

## Advanced participatory IPM training

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# Training in Integrated Pest Management – No 3

## Selection of facilitators

Participatory IPM training is led by a facilitator, who is the **key to its success**. The facilitator introduces an activity, clarifies the process, sets participants to work and asks open-ended and ‘what if’ questions as groups make their presentations. The facilitator summarises presentations, underlining the important points learned and divides responsibilities among the participants. Besides knowledge in the subject of the training, the facilitator has to have advanced knowledge in communication, organization and conflict management etc, thus the first step of advanced participatory training is the training of facilitators.

## Establishing the group, identifying the problem

Two scenarios are likely:

- > There is a problem or topic which very much interests farmers, in which case the group is already established around a given problem (for example, the appearance of a new disease in a region).
- > There is a new regulation, pest or innovative strategy (Integrated Pest Management (IPM), for example) which is either unknown and/or strange for farmers. In this case the facilitator has to contact farmers, select participants and raise awareness among farmers through participatory discussions.

In both situations the key factor is the motivation of farmers to solve the problem, to learn the new strategy or to learn how to comply with the regulation. Farmers’ **capacity development** is always an aim.

Farmers can be invited through:

- > Personal invitations
- > Invitations cards, telephone calls
- > Posters
- > Calls in local newspapers

The best invitation is **from farmer to farmer**.

## Analysing the problem

Farmers will have their own practices, knowledge and ideas on how the given problem can be solved in the most sustainable and feasible way. These ideas as well as scientific data and articles have to be collected and discussed. The basic knowledge and skills of the farmers involved needs to be considered alongside their needs and current practice.

### Topic selection matrix

Problems (or causes of low yield)	Current practice	Potential for improvement	Constraint	Suggested topics
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### Cropping calendar

Time of the season	Activity on the field (made by farmers generally)	Problems	Opportunities, possible solutions
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Source: Frederike Praasterink, Facilitators’ Field Guide, FAO IPM for western corn rootworm (WCR) project. To find out more about the programme: <http://ftp.fao.org/docrep/fao/008/af156e/af156e00.pdf>

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Farmers discuss their field study (above) and a farmer presents the cropping calendar made by his sub-group (right). © FAO IPM for WCR project, Hungary.



Potential solutions (options from farmers and experts and information gleaned from other regions) should be listed. From these options, the best potential solutions have to be chosen by the group based on their suitability, sustainability, and economic and social viability.

### Designing a field study

Based on the problem analysis, the participants have to establish a joint field or plot test. This is an efficient way of learning as the effects of the choices made can be observed during the course of the season. The participants have to agree on the design of the field study and to choose the best practice for the group. Different solutions can be tested in the same field (study field), by setting up small plot experiments (locations), dividing the study field into as many locations as there are solutions to be tested. Another solution is to set up experiments on different fields. Farmers have to agree on the responsibilities and decide who will be in charge of what part of the experiment.

### Developing the curriculum

Farmers have to agree on the curriculum of field activities. They have to take into consideration the characteristics of the problem they would like to solve, and based on this plan the number, timing, activities (agro-ecosystem analyses, sampling, measuring etc) and topics of the meetings. Based on the curriculum, farmers and facilitators can organise the purchase of the tools needed, sampling materials and issue invitations to experts.

#### Example of a meeting scheduled for a Farmer Field School group focusing on pests in maize.

(Source: FAO IPM for WCR project, Hungary.)

Date	Activity	Special topics, invited people
March	Inviting farmers, group forming, baseline survey, discussion about the programme, planning, curriculum development.	Cold test, sowing depth, soil temperature and sowing time fertilization

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April	<ul style="list-style-type: none"> <li>&gt; Testing farmers' knowledge before training</li> <li>&gt; Field observation before planting, discussion on fertilisation, sowing time, soil conditions</li> <li>&gt; Sharing the responsibilities.</li> </ul>	Economic analyses, importance of record keeping
May	<ul style="list-style-type: none"> <li>&gt; Observation in the field on agro-ecosystem (agro-ecosystem analysis (AESAs))</li> <li>&gt; Weed species - coverage and management on given field</li> <li>&gt; AESA of the flowering field edge</li> <li>&gt; Establish pitfall traps</li> </ul>	Weed control in farmers' practice and in IPM.
01-10 June	<ul style="list-style-type: none"> <li>&gt; AESA</li> <li>&gt; Sampling for larvae</li> <li>&gt; Root rating</li> <li>&gt; Establishment of Pherocon AM traps</li> <li>&gt; Establishment of pitfall traps</li> </ul>	Grouping of pinned insects based on their roles. Lifecycle of most important insect groups.
20-30 June	<ul style="list-style-type: none"> <li>&gt; AESA</li> <li>&gt; Checking the Pherocon AM traps</li> <li>&gt; Checking pitfall traps</li> <li>&gt; WCR adult feeding and damage (on leaves, silk clipping)</li> <li>&gt; WCR morphology: observation on field</li> </ul>	Risk estimation
10-20 July	<ul style="list-style-type: none"> <li>&gt; AESA</li> <li>&gt; Checking emergence cages and Pherocon AM traps</li> <li>&gt; Checking pitfall traps</li> <li>&gt; Egg laying behaviour observation</li> </ul>	Damage, biology and management options of <i>Helicoverpa armigera</i>
August	<ul style="list-style-type: none"> <li>&gt; AESA</li> <li>&gt; Checking emergence cages and Pherocon AM traps</li> <li>&gt; Plant lodging %</li> <li>&gt; Checking pitfall traps</li> <li>&gt; Risk assessment</li> </ul>	
October	<ul style="list-style-type: none"> <li>&gt; Taking samples of maize</li> <li>&gt; Harvesting of maize by hand</li> </ul>	Harvesting
November-December	<ul style="list-style-type: none"> <li>&gt; Final meeting</li> <li>&gt; Effect of different conditions, treatments on yield</li> <li>&gt; Economic analyses</li> <li>&gt; Panel discussion</li> <li>&gt; Post training test</li> <li>&gt; Evaluation of the season</li> </ul>	

