



# RESADE

**Building Agricultural Community Resilience:  
A Farmer Field School of Excellence Facilitators Training Manual.**

Nhamo Nhamo, Zied Hammami, Mohammad Shahid and Rakesh K. Singh

International Center for Biosaline Agriculture (ICBA)



© ICBA 2024

**Document type:**

Training Manual

**Project title:**

Improving agricultural resilience to salinity through the development and promotion of pro-poor technologies and management strategies in selected countries of sub-Saharan Africa.

**Funded by:**

International Fund for Agricultural Development (IFAD) and the Arab Bank for Economic Development in Africa (BADEA)

The views expressed in this manual do not necessarily reflect the opinions or policies of the International Center for Biosaline Agriculture (ICBA).

**Suggested citation:**

Nhamo N, Hammami Z, Shahid M, and Singh RK. 2024. Building Agricultural Community Resilience: A Farmer Field School of Excellence Facilitators Training Manual. International Center for Biosaline Agriculture (ICBA), pp23.

# FOREWORD

Scaling technologies and improved practices can potentially improve agricultural production and efficiency in the smallholder farming sector. Numerous methods exist for scaling innovations and technologies, but participatory approaches stand out and have contributed to the transformation of farming systems. The farmer field school approach was used by the RESADE project i.e., *“Improving agricultural REsilience to SALinity through DEvelopment and promotion of pro-poor technologies and management strategies in selected countries of sub-Saharan Africa”*, to disseminate proven technologies to farming communities in six Sub-Saharan African countries.

The key to the successful establishment and conduct of the numerous farmer field school sessions on the RESADE project can be attributed to the active involvement of the locally recruited facilitators. The training of local facilitators at the onset of the dissemination efforts significantly contributed to a large proportion of the >8000 farmers reached by the project. The selection of facilitators took into consideration the skills domain and experience in working with farmers. The ability to apply adult learning approaches was also an important attribute sought during the selection process. Both facilitators and farmers who were engaged in the RESADE project in all six countries also contributed to shaping the development of this training manual.

The manual was designed for researchers who work with large groups of farmers in the generation, testing, and scaling of technologies and innovations that have a potential impact on the livelihoods of smallholder producers. The manual also addresses the needs of students, extension personnel, development practitioners, and those who consider the development of skills and sharing knowledge through adult literacy approaches. The manual acts as a guide in many aspects of participatory engagement for rural communities and has been developed for those who need improved technologies and innovation to move a step up in their production practices and knowledge acquisition.

The manual has been developed in a simple but robust manner to ensure that the experience of contacting the training of facilitators is an enriching exercise for the recipients as well as the trainers. The authors consider the guide as an important tool for empowering the farmer field school facilitators regardless of their specialty or background studies.

# ABBREVIATIONS

<b>AEA</b>	Agroecosystem analysis
<b>BADEA</b>	Arab Bank for Economic Development in Africa
<b>BPH</b>	Best Practices Hub
<b>FAAB</b>	Farming As A Business
<b>FAO</b>	Food and Agriculture Organization
<b>FFS</b>	Farmer Field School
<b>ICBA</b>	International Center for Biosaline Agriculture
<b>IFAD</b>	International Fund for Agricultural Development
<b>IPM</b>	Integrated Pest Management
<b>ISFM</b>	Integrated Soil Fertility Management
<b>PRA</b>	Participatory Rural Appraisal
<b>SWOT</b>	Strength, weakness, opportunity and threats

# TABLE OF CONTENTS

<b>1. Farmer Field School</b>	<b>6</b>
<b>2. RESADE Project Key Intervention Areas</b>	<b>10</b>
<b>3. Agro-Ecosystems Analysis for Farmer Field Schools</b>	<b>12</b>
<b>4. Participatory Rapid Appraisal Tools for Farmer field School of Excellency</b>	<b>14</b>
4.1 Transect walk.	15
4.2 Focus group discussion/Interviews/ Matrix Ranking	15
4.3 Seasonal calendars/Daily activity clocks	17
4.4 Tree diagram/Cause and effect diagrams/fish borne diagrams.	18
4.5 Resource Mapping/Social map/Land use mapping	18
<b>5. Farming as a Business</b>	<b>20</b>
<b>6. Strength, weakness, opportunities, and threats</b>	<b>22</b>
<b>7. Successful Implementation of the Farmer Field School of Excellence</b>	<b>23</b>
<b>Appendix A:</b>	<b>25</b>



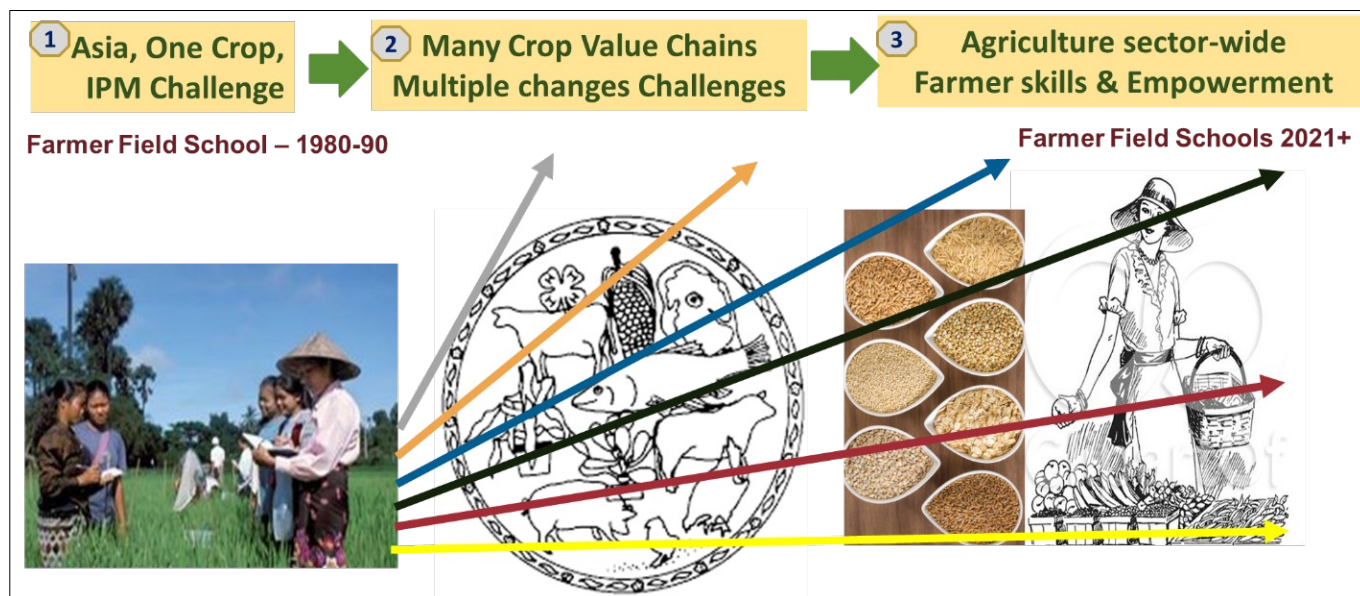
# 1. FARMER FIELD SCHOOL

## Introduction

The Farmer Field School approach was developed and popularized towards the end of the 1980s by the Food and Agriculture Organization (FAO) of the United Nations. The approach was initially developed in Asia for farmers to discover and learn skills required to benefit from the adaptation of Integrated Pest Management (IPM) practices in their own environment. Since that time, FAO and its partners has popularized this approach in diverse conditions in Africa, Asia, South America, and the Caribbean Islands. Its use has shifted from IPM on rice to numerous concepts such as Integrated soil Fertility Management (ISFM) applied on a range of annual crops and livestock programs in rural communities. It is estimated that to date, millions have been trained and have benefited from the application of the Farmer Field School (FFS) approach.

