

# FARMERS FIELD SCHOOLS (FFS): A GROUP EXTENSION PROCESS BASED ON ADULT NON-FORMAL EDUCATION METHODS

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## INTRODUCTION

This Guideline will provide a brief overview of the basic concepts of Farmer Field Schools to consider when planning farmer education programmes. There is no single right way to do Farmer Field Schools, only participatory ways.

The term “Farmer Fields Schools” came from the Indonesian expression *Sekolah Lapangan* meaning just *field school*. The first Field Schools were established in 1989 in Central Java during a pilot season by 50 plant protection officers to test and develop field training methods as part of their IPM training of trainers course. Two hundred Field Schools were established that season with 5000 farmers participating. The following season in 1990, and an additional 45,000 farmers joined Field Schools run by 450 crop protection officers. This work was undertaken by the FAO assisted Indonesian National IPM Programme (UTF/INS/067/INS). The programme now trains more than 100,000 farmers per year in season-long Field Schools and assists with follow-up activities carried out by the farmer groups.

### **Adult Education**

*Education for children is often like filling a cup with tea, milk and sugar, while adult education is more like stirring an already full cup of tea to blend the ingredients in a new way.*

The name *Sekolah Lapangan* was created to reflect the educational goals; the course took place in the field, and the field conditions defined most of the curriculum, but real field problems were observed, and analysed from planting of the crop (rice) to harvest. Group decisions on the crop management could be evaluated at the end of season by measuring the yield. A field was established by the participants with a research study to compare IPM methods and farmer’s conventional methods. Pre- and post-tests were given, the same farmers and facilitators attended throughout the season, and graduation was based on attendance and learning performance. Graduation certificates were awarded to farmers. Thus, the Field School was a school without walls that taught basic agro-ecology and management skills.

## BASIC CONCEPTS

Doubtless there are many other programmes besides IPM Field Schools which have succeeded to provide good educational results. Much of the Field School ideas grew out of the traditions of literacy education and village-level basic health care. Similar programmes have been developed for soils, and livestock in other regions. The Field Schools are not a new idea, just an effective idea that has been ignored by those caught in the system of top-down research message delivery and who too often turn a deaf ear to the conventional wisdom of farmers. Some farmer participants say that the IPM Field Schools succeed because they provide basic scientific conceptual frameworks and knowledge in very democratically run field groups... and of course because farmers make more money with less inputs.

Below are basic concepts which are common to Field Schools across many countries.

**Adult non-formal education:** Field Schools assume that farmers already have a wealth of experience, and knowledge. It also assumes that there may be misconceptions and bad habits learned during intensification programmes (e.g. little knowledge of natural enemies, basic fear of any insect that is seen in the field, etc.). Therefore the Field Schools are oriented to providing basic agro-ecological knowledge and skills, but in a participatory manner so that farmer experience is integrated into the programme. For example, when observing in the field, facilitators will ask farmers what something is such as a natural enemy and ask who know what it might eat. Farmers give their response, and the facilitator adds his/her knowledge. If there is a disagreement between anyone, the facilitator and participants will set up simple studies to find the correct answer. In one Field School farmers were discussing whether a certain lady beetle was a predator of pests or a pest of the plant. One farmer bet another on their choice. The facilitator showed how to put the lady beetle in a jars - one jar with pest prey and the other with leaves. The result was that the lady beetle ate the insects and the loser had to carry the winner around the village on his back! In fact there are both kinds of lady beetles but one type is 'hairy' and the other not. This was seen by the farmers.

If I hear it, I forget it.  
If I see it, I remember it  
If I discover it, I own it for life

**Technically strong facilitator:** The Field School is usually initiated by an extension staff member of the government, farmers' organization, or NGO. But in all cases the person must have certain skills. Most important is that the person is skilled at growing the crop concerned. In most countries, the extension staff have never grown crops 'from seed to seed' and most often lack confidence. For this reason, most IPM programmes have begun with training field staff in season-long courses which provide basic technical skills for growing and managing an IPM crop. Some people have called this the "Farmer respect course" in that field staff come to realise how difficult farming is, and why farmers do not immediately "adopt" their "extension messages". Facilitation skills and group dynamic/group building methods are also included in this season to strengthen the education process in the Field Schools. An uncertain trainer is a poor trainer. A confident trainer can say "I don't know - let's find out together" much easier when the inevitable unknown situation is encountered in the field.

