



FARMER FIELD SCHOOL

TRAINING MANUAL

SAMAJ PRAGATI SAHAYOG | FFS | 1/06/2024

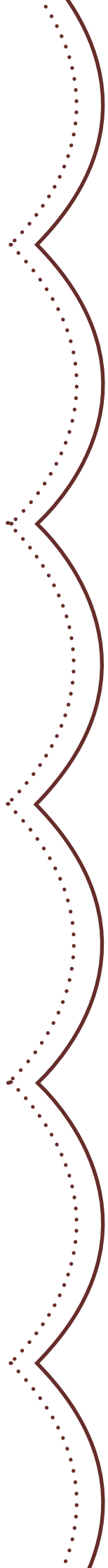


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1 Farmer Field School

Farmer Field School(FFS) is a group-based learning session, done in order to build the decision-making ability of a farmer. Farmer field school is designed to address the lack of knowledge among farmers relating to agroecology and the cycle of nature.

FFS is about farmers development and empowerment as it helps farmers to learn and develop the skills required for informed decision-making in complex domains based on: local knowledge, problem analysis, existing capacities, and understanding of the local agro-ecosystem/ agro-ecology.

The farmer field school concept is focused on an agro-ecosystem-based integrated pest management and the management of problems in a complex system, thus empowering farmers to improve decision making based on local condition.





History Of Farmer Field School

The FFS approach was developed by an FAO project in south east Asia. In 1960, the green revolution promoted technical packages of inputs such as: high yielding varieties, use of chemical fertilizers to enhance the production, use of chemical pesticides etc, and all this led to major increases in production and improvement of the food security. However, in the 1970s and 1980s, the outbreak of brown plant hopper (BPH) began and started damaging plants due to the heavy use of pesticides and insecticides targeting pests, which in turn resulted in the decimation of natural enemies in the rice ecosystem, leading to a secondary pest outbreak of BPH. Its was difficult to manage BPH and pests without understanding all the elements and interactions in the crop ecosystem and it was the start of the first farmer field school in Indonesia in 1989.



Goals Of Farmer Field School

1

To make the farmer an expert of his own field,; The farmer should be established as a good master.

2

The farmer should be able to take his own decisions in any critical problem, and should be aware about all the holistic approaches possible.



Objectives Of Farmer Field School

1

To bring farmers together to carry out collective and collaborative approaches with the purpose of initiating actions in solving sustainable farming-related problems, and to educate farmers in new ways of thinking.

2

To sharpen the ability to make holistic and critical decisions that render their farming profitable and sustainable.

3

To enhance and increase the expertise of farmers, to increase the net income and sustain production.



Principles Of Farmer Field School

Farmer field school is a training methodology based on “learning by doing” through comparison and discovery within the field. There are four major principles within the FFS process:



Conserve natural enemies



Grow a healthy crop

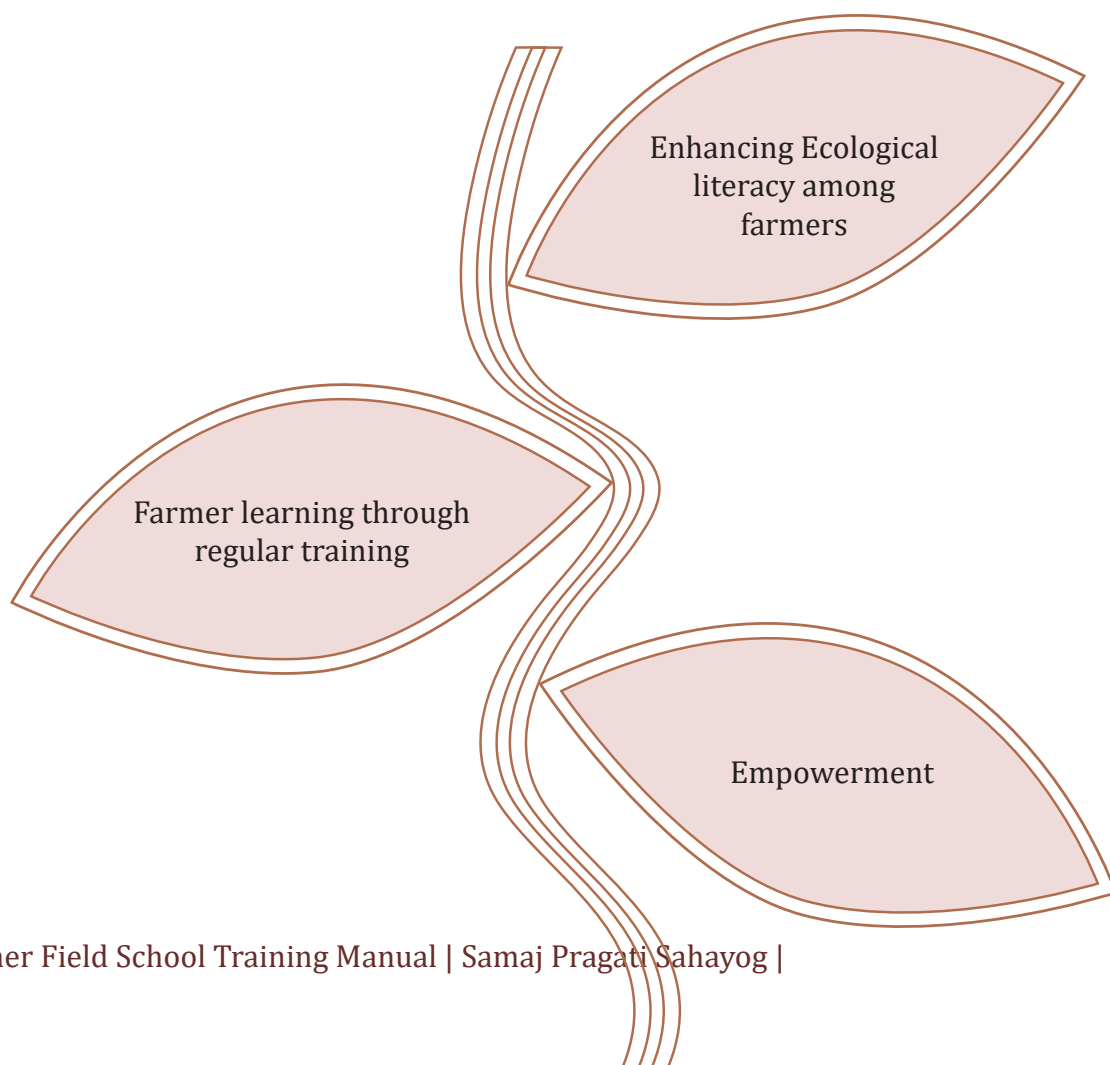


Observe the field regularly



Crop diversification

FFS promotes a paradigm of agriculture based on:



2 Farmers Field School in Samaj Pragati Sahayog

SPS started Farmer Field School first in Kharif 2023-24, and continued in Rabi 2023-24. The major objective in conducting Farmer Field School was to enhance and build the capacity of field staff and farmers related to ecological literacy and to empower farmers by following the principle of learning by doing.



Goals Of Farmer Field School



Farmers as experts:

While designing Farmer Field school we focused on the objective of learning by doing; farmers should carry out the work themselves, relating to various need-based activities and focusing on particular farming practices they want to study. That could be anything related to crop diversification, pest and insect control, Nutrient management, etc. Training will be based on comparison studies on two different treatments.

Field is the main book:

The field is the learning place and all learning is based in the field. By doing field studies, farmers will be able to understand the ecological cycle of nature and their direct and indirect benefits.

Non formal education:

It is the non-formal education or rather the community education that occurs outside the formal classroom system. It is learner centered, flexible, and has a participatory approach as well as group identified learning objectives.

Producer-centered approach:

It is an approach adopted by the local people, and based on local people's problems.

Post-harvest management:

Promoting effective post-harvest management practices such as grading, cleaning, drying etc. are important for maintaining quality, reducing losses and improving better prices which in turn will ultimately lead to improve livelihood.

Market linkage:

Linking smallholder farmers with institutional buyers like RRPPCL (Women lead FPO promoted by SPS SHG Groups), APMC mandi etc. is an important feature of FFS in SPS. It significantly enhances market access, improves income sustainability and ensures better prices for their pesticide free produce.

Structure And Designing Of The Farmer Field School In Sps

FFS LEARNING CYCLE

Group size and timing

The group size contains 20-25 participants, with 1 facilitator. The Group size should be more than 15 and less than 30 in order to allow sufficient space for all the participants to understand, participate, assess and experience all the group discussions and arguments and point of views. The timing of each session should be between morning 7 AM to 11 AM for better understanding of nature.

Planning/Curriculum

