

## **Systemwide Program on Integrated Pest Management (SP-IPM): Mid Term Plan 2006 - 2008**

### **Rationale**

IPM development and promotion requires better understanding of farmers' perceived needs and applying participatory approaches to elucidate the biological, ecological, and sociological processes that underpin agriculture, and then using this understanding to solve the problems that arise when these processes are disrupted. The CGIAR SP-IPM embodies the determination of the International Agricultural Research Centers and their partners to promote this new approach as the preferred crop protection strategy of farmers in the developing world. The SP-IPM mission is to increase the quality and usefulness of IPM research and outreach for higher productivity and sustainable profitability of cropping systems and improved livelihood of people, particularly in the developing world. The SP-IPM stakeholder groups are international and national agricultural research institutes, agricultural development organizations, IPM development agencies, universities and technical training institutes, biodiversity and NGO networks, plant protection departments/services, extension departments/services, plant protection industry, farmer support groups and farmers' organizations, working in partnership with donor agencies from the developed world. Strategic alliances and collective ownership of the program by these partners coupled with strategic alliances between individual partners and inter-governmental and sub-regional organizations enables the SP-IPM to give priority to areas where inter-institutional and inter-regional collaboration could make a decisive contribution to the CGIAR efforts in national food security and poverty alleviation strategies.

### **Beneficiaries and users**

While the principles of IPM are universal, the needs of farmers are individual and location specific. SP-IPM therefore implements its activities with a diverse range of NAREs (including NGOs) to bring the benefits of IPM to farmers. Currently, the major operational sites for the SP-IPM are tropical highlands of Latin America; tropical mid-altitude zones in Africa; tropical lowlands of Central America; dry and semi-dry areas; sahel zones in Africa; and humid and sub-humid tropics. National partners in the zones include at least 13 agricultural research and development programs in Latin America and the Caribbean (Belize, Bolivia, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, and Nicaragua), 15 in Africa (Benin, Burkina Faso, Cameroon, Egypt, Ghana, Kenya, Madagascar, Malawi, Morocco, Nigeria, Sudan, Tanzania, and Uganda) and 4 in Asia (Indonesia, Philippines, Thailand, and Vietnam).

### **Collaborators**

Collaborating partner organizations on the SP-IPM membership has broadened from an early focus on the international agricultural research centers to include other institutions that are active on the international IPM research 'scene'. The recently enlarged SP-IPM comprises representatives of CIAT, CIMMYT, CIP, ICARDA, ICRISAT, IITA, IPGRI, IRRI, WARDA, ICIPE, AVRDC, CABI Bioscience, FAO/Global IPM Facility, International Association for the Plant Protection Sciences (IAPPS); CropLife International (representing private sector crop protection industry) and World Bank (Department of Agriculture and Rural Development).

Sustained donor partnership is essential to actualize planned activities. The SP-IPM is supported by the CGIAR and the governments of Switzerland, Norway and Italy. The first set of SP-IPM pilot site activities were initiated with funds from the World Bank. The activities of the farmer-participatory research and learning project were co-sponsored by the Swiss Agency for Development and Cooperation, the Global IPM Facility, the Systemwide Program on Participatory Research and Gender Analysis (PRGA). Additional support for the global Tropical Whitefly IPM project has been provided by Danish International Development Assistance, the Department for International Development of the United Kingdom, the Australian Centre for International Agricultural Research, the New Zealand Ministry of Foreign Affairs and Trade, the United States Agency for International Development and the United States Department of Agriculture.

## Goal

To increase and stabilize production and productivity of crops in different agricultural production systems and alleviate poverty through better food security and income-generation for small scale farmers in the developing countries

## System linkages

Link to CGIAR log frame outputs Germplasm Improvement (10%), Germplasm Collection (5%), Sustainable Production (45%), Policy (10%), and Enhancing NARS (30%).