**Based on crop phenology and time limited:** The Field Schools and season long training for trainers are based on the crop phenology; seedling issues are studied during the seedling stage, fertiliser issues are discussed during high nutrient demand stages, and so on. This method allows to use the crop as a teacher, and to ensure that farmers can immediately use and practice what is being learned. Meeting on a weekly basis means that farmers are participating in a course for a whole season, but from an administrative/financial point of view, the same 40 hours as in an intensive one week programme. The educational benefits of meeting when problems are present (learner readiness), and on a recurrent basis have been studied and shown to be far more effective than intensive courses. Also the courses are delimited by the crop cycle. There is a definite beginning and end. The present system of many extension programmes of unending two week cycles removes focus, and excitement. Field schools may extend beyond one season if groups agree, but rarely can be effective when less than the phenological cycle of the crop.

**Group study:** Most Field Schools are organised for groups of about 25 persons with common interests can support each other, both with their individual experience and strengths, and to create a "critical mass". As individuals, trying something new is often socially inappropriate (e.g. reducing sprays, cover crops), but with group support, trying something new becomes

acceptable. The number of 25 is roughly the number that can comfortably work together with one facilitator. Usually these 25 are sub-divided into groups of five persons so that all members can better participate in field observations, analysis, discussion, and presentations.

**Field School Site:** The Field Schools are always held in the community where farmers live so that they can easily attend weekly and maintain the Field School studies. The extension officer travels to the site on the day of the Field School.

**Building groups:** One of the jobs of the facilitator is to assist the Field School to develop as a support group so that participants can support one another after the Field School is over. This is done by having elected officers (head, treasurer, and secretary), and group identity. The Field School needs its own name - never the name of the founding organization! No hats, or shirts are given out. A budget may be prepared for this, but the group should make the design and have their own name on these. During the season, the Field School includes group building exercises to build group trust and coherence. The Field School may also include such activities as long-term planning (log frames), and proposal writing to find funding for activities groups decide to do together. Funding may come from a number of sources including from within the group itself, local shop owners, local governments, NGOs, or national programmes.

**Basic science:** Field Schools try to focus on basic processes through field observations, season-long research studies, hands-on activities. It has been found that when farmers have learned about basics, combined with their own experiences and needs, they make decisions that are effective. When farmers have this basic knowledge they are better clients for extension and research systems because they have more specific questions and demands. They also are able to hold these systems accountable for their output and benefits. And finally they are able to protect themselves from dubious sources...

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**This pesticide is very safe and effective.  
If it's safe, let me drink some.  
No! You farmers are so silly sometimes.  
Well then, I have a duck here that is willing to try it...**  
*- recorded dialogue between pesticide sales man and IPM  
farmer group which had previously tested pesticides on chicks.*

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**Study fields [non-risk]:** The Field School has a small (usually about 1000 m<sup>2</sup>) field for group study. This is the core of the Field Schools. This field is essential for a Field School because farmers can carry out studies without personal risk allowing them to take management decisions that they might not otherwise attempt in trials on their own farm. This provides farmers a way of testing a new method themselves before applying it to their own fields. It also allows for more interesting research topics such as defoliation simulations in which leaves are removed. The arrangement for this field varies based on local conditions. Some villages have communal lands that can be used for free, some villages may request on inputs, others areas may request compensation in case of lower yields in experiments, etc.. It is important to remember however that this land is to be maintained by the group - not by the facilitator alone - and is not a typical "demo-plot" as traditionally used in many programmes.