## What is a Farmer Field School?

A Farmer Field School is an experiential approach to practical and participatory learning by a group based on adult education principles. It is centered on optimal group learning from their experience through observation, discovery, and experimentation on agricultural crops or livestock. Group analysis of the results of experiments, sharing experiences, and critical considerations lead to improved decision-making. In the “classes without walls”, farmers “learn by observing and doing” thereby strengthening individual capabilities and improving their knowledge. In FFSs, practical problems are solved using innovative participatory and interactive non-formal approaches. The name “Field School” has also been associated with the “Sekolah Lapangan” an Indonesian phrase that was used to emphasize that learning happens in the field when targeting real field problems.



**Figure 1.1:** The farmer field school approach has a long history and has evolved over time and is becoming an important approach in the dissemination of knowledge to farmers.

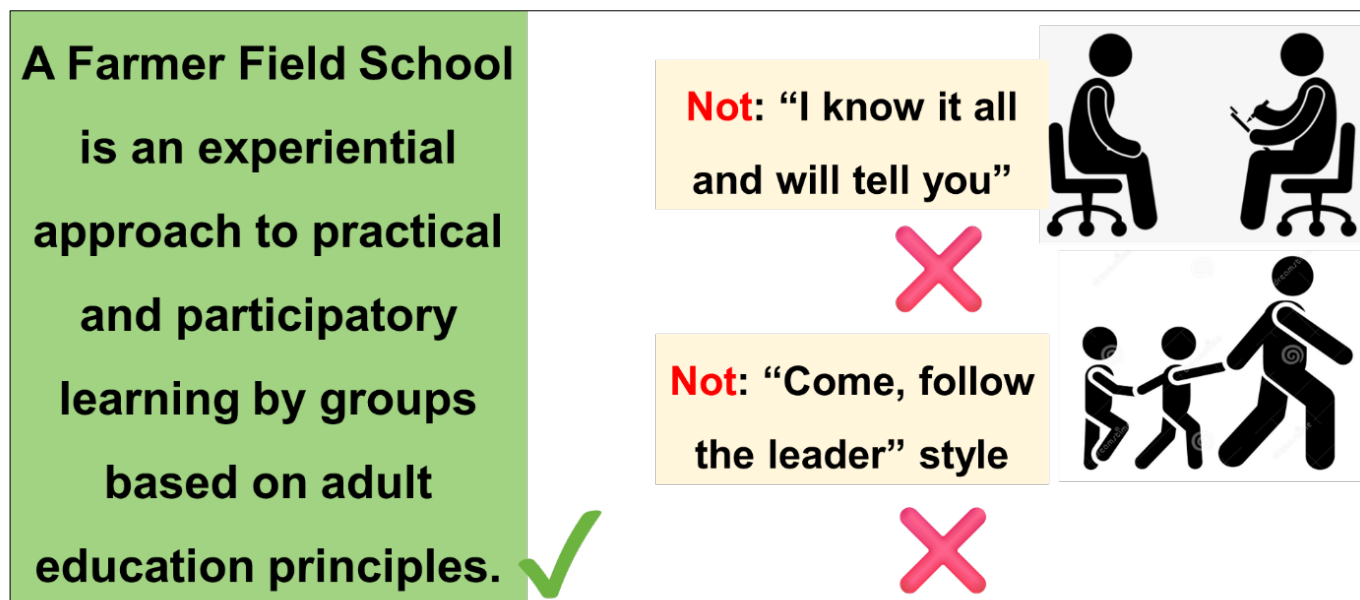
Farmer Field Schools are constructed by smallholder farmers whose desire is to overcome resource constraints, limited access to extension personnel, adult educative information, market information, and financial services provision. Farmers are confronted by increasing demand for household food and income security, improved ecosystem management skills, and response to emerging

biophysical challenges. In view of all these, present-day farmers can benefit from adult style education approach used in FFSs. This development is in line with the evolution of the old extension services model to new approaches that uphold engagement and provision of platforms to farmers. The Agricultural Innovation Systems extension approach provides platforms for farmers and value chain

actors to interact in search of solutions and the FFSs strengthen the same.

The implementation of the FFS brings many benefits to farmers including empowering farmers with new skills and knowledge, problem identification and solution development, and ability to make informed decisions. Farmers also learn to observe the ecosystems around

them, analyze a problem and jointly make decisions about their environment. The FFS also increase self-esteem of farmers, presentation skills and cohesion of groups. While the use of agroecological analysis emphasize the use of scientific approaches, indigenous knowledge systems are also given space during the development of solutions to problems.



**Figure 1.2:** Adult learning is mostly centered on “doing” compared to a series of lectures and large volumes of reading materials.

## Requirements

- a. The Field:** In this approach, the Field is the classroom or better still the learning laboratory. The field is also a teacher in the sense that it provides the topics for the group to study and deliberate on. The practical training of the FFS group comes from the crops, water, pests and diseases which are all part of the field. Similarly, the agroecosystems analysis and other FFS practices are conducted on the field.
- b. The Group:** In the FFS approach the group of farmers and the facilitators makes a team and they share experiences and learn together. The diverse group of participants with the desire and correct attitude towards adult learning is an important requirement for a successful FFS. Careful selection and coordination during implementation often make the school success in achieving its set objectives. A group of 20-30 members is recommended and will lead to effective member participation.
- c. The Curriculum:** is the written and agreed upon roadmap resulting from a participatory process involving all parties. It captures the immediate needs of farmers which require urgent solutions and the development of knowledge and tools around them. In general, it follows the natural resources cycles and topics on the management of water, soil, crops and animals, food and income security. In addition, the special topics may cover other crop specific issues such as application of pre-seed treatment to enhance seed germination or more general health and environmental topics such as malaria control. The timing of the sessions also captures the seasonal nature of the agricultural calendars.
- d. Program coordination:** The FFS is implemented in a coordinated manner and those who take leadership responsibility need the passion and energy to implement the activities successfully. The logistical arrangements ranging from the field to material requirements and staff involvement, require a programme leader who consults and uses participatory problem-solving approaches. The coordination structure should empower the group members.

