, demonstration plots and policy activities. More than 5,000 men and 7,000 women have participated in the project, along with 400 male and 500 female extension staff. Pesticide use reduction is estimated at 80% among project participants, and roughly 85% of those trained through the project fully adopt the techniques promoted. Constraints include nonsupportive government policy and lack of funds for equipment.

Contact John Wanjau Njoroge, Director, PO Box 34972, Nairobi, Kenya Phone - 254-2-732487, fax - 254-2-581171, email - KIOF@elc1 gn apc org

Sénégal

Collaborative Pest Management Project

See *Case Study Summary* above

Ferme D'Expérimentation et de Formation Agro-écologique
(*Agroecological Experimentation and Training Center*)

Main crops/ pests/ alternative controls

Millet/ various insects/ neem powder

Maize/ various insects/ organic fertilizer

Partner organizations

AGRINAT (Agriculteurs Naturalistes du Sénégal) - Project coordinator

PRONAT, ENDA TiersMonde - Technical assistance

AGRECOL (Swiss) - Diffusion of the center's activities in the journal "Acacia"

ASW (German) - Financial assistance for the project launching and two training sessions

Funding Startup funds from ASW

Initiation July 1991

Description, Impacts and Constraints

Project activities include farmer training, training of technicians, research and field trials. More than 300 farmers have been trained: 140 men and 180 women. The project also trains technicians from other countries; eight male and four female "foreign apprentices" have been trained. Yield increases have been documented in trial plots using biological systems. Adoption rates are high among project participants, who are eager to cut costs by reducing chemical inputs. Demand for the training sessions is high and growing, particularly from women's groups and farmers' associations. The center's limited finances make it difficult to meet this growing demand.

Contact El Hadji Hamath Hane, AGRINAT (Agriculteurs Naturalistes du Sénégal), B P 234, M'Bour, Sénégal. Phone - 221-571601

Sudan

Development and Application of IPM in Rotational Food Crops, Wheat and Cotton

Main crops/pests/alternative controls

Cotton/ Bemisia tabaci, Aphis opssypii, Helicoverpa armigera, Jacobiasca lybica/ natural enemies (Trichogramma, Pretiosum) and raising the economic threshold level for spraying

Wheat/ aphids/ raising economic threshold level

Vegetables/ various insects/ cultural controls and extension on insecticide use

Partner organizations

Agricultural Research Corporation - Project coordinator, Gesira scheme, Rahad scheme

Regional Ministry of Agriculture - Extension and training of farmers

University of Gezira - Research and training of farmers

Funding Netherlands government, FAO

Initiation 1979

Description, Impacts and Constraints

ARC's IPM project includes training of both technical staff and farmers, research and demonstration activities, extension, field days, and policy related work. An estimated 130,000 male farmers and 80,000 female farmers have been involved in the project, along with 100,000 farmworkers (50,000 men, 50,000 women) and 90 technicians (80 men, 10 women). Pesticide application on cotton has fallen from 6-8 sprays per season to 3-4. Yields have not increased, but lower input costs has led to increased profits. Adoption rates are 100% because pest control is coordinated by "scheme" management. Constraints are primarily institutional for the cotton project, a new vegetable IPM project faces financial constraints.

Contact Asim Ali Adelrahman, National Project Director, Agricultural Research Corporation, ARC Wad Medani, P O Box 126, Sudan Phone - 249-51-2226

Togo

Lutte Intégrée Contra le Grand Capusin du Mais en Stockage *(Integrated Management of the Larger Grain Borer in Stored Maize)*

Main crops/ pests/ alternative controls

Maize & manioc/ larger grain borer/ biological controls integrated with rational chemical controls

Partner organizations

Service National de la Protection des Végétaux - Implementing agency
GTZ, NRI and IITA - Assist in technical and financial aspects of the project

Funding GTZ (RFA)

Initiation January 1991

Description, Impacts and Constraints

Project activities include training of trainers, farmer training, research, field days, and joint investment in integrated management methods. All of Togo's farmers (80% of the population) have benefited from this project. Pesticide use reduction has been dramatic. In some crops (brassicas, for example), use of neem extracts has replaced chemical controls, with yield increases documented. In some areas of the country, neem has been readily accepted. Challenges for the project involve increasing awareness of the uses of neem in some areas, and improving the availability of neem seeds throughout the country.

Contact Dovi Agounke, Project Director, Service National de la Protection des Végétaux, BP 1263, Vacaveli, Lome, Togo Phone - 228-257537, fax - 228-211008

Zambia

Environment Council of Zambia

Main crops/ pests/ alternative controls

Horticultural crops/ various pests/ natural plant pesticides

Partner organizations

Environment Council of Zambia - Coordinator/lead agency
Ministry of Agriculture Research - Crop protection policy
Agricultural Development College - Developing syllabus/teaching
University of Zambia - Resource persons
National Council for Research
Zambia Agrochemicals Associations - Resource persons/equipment
Ministry of Labor - Safety aspects of pesticide use

Funding Government of Zambia

Initiation 1993

Description, Impacts and Constraints

Project activities include training of both technicians and farmers, demonstrations, policy activities, and promotion of safe storage and disposal of obsolete pesticides. Information on pesticide use reduction or yield impacts is not yet available, but there is evidence that small scale farmers are beginning to use natural pesticide products (plant extracts) where the project exists. Financial resources are needed to expand the project to other areas of the country.

Contact James S Phiri, Senior Inspector, Environment Council of Zambia, PO Box 35614, Lusaka, Zambia. Phone - 260-1-224009, 286435, fax - 260-1-223123

ASIA & PACIFIC

Bangladesh

INTERFISH Project

See *Case Study Summary* above

China

IPM in Rice, Cotton, Vegetables

Main crops/ pests/ alternative controls

Rice/ brown plant hopper, stem borer/ biocontrol, cultural, chemical
Cotton/ cotton bollworm/ chemical, cultural, biocontrol, mechanical
Vegetables/ DBM, disease/ biocontrol, cultural

Partner organizations

National Agricultural Technical Extension and Service Centre, Ministry of
Agriculture - Project coordinator

Institute of Plant Protection
Chinese Academy of Agricultural Science and Technology
University of Agriculture

Funding World Bank, Asian Development Bank, Initiation 1993
FAO, UNDP, Chinese Government

Description, Impacts and Constraints

China's IPM project for rice, cotton and vegetables includes training of trainers, farmer training, research, extension, demonstration plots and field days. Over 100,000 male farmers and 50,000 female farmers have participated in the project. A significant number of technical staff have also been trained (1,200 male, 500 female). Pesticide applications have been reduced by 3-5 times per season, representing 20-50% of the total volume. Yield increases of 10-15% are documented with the changes in crop management and pest control methods promoted by the project. A reduction in pesticide poisoning has also been documented. Project limitations include a lack of skilled trainers and feasible training methods, limited funds, and lack of international information exchange.

Contact Piao Yong-fan, National Agricultural Technical Extension and Service Centre, Ministry of Agriculture, No 11, Nong Zhan Guan Nan Li, Beijing 100026, PR China. Phone - 86-10-4193050, fax - 86-10-5002448 or 5025146

India

Integrated Management of Pesticide and Disease of Groundnut

Main crops/ pests/ alternative controls

Groundnuts/ Spodoptera litura/ trap crops, hand picking egg masses, natural control
Groundnuts/ foliar diseases/ strategic fungicide applications

Partner organizations

ICRISAT - Project coordinator and technological support
Specialist NGOs - Technological support
Farmer groups - Extension
Campaign for World Solidarity (NGO) - Coordination
Andhra Pradesh Agricultural University
Overseas Development Administration

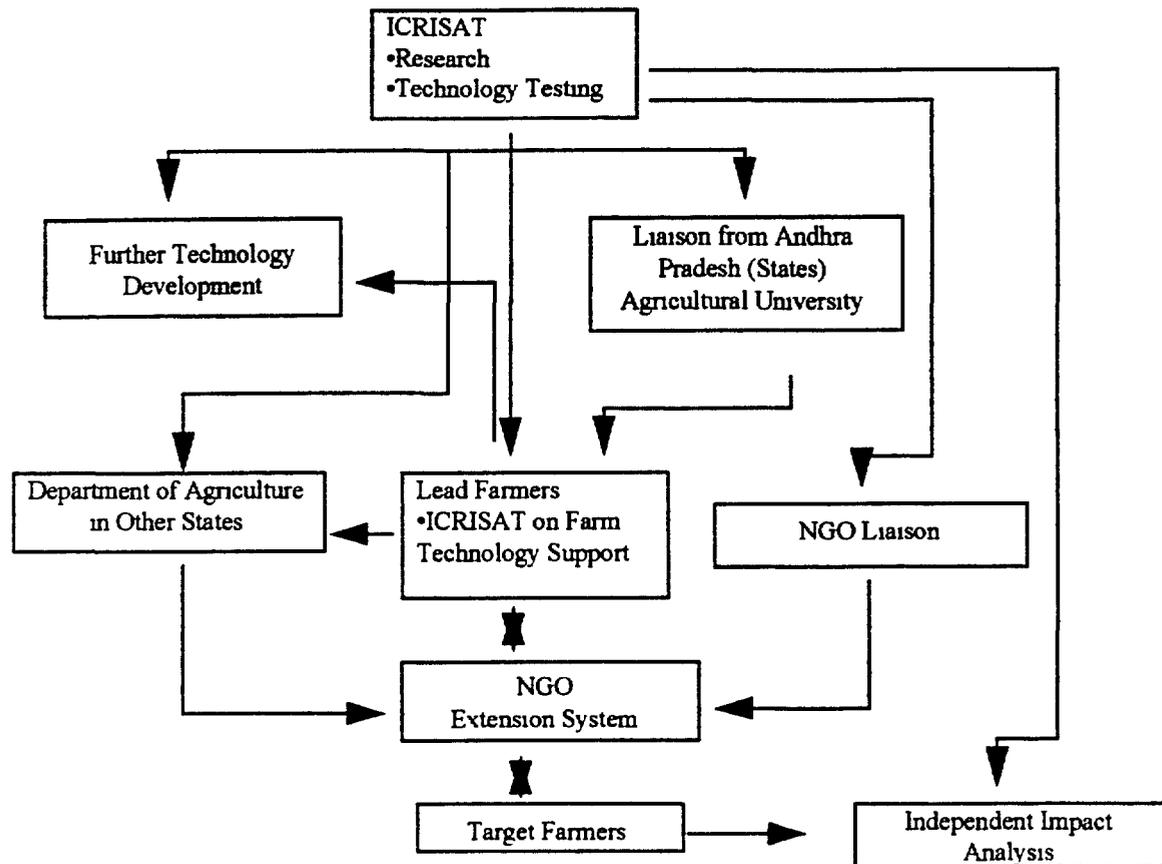
Funding ICRISAT, Indian Council for Agricultural Initiation 1984-85
Research, NGOs, Overseas Development
Administration (ODA)