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Conducting agro-ecosystem analyses (above left). Participants conduct soil agro-system analyses (above right). © FAO IPM for WCR project, Hungary.

### How to perform in-field IPM training

Meetings should be organised in a way that ensures farmers' motivation levels stay high. Main activities during the training should be:

- > Introduction of the problem
- > Agreement on the agenda of the given meeting
- > Split into subgroups for field observations and samplings
- > Field activity (agro-ecosystem analyses, sampling etc)
- > Discussion in sub-groups about findings and observations in the field
- > Whole group discussion, data analyses
- > Making recommendations for the next meeting
- > Special topic discussion led by an expert/facilitator or farmer.

During field activities, observations are made at each location. During the field observations (agro-ecosystem analyses (AESAs)) the following data can be recorded:

- > Date, type of study field assessed, age of crop
- > Soil conditions
- > Weather conditions
- > Plant development: plant height, and the size and number of leaves, ears etc
- > Plant health status, based on leaf colour (nutrient deficiency symptoms) etc
- > Symptoms of pest and disease attack
- > Number and types of pests and natural enemies sampled by traps and/or by whole plant count
- > Presence of insects living on the soil (Barber pots/pitfall traps)
- > Weed incidence
- > Environmental conditions around the field
- > Unknown insects, leaves with an unfamiliar appearance, with symptoms of unknown diseases, insect damage, or with other damage are collected and taken to the meeting site for further observation and identification.

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### Evaluating the results

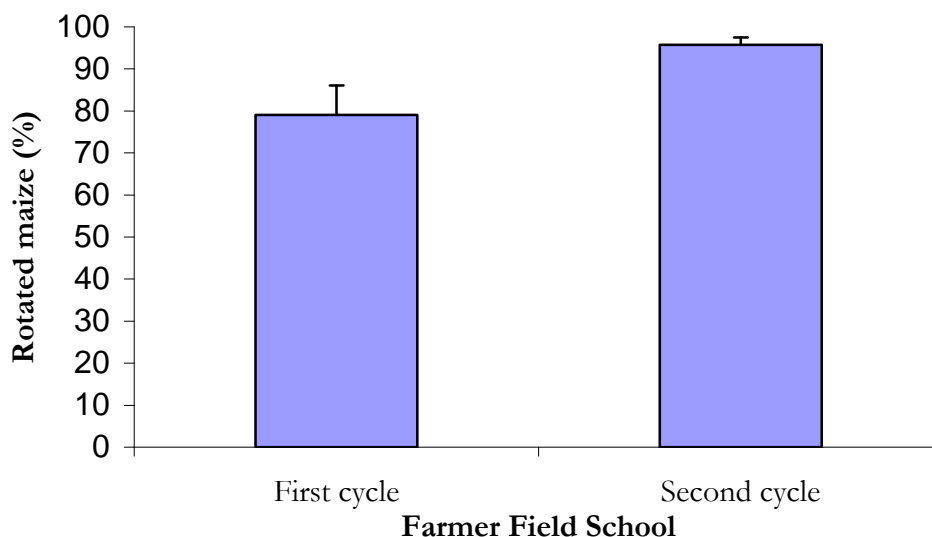
Evaluating the results allows us to assess the effectiveness of the tested IPM technologies and help farmers choose their best option. Results are evaluated by measuring the yield of all the experimental plots in the experimental field, analysing and evaluating the data, and conducting an economic analysis. The general conclusions from the whole season have to be made in a participatory way, so that all participants know the outcome and conclusion of the study.



Training activities should run right through the season. © FAO IPM for WCR project, Hungary.

