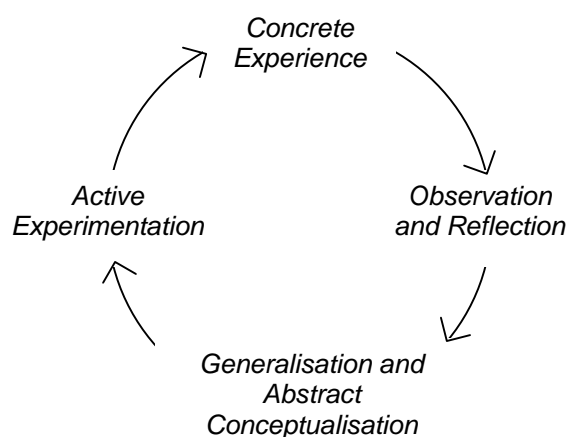


# An Introduction to Sweetpotato Farmer Field Schools

## ***What is a Farmer Field School (FFS)?***

The Farmer Field School (FFS) approach originated in Indonesia in 1989, in response to a major pest outbreak, caused by the misuse of pesticides on rice farms. A national integrated pest management (IPM) programme began, which attempted to improve the organisation and management skills of farmers, not by instructing them on what to do but by empowering them through education to make better use of their existing knowledge to handle their own on-farm decisions. This training programme occurred in farmer's fields and combined farmer's traditional knowledge of land management with a more thorough understanding of the ecology of rice field ecosystems, it became known as the farmer field school programme. The field was seen as the teacher and its conditions defined most of the curriculum. The plants formed the most important learning materials and real problems were observed and analysed from planting all the way through to consumption, processing and/or sale.

The educational philosophy of the FFS rests on the foundations of non-formal adult education, and reflects the four elements of the 'experiential learning cycle':



Operationally, FFSs are typically organised around a season-long series of weekly meetings focusing on biological, agronomic and management issues, where farmers conduct agro-ecosystem analyses, identify problems and then design, carry out and interpret field and post-harvest experiments. The experiential learning approach of FFS provides participating farmers with a deeper understanding of crop ecology and observational, analytic and problem solving skills, which helps them evaluate the importance and applicability of their existing and innovative practices. In order to implement such integrated, knowledge-intensive and location-specific approaches, farmers require intensive training, so they can understand (as opposed to just participate in activities which help others understand), why some methods are better than others and acquire skills to adapt techniques as necessary to their own specific conditions. These understandings and skills are usually transferable between field activities, and can be passed on through traditional knowledge pathways. The formation of cohesive farmer groups during these collective learning activities and their exposure to economic analysis often increases the negotiating power of these producers with traders or suppliers, and leads to an increased awareness of rights and establishment of farmer action networks.

The longer-term empowerment goals of FFS seek to enable graduates to continue to expand their knowledge and to help others learn and to organise activities within their communities to institutionalise integrated crop management practices. Every learner is a potential trainer and the facilitators must be technically strong. The FFS approach

*" Tell me, and I will forget.  
Show me, and I may  
remember. Involve me, and  
I will understand"  
Confucius, 450BC*

complements existing research and extension activities through shortening the time it takes to get research results from stations to adoption on farmers' fields by involving farmers in experimentation of their own; enhancing the capacity of extension staff to serve as technically skilled and group sensitive facilitators of farmers' experimental learning; increasing the expertise of farmers to make logical decisions on what works best for them, based on their own observations of experimental plots in their FFS and establishment of coherent farmer groups that facilitate the work of extension and research workers, providing the demand for a demand driven system.