FFS is carried out over an entire season, to allow key steps of a plant cycle to be observed over time. FFS curriculum preparation is the most important part of the farmer field school; every facilitator needs to prepare a curriculum including numbers of sessions, topics to be covered in each session and dates; in order to make FFS more systematic and learning oriented.

Session Activity

Each FFS session includes some important activities related to crop cycle and nature's cycle such as:

1. Agro-ecosystem analysis (AES)
2. Crop ecosystem analysis (CESA)
3. Group Dynamics Exercises
4. Special topics
5. Feedback Sessions

Land / Site planning

Land planning or site planning is a planning of the farm where FFS participants carry out all their experiments with alternative or improved practices. The major purpose of planning of land is to facilitate practical learnings. While planning a land, diversification should be the main focus in order to create natural habitats for the beneficial insects.

3 Farmers Field School Curriculum

Farmer field school is based on a curriculum, which covers the entire crop cycle, field guide, and session guide (If we mention time in the curriculum, it's called a session guide or a facilitator guide). The FFS curriculum will be based on the crop, the crops' requirements and special topics pertaining to the current scenario.

E.g.: Farmer field School Curriculum of the Chickpea crop:

FFS CURRICULUM FOR NPM CHICK PEA

Session No	Date	Age of crop (DAS)	Days after Transplanting (DAT)	Content/Topics
Pre Sowing Sessions				
1.	12/12/2023	0	0	Baseline Survey of Chickpea
				BBT
				Orientation on FFS
				Need for crop diversification/ Intercropping
		0	0	Soil Health management practices (Use of FYM, Basal dose application)
				Seed selection and Germination, varieties
		0	0	Seed Treatment, seed rate and spacing, sowing methods



Session No	Date	Age of crop (DAS)	Days after Transplanting (DAT)	Content/Topics
Post Sowing Sessions				
2.	18/12/23	25 DAS	0	AES- Procedure
				Special Topic- Weed management
				Nutrient management- During vegetative growth
				Need for crop diversification/ Intercropping
3.	2/1/2024	40 DAS	0	CESA- Procedure
				Special Topic- Nipping
				Nutrient management during flowering stage
				Weed management
4.	22/1/2024	60 DAS	0	CESA- Procedure
				Insect Zoo preparation
				Special topic- Identification of Pests and defenders
				Earthing up and herbal extract preparation
5.	13/2/24	75-80 DAS	0	BBT
				Post harvest management practices and linkage with institutional buyer
				Experience Sharing session
				Discussion with conventional farmers
				Enrollment of new participants

Based on the curriculum sessions will be conducted on field.