## Objectives

To achieve its mission, the SP-IPM network gives priority to areas where inter-institutional and inter-regional collaboration could make a decisive contribution to finding a solution. The program's objectives, which are implemented as rolling work programmes, are as follows:

- To promote inter-institutional partnerships (break isolation barriers) for increased effectiveness of IPM research and outreach
- To develop and promote holistic and ecological approaches for IPM technology development and harmonize the same across locations
- To develop and promote effective communication and learning models for informed decision making in IPM leading to higher, sustainable, and healthier harvests
- To promote a policy environment favorable to the development and application of IPM strategies for sustainable agriculture
- To foster an awareness of the impact and benefits of IPM leading to the wider adoption of more sustainable crop protection strategies

## Output 1

Promote inter-institutional partnerships (break isolation barriers) for increased effectiveness of IPM research and outreach

**Background:** The SP-IPM harnesses complementary differences between international and national institutes, organizations and programs to impact on the CGIAR output areas in research and related activities. The output areas are germplasm information and collections, sustainable production, policy, and enhancing national agricultural and extension systems (NARES). Through inclusive partnerships, the SP-IPM creates an enabling environment that helps various organizations to collaborate more closely by increasing the quality and usefulness of IPM research, to be more effective in reducing both the direct production losses and the indirect costs to health and the environment.

## Principal activities

- Develop and strengthen partnerships for timely identification of, and responses to ecological imbalances caused by pest problems
- Encourage stakeholders to develop and comply with common position statements on topical IPM issues requiring inter-institutional collaboration
- Establish and apply guiding principles on IPM research and implementation strategies
- Organize and participate in partnership workshops on topical IPM issues requiring inter-institutional collaboration and governments' initiatives

## Output 2

Develop/promote holistic and ecological approaches/methodologies for IPM technology development and harmonize these across localities

**Background:** Certain pests cause severe damage and losses across cropping systems agroecologies and geographic locations, and the problems they create simply refuse to go away. For example, whiteflies and whitefly-transmitted viruses are major threats to the production of cassava in Africa, common bean in Latin America, and vegetable crops throughout the tropics. Similarly, leaf miners cause havoc worldwide in a variety of cropping systems. Stemborers and parasitic weeds are equally area-wide problem in a variety of cereal-legume cropping systems. Pest soil biota threatens food production whilst other soil biota enrich soil fertility. Furthermore, post-harvest IPM research is much neglected. For many of these system-wide problems, farmers' coping strategies alone are ineffective. Inter-connectivity between research centers individually working on the problems would bring benefits of scientific expertise to bear on threats posed by pests to food security and livelihoods.

### **Principal activities**

- Develop, test, and evaluate client-oriented IPM concepts/approaches to strengthen stakeholder capacity to implement IPM programs
- Identify and analyze pest constraints/plant health risks in the target agro-ecosystems
- Unravel trophic relationships in the target agroecosystems to increase the understanding of pest problems and identification of IPM opportunities
- Develop, test and evaluate IPM options, to reduce crop losses with minimal adverse effects on the environment

### **Output 3**

Develop/promote effective communication/learning models for informed IPM decision making leading to higher, sustainable and healthier harvests.

**Background:** The success of IPM depends largely on how well farmers understand and combine knowledge of biological and ecological processes with their farming experience to develop/select options that reduce losses to pests, increase agricultural productivity, manage risk, and meet the demands of local and global markets. Globally, the IPM community is convinced that farmer participatory research (FPR) and farmer participatory learning (FPL) ensure good communication between researchers and farmers leading to integration of scientific and indigenous knowledge to make research more understandable and useful.

Towards this end, the SP-IPM encourages mentored study exchange visits, participatory learning sessions and establishes 'pilot sites' as part of its implementation strategy to make more IPM options available in farming communities, promote informed decision making by farmers to solve location-specific problems, and assist participating organizations to gain experience in developing effective research-farmer-extension partnerships. The pilot sites also serve as focal points for advocacy efforts to demonstrate the usefulness and benefits of IPM research to decision-makers and thereby help encourage the development and promotion of IPM-friendly policies within their respective spheres of influence.

### **Principal activities**

- Develop and promote participatory models for learning and adoption of IPM
- Develop and promote and apply guidelines for learning, promoting, and incorporating FPR and FPL approaches into IPM
- Train and orient researchers, NARS, and NGOs to integrate FPR and PL approaches into IPM programs.
- Establish pilot sites to promote closer collaboration among partner organizations and increase farmers' capacity to investigate and solve pest constraints more effectively
- Develop mechanisms for large-scale uptake of proven IPM technologies.