During the 1990s an estimated 2 million farmers were trained through the FFS in South and South East Asia. The FFS approach has since been replicated in a variety of settings beyond IPM. There has also been a shift from a focus on a single constraint of a single crop (IPM for rice based systems) to an emphasis on the multiple aspects of crop production and management, to cropping systems, to non crop/forest (livestock production etc) to natural resource management (soil fertility, water conservation etc) and even to socio-cultural dimensions of community life (food security & nutrition, savings, health, HIV/AIDS, literacy training, livelihoods etc). The FFS approach has been extended throughout Asia and to several countries in Africa and Latin America. In East Africa, this has required adaptation and modification of the approach in order to make it more applicable for the farming systems of the region, where a wide diversity of crops are grown and where pests are not necessarily the major production problems. The adoption of an extra 'P' in the IPM acronym to form Integrated Production and Pest Management (IPPM) FFS reflects this more holistic approach. The East African context also provided specific challenges, different from those in Asia, such as long distances between farming communities, limited national funding for public extension, and highly unpredictable weather patterns with frequent droughts.

### ***Objectives of the sweetpotato FFS training manual***

This training manual was designed specifically for sweetpotato IPPM FFS facilitators. As sweetpotato FFSs had already been run in Indonesia, the materials developed there, and information from different research projects addressing sweetpotato in sub-Saharan Africa (SSA) together with farmers, facilitators, researchers and processors experiences, and their testing and refining of the materials during the 3 year project have been used to support the promotion of sustainable sweetpotato production and post-harvest management through farmer field schools in East Africa and to develop this Sweetpotato IPPM FFS manual, curriculum and learning activities. These materials are simply tools which we hope can be used by facilitators to help them facilitate sweetpotato FFS or FFS with other focal topics that enhance farmers' problem-solving and decision-making skills. The manual is not intended to be prescriptive, innovation is a key part of FFS and we hope that these materials simply act as backstopping information to enhance the creativity of FFS facilitators to result in more sustainable sweetpotato production and post harvest management.

The layout of this manual starts by providing a brief introduction to FFS and then provides detailed information on different aspects of sweetpotato production and utilisation in chapters one to seven. The first chapter highlights the importance of sweetpotato particularly in Eastern Africa as well as analysing the major constraints. The subsequent six chapters present technical information on the different stages and challenges of sweetpotato production and post-harvest management: crop establishment and management; pest and disease management; post harvest-processing techniques; and marketing. Chapter 8 covers key farm management skills, such as crop observation and monitoring and experimentation. Chapter 9 provides an example of the season long learning curriculum developed by the pilot sweetpotato FFS in North Eastern Uganda and Western Kenya and a blank form for FFS to design their own modified curriculum, examples of ideas for learning activities on a range of different topics are given. Chapter 10 provides examples of meaningful group dynamic exercises. Copies of some useful Monitoring and Evaluation forms are given in the appendices.

## ***Starting of a FFS***

### ***Preliminary community meetings***

Experience has shown that FFS are more effective if the participants are from a single village, this way a core group of FFS farmers are established in a community, which increases the chances that they will continue some group activities after the FFS season ends, and extend its approach to other farmers in the community. They also frequently act as focal groups for other programmes. IPPM is usually more effective when practiced on a large scale, as the ecological balance established in the individual farmers IPPM fields can then be expanded over a larger area.

Ideally a request for a field school should come from a farming community themselves. Farmers who request training are usually more motivated and responsible than those appointed by some authority above. Field days arranged by existing FFS can often act as a trigger for such request. In areas where FFS are a novelty, interest can be elicited by working through a convinced local leader or exchange visits to an area where a FFS exists.

A series of formal or informal meetings should be conducted with interested farmers, local government officers and non-governmental organisations before starting the FFS. The first meeting should be of an informative nature to introduce the FFS concept and to raise interest amongst potential participants. The timing of such a meeting is important. Ensure that it is not at a time when potential participants are busy in the field or at a time that might exclude either men or women from participating due to their household responsibilities. Through these initial meetings it will be possible to confirm or identify the farmers' main interest areas or problems, and to gauge whether they are sufficiently interested to attend a season-long course on the subject. The group are responsible for the care and maintenance of the study enterprise covering all aspects of the cropping cycle, from soil preparation, through planting, weed control, pest and disease control, harvesting, processing, post harvest storage to marketing of produce. The approach is a season-long training following the seasonal activities of a crop. The financing of the FFS should be openly discussed, so that all potential participants are clear on the arrangements.