Description, Impacts and Constraints

ICRISAT's groundnut IPM project includes research and extension activities and training of both technicians and farmers. The project has reached two thousand farm families. Insecticide application among participants has fallen from 5-7 per season to none. Fungicide applications have been greatly reduced. Yield increases of 40-70% have been documented. The primary

constraint is the scale of the project, the number of extensionists trained is too small to reach thousands of farm families

ICRISAT - Integrated Management of Pest and Disease of Groundnut



Contact John A Wightman, Principal Scientist, International Crops Research Institute for the Semi-Arid Tropics, ICRISAT Patancheru, Andhra Pradesh 502324, India Phone - 91-40-596161, fax - 91-40-241239, email - J.Wightman@cgnet.com

Indonesia

Integrated Pest Management Training Project

Main crops/ pests/ alternative controls

Rice, soybean, cabbage, potato, shallot, chili/ brown plant hopper, stemborer/ cultural techniques, agronomic practices

Partner organizations

Ministry of Agriculture - National implementor
World Bank/USAID - Donors
FAO - Technical assistance

USEPA - Advisor in environmental management of pesticides

Funding World Bank, USAID, Indonesian Government

Initiation 1993

Description, Impacts and Constraints

FAO's IPM project in Indonesia has a wide range of components, including training of trainers and farmers, demonstrations and field days, research extension, and policy-related activities. More than 700,000 male farmers and 160,000 female farmers have participated in the project, along with 50,000 male and 300 female farmworkers and 1,900 male and 100 female technicians. Pesticide applications have dropped from an average 2.49 per season to 0.98 per season among project participants. Yields and yield stability have increased. Farmer field schools and farmer to farmer training initiated by the project are now funded and supported by local governments. Project constraints include the complexity of working with government bureaucracies across the 12 participating provinces, and pesticide company marketing tactics.

(See Organizational Diagram, p. 26)

Contact Russel Dilts, Team Leader, FAO Integrated Pest Management in Indonesia, Jl. Taman Margasatwa Raya No. 61, Ragunan, Pasar Minggu, Jakarta 12550, Indonesia. Phone - 62-21-780-0265, fax - 62-21-780-0265, email - IPM-Jakarta@cgnet.com

The Philippines

National and Community IPM Programs

(See Case Study Summary above)

Solomon Islands

Taro Breeding Programme

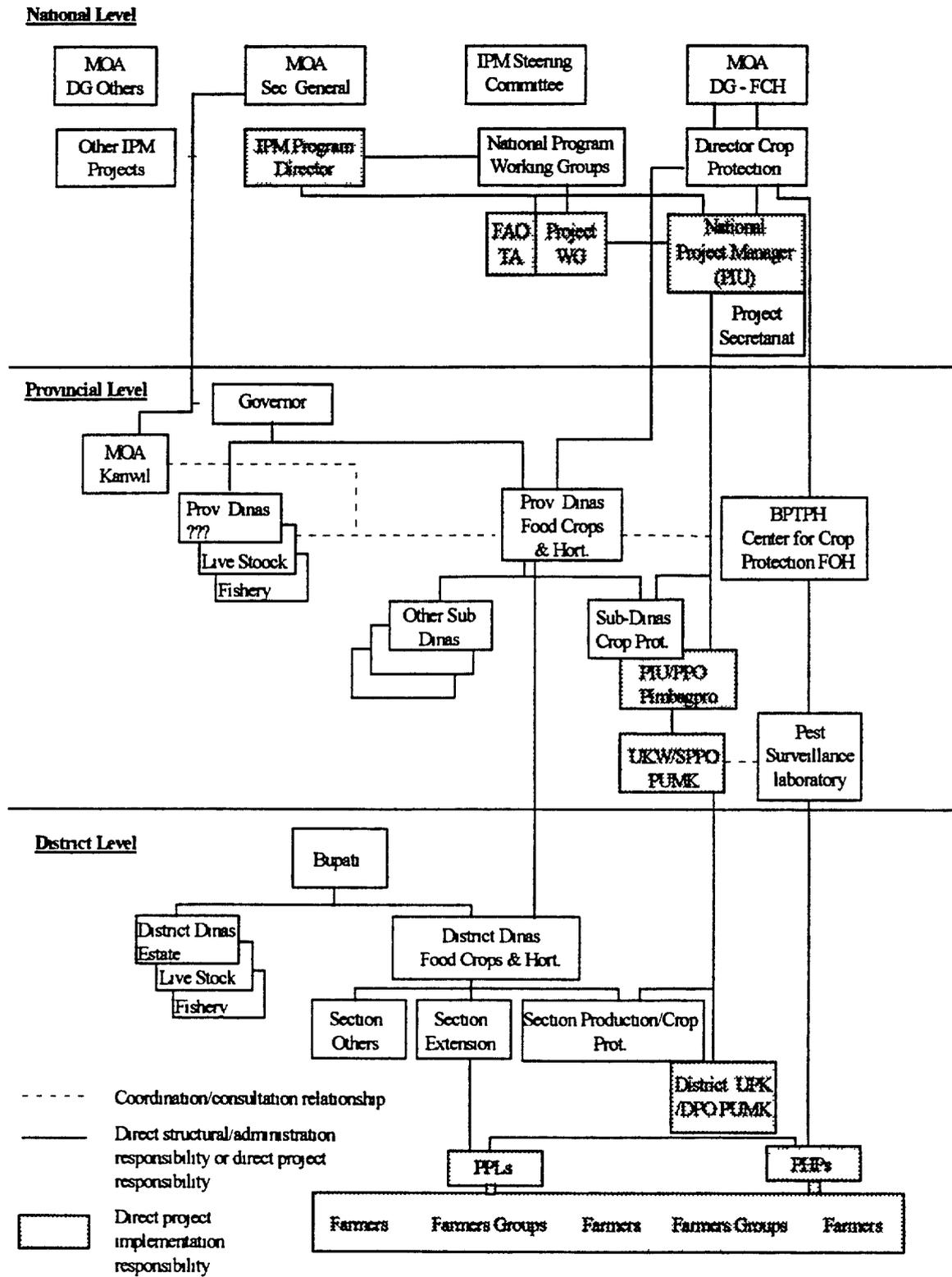
Main crops/ pests/ alternative controls

Taro/ *Phytophthora colocasiae*, *aloeae* and *bobne*, *Hirschmaniella muticausa*/ resistant hybrids

Partner organizations

Dodo Creek Research Station - Project coordinator
Food and Agriculture Organization
Solomon Islands Government

Indonesia Integrated Pest Management Training Project



(Soloman Islands, cont)

Funding GTZ

Initiation 1989

Description, Impacts and Constraints

Research and demonstration plots are the project's primary activities- Those affected by the project include 5,000 male and 8,000 female farmers, 20 male and 5 female farmworkers, and 10 male technicians Reduction of pesticide use as a result of the project is estimated at 80%, with 70-99% yield increases The major project constraint is reluctance on the part of participating farmers to adopt IPM practices and biological control principles

Contact Helen Tstasia, Dodo Creek Research Station, PO Box 913, Honiara, Soloman Islands
Phone - 677-311-11, fax - 677-310-37

Sri Lanka

FAO Intercountry Program for Rice IPM in South and South East Asia

Main crops/ pests/ alternative controls

Rice/ various pests/ biological, cultural, mechanical, varietal resistance

Partner organizations

Department of Agriculture - Implementation of the project
Food and Agriculture Organization - Technical support and coordination
Care International - Farmer training and demonstrations
Saruobaya Movement - Farmer training and demonstrations