## Output 4

Promote policy environment more favorable to the development and application of IPM strategies for sustainable agriculture.

**Background:** The SP-IPM partners affirm that IPM is their preferred plant and animal health strategy and that, through collaborative research and related activities, they will promote understanding and adoption of IPM by farmers. A vital ingredient in this affirmation is the establishment of a policy environment favorable to the adoption of more sustainable crop protection strategies, including IPM. This will involve both an appropriate regulatory framework and economic policies that actively favor the search for sustainable solutions and investing in developing human capital at the rural level.

### Principal activities

- Review and promote activities and outputs of SP-IPM partner organizations on the development and introduction of botanical and biological pest management agents
- Promote research links of SP-IPM partner organizations to the implementation of international conventions and other instruments relevant to pest management
- Guide crop protection research projects by partner organizations for consistency with the SP-IPM position on the use of synthetic pesticides and guiding principles for IPM.
- Provide IPM solutions to developing country pest problems resulting from new MRL requirements in the EU and other important export markets
- Assist national governments to meet their obligations to international conventions that are pertinent to IPM

## Output 5

Foster broader awareness of the impact and benefits of IPM leading to the wider adoption of more sustainable crop protection strategies.

**Background:** Key activities of the SP-IPM, complementing and underpinning its role in research coordination, are to encourage information exchange among stakeholder groups and to disseminate information—so as to increase public and donor awareness of the benefits of IPM and to raise the profile of IPM within communities. The SP-IPM develops various information resources and disseminates them through diverse channels.

### Principal activities

- Promote IPM publications and advocacy through electronic and print media
- Develop and disseminate indicators and guidelines to define and quantify losses and the expected benefits on investment in IPM
- Encourage information exchange among stakeholder groups to increase awareness of IPM benefits and raise IPM profile within public, donor, and farming communities
- Encourage greater researcher-private sector-NGO partnership in the development and promotion of IPM
- Develop methodology for assessing the impact of synthetic pesticides on health and environment and suggest alternatives to synthetic pesticides

**Logframe: Systemwide Programme on Integrated Pest Management (SP-IPM)**

	<b>Outputs</b>	<b>Intended user</b>	<b>Outcomes</b>	<b>Impact</b>
<b>Output 1</b>	Foster inter-institutional partnerships for increased effectiveness of IPM research and outreach (annually)			
Output targets 2006	Inter-institutional working group on IPM meetings held annually	SP-IPM partner organizations and the NARS researchers	Inter-institutional agreements on program content and delivery updated	Transparency in program governance promoted.
	Database of IPM projects at 14 partner organizations, and the website <a href="http://www.spipm.cgiar.org">www.spipm.cgiar.org</a> updated.	IARC/NARS research managers, agric directors; IAPPS; FAO, World Bank, Universities; donors	Information exchange on IPM activities and expertise promoted	Inter-institutional partnerships on IPM sustained
Output targets 2007	SP-IPM symposium at 16 <sup>th</sup> International Plant Protection Congress (IPPC), Glasgow, Scotland	IARCs/NARS researchers; IAPPS	Global visibility of IPM and IPM partnership building and networking promoted	Inter-institutional partnerships on IPM sustained
	National IPM oversight committees developed and facilitated	IARC/NARS research managers, agric directors; IAPPS	National IPM focal points established	In-country consultations with key players facilitated
Output targets 2008	Internal evaluation of program activities 2006-2008 completed	IARC/NARS research managers, agric directors;	Project capacity to inform and motivate researchers and farmers	Ecological and socio-economic benefits SP-IPM recorded and program direction re-charted