It is important to spend time discussing potential participants' expectations, and getting the group to decide whether any of these are unrealistic can avoid problems later. The farmers must be given plenty of opportunity to ask questions and make suggestions.

### ***Selecting participants***

Identify a group of men and women farmers for whom the sweetpotato FFS approach could be considered to be a response to their problems. This could be done by visiting a sweetpotato growing village within the target area and holding interactive discussions with farmers. These farmers along with other farmers they know are interested in sweetpotato production, and village leaders could then be invited to attend an interactive meeting during which the FFS approach and aims are discussed. Those volunteers who are keen to participate in the programme can then agree to hold another meeting during which details on programme activities, expectations and the election of a committee can be discussed. Groups of about 25 - 30 farmers all from the same village tend to work well, although the number of active participants usually fluctuates during the season. In general, larger groups tend to become either chaotic or passive, while discussion and sharing of experiences may not develop well in smaller groups. For certain FFS activities such as the agro-ecosystem analysis farmers typically work in small subgroups of four to six members; the full group then reconvenes to share results.

Sweetpotato IPPM FFS participants should:

1. be active sweetpotato farmers
2. have an active interest in learning new things
3. be able to attend FFS regularly over an entire field and post harvest season
4. be willing to share experiences and disseminate what they learn to other farmers
5. be ready to work in a group and follow the norms set by the group

6. have good relationships with others
7. come from the same area
8. adhere to the initial understanding by which they and others volunteered to participate in the FFS, and not try and use the FFS for other personal interests

Members should not be selected unilaterally by extension workers, FFS facilitators or local leaders as this increases the likelihood that some participants are neither active farmers nor motivated to learn about SP IPPM. It is important to make sure that everyone's interests are included, particular attention should be paid to the different interests/ needs of men and women within the same village.

### ***Timing and frequency of the FFS meetings***

Participants should be involved in scheduling the day of the week and time of the day and the frequency with which to hold the FFS meetings. Women may not have the same availability as men. Insects are usually more active while it is still cool, and are more likely to be observed in the morning. It is also usually easier to gather farmers together for a meeting early in the day, before they start their routine activities. Meetings of ~3 hours seem to suit the majority of farmers, but it needs to be discussed with all the participants. A consensus should also be reached on the start and end dates of the school, taking into consideration the interest in post harvest as well as pre harvest topics. The sessions of the initial phase of the school can commence before the start of the cropping season/ cycle, when farmers are less busy with farm work. During the cropping season or cycle, sessions should be held regularly every one to two weeks.

### ***Identification of the location of the school***

Ensure that all participants' opinions regarding the proposed location are heard. The school should be located somewhere that is:

- accessible and acceptable to all the farmers
- suitable for the sweetpotato crop
- centrally located among the farmers, within or next to the community and secure
- near a shaded comfortable area for the group to draw, discuss findings, analyse the data etc

### ***Identification of activities the FFS might learn about***

In order to start to identify initial topics that the FFS might like to learn more about, the participants can carry out a problem analysis for the crop or subject they are focusing on, e.g. sweetpotato. This could be done by asking for three or four volunteers from the group. These volunteers can then be asked to talk about their experiences with sweetpotato production, and the problems and successes of any of their related work. The facilitator should then steer the group to brainstorm on key cross cutting points from the different farmers' presentations which will help define the initial activities the group will learn about. A list of topics might be developed and the group could score these in order to decide and agree which of these are their priority topics. They then might like to discuss suggested ways of addressing the priority problems, in order to decide which methods, including the practices of other farmers, they could test and compare in an experiment.

The group will need to be flexible as other questions will arise as they start to study the crop together, and they are likely to want to add in new studies or experiments. In order to develop their skills needed to design and implement their experiments it is important that a session on experimentation is conducted very early during the FFS season. Participants may well want to return to the topic of experimentation later during the season as they build their own skills and ideas.