Funding FAO, NGOs, Provincial Councils

Initiation 1984

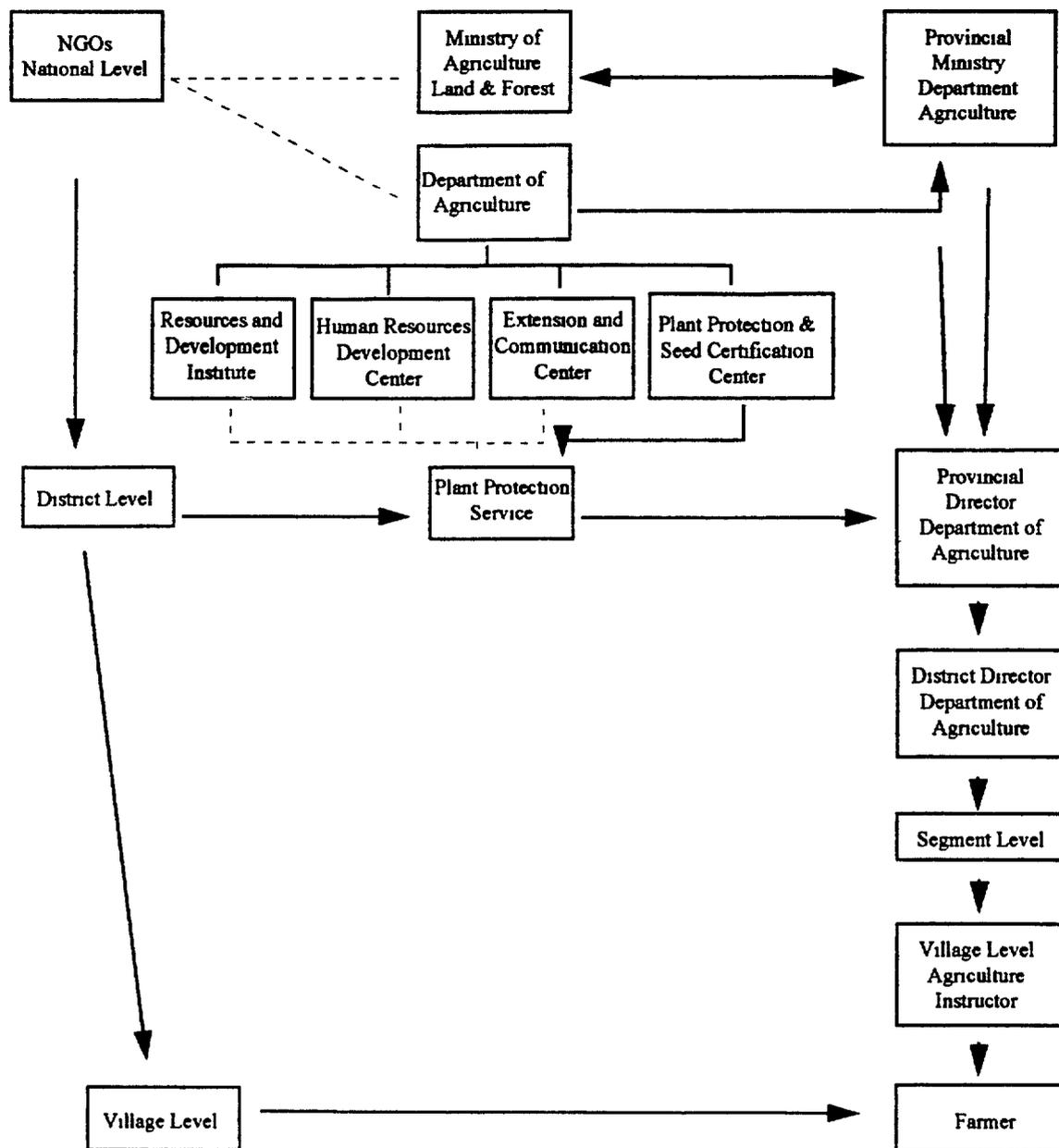
Description, Impacts and Constraints

Project activities include training of both technicians and farmers, research and demonstration plots, extension, field days and policy related activities More than 90,000 men and 22,000 women have been involved in the project as farmers, 3,000 male and 800 female technicians have been trained, and 20 policy makers have been directly influenced Spending on pesticides has fallen by 70% among participating farmers, and farmer knowledge of pests and natural enemies has increased Reappearance of birds and fish in rice fields reflects the environmental benefits of the project Yields have increased by 20% among participants, and pesticide applications have fallen from four per season to one (or none) Project constraints include time (knowledge-intensive skills development is a slow process) and the difficulties of coordinating efforts of allied institutions

(See Organizational Diagram, p 28)

Contact HB Senerath, FAO National Expert, Food and Agriculture Organization, P O Box 22, Gannoruwa, Peradeniya, Sri Lanka Phone - 94-8-88316, fax - 94-8-34484

FAO Intercountry Program for Rice IPM in South and South East Asia



Taiwan

Integrated Management of Crucifer Pests

Main crops/ pests/ alternative controls

Crucifers/ *Plutella xylostella*/ biological control with parasitoid

Crucifers/ *Hellula undalis*/ trap crop, selective pesticides

Crucifers/ *Crociddomia* sp / trap crop, sex pheromone, biological control with predator

Partner organizations

Asian Vegetable Research and Development Center - Project coordination
PCARRD, Los Baños, Philippines
AARD, Indonesia
MARDI, Malaysia
Kasetsart University, Thailand
ICAR, India
BARC, Bangladesh

Funding Asian Development Bank

Initiation January, 1993

Description, Impacts and Constraints

Primary project activities are training of technical staff, research and demonstration plots. Fifty male technicians and 50 female have been trained through the project. Pesticide use reduction related to project activities is estimated at 60% in Malaysia and 75% in the Philippines. Yield increases have been observed in the lowlands of Malaysia and highlands of Indonesia. Adoption rates are higher in the highland areas, where parasites are more effective. Constraints include farmer reluctance to give up pesticide use, weak extension services in all participating countries, and inadequate finances for developing new techniques.

Contact NS Talekar, Asian Vegetable Research and Development Center, P O Box 42, Shanhua, Tainan 741, Taiwan. Phone - 886-6-583-7801, fax - 886-6-583-0009, email - avrdc@cb.hinet.net

Thailand

Pest Control Using Clean Seed Management and Farmer Participatory Approaches

Main crops/ pests/ alternative controls

Rice/ leaf folder, plant hopper, thrips/ ecosystem analysis approach

Partner organizations

Department of Agricultural Extension - Project coordination
International Rice Research Institute (IRRI) - Partial funding and technical support

Funding Government 60%, IRRI 40%

Initiation February 1995

Description, Impacts and Constraints

Project activities include farmer and technician training and research. Participants include 150 male farmers and 140 female farmers, and 25 technicians (20 men, 5 women). Pesticide applications have fallen from 2-4 per season to one or less following project training. Yields are not significantly increased but profits are higher due to reduced input costs. Constraints include lack of support from policy makers and inappropriate land and water management techniques among participants.

Contact Mr Lakchai Meenakanit, Chief, Weed Control Group, Department of Agricultural Extension, Paholyotin Road, Chatujak, Bangkok 10900, Thailand. Phone - 66-2-5793837, fax - 66-2-5614875

LATIN AMERICA

Argentina

Manejo Integrado de Plagas Insectiles en Cultivos de Algodón bajo riego en el departamento de Anta, Slatá - Argentina: Investigación Básica
(*IPM in Irrigated Cotton. Basic Research*)

Main crops/ pests/ alternative controls

Cotton/ Heliothis sp , Spodoptera sp , Alabama sp., Pectinophora sp , Dydercus sp / pheromone confusion

Partner organizations

Laboratorio de Parasitología y Toxocología - Project implementation
INTA - Research

Funding Cotton businesses

Initiation 1993

Description, Impacts and Constraints

Primary project activities are training of trainers/professionals, and demonstration plots. Basic information about cotton cultivation is also produced for and distributed to a region that has not previously had irrigated cotton. The project's educational efforts build a base for the success of IPM and thus the rational use of pesticides, with the resulting growth of natural enemies on the farm. Estimates of farmers and farmworkers affected are not available, but twenty-five technicians (24 male and one female) have been trained. The project has resulted in considerable reduction of synthetic pesticide use, and rational management of insecticides in turn brings considerable increases in harvest. The projects' main challenge is the fact that adoption of ecologically-based alternatives is difficult for large farmowners with thousands of hectares of monoculture.

Contact Dr Teodoro Stadler, Project Director, Laboratorio de Parasitología y Toxocología (LPT-CONICET), Av A Gallardo 470 (1405), Buenos Aires, Argentina. Phone - 54-1-342-7699, fax - 54-1-982-4791, email - postmaster@mmvveg.gov.a

Brazil

Menos Veneno No Prato
(*Less Poison on our Plates*)

Main crops/ pests/ alternative controls

Banana/ *Cosmopolites sordidus*/ *Beauveria bassiana*
Tomato/ caterpillars/ trichogramma, Bt

Partner organizations

Coimbiol Brazil - Project coordination
The Pesticide Trust (UK)
GTZ - Proyecto de Defensivo Agrícolas
Ceval Alimentos
Bread for the World
Coimbiol Colombia

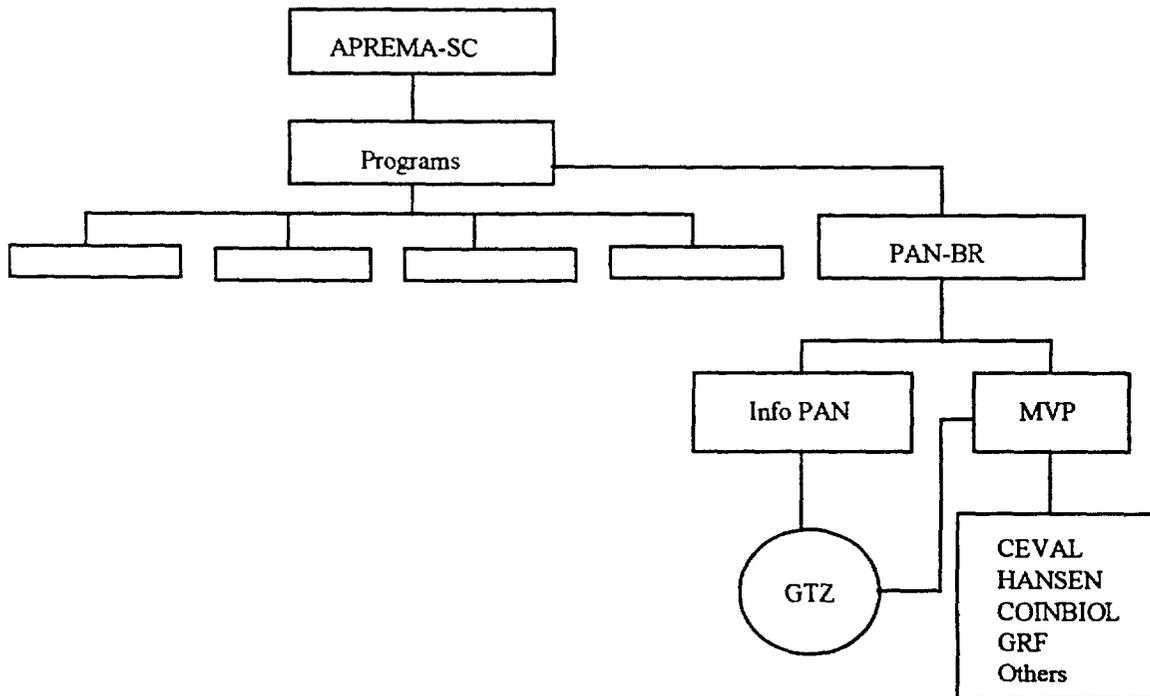
Funding Financial support is needed for multimedia educational materials

Initiation March 1991

Description, Impacts and Constraints

The project includes research activities, extension, and training of trainers. Participants and those affected by the project include 6,000 farmers, 300 farmworkers, 600 technicians, and 60,000 consumers. Pesticide use reduction has not yet been quantified, but there is evidence of yield increases among project participants. Many farmers and technicians are adopting alternative pest control measures on a wide range of crops. A major project constraint is pressure from the pesticide industry and their financial support of extension and research.