## Logframe: SP-IPM (contd.)

	<b>Outputs</b>	<b>Intended user</b>	<b>Outcomes</b>	<b>Impact</b>
<b>Output 2</b>	Holistic and ecological approaches/methodologies for IPM technology development and harmonize these across localities (annually (in any of CWANA, LA, SSA, and SE. Asia)			
Output targets 2006	Diagnostic surveys of a) soil biota, b) IPM constraints and opportunities in vegetables/horticulture. Techniques and skills to quantify mycotoxin and pesticide contamination of food and feed developed	IARC/NARS researchers; IPM practitioners  IARC/NARS researchers; traders; national food standards boards	Problem and need areas identified; taxonomic keys developed  Export trade increased and health protected	Pest monitoring is initiated  Improved livelihoods through healthier harvests and higher incomes.
Output targets 2007	1 or more eco-friendly options against vegetables/horticulture pests are field tested through FPR 1 or more eco-friendly options against soil biota are tested through FPR	IARC/NARS researchers; farmers; IPM practitioners; CBOs and local NGOs  IARC/NARS researchers; farmers; IPM practitioners; CBOs and local NGOs	Range of IPM options increased  Range of IPM options increased	Personal and environmental health protected by use of non-hazardous pesticides  Personal and environmental health protected by use of non-hazardous pesticides
Output targets 2008	1 or more taxonomic keys and/or products to monitor quarantine pests and alien invasive species developed IPM efficiency of at least 1 transgenic organism evaluated	IARC/NARS researchers; IAPSC (Africa); BioNET INTERNATIONAL  IARC/NARS researchers; plant protection industry	NARS taxonomic capacity improved  Socio-economic and ecological relevance of transgenic organisms in IPM determined	National biodiversity monitoring systems enhanced  Personal and environmental health protected by use of non-hazardous pesticides

**Logframe: SP-IPM (contd.)**

	<b>Outputs</b>	<b>Intended user</b>	<b>Outcomes</b>	<b>Impact</b>
<b>Output 3</b>	Effective communication/learning models for informed IPM decision making leading to higher, sustainable and healthier harvests (annually in any of CWANA, LA, SSA, and SE. Asia)			
Output targets 2006	Field common programs on IPM of <i>Striga</i> and <i>Orobancha</i> in cereal/legume systems in SSA (3 countries) and CWANA(6 countries) facilitated FPR and FPL mentoring at pilots sites for a) whiteflies, b) parasitic weeds completed	Farmers; IPM practitioners; FAO; CBOs and local NGOs; IARC/NARS researchers Farmers; IPM practitioners; FAO; CBOs and local NGOs; IARC/NARS researchers	Local and national capacity for IPM is strengthened Greater integration of indigenous knowledge and farmers' experiences with researchers proposed options assured	Incomes for women and men farmers, food processors, and traders increased. Projects incorporate FPR and FPL into IPM development application.
Output targets 2007	Two new sets of pilot sites a) leaf miners and b) post-harvest IPM established Community-based seed multiplication plots for proven varieties at pilot sites for a) whiteflies, b) parasitic weeds, and c) leaf miners established	Farmers; IPM practitioners; FAO; CBOs and local NGOs; IARC/NARS researchers farmers; IPM practitioners; FAO; CBOs and local NGOs; IARC/NARS researchers	Local and national capacity for IPM is strengthened Wider dissemination of farmer-proven varieties promoted.	Incomes for women and men farmers increased Incomes for women and men farmers increased.
Output targets 2008	Large scale implementation of pilot site results	Farmers; IPM practitioners; FAO; CBOs and local NGOs; IARC/NARS researchers	Pest damage to target crops reduced by at least 30% and use of harmful pesticides reduced by at least 60%.	Farmer-led extension of IPM promoted; incomes for women and men farmers increased