### ***Official opening of the FFS***

For the development of the school and to ensure community support of the school and the replication of similar activities it is important to start the school with a proper opening

ceremony. This will give the local authorities, including farmer leaders, the opportunity to express to the participants their support and interest in the implementation of the school. It is useful to invite officials for the opening of the school. One or two speeches are sufficient to make an impact while ensuring that efficiency and goodwill are not dissipated.

### **Facilitation and its role in the FFS process**

A FFS is an approach for working with farmers towards agreed objectives, often using a curriculum of pre-determined sessions as a guide but being flexible enough in order that should specific topics be raised by the FFS group they can be studied together, or an external facilitator with specific skills can be brought in e.g. on malaria prevention or treatment. In FFS, farmers study their chosen crop or animal or enterprise, and as they study together they discover and learn through experience, e.g. by watching over the course of a season how

different varieties develop, or whether the damage caused by a leaf eating pest actually reduces the yield of the crop or just affects the appearance of the leaves. As they observe they develop new observational, problem solving and analytical skills, they ask questions about what they see and they experiment in order to answer those questions. The role of the facilitator is not to provide answers to farmers' questions, but to support and encourage them in answering those questions themselves through further observation or through comparing one method with another. When farmers develop these skills to investigate and supply solutions to the problems they are facing, they take these skills with them into the future; they use these skills to address all nature of problems they and their families encounter. FFS facilitation is about supporting farmers to respond to and overcome problems themselves.

*Give a person a fish and they will eat for a day. Teach them how to fish and they will eat forever.* Chinese Proverb

*If you teach a person to teach others to fish, you will potentially help the whole community to solve their problems.*

*But what if the path to the river itself is strewn with obstacles? They will also need the skills to enable them to reach the river.*

A FFS facilitator might be either an extension worker familiar with the FFS approach or a skilled farmer who has graduated from a previous season-long FFS. The role of the facilitator is much more than that of a teacher or an instructor. She or he plays a complex role as an experienced farmer, a questioner, an organiser, and a coordinator. FFS facilitation is the process of encouraging a group to interact, confer together, work together, share thoughts or feelings and ultimately to learn together.

In order for a facilitator to support farmers to develop these skills, the facilitator themselves needs to feel competent in their own technical understanding of the subject area which the field school is addressing, their own enquiry skills and their ability to help the group to work smoothly and constructively together.

In most cases the constraints identified and studied by farmers in the field schools are not new, the farmers have often lived with these problems throughout their farm production lives, but often they lack the skills to unravel the problem in order to start to address it. The facilitator has a role then, to drive farmers to recognise and identify the problems and to decide whether their current practices could be improved on using research knowledge or whether their current practices are the most practical for their own specific situations. Change can be a challenging process, and a facilitator will have to work carefully to support farmers to voluntarily change some of their current practices through self-discovery including field exercises, sharing experiences, and orientating any training on subjects based on the needs of the farmers. To successfully achieve this, the facilitator must possess good communication skills to enable them to express themselves clearly, to support farmers in feeling their knowledge is valuable and respected but might still be able to be improved on. Any exchange of information must be two-way, this requires the patience to listen to the expressed needs and observations that form the rationale for development of learning/ teaching objectives that are relevant to the needs of the farmers.

A facilitator must enjoy encouraging others to explore and it is likely that they will find it satisfying to watch those they have been involved in facilitating to learn as they become more and more independent in their ability and confidence to explore problems or new observations and arrive at solutions or new problems to explore.

The roles and duties of the facilitator in the FFS are as follows:

- S/he investigates the main farming problems in the village before starting the FFS, so that s/he can plan ideas for topics to meet participants' needs, although this exercise will then be improved on through planning the activities together with the participants.
- His motivation for guiding the field school is based on a wish to improve his own abilities and those of others. If motivation is based solely on a desire to earn more or attain a higher status it is unlikely that the facilitator will be successful in the long term.
- She arranges for the participants to identify a field to be used for observation and experimentation.
- He prepares any materials required for the topic of the day, special topics and group dynamic sessions in advance of each meeting.
- She always explains the objective and the process before initiating an activity.
- He observes and analyses the condition of the IPPM study field along with the participants, encouraging them to make in-depth observations by asking relevant and open as opposed to leading questions and listening to the discussion the questions stimulate.
- She is systematic. This implies progressing from the simple to the more complex and from the known to the unknown when trying to help people understand something new.
- He always makes every effort to enliven the discussion and to keep it flowing. Participants are welcome to share any opinions as long as they are related to the topic of discussion. Sometimes the facilitator has to let people know that when someone is speaking, the others should be listening and paying attention. To restart a stagnant discussion, he can ask questions like: "Is there anyone who still hasn't given an opinion?" He can also give his own opinion. If the discussion is not lively enough, the facilitator can ask a different question or voice a controversial opinion to elicit a reaction and to make people think.
- She should ensure that all participants are involved, and try to prevent one person from dominating the discussion.
- When participants can not answer a question from their own observations and discussions, he should be able to articulate his own opinion or experience clearly.
- She gives reminders about the time, so that the FFS remains on schedule. Changes to the schedule should be agreed upon by all participants.
- He always shows respect for all participants and their opinions.

The learning process can be hampered if:

- The facilitator seems uninterested, impatient or unable to focus on the subject.
- Her explanations are sketchy or unclear.
- He assigns a task that is not clear.
- She gives incorrect or inaccurate information because she does not want to admit that she does not know the answer.
- He uses inappropriate methods and/or activities.
- She is disorganised and does not work step-by-step.
- He manages time poorly.
- She seems confused, and hesitates to take decisions.
- He has a negative attitude towards the participants and corners them
- She lacks self-confidence.

The role of scientists and/or subject matter specialists in FFS is that of providing backstopping support to the FFS. The scientist or subject matter specialist should be guided by the facilitator to work in a consultative capacity with farmers. Instead of lecturing farmers, they must respect their role as being one of a colleague or adviser who can be consulted for advice on solving specific problems, and who can serve as a source of new ideas and/or information on locally unknown technologies.

## **FFS activities**

### ***Planning the season-long FFS***

In order for the participants and the facilitator to know what will be happening when, it is important to carry out a planning exercise with the participants, so that details of what might happen during the FFS season are agreed on and recorded. An example of the learning curriculum used by some sweetpotato FFS in Western Kenya and North Eastern Uganda is given in Chapter 9. Differences between locations and interests of FFS groups mean that each FFS should develop their own learning curriculum to reflect their own interests. A blank template is also given to help in this. It is important to leave room for flexibility in the curriculum as it is impossible to predict all the exciting questions that will be thrown up as the FFS develops, and time will need to be set aside for working together on these new topics.

As mentioned above it is important that a session on experimentation is conducted very early during the FFS season, in order to develop the participants' skills in designing and planning the implementation of their experiments, they will need to have thought about this before a season long curriculum can be developed.

The FFS participants will need to identify a field to be used for the FFS observation and experimentation, and will have agreed that they will provide the labour needed for their field school activities, including attending sessions with the necessary tools etc. The participants will need to have openly discussed the funding arrangements of the field school and to have agreed on the appropriate division of the budget to cover possible costs such as: stationery (flip charts, marker pens, notebooks etc), facilitators allowances, additional products or equipment needed, field days, exchange visit, graduation etc. The facilitator will then need to organise the acquisition of stationery and any other items identified by the FFS as critical for the initial activities, such as accessing of planting materials from participants, researchers etc. Large wooden analysis boards for participants to observe, draw and present field materials on are often useful.

### ***A FFS session/ meeting***

A typical FFS session/meeting might cover the following activities:

- Meeting initiation, roll call etc.
- Review of previous activities and briefing on the day's activities
- Agro-ecosystem analysis (AESA).
  - Field observation, discussion and data collection.
  - Review of field observations, visualisation of the field observations including information on the condition of the plants, pests and diseases, natural enemies of insect pests, weather, soil and water conditions etc, discussion and decision making on appropriate action.
  - Sub group presentation of this information to the whole group
  - Synthesis of the different sub group information and collective decision-making.
- Group dynamic activity
- Topic of the day or special topic
- Review and evaluation of day's activities
- Planning for next session, announcements, closing of meeting

#### *Meeting initiation*

The lead sub-group for that session, will take a record of time of arrival, lead the opening address or prayer and take roll call. The materials to be used during the session will also be shared out amongst the different sub-groups.