Voluntary Brazilian Coordination -- Menos Veneno No Prato



Contact Gert Roland Fischer, Coimbiol Brazil, R. Diamantina 287, Florista 89 211 060, Brazil
Phone - 55-474-360647, fax - 55-474-260649, email - gertfischer@ax.apc.org

Minimum Use of Insecticide for Potato Pest Control

Main crops/ pests/ alternative controls

Potato/ root worm/ biological control

Potato/ wire worm/ rotation crops

Potato/ cut worm/ soil cultivation

Potato/ other pests/ plant resistance

Partner organizations

EMBRAPA

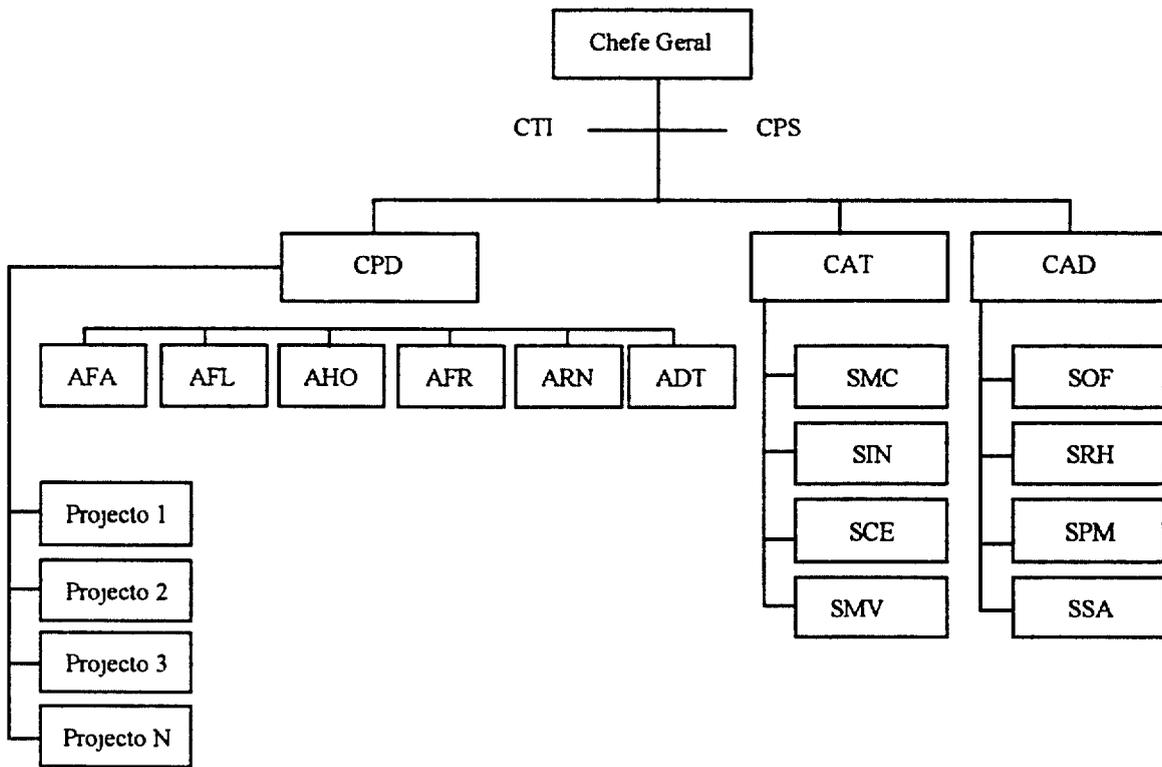
Funding EMBRAPA

Initiation May 1993

Description, Impacts and Constraints

EMBRAPA's potato IPM project includes training of professionals, research activities, demonstration plots, farmer training and field days. Five thousand male and 1,000 female farmers are involved in the project, along with 1,000 male and 500 female farmworkers and 50 male and 5 female technicians. The project hopes to achieve a 50% reduction in pesticide use by 1998 by promoting new management strategies and criteria for spraying decisions, along with biological control alternatives. Farmers have been receptive to the project and many alternatives have been adopted. Constraints include pressure from the pesticide industry, cosmetic standards, lack of institutional support and limited funds.

EMPRAPA CPAT - Minimum Use of Insecticide for Potato Pest Control



Contact Luiz Antonio Salles, EMBRAPA-CPACT, Caixa Postal 403, 96001-970 Pelotas-RS, Brazil. Phone - 532-212112. fax - 532-212121

Chile

Agroecología y Desarrollo Sustentable *(Agroecology and Sustainable Development)*

Main crops/ pests/ alternative controls

Various crops/ cutworms/ lures

Various crops/ aphids and spider mites/ mineral oil

Brassicac/ aphids/ introduction of natural enemies

Partner organizations

Corporación de Investigación en Agricultura Alternativa (CIAL) - Project coordination

Desarrollo Rural Colchagua

Estudios y Trabajos Agrícolas

Solidaridad y Desarrollo Metropolitano

Funding Cooperating agencies, government funds Initiation 1993
for some projects

Description, Impacts and Constraints

CIAL's Agroecology project includes training of trainers, farmer training projects, research and demonstration plots, field days and extension activities. The collaborating institutions conduct components of the project in their respective regions of operation. An estimated 600 male farmers and 400 female farmers have been influenced by the project, 20 male technicians and 15 female have also been trained. Pesticide use reduction has not been quantified, but is gaining momentum as information reaches farmers. Farmers are also pursuing more efficient use of their natural resource assets, and awareness of the health and environmental risks of pesticide use is rising. Diversification of production on individual farms can be seen among participants, as well as increased crop rotation, and use of natural controls. Training and resources are needed to develop and promote natural control products that farmers can produce themselves.

Contact Patricio Parra Contreras, Agricultural Engineer, Corporación de Investigación en Agricultura Alternativa (CIAL), Almirante Rivero 043, Providencia, Santiago, Chile. Phone - 56-2-635-3051, 6342452, fax - 56-2-6353051

Manejo Integrado de Plagas en Uva de Mesa *(Integrated Pest Management in Table Grapes)*

Main crops/ pests/ alternative controls

Grapes/ grape beetle/ insecticide barrier

Grapes/ thrips/ no sprays necessary

Grapes/ mealybugs/ ant control and parasitoid
Grapes/ scale/ occasional spray

Partner organizations

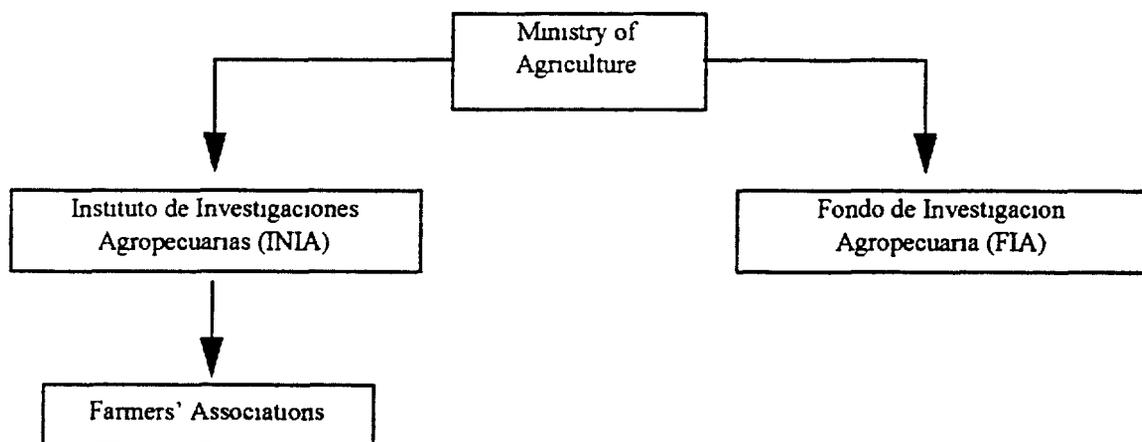
Instituto de Investigaciones Agropecuarias (INIA) - Project coordination
Instituto de Desarrollo Agropecuario (INDAP)
Farmers Association of the Aconcagua Valley, V Region and other Regions

Funding INIA and Fondo de Investigación Agropecuaria (FIA) del Ministerio de Agricultura Initiation 1983

Description, Impacts and Constraints

The Grape Pest Management project involves technician training, farmer training, research extension, demonstrations and field days. Participants include 2,500 farmers, 26,000 farmworkers (11,000 men, 15,000 women), and 520 technicians. Pesticide use has been reduced from 4-7 sprays per season to 1-3. Adoption rates for beetle barrier controls is 80%, and a no-spray approach for thrips control is being adopted. Funding is the primary project constraint.

INIA LA CRUZ - Grape Pest Management



Contact Renato Ripa, Director & Researcher, Instituto de Investigaciones Agropecuarias - INIA, Chorrillos No 86, La Cruz, V Region, Chile. Phone - 56-33-312366, fax - 56-33-310666

Colombia

Manejo Integrado de Plagas
(Integrated Pest Management)

Main crops/ pests/ alternative controls

Oil Palm/ various pests/ strengthening natural controls with management of nearby flora to attract and provide habitat for beneficial insects

Partner organizations

CENIPALMA (Centro de Investigación en Palma de Aceite) - Project coordination

Universidad Nacional de Colombia - Working with students and identification of plants and insects

CIAT - Professional training

Universidad del Valle - Technical assistance

Funding Fomento Palmero Fund

Initiation. June 1994

Description, Impacts and Constraints

CENIPALMA's Integrated Pest Management project involves research and professional training of technicians. Participants include 300 male and 50 female farmers, 1000 male and 500 female farmworkers, and 100 male and 50 female technicians. Some examples of 100% reduction in pesticide use have been documented, this is the project's goal. Economic impact is apparent but has not been quantified. The project's primary constraint is resistance of technicians and farmers to change.

