



Food and Agriculture  
Organization of the  
United Nations

# Building **resilient** agricultural **systems** through **farmer field schools**

Integrated Production and Pest Management Programme (IPPM)



**“ We must learn from farmers’ experience. Pragmatic, field-based and farmer-centric education can and must play a key role in making agriculture stronger and more sustainable.... At the end of the day, sustainable intensification will be the result of the collective action of millions of small-scale farmers, who through their daily decisions determine the trajectory of agricultural ecosystems across the world. ”**

**José Graziano da Silva, Director-General,  
Food and Agriculture Organization of the United Nations (FAO)**



## Integrated Production and Pest Management Programme

Since 2001, the Food and Agriculture Organization of the United Nations (FAO) has worked with more than 180 000 farmers in West Africa to build more productive and resilient agricultural systems through the Integrated Production and Pest Management Programme (IPPM).

Based on a well-tested farmer field school (FFS) approach, this participatory, community-based educational method combines principles and practices from community development, non-formal education, agroecology and adaptive ecosystem management. The FFS approach works across all scales—from communities to regions—while focusing the greatest attention on smallholder farmers, the actors most involved in the daily actions of agriculture.

The programme helps farmers to understand how agricultural practices can either complement and build—or undermine and destroy—the biological processes and ecosystem services on which their production systems are built. Similarly, the programme seeks to illustrate practically how the goals of improved production and profits can complement—and not necessarily contradict—

the goals of improved human and environmental health, social equity and quality of life. The outcome is better management and decision-making by better-skilled and more knowledgeable farmers.

The IPPM programme does not propose to be a substitute for more conventional extension systems, but rather intends to act as a ‘facilitator’ and a platform for exchange, to bring together the entire existing ‘mosaic’ of stakeholders—whatever the national context might be.

The IPPM programme has active projects in several Sahelian West African countries and new projects in East and Southern Africa. The programme evolves each year to cover an increasing range of topics and broaden its partnerships with governments, non-governmental organizations (NGOs), farmer organizations, research institutions and resource partners.

**Intensify production sustainably and build resilient systems**

## Farmer field school approach

The FFS approach, developed by FAO and partners nearly 25 years ago in Southeast Asia, promotes farm-based experimentation, group organization and decision-making.

This learning-by-doing approach, adopted by the IPPM programme, provides a risk-free setting in which to discuss, dissect, modify and experiment with new agricultural management ideas.

In a typical FFS, 20-25 farmers meet once a week in a local field setting, under the guidance of a trained facilitator. They observe and compare two plots, one following local conventional methods, the other experimenting with 'best practices', and conduct experiments to solve technical problems. This allows the farmers to investigate a wide range of topics, such as:

- management of soil fertility and water resources;
- methods of local varietal selection and issues of seed quality;
- risks associated with toxic pesticides and implementation of low-toxicity alternatives and integrated pest management;
- farm management and marketing skills; and
- diversification of farming systems.

At the end of the season, the FFS group holds a field day to show local politicians, government agriculture workers and other farmers what they are doing. Exchange visits with other FFS are also encouraged.

FFS national programmes are more than just a collection of FFS—they typically work at multiple levels to build social capital and are now broadening their collaboration with other participatory, community-based initiatives, like the Community Listeners' Clubs.

### Practical farmer education through learning-by-doing in a field setting





## Training of facilitators

A fundamental element of the FFS model is the training of field agents, to become facilitators who will conduct the field schools. From the first training in Ghana in 1996, the training of facilitators has now expanded to ten countries implementing the IPPM programme—training over 3 000 facilitators.

Training of facilitators is conducted by ‘master trainers’ in season-long ‘training of facilitators’ based on complementary practice and theory. Facilitators typically include extension workers, NGO workers, farmer organization staff or previously trained farmers.

The IPPM programme focuses on training local farmers as facilitators because it offers the best method for anchoring the programme’s approach

within the community and at sub-district level. It also leads to higher levels of success as farmers are motivated to return home with useful skills and knowledge to share.

On completion of the training, the new facilitators become part of the training support network and begin animating FFS in their respective communities, usually under the supervision of a master trainer during their first year. This high quality of training and exchange is ensured through South-South cooperation using existing resources and experience.

**The IPPM programme focuses on training local farmers as facilitators**



## Regional and national projects

The IPPM programme in Africa implements projects at regional and national level helping farming communities to improve their productivity and livelihoods using environmentally sustainable practices. Programme objectives are achieved through multiple activities which currently cover ten countries: Benin, Burkina Faso, Burundi, Guinea, Mali, Mauritania, Niger, Senegal, Tanzania and Zambia.

### ***Sustaining the cotton sector***

Cotton is an important cash crop in many African countries, providing a living to millions working within the sector. However, major constraints exist, including lack of competitiveness, stagnating yields, and routine use of hazardous pesticides. With support from the European Union, ACP Secretariat, UEMOA and COMESA, IPPM is working with partners in Burkina Faso, Mali, Senegal, Tanzania and Zambia to train 21 000 farmers and hundreds of field staff on techniques that increase yields and margins and reduce pesticide use.