- e. **Learning Resources:** The knowledge empowerment objective can only be met when there are adequate resources. Very important are the learning materials and resource persons who can facilitate farmers adult learning using up-to-date resources. It is the role of the coordination team to ensure the availability of the learning resources that support the curriculum developed by farmers. Learning materials developed by farmers are very important in capturing the indigenous knowledge systems specific to the area where the school is located. In the area of indigenous knowledge, semi-literate farmers can positively make some contribution in the form of stories and pictures representing the development of the subject in question.
- d. **Curriculum development:** The FFS approach is farmer centered. The curriculum for the School is developed by farmers with the guidance from the facilitators for the farmers to effectively learn about new practices and solutions to overcome their current problems. The process of developing a curriculum for the entire season or a year needs to be carefully executed in a participatory manner. This curriculum is also a significant tool that separates the FFS approach from the extension services approach. In the latter, the extension personnel approaches farmers as consumers of a service whereas in FFS the farmer's real problems are addressed, and the solution draws from a wide range of experience from fellow farmers and facilitators.
- e. **Monitoring and evaluation plan:** As part of checking progress of the FFS, a monitoring and evaluation plan is required. The plan assists in improving the activities and ensuring the attainment of the desired outputs and outcomes.
- f. **Certification:** At the end of the FFS, the presentation of certificates to the graduates is a step that has been associated with this approach since the beginning. This step is an important recognition of the farmers' efforts, the time spared, and commitment shown in the conduct rigorous agroecosystems analysis in the field for the whole season. It makes the end of the season-long adult learning cycle and reflects the knowledge gained during the participation in the school. The graduates of the FFS can use their knowledge to confidently initiate and run their own FFS in their villages, with assistance from facilitators.

### Important steps

- a. The process of initiating and running a successful Farmer Field school involves several steps and the following have been identified as most important.
- b. **Training of Facilitators:** Training of facilitators or training of trainers is one of the key steps in unlocking the potential of FFS. The use of FFS as a method of reaching and impacting farmers' livelihoods begins with training the messenger. Facilitators with adequate training and understanding of the principles will impact and empower the farmers they interact with.
- c. **Selection of farmers:** The pioneer farmers are important in making the School operational. Farmers with the desire to learn often benefit much more from the exercises during the FFS sessions. Therefore, selection of lead farmer is an important step and consideration in running FFSs.

### Summary

## Farmer Field School

- ❖ A season long journey
- ❖ Experiential learning is core
- ❖ Adult continuous learning
- ❖ Agricultural transformation in sight



**Figure 1.3:** Farmer field schools for crop production technologies and innovations are season-long.



## Further Reading

Bartlett, A., 2005, August. *Farmer field schools to promote integrated pest management in Asia: The FAO experience*. In *Workshop on Scaling Up Case Studies in Agriculture* (pp. 16-18).

Braun, A. and Duveskog, D., 2011. *The Farmer Field School approach—History, global assessment and success stories*. Background paper for the IFAD Rural poverty report.

Braun, A., Jiggins, J., Röling, N., van den Berg, H. and Snijders, P., 2006. *A global survey and review of farmer field school experiences*. A Report for the International Livestock Research Institute, Wageningen.

Simpson, B.M. and Owens, M., 2002. *Farmer field schools and the future of agricultural extension in Africa*. *Journal of International Agricultural and Extension Education*, 9(2), pp.29-36.

## 2. RESADE PROJECT KEY INTERVENTION AREAS

The International Center for Biosaline Agriculture (ICBA) is implementing project called the “Improving agricultural REsilience to SAlinity through DEvelopment and promotion of pro-poor technologies and management strategies in selected Countries of sub-Saharan Africa” with the acronym RESADE. The project is being conducted in partnership with the International Fund for Agricultural Development (IFAD), the Arab Bank for Economic Development in Africa (BADEA) and the Ministries of Agriculture in selected SSA countries.

The project goal is to improve food security and reduce poverty of poor smallholder farmers. The main objective of the project is to increase agricultural productivity and incomes in salinity-affected agricultural areas in selected countries. In this project successful evaluation of salt-tolerant crops, development of crop value chains and capacity building of farmers and extension personnel in collaboration with the local partners are important outputs.

The project targets to reach about 550 farmers through scaling out activities beginning at each Best practices Huub using the Farmer Field School of Excellence (FFSE) approach in each country. At each Best Practice Hub (BPH)<sup>1</sup>, around 50 farmers will be directly involved in the testing, evaluation, and selection of technologies. Facilitators will work with the initial 50 farmers and these pioneer farmers intern will apply the FFSE approach to reach a minimum of 10 additional farmers each.

### Design Features

**1. The HUB:** The Best Practices Hub (BPH) is a platform for created for farmers to acquaint, evaluate, and adapt and of the interventions showcased to them. The Hub works as a place where farmers, researchers and extension personnel interact and develop solutions take home messages regarding agricultural productivity opportunities in a participatory manner. At the Hub, several solutions to cope with salinity stress

will be assessed. The Hub will therefore two spatial provisions:

#### Experimental Cluster:

In this cluster experiments on soil amendments, new crop and varieties, fertilizer management, irrigation, leaching fraction and crop management practices will be conducted during the project.

#### Farmer's demonstration cluster:

Farmer will also be given an opportunity to experiment on solutions of their choice in an area dedicated for these activities. The plots allocated to farmers will enhance the master farmer training and form farmers leaders who can upscale solutions and influence other farmers to adopt the best practices.

- 2. Field School:** The Hub will be the initial point from which all the Farmer Field School related work on this project will start from. The Hub will be the “school without walls” from which the pioneer farmers will develop their facilitation skills from, with the guidance of the facilitators. Therefore, the initial extension effort of the project will be demonstrated at the Hub. It will be a meeting point, knowledge sharing space and capacity development workshop.
- 3. Farmer Centered:** The project target to impact the lives of farm families in the selected countries. The project activities have been designed to involve farmer from the inception through to closure. Capacity building and exposure to experiential learning are at the core of the project activities to ensure sustainability and ownership of the outcomes.
- 4. Value chain approach:** The RESADE project has a crop introduction component and related with this are machines for processing the produce. The project

---

<sup>1</sup> A Hub is described as an effective center or fulcrum of activities. In agriculture and rural development, a Hub can take the form of a place or space where several networks, innovations and business partnerships are initiated. The same space has become important in naturing entrepreneurial and innovative groups of farmers who seek to improve their value chain participation in a community. Hubs are supportive of the formation and proliferation of agricultural innovation platforms. The RESADE project is operating Hubs as platforms for farmer to engage, learn and participate in the evaluation of a number of technologies.

approaches the crop interventions with the “seed-to-seed” view shared by most practitioners of crop value chain work.

- 5. **Gender Mainstreaming:** The project targets clearly articulate the need to mainstream gender in agricultural and development projects. All the value chain and Farmer Field School activities on the project acknowledge the need for equity and providing opportunities to all farmer and with particular attention to women and youth.
- 6. **Coordination structure:** The project will implement activities simultaneous in all the countries. To facilitate the initiation and completion of tasks, the Project Coordinator based at ICBA, works closely with the RESADE Country Coordinators. And Country teams made up of experts, interact with farmers and farmer groups, fellow researchers and extension personnel from all the cooperating countries thus enabling sharing of ideas and cross-pollination of innovations at various levels.

## Experimental Protocols Summary

**Soil amendments experiment:** Aims to evaluate the impact of several soil amendment on soil and crop productivity under salinity conditions. Soil amendments including manure, compost or biochar will be tested.




**Crop fertilization:** Appropriate fertilizer management is one of the solutions to poor soil productivity. The objective of this trial is to evaluate the effect of fertilizer types and combination on productivity.

**Crop management:** Good Agricultural Practices practices to improve crop performance will be evaluated in this experiment. Practices include sowing, weed management and water conservation.