4 Curriculum Based Sessions

Pre Sowing Sessions

Pre sowing sessions are the first phase where farmers gather to learn and plan before the sowing of the crops begin. These sessions are designed to prepare farmers by providing them with the necessary knowledge, skills and strategies to ensure successful crop production. Its an interactive participatory process, where farmers actively engage in discussion, demonstration and hands on activity to better understand and implement best practices as per their land type, water availability, crop cycle and other situations for the upcoming season. Some important key points are typically covered during the pre-sowing sessions.

Baseline Survey of a crop	To understand the general/regular practice of the village and the areas of improvement. The major goal of this practice is to find out the gaps in particular practices.
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BBT (Ballot box test)	The ballot box test is a participatory evaluation tool used in Farmer Field Schools (FFS) to facilitate decision-making, gauge opinions, and assess the effectiveness of various farming practices or interventions. It provides a way for farmers to anonymously express their views and preferences, fostering an environment of honest feedback and inclusive participation.
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Steps to conduct a BBT:

1. Preparation

Prepare a ballot paper and ballot box with a simple and clear question. Remember, that the questions are to check the basic understanding of a farmer group and not to test knowledge. Questions should be multiple choiced and well defined.

Analysis and discussion

Share the results with the group and identify trends, preferences and areas needing improvement. Facilitate the discussion based on the findings.

Note: Try to use live specimen or materials for a clear understanding.



Ballot Box Test



Post Sowing Sessions

Post-sowing sessions are important sessions for monitoring and managing crop growth and health after sowing. These sessions involve a series of activities as per the age of the crop and real-time situations aimed at ensuring optimum crop development, identifying and addressing issues early, and reinforcing sustainable agriculture practices.

Major Objectives of post-sowing sessions are: crop development, optimizing nutrients and water management, identifying and managing pests and diseases, and encouraging sustainable development practices.



5 Agro Eco System Analysis (AES)

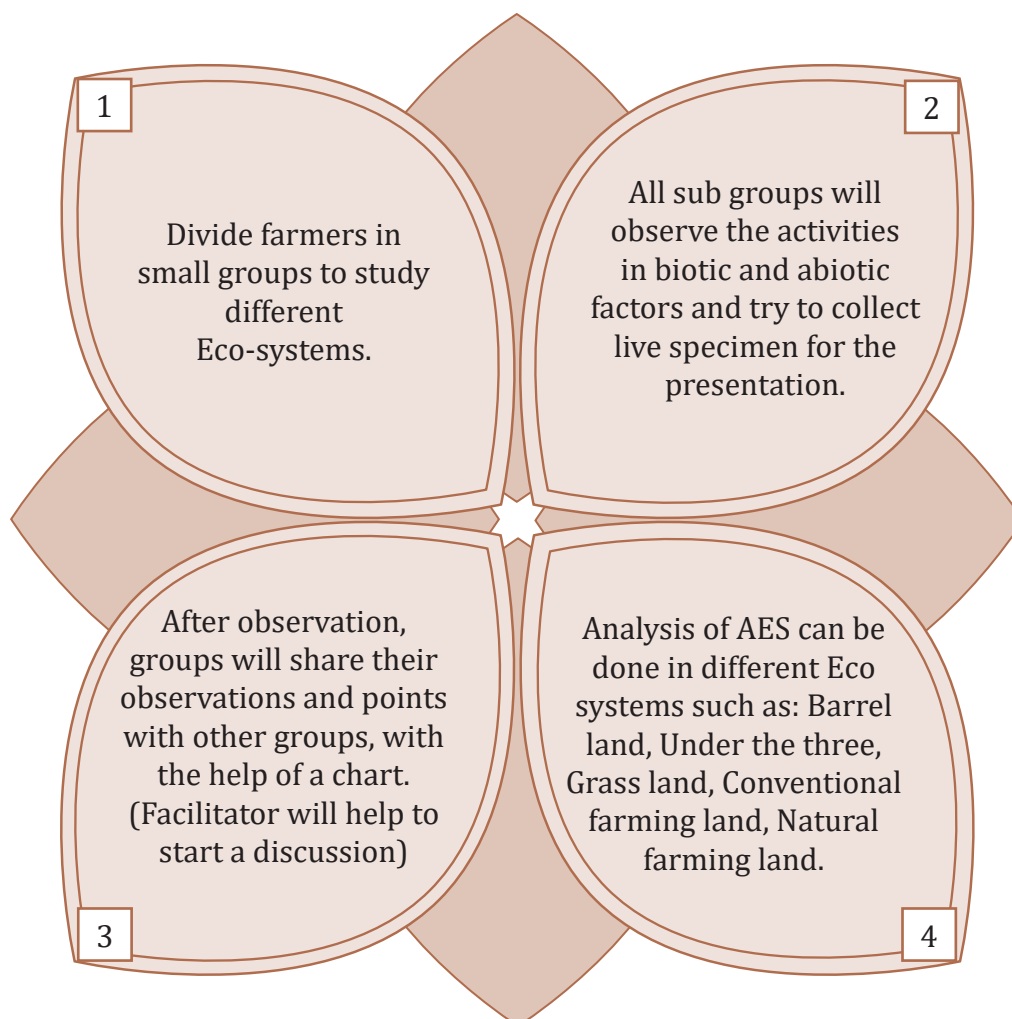
Agro-ecosystem analysis is a very important and crucial component of farmer field school. It involves a participatory field-based method for understanding different ecosystems as well as managing the interaction within an agricultural ecosystem.