### ***Climate change adaptation***

A growing number of IPPM projects are being funded under the Global Environmental Facility climate change adaptation fund, including projects underway in Mali and Niger, and pipeline projects in Senegal and Burundi. These projects represent the ultimate challenge for agricultural development in the region and require the distillation and coming together of all the lessons' learned to date in the IPPM programme.

### ***Pesticide awareness and monitoring***

The programme is working with partners to raise awareness at all levels on reducing or eliminating the use of toxic pesticides in agriculture. Partnership with Oregon State University has resulted in the development of new tools for West Africa that assist in the monitoring of pesticides in the environment and estimate potential negative effects. It is hoped that results from monitoring will inform decision-makers and help them to develop policies and regulations that comply with international commitments.



### ***Developing value chains***

The programme helps smallholders to improve their linkages with local value chains. Activities support farmers to adapt production to market demands, improve food quality and safety, reduce losses, and help to access and manage credit, inputs and marketing. For example, as part of a regional initiative, the programme is contributing to the development of rice value chains in Mali, Mauritania, Niger and Senegal.

### ***South-South cooperation***

The key to further progress of the IPPM programme is in building and strategically employing the existing 'social capital', existing in the experience and human resources developed over the past 12 years. Master trainers and other experienced teams are invited to conduct trainings in neighbouring countries, and tours organized for cross-border visits for farmers.

As the cadres of trainers and experienced farmers continue to grow, so does the potential of the IPPM programme to expand and improve as a regional force.

### ***Supporting governments and stakeholders***

The programme works with governments and partners to support national strategies for agriculture sector development. The IPPM/FFS approach has been integrated in national agriculture and extension policies of countries like Mali, Burkina Faso and Senegal. IPPM also contributes to global initiatives such as the Improved Global Governance for Hunger Reduction programme, funded by the European Union and FAO, to address global issues that affect food security, and improve coordinated efforts by all partners.

**Support smallholders to improve their linkages with local value chains**



## Pesticide risk reduction

Since the early 1970s, farmers in Africa have been encouraged to treat their crops with chemical pesticides. Today, chemical treatments are the most common pest management tool used in the region but many of the chemicals are highly hazardous, inappropriately used, often banned in northern hemisphere countries, or require protective equipment and conditions for use outside the reach of African farmers.

The IPPM programme is working with governments, research institutions, farmer organizations and other partners to:

- raise awareness on the importance of reducing risks and use of toxic pesticides in agriculture, and promote alternatives;
- scientifically assess current levels and risks of pesticide use;
- improve pesticide legislation and registration systems; and
- support local implementation of best practice as defined in the International Code of Conduct on Pesticide Management.

Recent partnership with a US-based research institute—the Integrated Plant Protection Center at Oregon State University—has resulted in development and adaptation of major new tools

that promise to greatly assist in the monitoring of pesticides in the environment and to estimate potential negative effects on key biodiversity indicators, as well as on human health.

This partnership, in association with CERES Locustox Laboratory (Senegal), has also carried out the first broad-scale, high-quality assessment of water in the Niger and Senegal River Basins and associated irrigation systems.

Training is given during farmer field schools on integrated pest management, which encourages farmers to reduce their use of toxic pesticides in favour of feasible, low-cost non toxic or less-toxic methods.

The training also advises on how to avoid commercial pressure to use pesticides. Immediate plans include working more closely with local pesticide sales persons to improve their knowledge on risk and efficacy, and thereby improve the quality of information feeding back to farming communities.

**Raise awareness on the importance of reducing risks from pesticides and promote alternatives**

## Climate change adaptation

Countries in Africa are experiencing steep increases in population numbers, coupled with unprecedented levels of burden on natural resources, changes in nutritional habits and a steady shift towards urbanization. Adding to these pressures, African nations are seeing increasing climate variability, manifested as extreme weather events (floods and droughts).

In the face of these challenges, farming communities will need to develop and implement adaptation strategies that improve the productivity, efficiency, profitability and fairness of agricultural production and marketing systems.

The IPPM programme is working with multiple partners to:

- support actions to build more resilient agricultural production systems—increasing institutional capacities to develop climate change adaptation policies and formulate strategies; and
- use the FFS as a platform for raising awareness and introducing adaptation practices into everyday farming.

**Farming communities will need to develop and implement adaptation strategies**



## Product quality and marketing

Since 2008, the IPPM programme has been promoting the production of quality food and how to improve its marketing in order to contribute to the income generation of smallholder farmers and reduce their vulnerability. With a growing population in sub-Saharan Africa, increased efforts are required to produce nutritious and safe food for sale in local markets. Many producers struggle when it comes to selling their produce and having the necessary management skills and linkages to do it.

Under the banner of COQUA '*Commercialisation et Qualité*', the IPPM programme has piloted two training modules to raise these issues with participating farmers in the FFS.

The modules focus on:

- the safety and quality of horticultural products;
- production organization and planning; and
- researching and linking to local and regional markets.