**Irrigation management systems:** The benefits of irrigation system such as Californian or drip irrigation can alleviate the negative impact on salinity on soil and crops will be evaluated in this experiment. Comparisons will be drawn with farmers’ practices such as bucket system or surface irrigation. experimental design is shown below:

**Leaching fraction:** This trial aims to determine the optimal leaching fraction and the effect on crop productivity.

**Crops and Varieties:** Introduction of new crops and varieties will expand crop diversification in the salinity-affected areas of targeted countries. In this experiment crops and varieties will be evaluated for salt-tolerance and productivity under saline conditions.

<p><b>1. Soil Amelioration:</b> Appropriate mineral and organic fertilizer management</p>	<p><b>Smart soils</b></p>	
<p><b>2. Good Crop Management Practices:</b> Crop establishment, weed &amp; water management &amp; crop diversification.</p>	<p><b>Smart Crops</b></p>	
<p><b>3. Water Management Systems:</b> irrigation system and optimal leaching fraction.</p>	<p><b>Smart Water</b></p>	

**Figure 2.1:** An illustration of some of the key components of the RESADE project in six African countries.

# 3. AGRO-ECOSYSTEMS ANALYSIS FOR FARMER FIELD SCHOOLS

Agroecosystem analysis is central to the Farmer Field School approach. This tool was developed to guide the systematic identification, observation, analysis, and decision making of a field situation that requires management. Agroecosystem analysis (AEA) assists farmers in developing logical decisions using a step-by-step manner which is a central theme of learning by discovery. This activity enhances the farmers' analytic and presentation skills thereby improving their communication abilities on challenges the face daily in the cropping fields. Knowledge and experience sharing on the environment or cropping practices is enhanced when farmers conduct an AEA in FFS sessions. In addition, AEA deepens the understanding of the functionality of an ecosystem and its components.

## Systems and Ecosystems

**A system:** is made up of interacting and / or interrelated elements that function to form a whole in a given environment. The performance of a system is determined by its environment, structure, and purpose. In agriculture the elements take the physical, cultural, economic, and behavioral forms.

**An Ecosystem:** is a dynamic complex community of living organism (plants, animals, and micro-organisms) interacting with their chemical and physical environment to form a functional unit. Therefore, an agroecosystem is influenced by the abiotic and biotic interactions, the genetic composition of species involved and the management practices on resources available to farmers.

## Requirements

The application of Agroecosystem analysis in FFSs requires planning in advance all field activities. These field activities are reflected in the curriculum for the seasonal learning cycle. Besides the group, facilitator and record keeping materials, the other requirements are activity specific. For example, an activity involving the identification of crop or animal pest may require containers to collect the specimen samples for further analysis.

## Important steps

- a. **Observation:** A small group of farmers takes time to observe the performance of the crop. Except on the first one, observation will refer to the condition of the crop in the last visits.
- b. **Data collection:** Data will be collected which may include crop parameters deemed important or specimen collection for further analysis. The facilitator points out what might have been missed.
- c. **Analysis:** this includes the examination of the evidence from the field observations. Using the knowledge and experience the group diagnose the problem and seek solutions in the discussions.
- d. **Presentation:** in this step the AEA process is summarized into keep observations and the result of the analysis. This is done to communicate the main message and finding among the group members and to colleagues from other groups and teams.
- e. **Decision making:** The group will have to come to a consensus on the appropriate management decision to take after the AEA processes in the field.

## Further Reading:

*Ramroop, D.V., Baptiste, K. and Lopez, V.F., 2011. The Farmer Field School Approach for Integrated Pest Management: The St. Lucia Experience (No. 535-2016-38513).*

*Van Bueren, E.L., Struik, P.C. and Jacobsen, E., 2003. Organic propagation of seed and planting material: an overview of problems and challenges for research. NJAS-Wageningen Journal of Life Sciences, 51(3), pp.263-277.*

## Agroecosystems Analysis Definition

### An analytical tool:

- Developed to guide farmer field school sessions into **identification, observation, data collection, analysis, and decision making** as a group.
- Guides **taking measurements** and keeping records.
- Is central to **learning by discovery**

**Figure 3.1** Use of agroecosystem analysis makes the farmer field school approach unique and empowering to the participants.



# 4. PARTICIPATORY RAPID APPRAISAL TOOLS FOR FARMER FIELD SCHOOL OF EXCELLENCY

## Introduction

Participatory Rural Appraisal (PRA) methods have been widely used in initiating many rural development projects. The methods satisfy the need for local important information gathering and analysis conducted in close cooperation with rural community dwellers by subject specialist for use in developmental planning. The rural populace share knowledge about their livelihoods and their environment in view of the challenges they encounter and opportunities that exist in their communities as part of developing a plan. By their nature, PRA tools are quick, multidisciplinary, empowering to the local people, adjustable to local conditions, interactive and can lead to community driven improvement. The local people active analyze their situation and own the results of the interactions while the development agents facilitate the processes.

## Requirements

Successful execution of PRA requires a set-up that includes (a) a Team of facilitators, (b) a rural community made up of diverse participants, and (c) a suitable venue to conduct the workshop from.

- (a) Facilitators:** at the minimum three roles have been observed to be important in the facilitation team i.e., the Note-Taker, session Facilitator and the Team-Leader. The note-taker has the responsibility of keeping records of all the deliberations, drawing all the important landmarks when mapping, write down all the important information in line with the checklist and keeps all the paperwork. The facilitator catalyzes the discussion among the members and moderates the process to avoid dominant characters from overshadowing the rest of the members. The facilitator assists the note-taker in keeping track of the information and communicates with the note-taker on the time and the next discussion points. The team-leader introduces and coordinates

the whole workshop, sub-teams and keeps the interests of all participants including the evaluation of the daily activities.

- (b) Local people from the community:** It is a common feature of PRA workshops that diversity of participants is central to the organizers. This diversity cuts across the social structure of the community, age groups, wealth ranks and many other considerations without leaving out gender. However, it should be noted that this diversity needs to be managed well for fruitful deliberations to ensue during the sessions. In short, building on positive local relationships found in the community is important while the facilitators who show respect, humility, patience, and willingness to learn assist in making the workshops successful. Ultimately is the diversity of views and experiences which shape the results of the PRA workshop.

- (c) Venue:** A suitable venue is important for free participation of local people from various groups. While it is difficult to find a totally neutral venue always, it will be desirable to identify one which does not prevent other community members from attending or limit the freedom of active participation of a section of the community.

## Some observations

The following are important to observe when conducting PRA sessions with rural communities and developing plans:

- **Gender:** sensitivity to gender is always very important
- **Local people centered:** appreciating indigenous knowledge systems, leaning with them using their measurements, symbols, indicators, and criteria.
- **Seeking diversity:** reduce biases, all perceptions, interactive learning, approach consensus.

## 4.1 Transect walk.

**Transect walk:** In this exercise, a walk is organized across identified points with defined objectives of observing and asking questions on where the natural resources are located and how they are being used. The participants may decide to make several stops to observe major landmarks and make brief description and/or discussions of the use and importance. Attention also needs to be paid to resources which may not be in use but have potential contribution to the livelihoods of the local people. The note-taker keeps track of the records of all observations and may need to make some drawings to represent some features on a sketch map. Notes often record some observations the people who the participants may find doing their daily routine work along the transect to reflect what, where and why the activities are being conducted relative to the homesteads or other services.