What is AES?

Agro Ecosystem analysis is a group-based learning system that helps the farmer group to recognize the relationship between: crops (Producers), pests (Primary consumers), natural enemies (Defenders or secondary consumers), Abiotic factors (Soil, Weather, environment), and decomposers (microorganisms).

Steps of conducting AES in Farmer Field School

The major objective of conducting a session on AES is to understand the different ecosystems working in the environment.



A group of women in colorful saris are working in a field, likely engaged in agricultural labor. They are bent over, tending to plants in the soil. The scene is outdoors, with a wooden fence and a bicycle visible in the background. The women are wearing various colored saris, including pink, orange, green, and blue. A pink plastic tray is visible on the ground in the foreground. The text 'Khateggon, India' and 'As marakala' is overlaid on the bottom left of the image.

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Charts of three different Eco systems prepared by the FFS groups

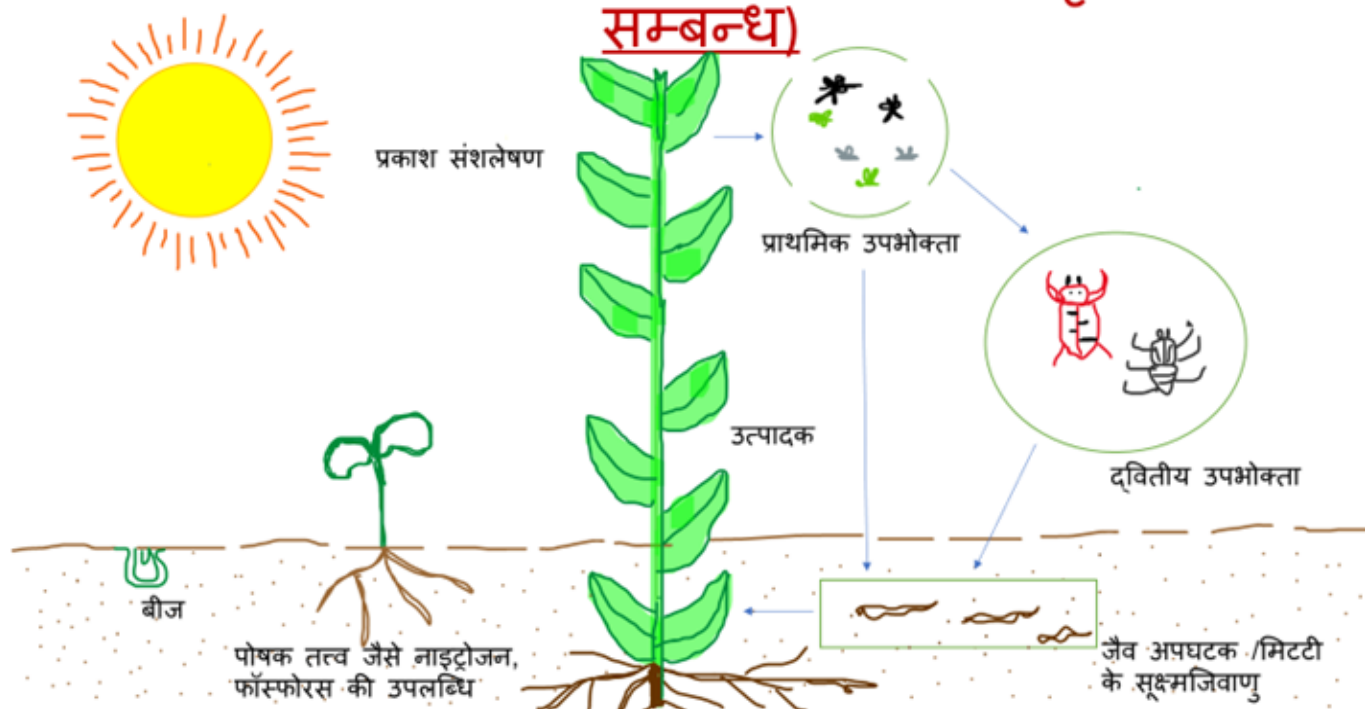


Group discussion & presentations on AES analysis by FFS groups

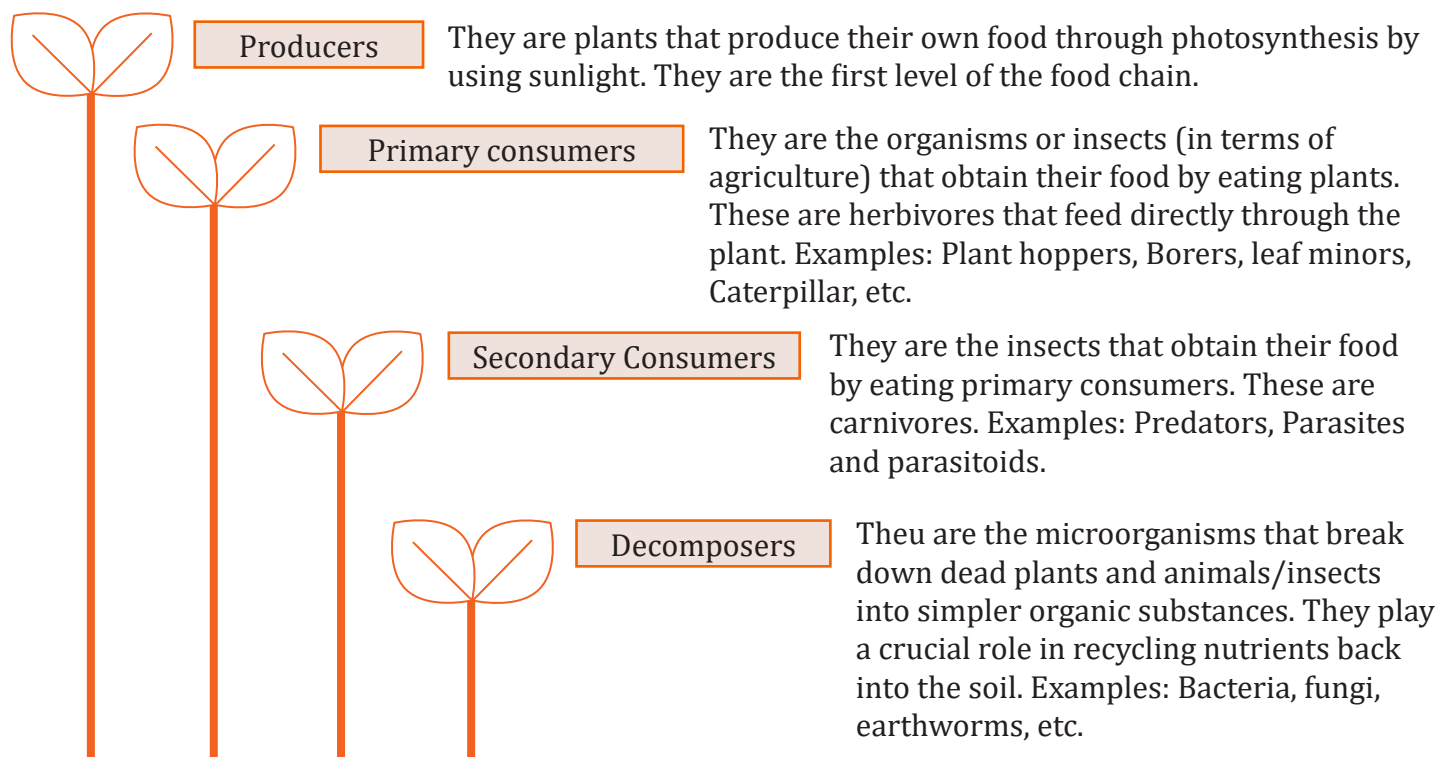


Concept of Agroecosystem

Agro Ecosystem Concept (खेती और प्रकृति का सम्बन्ध)



Agro-ecosystem analysis is based on the agricultural ecosystem. It explains how nutrients grow through an ecosystem, and it depicts the feeding relationship between different organisms. The main components of the food chain are as follows:



The main motive of AESA is to teach to the farmer's groups that : Nature itself maintains a balance and this cycle is the main function of an ecosystem. AES analysis illustrates the dependency of organisms on each other for survival.