## Producing nutritious and quality food for local markets



## Save and Grow

The 'Save and Grow' paradigm at FAO proposes technical perspectives on sustainable crop production that is highly productive and socially, economically and environmentally sustainable.

This agroecology-based farming philosophy is well-suited to the FFS approach, following the same principles of environmental awareness in intensive production and promotes system diversification and an array of best practices to choose from and adapt, according to their local production conditions and constraints.

The IPPM programme is assisting countries to adopt Save and Grow policies and approaches through regional and national projects in sub-Saharan Africa.

**Assisting countries to adopt policies and approaches promoting sustainable intensification of crop production**



## Building partnerships

---

Over the past two decades, there has been a decline in state-owned extension systems in sub-Saharan Africa, with a mosaic of local and national stakeholders emerging to take up many of the extension tasks—although coverage is often geographically spotty and technically incomplete.

In this context, the IPPM programme has been instrumental in helping to improve linkages among stakeholders.

### ***National government partners***

The programme initiates partnership with the ministries of agriculture and the environment and with national directions of agriculture and agencies for crop protection. Programme steering committees may also include ministries of health and trade.

### ***NGO partners***

Regional and national NGOs play a vital role in coordinating the design and execution of village-level surveys, and assist with data management and impact monitoring of various FFS.

### ***Farmer organization partners***

Farmer organizations are becoming key partners in promoting the FFS approach, such as,

*Union Nationale de Producteurs de Coton du Burkina Faso, Fédération Nationale des Producteurs de Coton du Sénégal, Assemblée Permanente des Chambres d'Agriculture du Mali, and the African Cotton Producers Organization.*

### ***Local partners***

Local actors have emerged as essential partners, including farmer- and community organizations, businesses, administrative and traditional authorities, and extension services. This creates a chorus of support for the programme at the higher national levels.

### ***Development project partners***

A growing list of national and regional donor projects is partnering with the various country programmes to access the expanding networks of farmer facilitators and alumni farmer groups. The IPPM programme is helping to reinforce a collective extension system capable of acting as a service provider for new initiatives that arrive from donors.

## Facilitating progress towards food security, resilience and rural development

A photograph of two women in traditional headwraps. The woman in the foreground is smiling broadly, with a stick of wood or a piece of food in her mouth. She is wearing a yellow and light blue long-sleeved shirt. The woman behind her is wearing a blue and white patterned headwrap and has a more neutral expression. The background is a clear blue sky.

## Gender empowerment

In sub-Saharan Africa, women make up roughly half of the agricultural workforce. But because they are frequently discriminated against, socially and culturally, they often lack access to the knowledge, productive assets, inputs, technologies and decision-making skills needed to increase agricultural productivity and incomes.

Investing in rural women—and ensuring that they have access to and control over resources—can yield positive returns in terms of reducing poverty, food insecurity and malnutrition within communities, especially among the most vulnerable, such as youth and the elderly.

With this in mind, the IPPM programme has been working to empower women in agriculture, ensuring that a gender perspective is well integrated within its operational strategy. By encouraging fair representation of women in FFS and facilitator training, the programme advocates better visibility of women in agriculture at local level and promotes positive changes in attitudes, behaviours and practices. The learning-by-doing environment of the FFS can bolster women's critical thinking, decision-making and communication skills.

## Encouraging fair representation of women in FFS and facilitator training



## Community empowerment through listeners' clubs

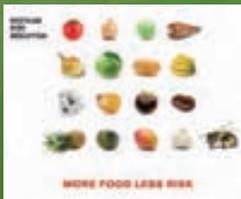
People living in rural communities are often cut off from vital information and communication, but community listeners' clubs (CLC)—inaugurated by FAO Dimitra in 2006—are providing a space for information and knowledge sharing, discussion and collective decision-making. The concept is to encourage everyone—especially women and youth—to become more involved in the economic, social and political decisions that affect them and their communities.

The CLC meet regularly and choose a theme or topic of interest which is then prepared by a journalist or facilitator into an interactive radio programme. Subsequently, it is aired in local languages via community or rural radio – a good

way to reach remote communities in Africa. Following the broadcast, members discuss the issues, sometimes inviting an external expert. These discussions often lead to further action and foster partnerships with other clubs or development agencies.

The IPPM programme is currently collaborating with Dimitra listeners' clubs in Senegal and working with similar clubs in Mali, Mauritania and Niger, helping to engage women and youth on issues related to agriculture, health, nutrition and the environment.

**Knowledge sharing, discussion and collective decision-making**



The Integrated Production and Pest Management Programme is implemented by the FAO Pest and Pesticide Management team



The Integrated Production and Pest Management Programme would like to thank its resource partners for their support

Contact:

Plant Production and Protection Division,  
Food and Agriculture Organization of the United Nations,  
Viale delle Terme di Caracalla, 00153 Rome, Italy.  
ippm@fao.org

[www.fao.org/agriculture/ippm](http://www.fao.org/agriculture/ippm)

Cover photo: ©FAO/Swiatoslaw Wojtkowiak

©FAO 2015