As a general guide, the central theme of the transect walk is determined and agreed upon by the participants. An agricultural transect walk for instance will lead to the identification of land use patterns, irrigated or rainfed crop fields, grazing paddocks, water source(s) for domestic, livestock or irrigation, homestead field activities and outfields, and relative locations of the main agricultural activities. A settlement transect walk will show the settlement types, housing types, services areas, health and educational institutions, religious activities areas and local governance administrative blocks.

### Requirements

(a) A group of local people of diverse backgrounds, (b) note-taker, (c) a facilitator. A local guide may be necessary in following chosen route which expose participants to many physical features of interest to the group.

#### Important steps:

- Define and agree the transect walk's objectives and purpose.
- Identify the path that captures the topographic pattern of the area and sectional breaks.
- Take detailed notes from the observations and deliberations on important resources.
- Summarize the most important natural resources and where they are on a cross sectional transect map.

#### Analysis

Using a simple check list developed and agreed upon by the participants, the facilitator will assist the small groups

to remember what they saw and the important of the natural resources in the development of local livelihoods. The analytic procedure may follow a pattern such as:

- List of the important and valuable resources observations.
- Description of the casual connections between resources and utilization.
- Where possible, who has access to which resources on a temporal scale?
- Are there recurring patterns on use or un-used resources and why?
- Discuss the potential use of the same resources and or other resources found in the area.
- Describe the opportunities identified as a result of the transect walk.
- Identify the how resources can be linked to the long-term goals of the current program.

#### Presentation of results

The note-taker will then lead a process of summarizing the results of the walk. This is often represented in map(s), lists, tables, and other forms written text.

#### Highlights

- Community participates in relating the observed resources to the current use value.
- Future opportunities in relation to the general lifestyles of the local people are identified.
- Major sources of livelihoods are discussed and reviewed.

## 4.2 Focus group discussion/ Interviews/ Matrix Ranking

### Definition

A Focus Group discussion is a method of data collection in which a selected group of participants discuss a topic(s) guided by a set of questions with the objective of documenting and analyzing in-depth knowledge, perceptions and future ideas. A facilitator moderates the discussion and ensure that the qualitative data can be organized into some logical order to inform other on the development of the subject under discussion. A check list is often drawn up before the interviews and is used to guide the note taker on the progress and direction of the discussion. Just like the name suggest the discussion is focused on a topic, subject or event and the participants of different backgrounds understand or are closely

involved in the issue(s) at hand. In the focused discussions participants have an opportunity to talk to each other, share knowledge but also outline some contradictions based on their position in the community.

## Requirements

Successful focus group (FG) discussions are arranged ahead of time. These interviews require (a) a carefully selected group, (b) a check list with clearly worded questions, (c) a facilitator and note-taker and (d) a suitable venue.

**The group:** A small group (7-12) is desirable as crowds often are difficult to remain focused. Other considerations which apply to all PRA techniques which include gender, age, social status, beliefs and religion, heterogeneity, knowledge, and experience are important in preparing for FGs.

**The check list:** The results of FGs are as good as the quality of the questions asked and the deliberations from the groups during the process. The technique relies on clear questions which are facilitated well to bring out the knowledge from the community. A short list of questions (5-10) is important. Questions during FGs may be categorized into probing questions, follow-up questions and exit questions. All questions need to be open ended to avoid one-word answers. It is important to understand from the group how and why developments are what they are today? It is wise to step-back and check whether the direction taken by the group will inform the study objectives and goals.

**Facilitator and Note-taker:** the two do a great job of making the deliberations happen and keeping a

good record of what comes from the group members. Moderating FGs requires both the Facilitator and the note taker to be neutral to enable the group to express their perceptions freely, be able to deal with the personality types such as the dominant and the passive members and keep harmony during the interviews. Similarly, the experts and the less knowledgeable may require attention. Skills such as paraphrasing the long and winding answers from the group without misrepresenting them and eliciting further details from the shy contributors will be handy in handling FGs. Where for some reason the group get interested in a new but important question, the facilitator should be in a position to probe further for more valuable information from the new angle.

**The venue:** Since FGs are for a small group, the venue should be known to all and accessible. The comfort of the group during discussion is of utmost importance.

## Processing Results

Notes, diagrams, and audio records are the most common forms of unprocessed data collected from FGs. These are often enhanced by transcribing the FG soon after the interview in order not to lose the nuances of the discussion over time. The records will be used to remember and for further analysis at the end of the study.

Analysis should also follow immediately after the FG discussions. More detailed and comprehensive summary notes taken during the FG discussions are critical in the analysis. Under each of the research questions the big ideas, unique perceptions and themes which came out need to be highlighted. The outliers also need to be summarized for further analysis. Concept mapping has been suggested as one way of achieving data reduction in analyzing FG results.

1. List the problems
2. List the criteria considered important
3. Assign weights to the criteria
4. Construct a matrix table
5. Determine the score for each problem against the criteria
6. Multiply the weights and the scores
7. Rank the problems

	Marketable yield	Income	Nutritional value	Total score	Rank
Ranking	0.5	0.3	0.2		
Salinity	5 × 0.5 2.5	4 1.2	3 0.6	4.3	1
Pests and Diseases	4.0 2	3 0.9	3 0.6	3.5	3
Drought	3.0 1.5	4 1.2	5 1.0	3.7	2
Seed germination	2 1.0	3 0.9	1 0.2	2.1	4

**Figure 4.1:** An illustration of how to perform matrix ranking with farmer groups

## Presentation of results

- The following are important consideration in presenting results from FG discussions:
- The group demographic characteristics are important for the report i.e., number of participants male/female/youth.
- Presentation can follow the sequence of events during the FG discussion.
- For each question report clearly the important elements, themes and the integrated views from the deliberations
- Quotations from the discussion may be useful in driving a point.
- Present the alignment between the focus group discussion and the purpose of the research.
- Point out the deeper understanding emanating from the FG discission for each topic.
- Where possible policy issues may be separated from interventions and local solutions.

## 4.3 Seasonal calendars/Daily activity clocks

### Definition

Seasonal calendars are a tool used to describe and analyze the major agricultural activities, individual crop calendars, labour availability, marketing opportunities, commodity price changes, big social events, rainfall patterns and natural resources patterns across a temporal scale. An annual calendar (January to December) can be used as the basis of this analysis where the agricultural activities corresponding to different times of the year are listed and compared. Shorter periods can however be used

to study activities which can complete a cycle within two (2) or three (3) months for example. Seasonal calendars are very important in determining the peak periods of the major agricultural activities and provides a framework for analyzing competing demands on resources e.g., post-harvest processing capacity, storage space or transport logistic to take produce to the market.