#### *Review of previous activities and briefing on the day's activities*

The facilitator can guide the participants to focus on the previous activities in order to orientate themselves towards the current sessions planned activities. The lead sub-group can give a brief recap of what was done and learnt previously and what the expectations of the current session are.

### *Agro-ecosystem analysis (AESA)*

The cornerstone of the FFS methodology is the agro-ecosystem analysis (AESA). This is the establishment by observation of the interaction between crop and other biotic and abiotic factors co-existing in the crop field. It is the main decision making tool used in FFS and involves regular (usually weekly, fortnightly or monthly depending on study activity) observations of the crop although the frequency may vary based on the field conditions, study enterprise characteristics and growth stage. The process is holistic and farmers usually work in sub-groups of 4 or 5 under the guidance of the facilitator to enhance the participatory learning process.



AESA is a four-stage process starting with field observation. During this stage the sub-groups learn to sample the crop and carry out their structured observations of their crop. Growth stage, insect pests, predators and parasitoid numbers, weed status, crop health, weather condition, soil condition, and any other factors that have a bearing on the crop performance are all recorded in the field observation. Unknown insects, leaves with an unfamiliar appearance, with



symptoms of unknown diseases, insect damage, or with other damage can be collected and taken to the FFS meeting site for further observation, identification and discussions. The facilitators role is to assist in supporting participants to observe and discover what the ecological roles of the different organisms found in the field are.



The next step in the agro-ecosystem analysis is detailing the field observations on a presentation size paper. This step reinforces field observations and creates a record of field activities. Each sub-group prepares their presentations with a summary of data, picture of the field situation, and decisions from the group, as to the management required in the field. The facilitator's role is to move from group to group asking questions and making additional observations. An example AESA presentation form is given in the learning activity in Chapter 9.



The third step is where each sub-group presents their results and decisions, and responds to observations or comments made by the other sub-groups. This presentation by participants strengthens presentation skills and requires groups to defend their decisions with ecological arguments.

The last step is where the whole group synthesise the presentations for collective decision making. The facilitators role during this stage is to guide farmers to arrive at informed decisions and help farmers harmonise the different decisions from different sub-groups.

Farmers own experience is incorporated into all stages of the analysis. Drawing and self-presentation during this process reinforce learning. This is done throughout the season as the problems and decisions being studied overlap with similar issues in participant's own fields there is a keen interest to learn. The AESA usually takes ~2 hours per meeting.

The purpose of this exercise is for the farmers to learn to make regular field observations and analyse problems and opportunities encountered in the field. Through observation, drawing and discussion, farmers analyse what is observed in the field and come up with management decisions based on these findings. This helps improve farmer's decision-making skills. By doing this exercise regularly in the FFS, farmers develop a mental checklist of indicators to be observed when monitoring their crops.

#### *Group dynamic activity*

In addition to the field analysis, there are usually two other activities each session. One of these is a group dynamics exercise to develop group cohesiveness and problem solving skills, and encourage collaboration and creativity. These activities generally begin with an introduction by the facilitator who sets up a problem or challenge for the group to solve. Some are physical and active, while others are brain teasers. The exercises should be fun while providing experience of using teamwork to solve specific problems. Chapter 10 of this manual, provides examples of different group dynamics that have been used in FFS.

In order to get the most out of group dynamics exercise, FFS participants should evaluate each one, discussing what they learned from the exercise and how it relates to their own situation. They should identify the processes they used to solve the problem posed during the exercises, paying special attention to the role of creativity and cooperation.

#### *Topics of the day and special topics*

The other activity usually included in each FFS session is a concept-based activity of farmers' choice (commonly known as the topic of the day or special topic).