Contact Hugo Hernán Clavache Guerrero, Entomology Area Leader, CENIPALMA (Centro de Investigación en Palma de Aceite), Cra 11 No 73-44, Of 408, Apartado 13773, Bogotá, Colombia. Phone - 57-1-248-1530, fax - 57-1-248-1416

National Project on Integrated Pest Management

Main crops/ pests/ alternative controls

Potatoes/ white weevil, moths/ cultural controls, traps, biological controls

Cotton/ moths, cotton boll weevil/ legal, cultural, biological controls and traps

Rice/ moths, planthopper, weevils/ resistant varieties, cultural and biological controls

Partner organizations

Colombian Agricultural Institute (ICA) - Project coordination

Colombian Agricultural Ministry - Policy work, funding

National Cotton Association (Conalgodon) -- Collaboration

Potato Growers Federation -- Collaboration

Cattle National Fund -- Funding

Rice Growers Federation -- Collaboration

Coffee Growers Federation -- Collaboration

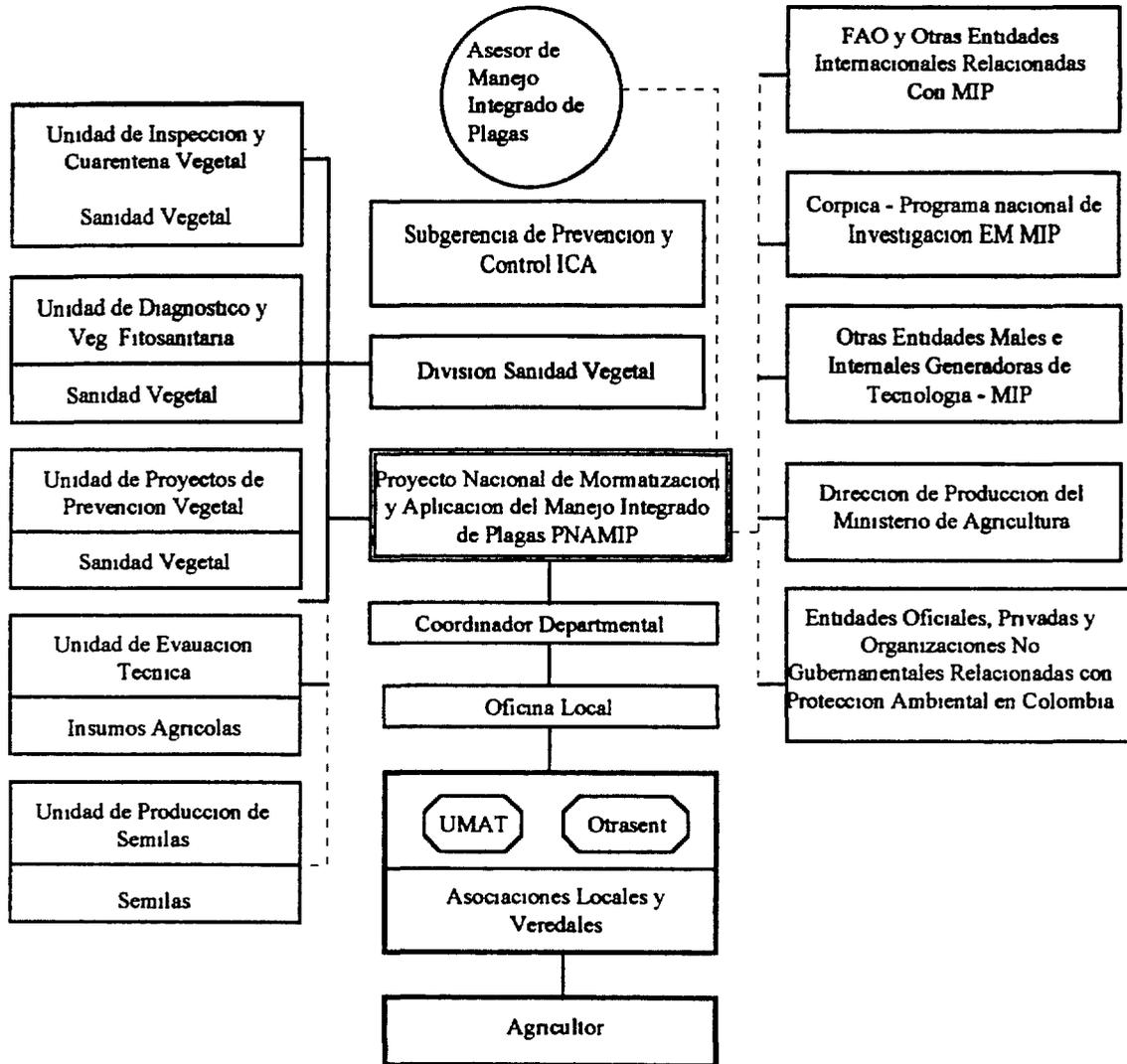
Funding Colombian Government (Ministry of Agriculture)

Initiation January 1995

Description, Impacts and Constraints

ICA's IPM projects in cotton, potatoes and rice involve training of trainers, farmer training, demonstrations, field days, extension and policy activities. Project participants include 5000 male and 3000 female farmers, 8000 male and 1000 female farmworkers, and 30 male and 10 female technicians. Ten percent reduction in pesticide use has been documented to date. Participant adoption of alternative controls has also been documented. 30% have adopted biological controls, 35% cultural controls, and 25% legal controls. The project's primary constraint is lack of personnel at the national level providing support to the project.

Instituto Colombiano Agropecuario (ICA)



Contact Dr Jaime Jiménez, Instituto Colombiano Agropecuario (ICA), Calle 37 No 8-43, Of 407, Bogotá, Colombia Phone - 57-2-232-4130 or 2855520, ext 234, fax - 57-2-288-1753

Programa Nacional Estratégico sobre Manejo Integrado de Plagas (MIP)
(National Strategic Program for Integrated Pest Management (IPM))

Main crops/ pests/ alternative controls

Vegetables/ whiteflies/ biological controls

Potatoes/ potato tuber moths/ biological and nonconventional methods

Banana/ weevils/ biological controls

Cotton/ various pests/ biological controls

Partner organizations

Corporación Colombia de Investigación Agropecuaria (CORPOICA) - Project implementation
ICA - Regulation and control
Universities - Training and research
CIAT - Research

Funding National Resources

Initiation January-1994

Description, Impacts and Constraints

The National IPM Program was designed to generate technologies based on in-depth knowledge of the biology, ecology, and dynamics of agro-ecosystems. The program has seventeen different projects in various crops, eight of these are primarily focused on biological control. Various problems have been identified, including technical, institutional, economic and social constraints.

Contact Dr. Aristobulo López-Avila, Corporación Colombia de Investigación Agropecuaria (CORPOICA), Apartado Aéreo 241042, Las Palmas, Santafé de Bogotá, Colombia. Phone - 57-1-2821619, fax - 57-1-2673013, email - corpoica@colcig3.colcienc

Cuba

National Alternative Agriculture Program

See *Case Study Summary* above

Dominican Republic

**Programa Nacional Manejo Integrado de Plagas
(National Integrated Pest Management Program)**

Main crops/ pests/ alternative controls

Tomato/ "mosca blanca" (*Bemisia tabaci*)/ cultural controls
Tomato/ yellow leaf curl virus/ phylogenetic controls, others
Potato/ "polilla" (*Phthorimaea operculella*)/ cultural, microbial, and selective chemical controls
Cabbage/ "palomilla" (*Plutella xylostella*)/ cultural, microbial, and selective chemical controls
Sweet potato/ "piogan" (*Cylas formicarius*)/ cultural, microbial, and selective chemical controls
Citrus/ "picudo" (*Diapropos abbreviatus*)/ biological control

Partner organizations

Junta Agroempresarial Dominicana, Inc (JAD) - Administration, implementation
Secretaría de Estado de Agricultura (SEA) - Technical support
Fundación de Desarrollo Agropecuario (FDA) - Research

Funding Initial funding from USAID, now
funded by JAD, SEA, CIP and producers

Initiation January 1990

Description, Impacts and Constraints

The project involves a wide range of activities, including training of trainers and farmers, extension, demonstration and field days, and policy activities. More than 12,000 farmers have participated in the national project (8,601 male farmers, 3,686 female farmers). Farmworkers (3,000 men and 800 women) have also been trained, as well as 3,782 male technicians and 500 female technicians. Significant pesticide use reduction has been documented: 60% reduction in tomato, cabbage, and potato production and 80% reduction in citrus and sweet potato. Improvements in the quality of fruit have also been documented. In areas where growers groups are organized, adoption has been more rapid than in other locations. The primary project constraints are economic, lack of funds has led to personnel cuts and cutbacks in research validation and technology transfer.

Contact Porfirio Alvarez, Junta Agroempresarial Dominicana, Inc., (JAD), Calle Euclides Morilla #51, Arroyo, Hondo, Sto Domingo, Republica Dominicana. Phone - 809-563-6178, fax 809-563-6181

Ecuador

Biotecnología y Agricultura Alternativa *(Biotechnology and Alternative Agriculture)*

Main crops/ pests/ alternative controls

Horticultural crops/ various pests/ reduced pesticide use, natural products

Partner organizations

Universidad Central - Project coordination
FUNDAGRO
Private sector
Farmers

Funding Partially funded through FUNDAGRO, partly self-funded Initiation 1993

Description, Impacts and Constraints

The Alternative Agriculture project involves training of trainers, farmer training, research activities and field days. Participants include 200 male and 60 female farmers, 40 male and 20 female technicians. Pesticide use has dropped by roughly 40% in the project area with comparable yields and marketable produce. Crop rotation, use of organic manures and plant extracts, and study of the life cycle of pests have all been widely adopted. Lack of financial resources is the project's primary constraint.