**Test and validate:** The Field School method proposes that no technology will necessarily work in a new location, and therefore must be tested, validated, and adapted locally. Thus, IPM methods are always tested in comparison with conventional practices. The end result is that beneficial aspects of IPM are incorporated into existing practices. There are no “IPM Farmers”, and “IPM adoption rate” is around zero in good Field Schools. There are, however, better farming practices and high adaptation rates.

**Hands-on learning activities:** Beside season-long field studies, the Field School also uses other hands on learning activities to focus on specific concepts. “Zoos” in which insect and disease life cycles can be observed more easily on potted plants, and controlled testing of pesticide toxicity with chicks are such activities. These methods also provide ways for farmers to continue studying after the Field School. Farmers are able to use the same methods to help other farmers to learn about IPM as well.

**Evaluation and Certification:** All Field Schools include field based pre- and post-tests for the participants. Farmers with high attendance rates and who master the field skill tests are awarded graduation certificates. For many farmers, the Field School is the first time that they have graduated from any school or received a certificate in recognition of their farming skills, a point of great pride to many families.

**A process, not a goal:** It must be remembered that Field Schools are a method to provide farmers with a learning environment so that they can achieve the goal of reducing inputs, and increasing yields and profits. In some programmes the number of Field Schools, or expansion of programmes becomes the overwhelming target and success criteria that quality suffers and the initial goals are not met.

**“Work self out of a job”:** The facilitator in a Field School attempts to work him/herself out of a job but building the capacity of the group. Indeed, many Fields Schools take over the job of the extension facilitator by doing Farmer to Farmer training and other local activities to strengthen other members of the community.

**I can't lose! Why? I'll tell you why...because I have courage, knowledge and enthusiasm!**

*IPM trainers mantra for Indonesian National IPM Programme - an appropriate saying given the social, institutional, and industrial opposition to providing basic agricultural education to farmers allowing them to be more critical of government and industry and holding them more accountable for their “messages”.*

**Follow-up:** All Field Schools normally have at least one follow-up season, the intensity of which will be determined by the motivation of the Field School participants, time constraints of participants and facilitator, and to some extent - funding. Follow-up has been known to be a little as monthly support sessions for farmers to discuss their own problems in implementing IPM, to as much as farmers running a complete Field School for other farmers. Often farmers

## ACTIVITY FLOW IN IPM PROGRAMMES



agree to repeat the Field School process for one more season to verify findings, or to repeat the process of the Field School on a new crop to learn IPM for the next crop. Some groups begin to form associations, people's organisations, and clubs that are officially or un-officially organised and carry on studying as a group. The facilitator usually becomes less central in the process if he/she has done a good job, more often providing some technical backstopping and stimulation for the group.

**Local funding goal:** Some of the Field School activities focus on future planning and funding raising. There is an explicit goal for groups to become independent and seek local support separate from national funding. In some cases this has meant that farmers each bring a bowl of uncooked rice to a meeting to put together for snack money, or as much as writing a proposal and receiving a funding grant from government or NGO sources. In national programmes, it is desirable to have funds available directly to farmer groups that request support for their local activities.

## **Integrated Pest Management - Narrow and Wide Views**

In 1957, “Integrated Pest Management” was first proposed as a concept which promoted the use of biological control (mostly free), good agronomic practices (good for crop yields), and other means before investing in chemical pesticides (costly, destroy natural enemies, create environmental and health social costs) to control pests. At that time, as now, many farmers used pesticides on a calendar basis, governments promoted their use, and they were considered an essential aspect of “modern” agriculture. Sometime later, largely due to basic misuse of “economic thresholds”, IPM also began to be defined as “spray only when the pest exceeds the threshold”. The original concept was to promote good practices, the second concept was useful for selling pesticides.