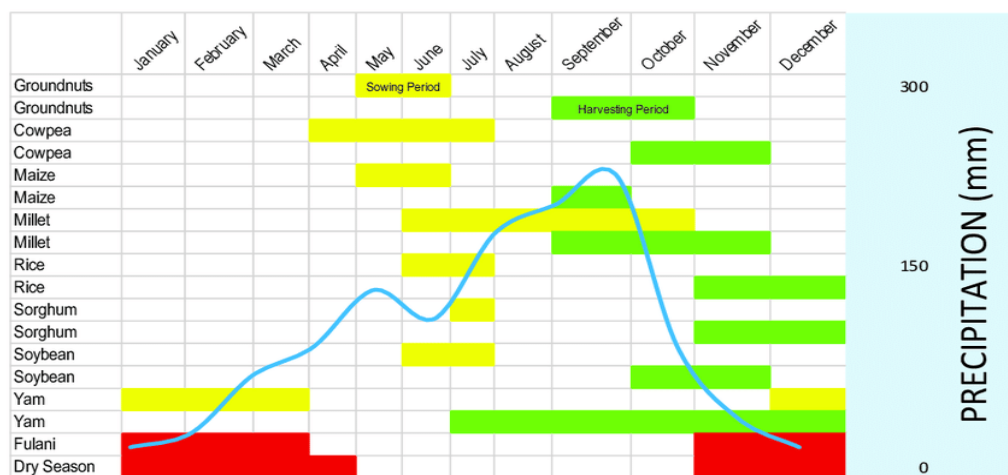
### Requirements

- Group of farmers.
- Note-taker.
- Facilitator.

### Important steps

- Identify the commodity.
- Discuss the life cycle of the commodity.
  - Define the critical stages of development.
  - Discuss the time required for pre-planting and
  - Post-harvest activities.
- Discuss the input procurement and output marketing.
- Identify the labour requirements.
- Prepare a combined representation of the major activities for the commodity on a time scale.
- Evaluate and finalize the calendar.

### Presentation of the result



**Figure 4.2:** Cropping calendars present critical information on the cropping systems and rainfall patterns in an area

## 4.4 Tree diagram/Cause and effect diagrams/fish borne diagrams.

### Definition

The FFS approach has been lauded for its “participatory field problem identification and solution development” involving farmers. Several PRA techniques are taught to facilitators for use in the developing of the capacity of farmers to learn to solve agricultural problems. In looking for solutions, the cause-and-effect relationship of elements of

#### Box 1: The Tree Diagram

In this activity, the group aims at identifying the nature of the main problem and how the current status link to some of the observed effects. Three components are important:

- Tree trunk: The main/Core Problem
- Tree Roots: Causes of the problem
- Tree leaves and branches: The effects of the problem in society

#### Box 2: The Fish Borne Diagram

In using the fish borne diagram, the causes and effect are linked together, and the main problem is represented at the head of the fish.

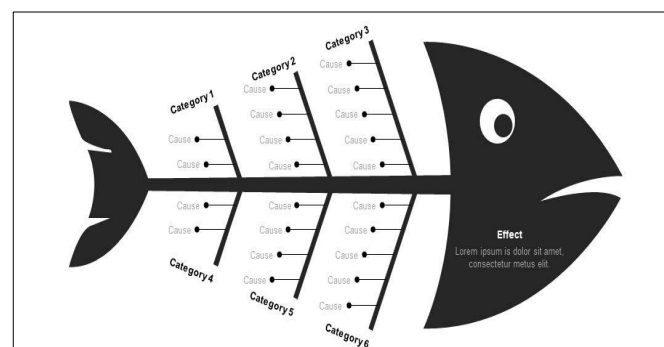
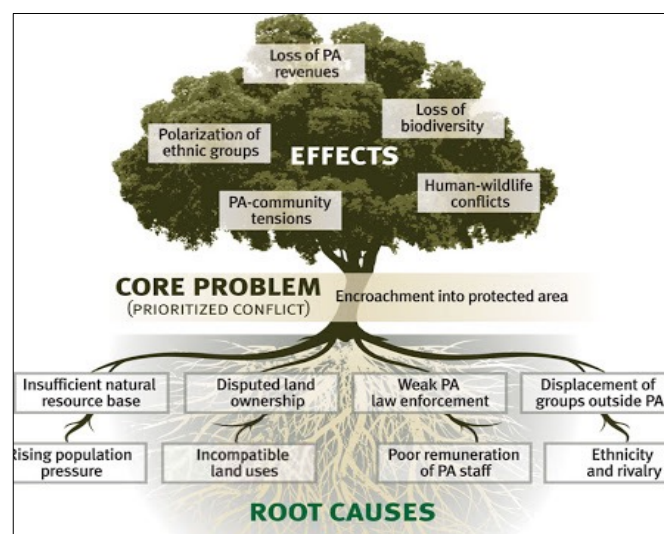
- Center borne: The main/Core Problem.
- The bones: Causes of the problem.
- The Head: The effects of the problem in society.

a system need to be examined in detail. The tree diagram or the fish borne diagram are commonly used by practitioners.

### Requirements

A small group of farmers, note-taker and a facilitator will need materials to use for writing down the various factors and how these factors are related to each other. The analysis, discussion and decision-making stages will then follow as in all FFS activities.

### Presentation of Results



**Figure 4.3:** Tool for analyzing the cause and effect of occurrences in production systems is important in determining the appropriate action to take.

## 4.5 Resource Mapping/Social map/Land use mapping

### Definition

Community resource maps are developed to represent the occurrence, distribution, access, and use of the resources that are available locally while showing the topography

and general settlement arrangements of an area. When contacted with the active participation of the local community the maps can remind, highlight, and bring the current perspective of the value of resources available for development of the community. Resource mapping is an important tool in agricultural planning as it shows the already developed land and the potential for further development. The map also reflects on the connections to essential services



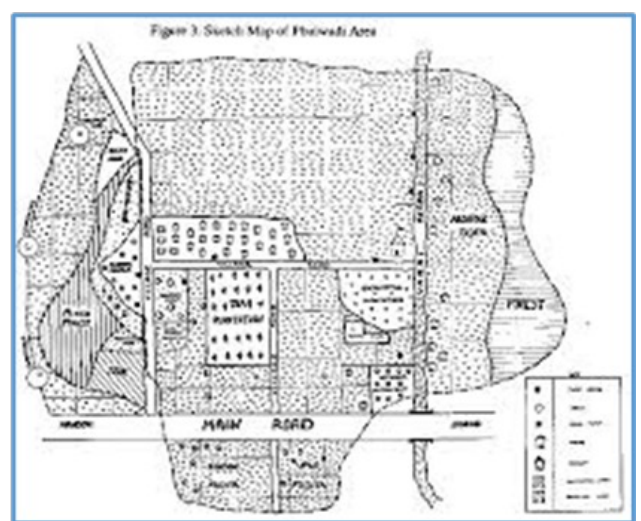
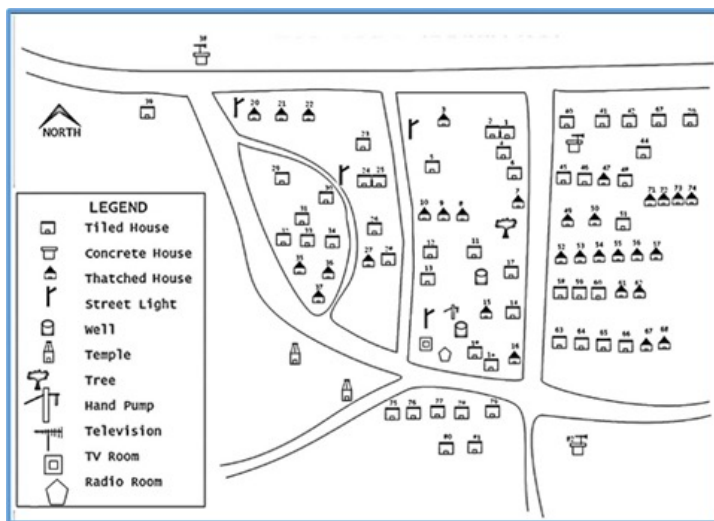
such as roads to the nearest market and access to water sources.