Topics of the day usually involve the special study of a specific topic relevant to the FFS focus activity e.g. pest or disease management, discussion on varieties which are doing well in the community, preparation of other activities such as a rat management scheme, etc. These topics of the day support agro-ecosystem analysis by delving more deeply into specific issues relating to the agro-ecology, crop development, IPM or IPPM principles, provide training in basic experimentation methods, and opportunities to discuss aspects of the experiments being planned or conducted in more detail. After the facilitator introduces the topic and explains the steps to be used in the process, the participants assume the active management of the activity. The technical information included in chapters 1 to 8 of this manual will help facilitator in backstopping the activity.

Examples of topics of the day that might be conducted in response to local problems and issues include:

- Identification of sweetpotato varieties, planting periods, constraints and coping mechanisms
- Concepts, principles and importance of integrated production and pest management with specific reference to sweetpotato
- Sweetpotato site selection, land preparation and soil fertility issues
- Weed identification and management options in sweetpotato
- Identification of and management options for common sweetpotato pests and natural enemies
- Sweetpotato growth stages and management options
- Sweetpotato diseases and their management options
- Rapid multiplication of planting materials
- Soil and water conservation and soil fertility management options
- Pest and natural enemy interactions (life cycles, food chain and food webs)

- Farming as a business
- Harvesting (maturity indications, harvesting techniques, field assessment and grading)
- Fresh and dry root storage
- Processes involved in sweetpotato marketing (product, place, price and promotion)
- Sweetpotato utilisation
- Processing and value addition
- Gross Margin Analysis

Special topics are usually included in the FFS in order to address local problems and issues not specific to the FFS focus activity. External facilitators are usually invited to work with the FFS group on these topics which are often beyond the experience of the FFS facilitator. Examples of special topics that might be conducted in response to local problems and issues include:

- HIV/ AIDS and agriculture
- Nutrition
- Family planning
- Malaria prevention and treatment
- Community loans/ credit schemes

#### *Review and evaluation of the days activities*

It is important to evaluate each session of the FFS to identify the strengths and weaknesses of activities covered. The FFS participants should conduct this evaluation and the outcomes should feed into the planning for the following session (e.g. when they will next meet, what they will do, what the topic of the day or special topic will be, who will do what, what needs to be prepared).

Each school meeting ends with a summary/review of what has occurred during the day. This will help participants to recall and remember what has been discussed, achieved, and agreed during the days meeting.

#### **Field days and exchange visits**

FFS participants often enjoy organising a field day for their local community to display and discuss the skills they have gained through involvement in the field day. This is a good opportunity for the community to gain a better understanding of what happens in an FFS and what the benefits and problems of operating this approach are. The field day could be mid-season or combined with the closing ceremony.

Exchange visits between FFS in different areas are often great opportunities for joint learning and it is interesting to ask the participants to document what they learnt from the visit to improve future FFS operations as well as field visits. Farmers find it stimulating to see the enterprising skills of other farmers and are always eager to then try them out on their own fields. Farmers tend to feel a sense of pride in organising and being involved in field visits.

#### **Evaluation of the FFS**

During the design of the initial FFS curriculum time for evaluation exercises should be timetabled. In order to identify the strengths and weaknesses of the FFS, an evaluation exercise focusing on the results, process and impact can be conducted.

1. Results: What were the results of applying IPPM and conducting experiments in the FFS field?
2. Process: how effective were the FFS activities in helping participants learn about SP IPPM?
3. Impact: What can participants accomplish by implementing SP IPPM as learned during FFS in their own fields?

### *Evaluation of the results*

It is important that the evaluation of the results is not left until the end of the FFS, participants will have been involved in experiments throughout the FFS season, and need to evaluate the results of the experiments using the data they collect. The results are likely to affect the future activities they want to carry out in the FFS and at home.