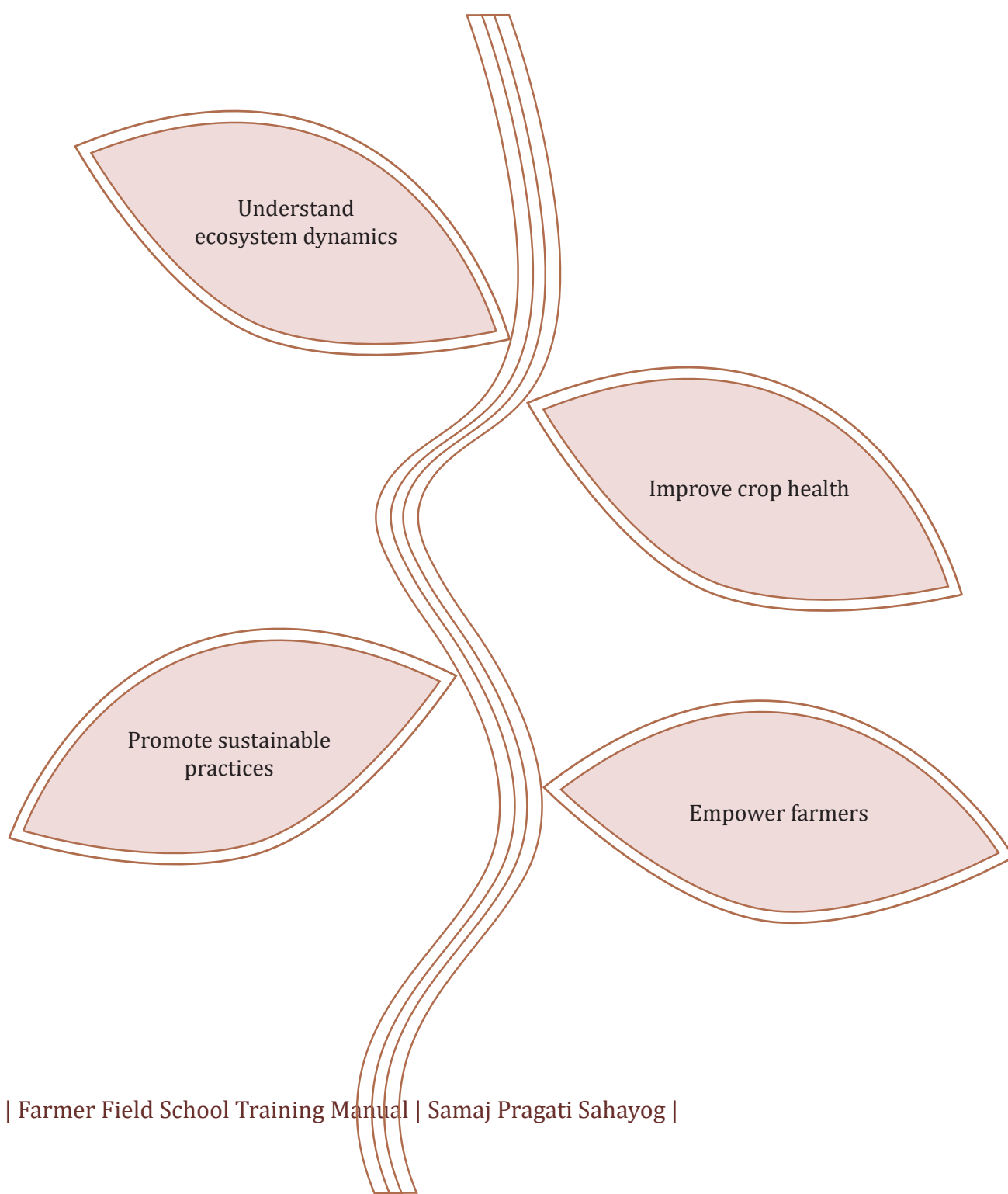


Crop eco-system Analysis (cesa)

Crop ecosystem analysis is a systematic approach used in agriculture to understand the various interactions within a crop field ecosystem. This analysis helps farmers make informed decisions to optimize crop health, productivity, and sustainability. In the context of FFS, crop ecosystem analysis is the main tool that empowers farmers with the knowledge and skills to manage their crops more effectively.



Purpose of crop ecosystem analysis





Steps of Crop Ecosystem Analysis



Field visits are for regular monitoring and focused observations on plant physical parameter, plant health, pest and beneficial organism, weather conditions, soil conditions, and other factors like weeds, water level and any other relevant environmental conditions. The data is collected by the mentioned format.



Group analysis and discussions are done on the observations and data. Issues affecting the crops are identified and their causes are determined by examining the interactions between different ecosystem components.



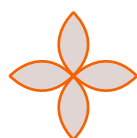
Visual tools like drawings, charts, or tables are used to visualize the findings and facilitate the discussion.

Some important points:

- Assessment of the plants should be done in three different parts of the plant; Top three leaves, bottom three leaves, and moderate four leaves.
- The process starts with diagonally selecting plants (Ten plants in the one mapped plot) in every five footsteps and putting a tag on it.
- While doing CESA farmers need to analyze all the biotic and abiotic factors affecting the plant health.
- Based on the analysis, farmers decide on appropriate actions to address issues or improve crop performance. This could include: pest control measures, nutrient management, or changes in agronomic practices, etc.
- Records of analysis, observations, cost of cultivations, and decisions must be kept to track progress.

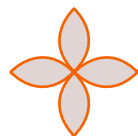


Format for record-keeping of CESA observation



CESA - FIELD OBSERVATION RECORD IN FFS

Village:		Name of the Plot owner:		Area of the Plot:		Date of Sowing:		Age of the crop (DAS):		
Stage (Seedling / Tillering / Reproductive)				Practice (NPM line planted/ Conventional):				Date of Observation:		
S.no	Particulars	Hill / Plant 1	Hill / Plant 2	Hill / Plant 3	Hill / Plant 4	Hill / Plant 5	Hill / Plant 6	Hill / Plant 7	Hill / Plant 8	Avg
A	PLANT PARAMETER									
1	Plant height-cm									
2	Leaves									
3	Branches									
4	Flowers									
5	Fruits									



Village:			Name of the Plot owner:		Area of the Plot:		Date of Sowing:		Age of the crop (DAS):		
Stage (Seedling / Tillering / Reproductive)					Practice (NPM line planted/ Conventional):						Date of Observation:
S.no	Particulars	Hill / Plant 1	Hill / Plant 2	Hill / Plant 3	Hill / Plant 4	Hill / Plant 5	Hill / Plant 6	Hill / Plant 7	Hill / Plant 8	Avg	
B	NUTRIENT DEFICIENCY										
1	Zinc										
2	Nitrogen										
C	MAJOR PESTS & DAMAGE LEVEL										
1	Pod borer										
2	Leaf folder										
3	Grasshopper										
D	MAJOR DEFENDERS										
1	Spider										
2	Reduviid										
3	Larval parasite										
4	Entomopathogens - if any										
E	MAJOR DISEASES										
1											
F	GENERAL HEALTH OF THE PLANT(APPEARANCE)					Management in the last week:					
G	SOIL AND WEATHER CONDITION										
1	Sunlight (bright/cloudy)					Conclusion/Decision					
2	Soil moisture in the field(optimum/ excess)										
3	Air movement (SW / NE / any direction)										
4	Dew level(low/medium/high)										