## Important steps

### Requirements

- a. Group of farmers.
  - b. Note-taker.
  - c. Facilitator.
- a. Define resources
  - b. Discussion a common definition
  - c. Decide the map boundaries
  - d. List (i) Natural Resources (ii) man-made resources
  - e. Discuss the relevance and importance of each
  - f. Using the list put down the Key to your map
  - g. Put the major landmarks on the map
  - h. Add other details to the map
  - i. Check distances and directions

### Presentation of the result



**Figure 4.4** Resource maps are important in the representation of important resources and linkages to markets for goods and services in an area.

### Further Reading:

Chambers, R., 1994. *Participatory rural appraisal (PRA): Challenges, potentials and paradigm*. *World development*, 22(10), pp.1437-1454.

Chambers, R., 2008. *PRA, PLA and pluralism: Practice and theory*. *The Sage handbook of action research. Participative inquiry and practice*, 2, pp.297-318.

# 5. FARMING AS A BUSINESS

## Introduction

Farming as a business (FAAB) is a modern approach to encourage farmers to become entrepreneurs, improve their livelihoods and gainfully engage in commercial agricultural activities. For this to happen there is need for a mind-set shift from a “laid-back business as usual model” used by majority smallholder subsistence farmer to a more proactive progressive farming “to make money” approach. This also requires more knowledge on the value chains in which farmers participate in as well as the input and output market dynamics. Training FAAB ultimately equips farmers with entrepreneurial skills of developing a business and market products in a profitable manner. It is envisaged that the trainees will improve business planning and budgeting skills leading thereby keep relevant records and manage finances effectively.

Few but important definitions need to be kept in mind for this session: (a) business – any commercial activity where goods and services are provided to a market for the sole reason of making profit, (b) farming – the practice of growing crops and raising livestock, (c) subsistence farming – growing crops and keeping livestock for purposes of household consumption and (d) entrepreneur – an individual who initiates a business, bears most of the risk and enjoys most of the profits.

## Requirements

- a. Knowledge of the nature of business** – innovations in agricultural business identify farmers as producers of farm-produce. Three important knowledge bodies which critical in planning farming business are (i) the inputs, (ii) the farm processes leading to produce and (iii) market participation.
- b. Resource Planning** – Farming is a risky business with possibilities of incurring losses due to uncertainty. A risk mitigation plan is very important in reducing the threats to the business. Use of up-to-date information and diversification are important strategies of mitigating anticipated risks. Planning farm operations ahead of time increases opportunities of delivering goods to the market at the appropriate time. A detailed plan included options, opportunity analysis, evaluation, and timely implementation. Evaluation of activities is important in selecting the best options in the next operation.
- c. Record keeping** – keeping a farm dairy is the recommended way of keeping an account of entries by date on all the operations at the farm. Data need to be recorded in a manner that allows it to be accessed later for use and analysis to guide decision making. Individual enterprise performance, profit calculations, pricing of goods and services, loan applications and extension advice all required good record keeping. For crops important records could include planting dates, fertilizer and pesticide application dates, land use and use, produce sales and farm expenses including labour. Livestock records are often kept in stock sheets or diaries designed for this purpose.
- d. Financial management** – farmers need skills to develop gross margin statements i.e., develop a logical calculation of the difference between the projected revenue and the anticipated major costs. At all costs a budget, defined here as a plan with details of anticipated incomes (revenue) and expenses, is very important for farm operation. Whole farm budget, gross margin budget, partial budget and cash flow budgets are commonly used by farmers. Farmers also plan individual enterprise e.g., cabbage production.
- e. Financial Mobilization** – Financing a business is critical pillar of business development. There are various way of financing farming to include family funding. Access to financial services and utilizing financial product is often a trick exercise. Most financial institutions have high demands from a borrower, and this could be charging high interests on loans, demanding collateral before accessing funds and expecting a perfect bankable proposal from farmers. There are pros-and-cons for individual funds used in starting a business and these need to be understood. Individual, commercial loans, government support, community based cooperative schemes have been widely reported as sources of family farming businesses. Contract farming has also been considered as a method of financing farming business.
- f. Operational structure** – For a viable farming business a structure needs to be put in place and

division of labour described. Smooth operations need responsible leadership at various stages so that the commodities are delivered to the market. Common structures recognize the enterprises and are based on these to effectively manage the business. These sections of the farm can include Horticulture, livestock, field crops and farm machinery or workshop. The management of labour is also very important as this is one of the variable expenses on the farm budget.

- g. Marketing** – produce marketing matrix include the product, price, advertising, promotion and distribution. A market research can be used as the basis of developing the range of products for the farm.

### **Further Reading:**

*Musitini, T. 2012. Farming as a family business training manual. DAI, Harare. pp85.*

# 6. STRENGTH, WEAKNESS, OPPORTUNITIES, AND THREATS

## Definition

The application of SWOT analysis brings out the inhibitory and enhancing forces at play on any subject under discussion. The tool also provides the new options available for improving the current situation as well as the internal and external threats. SWOT analysis is a powerful tool in performing a needs assessment and identifying the gaps between the current scenario and the desired future scenario. In administering SWOT analysis, the

desired outcome can be summarized by two statements (1) Reduce Threats and Maintain Opportunities and (2) Extinguish Weaknesses and Improve Strengths.

## Requirements

A small group of farmers, note-taker and a facilitator will need materials to use for writing.

## Presentation of results

**Strength** – factors that support opportunities or overcome threats to give you an advantage

**Weakness** – limit you from taking advantage or make you unable to get an opportunity, make you vulnerable to threats

**Opportunities** – factors working in your favour to take advantage or position you to gain

**Threats** – external factors which you have no control over and are harmful to your business

**Figure 6.1** A guide on how to apply SWOT analysis with farming communities.

## Further Reading:

Leigh, D., 2009. *SWOT analysis. Handbook of Improving Performance in the Workplace: Volumes 1-3, pp.115-140.*

# 7. SUCCESSFUL IMPLEMENTATION OF THE FARMER FIELD SCHOOL OF EXCELLENCE

## Introduction

Farmer field schools are increasingly important in supporting farmers' skill sets for managing various value chains and decision-making capabilities. By sharpening the art of problem identification, data collection, analysis, and determining the appropriate action to take, farmers become experts in their environment. Successful farmer field schools initiated to strengthen participants' knowledge and skills are often carefully planned and sessions are conducted systematically.