Contact Alberto Ortega and Manuel Zuquitanda, Agricultural Engineers, Agricultural Science Faculty, Ciudadel Universitaria Casilla, A-4607, Quito, Ecuador. Phone - 593-2-238225, fax - 593-2-528704

Frutacultura - INIAP

Main crops/ pests/ alternative controls

Apple/ woolly aphid/ biological control

Lemons/ white fly/ biological control

Oranges/ nematodes/ organic matter

Partner organizations

Instituto Nacional Autónomo de Investigaciones Agropecuarias - Project coordination

Universities

Agricultural Ministry

Farmers

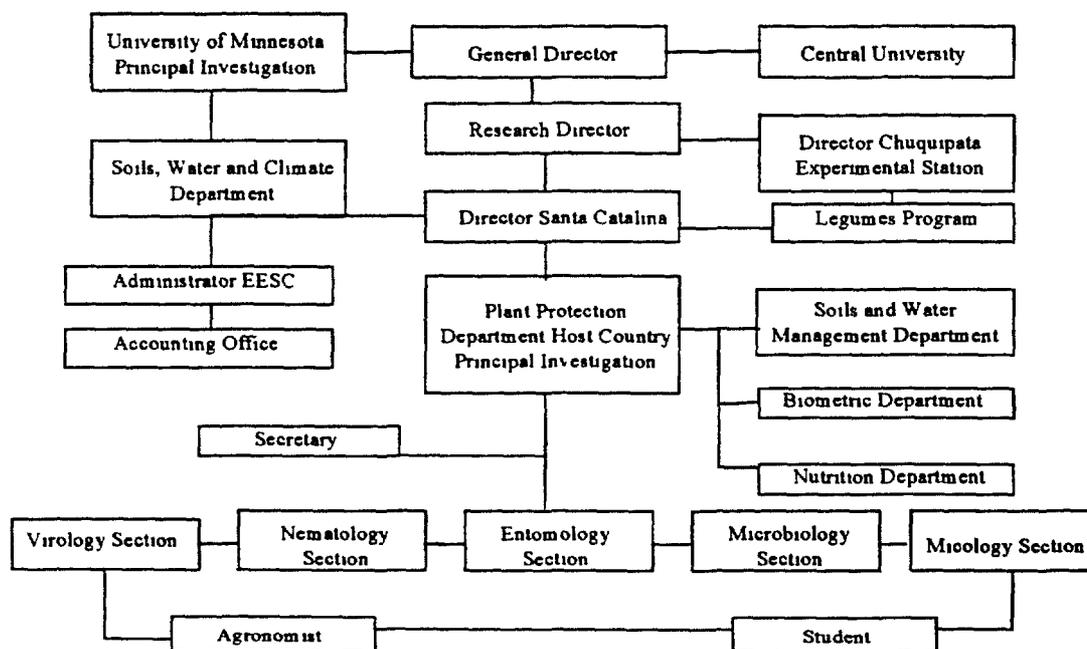
Funding Government of Ecuador, COTESU, farmer fees

Initiation 1993

Description, Impacts and Constraints

The Frutacultura project involves professional and farmer training, demonstrations, field days, research and extension. Four hundred male farmers and 100 female farmers participate in the project, and 20 male and 5 female technicians. Pesticide use has fallen by 50% among project participants, with a 20% yield increase. Diffusion of rational, low-pesticide management practices on the target crops has been good. Financial constraints are the primary project challenge.

Instituto Nacional Autonomo De Investigaciones Agropecuarias



Contact Juan Leon, Agricultural Engineer, Instituto Nacional Autonomo de Investigaciones Agropecuarias, Av Amazonas y Eloy Alfaro, 4to Piso, MAG, Quito, Ecuador Phone - 593-2-547997, fax - 593-2-504240

Programa Nacional de Capacitación sobre Uso Racional de Plaguicidas, Productos Biológicos y Nutrientes de las Plantas

(National Training Program, The rational use of pesticides, biological controls, & nutrients)

Main crops/ pests/ alternative controls

Cotton/ cotton scale/ biological control
Coffee and other crops/ white fly/ biological control
Various crops/ various pests/ trycogramma
Various crops/ various pests/ plant extracts

Partner organizations

Servicio Ecuatoriano de Sanidad Agropecuaria, Ministerio de Agricultura y Ganadería - Project coordination
Comisión Asesora Ambiental
Ministerio de Salud Pública
Instituto Nacional de Normalización
Fundación Natura
Asociación de Importadores y Fabricantes de Insumos Agropecuarios
Comite Ecuatoriano de Defensa de la Naturaleza y el Medio Ambiente
Funding CAAM, AG, AIFA, USAID Initiation 1993

Description, Impacts and Constraints

Ecuador's national IPM training project involves training of technicians, farmer training and field days. Participants include 1000 male and 200 female farmers, 1000 male and 200 female farmworkers, and 100 male and 200 female technicians. Adoption rates have been significant for biological control of pests on coffee and cotton, specifically biological control of the white fly. Increased production has been observed in various crops, and reduced populations and attacks of white flies have been documented. Financial constraints are the project's primary challenge.

Contact Mercedes Bolaños, Analytical Chemical Engineer, Servicio Ecuatoriano de Sanidad Agropecuaria - Ministerio de Agricultura y Ganaderia, Av Eloy Alfaro y Amazonas, Edif MAG, Quito, Ecuador Phone - 593-2-567232, 543319, fax - 593-2-228448

Agricultura Orgánica

(Organic Agriculture)

Main crops/ pests/ alternative controls

Horticultural crops/ various pests/ ecological management, including increasing biodiversity, companion planting and repellent planting, organic fertilizers, use of beneficial fungi, bacteria and viruses, use of traps, natural controls, and botanical insecticides

Partner organizations

Fundacion Para el Desarrollo Agropecuario (FUNDAGRO) - Project coordination
Rodale Institute
Universidad Central
Farmer Organizations

Funding USAID PL-480 funds

Initiation 1991

Description, Impacts and Constraints

FUNDAGRO's organic agriculture project involves a wide range of activities, including training of agricultural professionals, farmer training, demonstration plots, field days, research, extension, technical publications and policy advocacy. An estimated 5,000 men and 2,000 women in the local community participate in the project, plus 2,500 male farmworkers, 1,000 female farmworkers, and 30 technicians (20 men, 10 women). Ecology students at a nearby university also work with and learn from the project. Alternative pest control methods have been adopted by 10% of the farmers in the community. Half the participating farmers report reduced pesticide use, 25% report increases in production, and 80% report better quality produce. Vegetables produced organically can be sold for a 125% premium, leading to socio-economic benefits. Financial constraints prevent the project's growth to other geographical areas and more farmers.

Contact Manuel Benjamin Suquilanda Valdivieso, Fundación Para el Desarrollo Agropecuario (FUNDAGRO), Moreno Bellido 127 y Amazonas, Apartado 17-18-219, Quito, Ecuador. Phone - 593-2-220532/33, fax - 593-2-507422

El Salvador

Integrated Plant Protection, MAG-GTZ

Main crops/ pests/ alternative controls

Corn/ Phyllophaga sp, Spodoptera frugiperda/ assessing pest and damage levels, use of integrated nutrient management

Beans/ Phyllophaga sp, Bemisia tabaci, Apion godmani, vaginulus/ assessing pest and damage levels, traps, trapping crops, resistant varieties, timing of plantings

Fruits/ "tristeza de citricos"/ research on resistant root stock

Partner organizations

Sociedad Alemana de Cooperacion Tecnica

Centro Nacional de Tecnologia Agropecuaria y Forestal (CENTA)

Institucion Rectora de la Investigacion y Extension Agropecuaria

Direccion General de Sanidad Vegetal (DGSVA)

Funding GTZ and national funds

Initiation January, 1989

Description, Impacts and Constraints

The Integrated Plant Protection project involves training of technicians and farmers, extension (demonstrations, field days, demonstration plots), and research activities. More than 14,000 farmers have been trained (12,706 male farmers, 1,887 female farmers). One hundred male technicians and 13 female technicians have also received training. In 1994, the project documented 21% less pesticide use in corn, and a 19% reduction for use in bean production. The IPM plots have outproduced the conventional plots by 13.5% for corn and 17.4% in beans. According to extensionists' reports, between 20% and 60% of the participating growers have adopted IPM.

Contact Michael Dryer, PhD, Sociedad Alemana de Cooperación Técnica (GTZ), Edificio y Pasaje Carbonel, #2, Colonia Roma, San Salvador, Apartado 755, El Salvador Phone - 505-245-0182 or 338-4281, fax - 503-245-0209

Honduras

“MIP-Laderas” con Pequeños Productores *(Hillside IPM with Small Producers)*

Main crops/ pests/ alternative controls

Maize/ fall armyworm/ sand, clay applied in the whorl, insect parasitoid (*Telenomus remus*)

Beans/ slugs, pod weevil, diseases/ various controls

Vegetables/ Lepidopterous sp , diseases/ various controls

Partner organizations

EAP-Zamarano - Project coordination, training of trainers and farmers, research

CIDICCO - Cover crops

Catholic Relief Services (CRS) - Financial support to small projects in agriculture

World Neighbors - Rural extension, soil conservation, nutrition project for farmers

Granja Loma Linda - Farmer empowerment training

Funding UNDP, COSUDE - Honduras

Initiation June 1995

Description, Impacts and Constraints

The project involves training of both technicians and farmer, plus research and extension activities. Those influenced by the project include 8,000 male and 1,500 female farmers, 30,000 male technicians and 60 female technicians. A 20% reduction in the use of pesticides has been documented, and farmers are beginning to understand the biological cycle of insects and the value of natural enemies. Project constraints include a lack of field research, insufficient evaluation system, and lack of coordination among collaborating institutions. There is also a need to incorporate more farmer input in the project.

Contact Julio López, Project Coordinator, EAP-Zamorano, Apartado Postal 93, Tegucigalpa, Honduras Phone - 504-766140/150, fax - 504-766242

Nicaragua

CATIE/INTA IPM Project

See *Case Study Summary* above

IPM with Small Farmers in Nicaragua

Main crops/ pests/ alternative controls

Corn/ all main pests/ natural control

Beans/ all main pests/ natural control

Partner organizations

Zamorano-COSUDE - Project coordination
Nicaraguan Institute of Agricultural Technology (INTA)
Agrarian National University (UNA)
National Union of Growers and Cattle Raisers (UNAG)
Autonomous National University of Nicaragua (UNAN/Leon)
Institute of Human Promotion (INPRHU)

Funding COSUDE (Cooperación Suiza al Desarrollo) and
national resources

Initiation March 1995

Description, Impacts and Constraints

The IPM with Small Farmers project involves demonstrations and field days, training of farmers and technicians, extension and research. Two thousand farmers are trained per year, 1,600 men and 400 women. Three hundred technical staff have also been trained (250 men, 50 women), as well as 20 professors (15 men, 5 women). Participating farmers reduce their use of pesticides by 30% through adoption of natural pest control measures. The project focuses on reducing input costs for farmers, rather than on increasing yields. The central challenge for the project is the "cotton culture" of Nicaragua: farmers believe that the use of pesticides is essential in pest management and they are accustomed to it.