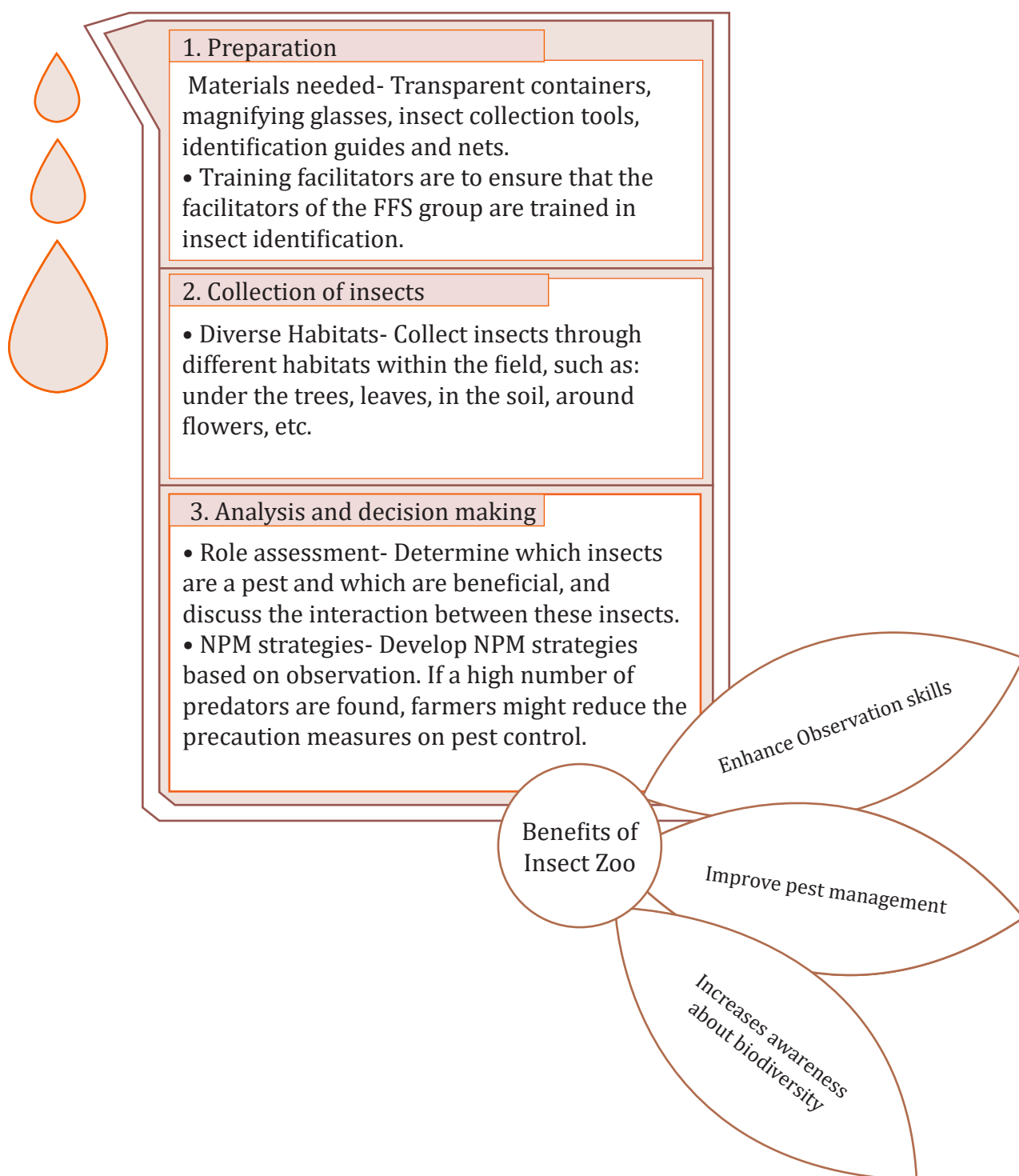
Signature of the group leader /
Facilitator:

Signature of the Master Farmer /
Field Officer:

7 Insect Zoo

Insect Zoo is an educational and participatory tool designed to help farmers learn about the diverse insects present in their agricultural environments. It involves collecting, studying, and observing both beneficial and harmful insects to understand their roles in the ecosystem. It also helps farmers to develop integrated pest management strategies and make informed decisions about pest control.

Steps to set up and use the insect zoo



Pictures from the field:





Special Topics

These topics can be customized based on the specific needs of the farming community like the local environment and the goals of the FFS programs. By focusing on these topics, FFS can empower farmers with the knowledge and skills they need to improve productivity, sustainability, and resilience. Some special topics covered in the SPS FFS program are:

1. Weed management
2. Nutrient management
3. Nipping
4. Use of herbal leaf extracts
5. Seed selection and land planning
6. Importance of FYM
7. Climate-smart agriculture practices

Farmer Field Schools are group-based learning systems and these special topics play a very important and crucial role in a sustainable farming system.



Ice-breaking activity

Ice-breaking activities are essential in Farmer Field Schools (FFS) to build rapport, encourage interaction, and create a comfortable learning environment. Here are some effective ice-breaking activities tailored for FFS:

1. Name and Crop Introduction



- Activity: Each participant introduces themselves and mentions the main crop they grow.

- Purpose: Helps participants learn each others names and understand the diversity of crops in the group.

2. Seed Exchange



- Activity: Each farmer brings a small amount of seeds from their farm. They exchange seeds with at least three other participants and share information about the crops these seeds produce.

- Purpose: Encourages networking and introduces participants to new crop varieties.

3. Human Knot



- Activity: Participants stand in a circle, reach across to hold hands with two different people, and then work together to untangle themselves without letting go of their hands.

- Purpose: Promotes teamwork and problem-solving.

4. Puzzle



- Activity: Prepare a Puzzle with the help of a paper and the groups will solve it.

- Purpose: Promotes teamwork and exploration of the learning environment.