**Logframe: SP-IPM (contd.)**

	<b>Outputs</b>	<b>Intended user</b>	<b>Outcomes</b>	<b>Impact</b>
<b>Output 4</b>	Promote policy environment more favorable to the development and application of IPM (annually in any of CWANA, LA, SSA, and SE. Asia)			
Output targets 2006	Operational environments guiding IPM development reviewed in selected countries	IARC/NARS researchers; FAO, World Bank; IAPSC (in Africa); national policy makers	Information on national strengths, weaknesses, threats and opportunities for IPM updated	National IPM policy framework developed
	National activities on food and environmental quality facilitated.	IARC/NARS researchers; UNIDO; FAO; policy makers; national food standards boards	Governments' compliance with international conventions and guidelines on IPM and food quality increased	Improved health and income through reduced contamination of food by mycotoxins and toxic pesticides
Output targets 2007	Database of type of market opportunities enabling farmers to benefit from new IPM technologies	IARC/NARS researchers; national policy makers; plant protection industry	Private-public sector collaboration on IPM enhanced	Local entrepreneurship in IPM promoted
	Feasibility studies for local production of biologically based alternatives to hazardous pesticides completed.	Plant protection industry; Farmers; IPM practitioners; CBOs and local NGOs; IARC/NARS researchers	IPM costs reduced; yields increase; personal and environmental health protected.	Local entrepreneurship in IPM promoted
Output targets 2008	Analyzed data on issues guiding use of genetically modified organisms in IPM developed.	IARC/NARS researchers; national policy makers; plant protection industry	Practical indicators on technical, environmental and socio-economic concerns for incorporating GMOs in IPM available.	Inter-institutional consensus on mechanisms to incorporate biotech tools/products in IPM
	Guidelines for sub-regional registration of biologically-based alternatives to POPs developed.	IARC/NARS researchers; national policy makers; plant protection industry	IPM costs reduced; yields increase; personal and environmental health protected.	Inter-institutional consensus on mechanisms to register and use biopesticides and botanicals

**Logframe: SP-IPM (contd.)**

	<b>Outputs</b>	<b>Intended user</b>	<b>Outcomes</b>	<b>Impact</b>
<b>Output 5</b>	Foster broader awareness of the impact and benefits of IPM leading to the wider adoption of more sustainable crop protection strategies.			
Output targets 2006	IPM research briefs produced on a) alternatives to POP; b) FPR and FPL produced)	IARC/NARS research managers; FAO, World Bank, agric directors; Universities; donors	End-user recognition of IPM challenges, solutions and benefits in food insecurity increased	.Full integration of IPM into mainstream agriculture promoted
	Field guides on a) nematode research, b) FPR and FPL, c) whiteflies and whitefly transmitted viruses; d) parasitic weed IPM produced	Project planners; IARC and NARS researchers; IPM practitioners	Scientific information adapted into user-friendly decision-support tools	Full integration of IPM into mainstream agriculture promoted
Output targets 2007	1 sub-regional IPM information workshop held	Agricultural policy makers; research managers; IAPPS	Informed-decision making on use of novel IPM products at national levels	National compliance with international plant protection conventions increased.
	1 video documentary on IPM issues and solutions in vegetable/horticulture trade produced	General public, traders; donors; FAO; World Bank; IARCs/NARS researchers	Increased awareness of IPM and its advantages	Greater market opportunities for vegetable/horticulture farmers
Output targets 2008	IPM impact on food security, poverty reduction/national economies, gender and equity issues, environmental and human health evaluated at pilot sites on a) whiteflies; b) parasitic weeds; c) leaf miners, d) selected soil biota pest.	Project planners; IARC and NARS researchers; IPM practitioners; farmers; CBOs; local NGOs	Indicators and guidelines to fully define and quantify losses and the expected benefits on investment in IPM developed	Publicized benefits of investment in IPM through case studies will promote investment in plant protection

**TABLE 1: BUDGET SUMMARY:<sup>1</sup>**

Year	Source of funds (US \$)				Total (US \$)
	CGIAR	Switzerland	Norway	Italy	
1996	-	127,076	170,121	-	297,197
1996 (for 1997)	-	154,485	-	-	154,485
1997	-	-	145,964	-	145,964
1998	-	136,407	-	-	136,407
1999	300,000	133,156	127,110	-	560,266
1999 (for 2000)	-	125,786	-	-	125,786
2000	-	-	116,276	-	116,276
2001	-	115,654	109,743	-	225,397
2002	150,000	118,800	173,394	-	442,194
2003	150,000	144,928	-	177,702 (for'02)	472,630
2004	150,000	158,228	-	240,000	548,228
2005	150,000	169,492	-	-	319,492

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<sup>1</sup> Operational funds, exclusive of special project and other funds leveraged