Contact Orlando Cáceres, Coordinator, PO Box 0014 Estelí, Nicaragua. Phone - 071-32562, fax - 071-33100

Panama

Convenio Panameño Alemán (MIDA-GTZ)
(Panamanian-German Joint Project)

Main crops/ pests/ alternative controls

Nightshades (tomatoes, eggplant)/ white fly/ cultural, mechanical, biological, ecological controls
Cucurbit (gourds)/ white fly/ cultivars, biological ecological controls
Banana (plantain)/ "picudo"(Diapropos abbreviatus) /ecological, cultural controls
Rice/ various pests/ cultural controls

Partner organizations

Ministerio de Desarrollo Agropecuario (MIDA) - Sanidad Vegetal - Project coordination
Women's projects - Coordinate work at local/regional levels
IDIAP - Conduct needed research
Private business - Coordinate activities with project committee
OIRSA - Finance certain joint activities

Funding Principal activities funded by joint
MIDA-GTZ project

Initiation 1992

Description, Impacts and Constraints

The MIDA-GTZ project involves field validation of new IPM technologies, training of both technical staff and farmers, extension, field days, and demonstration projects. Participants include 500 male and 200 female farmworkers and 50 male and 20 female technicians. Pesticide use reduction is estimated at 5%, with some yield increases, decreased production costs, better quality products and reduction of pest-related losses. Adoption of alternative controls for the whitefly is 100% among project participants. Constraints include lack of applied research on specific problems faced by participants, insufficient training in and understanding of IPM concepts, and lack of equipment and personnel.

Contact Dr. Gerhard Jurgens, Weed Scientist, Ministerio de Desarrollo Agropecuario (Sanidad Vegetal), Apartado Postal 5390, Rio Tapia - Tocumen, Panama. Phone - 507-220-5663, 220-7474, fax - 507-220-5452.

Paraguay

Manejo Integrado de la Palomilla del Tomate *(Integrated Management of the Tomato Moth)*

Main crops/pests/alternative controls

Tomato/ *Scrobipalpus absoluta*/ cultural and chemical controls

Partner organizations

Instituto Agronomico Nacional - Project coordination
Japanese International Cooperation Agency (JICA) - Technical and financial assistance
Ministry of Agriculture, Agricultural Research Division - Research and technical support

Funding JICA and national resources

Initiation March 1995

Description, Impacts and Constraints

The project involves outreach to the 3,000 small tomato producers in Paraguay through a combination of demonstration projects, technician training, and research. Adoption rates are currently being evaluated. Failure to control this pest makes tomato production economically unfeasible. Project constraints include training of technicians at the post-graduate level, limitations in the transfer of technology to producers, and limited distribution of natural pesticide products, particularly biological control products such as parasites and predator insects.

Contact Rosa Cardozo, Instituto Agronomico Nacional, Caacupe - Ruta Mariscal, Estiogarrabia KM 48.5, Paraguay. Phone - 595-511-2255, fax - 595-511-2255.

Peru

Integrated Pest Management for Potatoes

See *Case Study Summary* above

Programa de Capacitación de Alternativas Agroecológicas
(*Alternative Agriculture Training Program*)

Main crops/ pests/ alternative controls

Potato/ *Liriomyza hoidenbrensis*/ yellow sticky traps

Corn/ *Spodoptera frugiperda*/ *Bacillus thuringensis*

Tomato/ *Heliothis zea*/ *Bacillus thuringensis*

Cotton/ *Pectinophora gossypiella*/ pheromones

Partner organizations

Red de Acción en las Alternativas al Uso de Agroquímicos (RAAA) - Project coordination

Instituto de Salud y Trabajo (ISAT), Lima

Proyecto de Apoyo Comunitario (PAC), Cuzco

Instituto de Investigación y Capacitación Profesional (IINCAP)

Centro de Investigación, Capacitación, Asesoría y Promoción (CICAP), Chillayo

Servicios Educativos, Promoción y Apoyo Rural (SEPAR)

Funding USAID-MEP-RAAA agreement

Initiation 1993

Description, Impacts and Constraints

The RAAA project includes training for technicians and farmers, demonstrations, extension and field days. More than 500 community members are involved in the project, as well as 288 male and 54 female technical staff. Levels of pesticide use reduction and/or yield increases have not yet been documented.

Contact Luis Gomero Osorio, Agricultural Engineer, Red de Acción en Las alternativas al Uso de Agroquímicos (RAAA), Av. Mariscal Miller No. 2622, Apartado 11-0581, Lima, Perú. Phone - 51-14-429-0826, fax - 51-14-4404359, email - raaa@peruop.com

Uruguay

IPM in Fruit Crops

Main crops/ pests/ alternative controls

Pears and Peaches/ *Cydia pomonella*, *Cydia molesta*/ mating disruption, maximizing activity of indigenous natural enemies

Partner organizations

INIA Las Brujas - Project coordination

Fruit growers - Research in their fruit orchards

CLUA - Organize groups of growers for organic fruit production. They use IPM technology as part of their organic production.

Funding INIA

Initiation 1990

Description, Impacts and Constraints

INIA's project includes research and training of technical staff. Insecticide applications among those adopting IPM practices has fallen from 4-6 per season to 1-2. Adoption rates are fairly low, as conventional management practices are less expensive and there is no market or certification project for fruits produced with low pesticide inputs.

Contact Saturnino Nuñez, INIA Las Brujas, CC 33085 Las Piedras, Uruguay. Phone - 598-32-77641 /42 /01, fax - 598-32-77609, email - snunez@inialb.org.uy.

Manejo de Plagas en Cultivos Extensivos

(Pest Management in Several Crops)

Main crops/ pests/ alternative controls

Wheat/ *Pseudaletia adultera*/ physiological controls
Corn/ *Spodoptera frugiperda*, *Agrotis ipsilon*/ treated seeds

Partner organizations

Instituto Nacional de Investigación Agropecuaria (INIA) - Project coordination
Facultad de Agronomía - Collaborate in research
Sociedad Rural Río Negro - Collaborate in research

Funding Government funds and contributions
from growers' associations

Initiation 1980

Description, Impacts and Constraints

The IPM Project conducts research and sponsors field days for farmers in Uruguay. Documentation of pesticide use reduction rates and adoption levels is not yet available, but there is evidence of decreased use of insecticides to control *Pseudaletia adultera*, and use of treated seeds to control *Agrotis ipsilon*. Lack of financial resources is the primary project constraint.

Contact Maria Stella Zerbino, Instituto Nacional de Investigación Agropecuaria (INIA), Estación Experimental "Alberto Boerjter," La Estanzuela, Colonia, Uruguay. Phone - 598-522-4060/2005, fax - 598-522-4061, email - stella@inia.org.uy

Venezuela

Sugar Cane Integrated Pest Management (MIPCA)

Main crops/ pests/ alternative controls

Sugar cane/ borer/ *Cotesia flavipes*, *Metagomistylum mnense*
Sugar cane/ froghopper/ *Metarhizium anisopliae*

Partner organizations

National Foundation of Agricultural Research (FONAIAP) - Project coordination
Sugar Cane Farmers Association (FESOCA)

Sugar Cane Research Foundation (FUNDAZUCAR)

Funding Public and private funds

Initiation 1985

Description, Impacts and Constraints

The MIPCA project includes training of trainers, demonstrations and field days, extension and research. Pesticide use reduction rates among participants are estimated at 50-100%, and farmers and technical staff are aware of the advantages of using biological controls as an alternative to chemical pesticides. Constraints include lack of continuity among local projects, weak implementation of evaluations, and continuous personnel changes.

Contact Dr. Jesús Salazar Velásquez, FONAIAP, Apartado 110, San Felipe, Venezuela. Phone - 58-54-311136, fax - 58-51-543409

NORTH AMERICA

Canada

Manitoba Purple Loosestrife Project

Main crops/ pests/ alternative controls

Purple Loosestrife/ Biological control

Partner organizations

Manitoba Purple Loosestrife Project - Project coordination

Agriculture Canada

City of Winnipeg

Canadian Wildlife Service

Ducks Unlimited Manitoba

Manitoba Environment

Manitoba Department of Natural Resources

Manitoba Agriculture

Manitoba Weed Supervisors Association

Funding Grants

Initiation March 1992

Description, Impacts and Constraints

The MPLP has four primary project objectives: community education, habitat restoration campaigns, loosestrife mapping and monitoring, and the delivery of action-oriented sustainable management strategies. The wide range of institutions involved in the project conduct research, demonstrations, various community education efforts, habitat monitoring, and biological control. Since 1992, over 20,000 classical biological control agents (three species) have been released into

32 sites across Manitoba to battle purple loosestrife More than 600,000 people in Manitoba area have been affected by the project, and the major constraint identified is adequate funding

Contact Cory Lindgren, Provincial Coordinator, Manitoba Purple Loosestrife Project, Box 1160, Stonewall, Manitoba, ROC 270, Canada, Phone - 204/467-3264, fax - 204/467-9028

Mexico

Ecología de Insectos y Manejo de Plagas *(Insect Ecology and Pest Management)*

Main crops/ pests/ alternative controls

Coffee/ coffee borer/ biological control (parasitoids and pathogens)
Tropical fruits/ fruit flies, white flies/ biological control (parasitoids)
Maize/ Spodoptera frugiperda/ biological control (pathogens)

Partner organizations

El Colegio de la Frontera Sur (former CIES) - Project coordination
Asociación Mexicana de Agricultores Ecológicos
Project MoscaMed and Moscafrut
Several Growers Associations

Funding Mexican national government, CONACY,
IDRC, EC, IICA, IAEA, SAGDR

Initiation 1986

Description, Impacts and Constraints

Research is the project's primary area of activity Biocontrol technology produced by the project has been adopted on several fruit crops, with significant reduction in pesticide use resulting
Project constraints include long term funding sources and adequate technology transfer methods

(See Organizational Diagram, p 49)

Contact Pablo Liedo, El Colegio de La Frontera Sur (former CIES), Apdo Postal 36, 30700 Tapachula, Chiapas, Mexico Phone - 52-962-81077, fax - 52-962-810-15, email - CIAS-TAP@Lanera.igc.a