These ice-breaking activities help create a friendly and engaging atmosphere, paving the way for effective learning and collaboration in the Farmer Field School.



8 Linkage With Institutional Buyers



Linking smallholder farmers with institutional buyers can provide a stable market, better prices and consistent demand for their pesticide free produce.

RRPPCL establishes a collection center in each location for easy access, making sure the farmer can bring their produce for aggregating. Collection centers make it easier to aggregate the large volume of produce from the farmers.

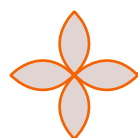
SPS links smallholder farmers with a farmer producer organization named RRPPCL to ensure better prices for their produce. It is a collected organization of farmer groups that help in the aggregation, processing and marketing of agricultural produce.



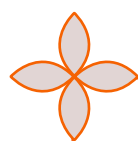
9 Facts And Numbers Of The SPS FFS Program

SPS started implementing farmer field schools from Kharif 2023-24, in 9 locations on different crops such as: red gram, maize, sorghum, chili, etc. It was continued in the Rabi 23-24 on: wheat, chickpea, and gram. Until now, more than 50 farmer field school groups have been established in the 9 locations (Barwaha, Bagli, Bhikangon, Melghat, Punjapura, Khategaon, Kannod, Udaynagar, Kantaphot) in which more than 500 farmers had gotten the training on FFS.

RABI SEASON'S FARMERS FIELD SCHOOL DATA



Locations	Crops	Cost of cultivation			Production of the Main crop in Q	
		FFS Plot	Control plot	% decrease in FFS plots	Demo plot	Control plot
Punjapura location	Wheat	18620	26030	39.80	16	18
Punjapura location	Gram	19550	30500	-56.01	7	8



Locations	Crops	Cost of cultivation			Production of the Main crop in Q	
		FFS Plot	Control plot	% decrease in FFS plots	Demo plot	Control plot
Barwaha location	Dollar chickpea 0.62	15511	15160	2.26	3.75	3.15
Barwaha location	Dollar chickpea 0.50	20505	24000	↓ 17.04	7	5
Barwaha location	Wheat 0.50	15430	16795	↓ 8.85	19	16
Melaghat location	Gram	14975	19980	↓ 33.42	8	8
Kannod location	Gram	6223	7448	↓ 19.69	3	2.2
Kannod location	Gram	6278	7848	↓ 25.01	1.2	1.14
Bhikangao location	Gram	8950	10150	↓ 13.41	5.5	4
Bhikangao location	Dollar chickpea	19000	23750	↓ 43.95	6	4
Bagli location	Wheat - 1 acre	14389	11012	23.47	17.6	10.8
Khategaon location	Wheat	13735	18180	↓ 32.36	12	12
Khategaon location	Gram	10890	16030	↓ 47.20	8	8
Udaynagar location	Wheat	4880	5950	↓ 21.93	6	6
Udaynagar location	Wheat	1235	2450	↓ 98.38	5	4

It shows that by using the Farmer field school techniques and NPM farming the cost of cultivation decreases and due to good quality of grain net income increases with the good percentages.

Locations	Crops	Total income			Net Income	
		Demo plot	Control plot	Demo plot	Control plot	% increase in FFS plots
Punjabura location	Wheat	38400	37080	19780	11050	44.14
Punjabura location	Gram	37100	43200	17550	12700	27.64
Barwaha location	Dollar chickpea 0.62	39375	32445	23864	17285	27.57
Barwaha location	Dollar chickpea 0.50	70000	50000	49495	26000	47.47
Barwaha location	Wheat 0.50	48450	39680	33020	22885	30.69
Melaghat location	Gram	41600	40800	26625	20820	21.80
Kannod location	Gram	16200	11880	9977	4432	55.58
Kannod location	Gram	6480	6156	202	↓ 1692	937.62
Bhikangao location	Gram	29150	20400	20200	10250	49.26
Bhikangao location	Dollar chickpea	57000	38000	38000	10650	71.97
Bagli location	Wheat - 1 acre	40480	28080	26091	17068	34.58
Khategaon location	Wheat	28800	28800	15065	10620	29.51
Khategaon location	Gram	44000	44000	33110	27970	15.52
Udaynagar location	Wheat	15000	12000	10120	6050	40.22
Udaynagar location	Wheat	12500	8000	11265	5550	50.73

10 Conclusion

Farmer Field Schools (FFS) are group-based learning processes that have been widely adopted to educate farmers about agricultural practices, improve decision-making skills, and promote sustainable farming.

11 Acknowledgements

Heartfelt gratitude is extended to those who have made the development of this Farmer Field School training manual possible.

Sincere thanks are owed to Mr. Rangu Rao and Mr. Animesh Mondal for their exceptional guidance and insightful contributions. Their expertise and support were instrumental in shaping the content and structure of this manual, and their involvement has been profoundly appreciated.

Ms. Darshana Goswami's writing contributions have solidified the foundation of this manual, ensuring accuracy and relevance of the presented information. A special note of appreciation goes to Ms. Aarya Kalyansunder for her creative and professional design work. Her vision and skills have transformed the content into a visually engaging and user-friendly format, greatly enhancing the effectiveness of this training resource.

Finally, sincere gratitude is extended to the entire Sustainable agriculture team and the Community Media team for their consistent support and dedication. Their collective efforts have been crucial in bringing this manual to fruition, and their commitment to the advancement of agricultural education is truly commendable.

This manual stands as a testament to the collaborative effort and expertise of all involved. The contributions of each individual and team that made this resource possible are deeply appreciated.