During the group discussion, participants can compare the yields for each study plot and formulate conclusions about the treatments of the studies and about the IPPM technology in comparison with farmer practice. The following questions could be raised by the facilitator to stimulate the discussion:

- How did the yield vary with the study management practices? Which practices were associated with a high yield?
- What were the production and labour costs (management costs) for each plot?
- What was the net income (gross income less management costs) for each plot?
- Which management practices were easy to apply? Which were difficult?
- How compatible is each practice with the overall farming system practised by the participants?

### *Evaluation of process*

The evaluation of process should assess how well FFS met the needs and expectations of the participants. Criteria for analysing process could include:

- The number of meetings held and the number of participants present at each meeting
- Reasons for cancelling meetings or absenteeism from meeting
- Congruence between the topics of the day covered in the FFS and the local field problems
- Strengths of FFS: what were the most interesting, useful activities?
- Weaknesses of FFS: what was not interesting, useful? What could be improved? What should be added or removed? How could the curriculum be improved?
- How did the facilitator perform?

The results of process evaluation provide input to the facilitator for planning subsequent SP IPPM FFS. An example of a successful tool developed and used for the group evaluation of the FFS process is given in Appendix 1.

### *Evaluation of impact*

Impact evaluation measures how far the SP IPPM FFS process succeeded in improving farmers' knowledge of IPPM for sweetpotato and increasing their capacity to apply it.

We can measure progress in increasing farmer knowledge and improvement of their skills through a testing process, such as a pre and post test. The facilitator prepares ten questions (using the local language) that relate directly to local field problems. Three suggested answers are given to each question (multiple choice) and each participant has to select which answer they think is correct and tick that answer. After all questions are answered, the sheet should be handed to the facilitator who tabulates the results on a form. The results are shared and discussed by the participants. The pre test provides the facilitator with some diagnostic information that he/she can use to adjust the FFS curriculum to the knowledge level of the group. The post-test results are an indicator of progress made during the FFS season.

FFS participants and other stakeholders can be interviewed using a questionnaire at the beginning and end of the field school season to learn more about what they have learnt and its impact, examples of some questionnaires that might be used are given in the Appendix. Further impact assessment requires follow up of field level observations and/or interviewing of the FFS graduates and other stakeholders at various periods after the field school season.

### ***Farmers recommendations for future activities***

Before adjourning the field school it is important to discuss what farmers plan to do with their new knowledge and skills. The planning process for SP IPPM follow-up activities should be based on the intentions expressed by graduating farmers, although the facilitator should encourage attention to be given to the following aspects:

- Implementation of SP IPPM in individual fields
- Group implementation of activities requiring collective action.
- Group continuation of (individual and/or collective) experimentation to adapt IPPM guidelines to local conditions
- Farmer-to-farmer dissemination of the IPPM guidelines and methodologies

### ***Closing/ Certificates***

Just like the official opening, it is important to close the school with a proper closing ceremony. It is useful to invite various leaders/officials for the closing of the school. To foster dissemination of SP IPPM, farmers who have not yet attended a field school are invited to attend. The invitees could include farmers and community leaders both from within the village and from neighbouring villages. This occasion is used to recognise the time put in to the FFS by the farmers and facilitators. It is also a forum to pass on the lessons learnt at the FFS to the public, administrators, and create interest for more farmers to join the next planned FFS in the locality. The results from the FFS can be displayed and lessons dramatised.

Certificates are awarded to FFS participants who have successfully completed the studies and this activity marks the end of the FFS session.

### ***Follow up, post FFS***

After the FFS is over, participants will hopefully continue to practice IPPM on their own fields, disseminate it to other farmers and continue with some of the group co-operation that they have established. It is also beneficial if the facilitator makes follow up from time to time to encourage the farmers to continue with the activities.

Some of the enthusiastic participants with strong facilitation skills can be selected to become the farmer facilitators for future sweetpotato farmer field schools. Often two farmer facilitators work together as a pair until they have gained the confidence to facilitate on their own. Extension facilitators could run a local training of trainers courses on sweetpotato IPPM for the farmer facilitators to strengthen their technical knowledge and boost their confidence, and should maintain a strong relationship with those graduates from the FFS that go on to become facilitators.