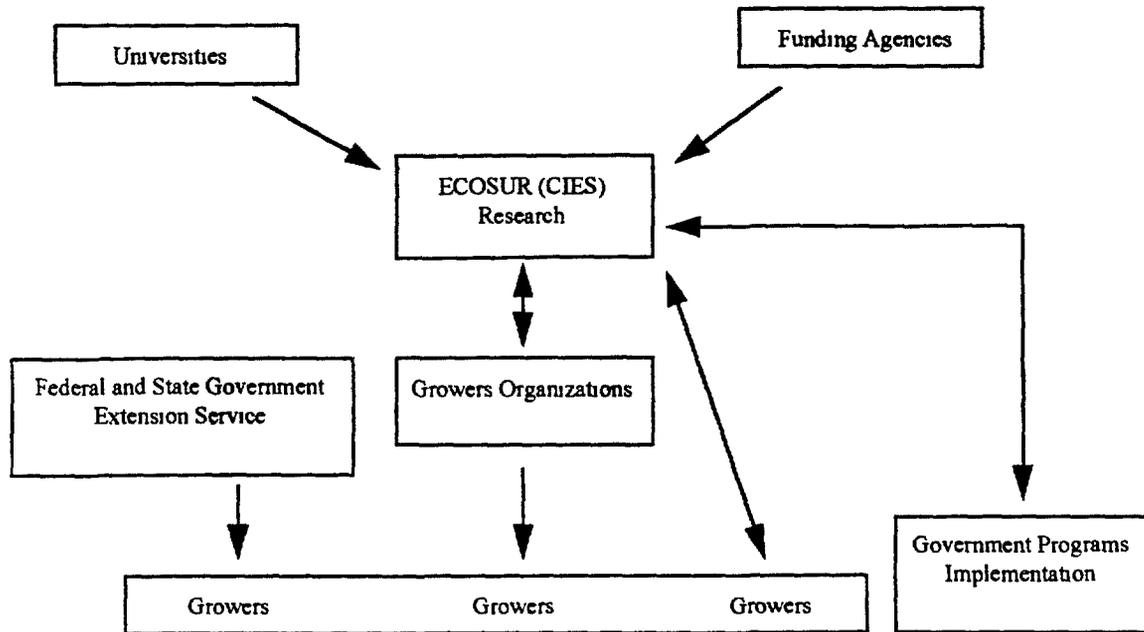
United States

Agroecology Extension Program

Main crops/ pests/ alternative controls

Tomatoes/ fungi/ IPM and integrated crop management
Apples/ insects, fungi and mites/ IPM and integrated crop management

ECOSUR (CIES) - Insect Ecology and Pest Management



(United States, cont)

Partner organizations

University of Massachusetts, Entomology Department - Project coordination

Land grant and non-land grant universities (Cornell, Penn State, Rutgers, Universities of New Hampshire, Vermont, Maine, Maryland and Delaware)

Government agencies (Mass Dept of Food and Agriculture, USDA, USEPA, USAID, CSFA)

Nongovernmental organizations (growers' associations, Rodale Institute, Mothers and Others for a Liveable Planet, Audubon)

Funding State and federal funds and personnel

Initiation 1994

Description, Impacts and Constraints

The project helps business and consumers develop and apply new agro-environmental technologies and practices to meet the public demand for safe, inexpensive food and a clean environment. The project develops, demonstrates and assists growers and managers to adopt alternative technologies. It is also a source of research-based knowledge for agriculturalists, environmentalists and others, and it assists communities to create sustainable regional agricultural systems through educational meetings and projects. Research and education activities are conducted through projects sponsored by commodity focused teams. The project has trained 4,500 individuals in IPM monitoring methods. Participating tomato grower reduced fungicide use by 20-40%, apple growers involved in a research project reduced insecticide use by 100%, miticide use by 20%, and fungicide use by 26%. One thousand four hundred producers have adopted recommended sustainable practices.

Contact William M. Coli, Program Director, University of Massachusetts, Entomology Department, Agricultural Engineering Building, Box 30210, Amherst, MA 01003-0210, USA. Phone - 413-545-1051, fax - 413-545-5858

California BIOS Program

See Case Study Summary above

Dairy Network Partnership

Main crops/ pests/ alternative controls

All dairy operations, with focus on Southeastern Pennsylvania We promote low cost management, effective sustainable agronomic/production practices (i.e., rotational grazing, streambank protection, nutrient management practices, integrated pest management)

Partner organizations

Rodale Institute - Project coordination
Chesapeake Bay Foundation
Atlantic Dairy Cooperative
Pennsylvania State University
US Environmental Protection Agency
Pennsylvania Association for Sustainable Agriculture

Funding Private foundation, US EPA, and
SANRUE as well as in-kind contributions
from all partners

Initiation Spring 1995

Description, Impacts and Constraints

The Dairy Network Partnership includes field days and demonstrations, farmer training and policy activities. One thousand two hundred male farmers and 300 female farmers participated in the project in 1996. Fifty-five technical staff have also been trained (40 men, 15 women) as well as 75 representatives from non-profits or government agencies (50 men, 25 women). Impacts are currently being documented, but there is evidence of adoption of best management practices and heightened participation in field events. The project's primary challenge is recognizing that the most valuable commodity for their farmer audience is time. Coordinators work to be concise and effective at providing information and technical support.

Contact Lori Sandman, Project Manager, Rodale Institute, 611 Siegfriedale Road, Kutztown, PA 19530, USA. Phone - 610-683-176, fax - 610-683-8548, email - lsandm@rodaleinst.org

Nebraska Agriculture IMPACT Project

Main crops/ pests/ alternative controls

Feed grains livestock systems, high plains/ noxious weeds, crop pests/ rotations, integrations, alternative crops

Sand hills prairie livestock systems/ noxious weeds, crop pests/ rotations, integrations, alternative crops

Wheat/bean fallow systems/ noxious weeds, crop pests/ rotations, integrations, alternative crops

Partner organizations

NSAS - Group work, publish newsletter, sponsor annual networking meeting

UNL - Advise on on-farm research design; extension liaison; group support

CRA - Form beginning farmer groups, link beginners with existing groups

Funding Private foundation, US federal government, self-funding

Initiation May 1994

Description, Impacts and Constraints

The IMPACT project includes on-farm demonstrations, support for farmers' groups, farmer training, field days and policy related work. Participants include 60 male farmers and 30 female farmers, and 18 technical staff (15 men, 3 women). Documentation of pesticide reduction or yield impact is not yet available. The project encourages participating farmers to pursue on-farm experimentation. Farmers' groups provide safety and support for participating farmers. A major constraint is the pace of progress, adoption often takes years, and neighbors rarely adopt new practices. Social pressures inhibit change more than technical difficulties.

Contact Cris Carusi, Nebraska Sustainable Agriculture Society, Center for Rural Affairs, University of Nebraska, P O Box 736, Hartington, NE 68739, USA. Phone - 402-254-2289, fax - 402-254-6891. email - criscarusi@aol.com

The Peanut Project

Main crops/ pests/ alternative controls

Peanuts & cotton/ whole systems approach, major pests include thrips, corn rootworm, leafspot, CBR (cylindrocladium black root rot)/ emphasis on eliminating preventative treatments wherever possible, maintenance of beneficial habitat to increase beneficial insect activity, use of "small footprint" controls

Partner organizations

RAFI - USA - Project coordination

North Carolina Peanut Grower's Association

North Carolina State University

North Carolina Cooperative Extension Service

North Carolina A&T State University

Funding Foundation grants and private donations

Initiation December 1994

Description, Impacts and Constraints

The Peanut Project involves demonstrations, training of farmers, field days and workshops. Events emphasize informal give and take between farmers, researchers and consultants. The project also provides trouble-shooting assistance to participating farmers, a "jump team" including a

researcher, extensionists and experienced farmer will visit the farmer requesting assistance. Approximately 60 farmers have participated in the project, and 10-15 technical staff are involved. Significant reduction of insecticide use has been documented among project participants, reduction of fungicides is dependent on weather conditions. Twenty-five of the farmers involved have initiated some alternative use and/or pesticide use reduction technique. Farmers who did yield comparisons benefited economically from the alternative practices, and saw no reduction in yield. Yield reduction which has been seen is offset by the cost savings from reduced inputs. All participants have indicated they will continue working with the project, and additional farmers are indicating interest in the project.

Contact Scott Marlow, Field Coordinator, The Rural Advancement Foundation International - USA (RAFI-USA), PO Box 640 Pittsboro, NC 27312, USA. Phone and fax - 919-361-1844, email - smarlow@rafiusa.org

Practical Farmers of Iowa

See Case Study Summary above

11 Estimated number of people influenced directly by program

- | | | |
|--|-----------|-------------|
| a Farmers/local community members | Men _____ | Women _____ |
| b Farm workers | Men _____ | Women _____ |
| c Technical staff (extension, professionals) | Men _____ | Women _____ |
| d Other? _____ | Men _____ | Women _____ |

12 General information on impacts

- a Average figures on reduction of pesticide use .

- b Information on adoption of alternatives.

- c Evidence on increase of yields? or other impacts?

13 How funded (e g , source(\$))

14 Key problems or constraints encountered (technical, institutional, outreach, etc) .

15 Please attach a simple diagram of the institutions involved and their relationships

Thank you very much for filling out this form

Please return to

Kristin S Schafer, Project Associate
World Resources Institute
537 S 12th Street
San Jose, CA 95112

WRI PARTNERSHIPS PROJECT - ADVISORY COMMITTEE

Dr Miguel Altieri
Division of Biological Control
University of California, Berkeley

Dr Anthony Bebbington
Overseas Development Institute

Dr Nyle Brady
Retired Senior Consultant
United Nations Development Program

Dr Grace Goodell
Social Change and Development Program
School of Advanced International Studies
Johns Hopkins University

Dr David Kaimowitz
Inter-American Institute for Cooperation in Agriculture

Dr Peter Kenmore
Food and Agriculture Organization

Walter Knausenberger
Environmental Protection Unit
US Agency for International Development

Monica Moore
Pesticide Action Network, North America

Dr Prabhu Pingali
International Rice Research Institute

Dr Peter Rosset
Food First

Dr Abou Thiam
Pesticide Action Network, Africa

Richard Wiles
Environmental Working Group