A wider view of IPM has been developed in recent years as a result of farmer focused Farmer Field School programmes. The basis of this view is derived from the original biologically intensive IPM concepts. Academic definitions are replaced with understandable straightforward principles;

1. **“Grow a healthy crop”** allows plants to recover better from environmental or pest injury, avoids nutrient deficiencies related with pest attack (insects and disease), and promotes natural defences to many insects and diseases inherent in plants. Proper crop and plant management methods used [Academic term: cultural controls].
2. **“Conserve natural enemies”** provides free biological control of insects and diseases. Parasites, predators and pathogens have long been recognised to control pest insects, but recent research shows microbial antagonists, and competitors of plant diseases are also important. Vertebrate natural enemies are also essential for control systems. Conservation usually implies avoiding inappropriate pesticide applications (herbicides, fungicides and insecticides all have impact on insect and disease natural enemies) or improving soil organic matter necessary for beneficial soil micro-organisms. Natural enemy habitat protection and development are more active methods of conserving natural enemies (e.g. owl houses, mulching for spiders, floral nectaries for parasites). Inoculation or inundation of reared natural enemies may be possible under special circumstances but usually only after conservation efforts have already been implemented. [Academic term: biological control].
3. **“Observe crops regularly”** means informed decision making for appropriate interventions to be made quickly for water, soil, and plant management. Inputs used are based on an ecological and economic assessment. [Academic term: Input analysis].
4. **“Farmers become experts”** in their own fields is crucial for long term management of soils, pests and crops. Expertise implies a basic understanding of the agro-ecological system, and decision making processes. Simple rules and directives may provide short term benefits but cannot sustain long term local developments. [Academic term: HRD]

## Training and Visitation comparison with Field Schools

Point	Classical Training and Visit	Farmer Field School evolution
<b>Field-level extension officer's job</b>	Deliver pre-packaged "messages" from a research-extension linkage. Primary job is information transfer, not technical expertise, which is reserved for Specialists not at the field level.	Technical Facilitator: Every FFS trainer should have basic technical skills (at least able to grow the crop, or rear animals, etc.). Secondly, every FFS trainer should have group oriented training and management skills. These skills are typically learned in a season-long Training of Trainers where they learn what they will teach.
<b>Experience of trainers</b>	Variable, but most often lacking basic farming skills and experience. Field level staff given communication skills.	Master trainer with farming experience gained during Training of Trainer programmes in which each person is required to grow crops and carry out field studies so that they test what they will use in Field Schools later.
<b>Information</b>	Primarily top-down messages from distant research stations about situations presumed to be representative of farms.	Recommendations are tested against conventional practices and new information about to the site emerges. Promotes local creativity.
<b>Contact point</b>	Contact farmers that are supposed to train other farmers by passing on external information.	Groups of interested farmers that farm on a daily basis through generating local study circles.
<b>Time frame</b>	Continuously, forever, on a two-week regular cycle not based on any natural phenology.	A pre-defined period. Usually on a weekly basis over a season. FFS may be longer than a season, but never less than one season integrated with the crop phenology.
<b>Pedagogy</b>	Training: Use of static pre-determined demonstrations and in field examples to show and tell.	Education: A focus on underlying principles that allow farmers to derive and adopt recommendations within their own dynamic their ecological, social, and economic realities.
<b>Evaluation</b>	At best indirect: based on measuring delivery and funds spent.	Pre- and post-testing. Community self-surveying. Identifiable indicators defined in terms of system-critical factors. Internal rates of return.
<b>Training site</b>	Demonstration field, training centres, home of Contact Farmer, static not revisited in time or observed in terms of any on going process.	A shared field in which the FFS uses to dynamically validate and test new management methods over the entire season (e.g. decisions during one part of the season can be verified by yield cuts)
<b>Long term objectives</b>	Increase food production, etc. "Farmer's attitudes, lack of knowledge, and practices are an object/constraint of a development process"	Nurture groups that will continue to address agricultural and community problems on their own and with technical backstopping. "Farmers as the subject of development"
<b>Research</b>	Primary source of information is research stations assumed to develop representative models that are widely applicable.	A process and consequence of local testing and within-community/ecosystem learning.