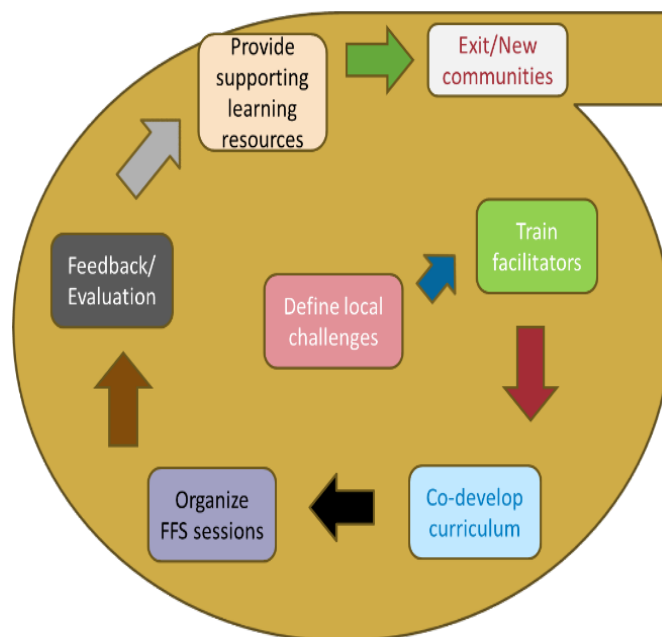
## Following farmer field school cycle

The planning cycle for the successful implementation of the farmer field school starts with the evaluation of the current production practices and the opportunities available to farmers to improve the system. Learning resources will be required to equip farmers with more knowledge. The role of the facilitator will diminish over time as farmers become more familiar with new practices and technologies.

## Farmer Field School Session Tips

Farmer field School sessions are guided by the curriculum developed at the beginning of the school. Each session is facilitated, and farmers actively participate in both the main topic of the day and the special topic. Over time, session formats have developed to cover the range of topics which farmers are keen to learn about. However, Gallagher et al. (2003), suggested a generic template that can be adapted to the local conditions and specific needs for the topics under consideration. The typical session has the following elements:

- Opening prayer
- Attendance register followed by a briefing from the Programme leader.



**Figure 7.1** An illustration of the Farmer field school planning cycle for success

- Field observation in small groups
- Agroecosystem analysis
- Presentation of results
- Decision making
- Short health break
- Special topic of interest e.g., nutrition, health or malaria.
- Closing prayer.

## Suggestions of special topics for FFS groups

The FFS approach has recognized the importance of organized learning of adults in a participatory manner in



a relaxed environment. The curriculum development is a central instrument in organizing the learning in sessions. Furthermore, the flexibility of including other topical issues to address the needs of the community plays an equally important developmental role. The accommodation of special topics has been developed alongside the FFS mainstream topics over time and much progress reported. Special topics, defined here as the additional topics which the school participants agree to tackle which serve as a reinforcement mechanism to broaden and strengthen the group's capabilities outside the main topic. The following broad areas have been considered in several FFS in the past:

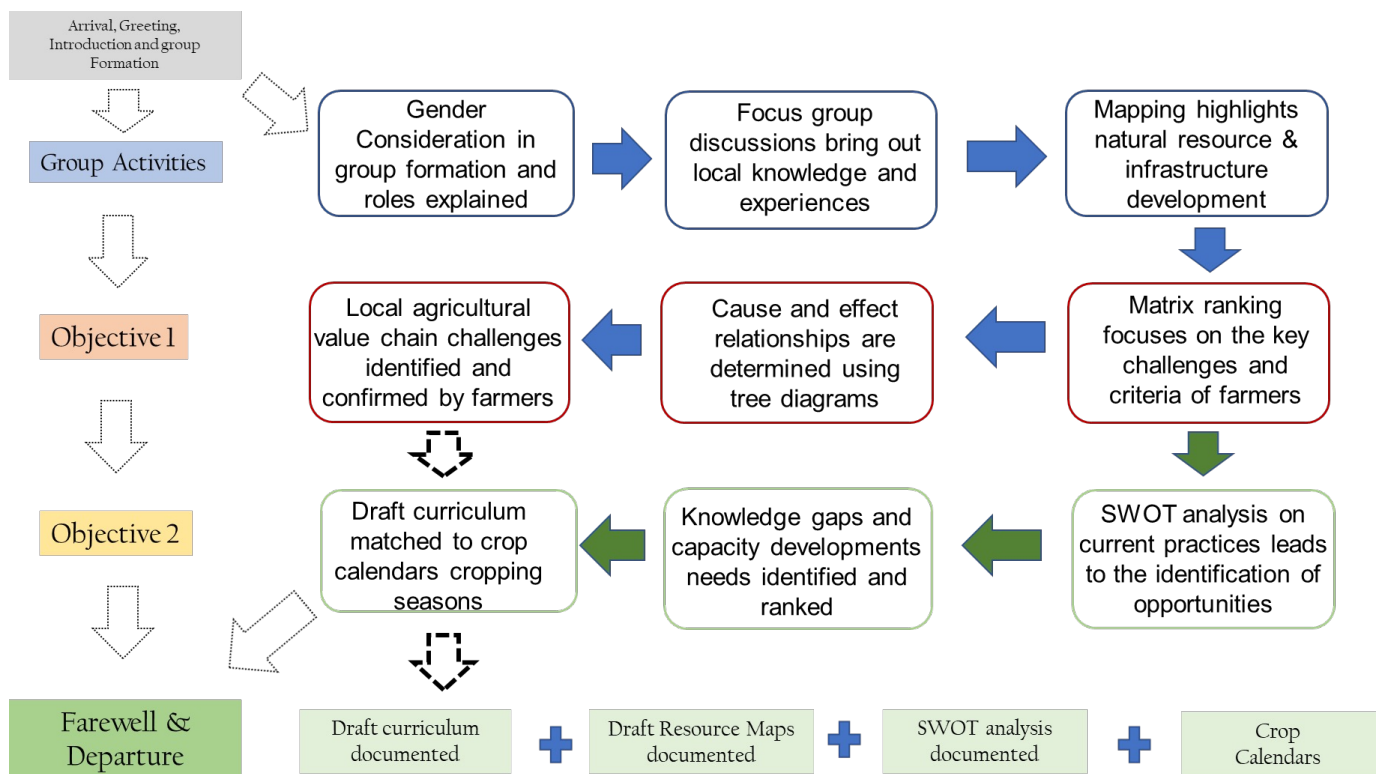
- a. **Human health** – to include solutions to daily ordinary problems in the community such as malaria control, diarrhea, headaches, and body pain.
- b. **Crop specific observations** – to include specific details of pre-sowing seed treatment, germination observation, type of insects associated with crops and indicators of maturity.

- c. **Animal health** – topics such as traditional methods of tick control, feed supplements and milk yield improvement.
- d. **Dietary lessons** – some tips of new crop processing methods and new recipes
- e. **Marketing strategies** – information regarding the more viable market options available in different locations.

### Further reading

Gallagher, K., Braun, A.R. and Duveskog, D., 2006. Demystifying farmer field school concepts. *Journal of International Agricultural and Extension Education*, 13(1), pp.1-6.

## Appendix A: Farmers and facilitators co-develop the Farmer Field School Curriculum



**Figure A1.** An illustration of the process of co-development of the curriculum by farmers and facilitators at the onset of the farmer field school of excellence.

International Center for Biosaline Agriculture (ICBA)


ICBA is an international, not-for-profit applied agricultural research center.


Our vision is of a world where sustainable livelihoods and food security are ensured for all who live in marginal environments.  
We harness the power of research and innovation through partnership to tackle challenges, develop solutions and create impact.

**For more information, please contact us at:**

PO Box 14660, Dubai, United Arab Emirates

 +971 4 336 1100

 +971 4 336 1155

 [icba@biosaline.org.ae](mailto:icba@biosaline.org.ae)

 [www.biosaline.org](http://www.biosaline.org)

    [ICBAgriculture](#)