### Measuring impact: an example from Hungary

Analysing the example of the Farmer Field Schools (FFS) conducted as part of the FAO IPM for WCR project in Hungary, we established that significantly more maize fields were rotated in the second cycle of field schools than in the first cycle (see below). There is clear evidence, therefore, that the FFS programme has an impact on farmers' attitudes to changing cropping systems. Furthermore, significantly more farmers were rotating 100% of their maize fields in the second cycle than in the first cycle. Considering this training was focused on the implementation of IPM for WCR, the impact was as significant as could be expected.

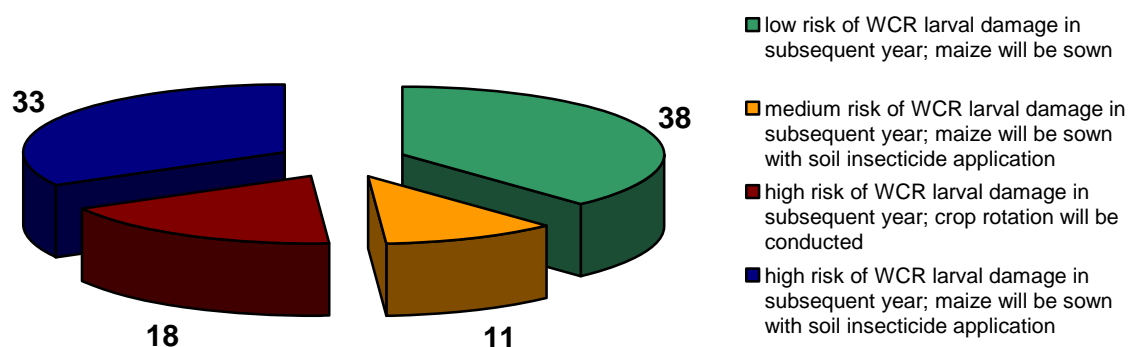


**Table 1: Percentage of farmers opting to rotate maize in the first and second cycle of FFS. © FAO IPM for WCR project, Hungary.**

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On analysing the results, we also established that farmers' knowledge about the elements of the agro-ecosystem in maize (in particular the ability to differentiate pests and beneficial arthropods) was increased after one year's training.

One significant aim of FFS training is to increase the observational and decision making skills of farmers because, if we consider IPM as a decision-making process reliant on observations conducted in the field, these skills are essential to becoming an expert IPM farmer. The most significant element of IPM for WCR is crop rotation (see ENDURE Maize Case Study Guide Number 2 for more details) and farmers made their crop rotation decisions based on the results of risk estimation conducted during FFS activities. Farmers - being aware of the risk of their decision - decided for continuous maize production in 33% of cases after considering other (mainly economic) aspects.



**Table 2: Decision-making skill of farmers recorded after training in IPM practices for WCR. © FAO IPM for WCR project, Hungary.**

### Recommendations for further study

Based on the results of the experiments, follow-up activities can be planned considering new findings or the further needs of farmers.

### Financial and organisational background

There is a cost to participatory IPM training. Materials (traps, poster papers, jars for insect collection and observation, books for pest identification etc) and consultation fees for invited advisors and experts have to be paid. Additional expenses may emerge if the group decides to make a longer trip to visit an advanced farm etc. Despite these facts, participatory IPM training can be conducted without any external funding. In this case farmers may discuss how to cover and share these expenses.

A positive outcome of these discussions will be achieved if:

- > Farmers **see the training is in their interest**
- > Farmers **obtain knowledge** which is useful in their everyday life
- > The focus is not only on **capacity development** for farmers but also on **community development**.

# Advanced participatory training

## Summary

Participatory IPM training has been a proven success in encouraging farmers to adopt and implement innovative and sustainable pest control strategies both globally and in a recently terminated IPM development programme coordinated by Hungary's Szent István University in Central and Eastern Europe.

Participatory IPM training does not simply provide information for farmers, but develops their capacity and knowledge. Farmers learn best through hands-on experience and during participatory training are encouraged to explore and discover for themselves. Knowledge obtained this way is more easily internalised and put into practice after the training is over.

Written by researchers from Hungary's Szent István University, this guide sets out the key steps needed to ensure successful participatory IPM training. It is not intended to be a 'cookbook' offering an instant solution but reflects the researchers' experiences and approach to IPM training and their conviction that the participatory approach can be used in training across very different socio-economic and technical environments, and across various regions.

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## About ENDURE

ENDURE is the European Network for the Durable Exploitation of Crop Protection Strategies. ENDURE is a Network of Excellence (NoE) with two key objectives: restructuring European research and development on the use of plant protection products, and establishing ENDURE as a world leader in the development and implementation of sustainable pest control strategies through:

- > Building a lasting crop protection research community
- > Providing end-users with a broader range of short-term solutions
- > Developing a holistic approach to sustainable pest management
- > Taking stock of and informing plant protection policy changes.

Eighteen organisations in 10 European countries are committed to ENDURE for four years (2007-2010), with financial support from the European Commission's Sixth Framework Programme, priority 5: Food Quality and Security.

## Website and ENDURE Information Centre:

[www.endure-network.eu](http://www.endure-network.eu)

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