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FARMERS FIELD SCHOOL FACILITATORS' MANNUAL ON

INTEGRATED NUTRIENT MANAGEMENT



Compost preparation



Fertilizer application



Experimental plots

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Session 1: Introduction to FFS

What is FFS and why it is needed?



The Farmer Field School aims to build each farmer's capacity to analyze their knowledge of nutrient management practices for potato, to identify the main constraints and to test the possible solutions on their field, eventually identifying and adopting the practices most suitable to their farming system. The purpose is to assist farmers in

developing their ability of making critical and informed decisions that render their nutrient management systems of ware potato more appropriate. Through their participation in FFS activities, farmers become experts in their own fields. The FFS uses non-formal adult education methods, particularly experiential learning techniques. Typically a group of farmers meet regularly during the course of an experiment. The school is not meant to teach farmers new technologies developed outside their environment but to provide them with tools which will enable them to analyze their own production practices and identify possible solutions.

The role of a facilitator: A facilitator facilitates the school. The topics of each meeting are related to the stage of the experiment at a particular time. The activities are highly practical involving careful observations of factors and testing of solutions that fit their typical physical and socio-economic situation. There is much sharing of experiences among the farmers with a minimum of lecturing.

The role of a scientist: The role of the scientist is to provide backstopping support to the school. The scientist role is that of a colleague and advisor who brings new ideas and or unknown technologies to the communities.

One of the very important elements contributing to the success of farmer field schools is creating a common understanding about FFS among the school participants. FFS can only become a success with active participation of the farmers. Since FFS approach is new for a large proportion of the farmers, there is a strong need to introduce what FFS is and why it is needed. This is because; it contributes considerably for the successful development of the school and also to know the expectations of the farmers from the school. The overall objective this manual is therefore to assist the facilitator in FFS by providing the basic framework and materials for the implementation of the school. In scheduling the school, the facilitator should be aware of farmers' availability and it is important to involve participants in setting the time and schedule of meetings.

Learning outcomes

- The farmers will be aware of the principles of FFS, its advantages and contribution for improving the productivity of potato
- The expectations of the farmers from the school will be identified and known
- The farmers will have an awareness of how the organization of the school and the sessions selected for the learning processes

Notes for the facilitator

Before starting awareness creation sessions, first there is a need to note the farmers' level of understanding about FFS. This is because; there has been an FFS approach in some of the localities in previous times. Hence, the farmers might have been aware of this approach and it is better to start with their level of understanding. This helps to design appropriate learning process taking into consideration of their knowledge levels. When designing teaching practices in the field, there is also a need to clearly differentiate between the formal school which is run under classrooms and the informal school which is designed to be run in the fields. Since the farmers have a wealth of knowledge on the

different farming practices, in general, and on the ware potato storage techniques, in particular, there is also a need to know the differences between the approaches to teach the farmers and the children. The objective of the FFS is, therefore, not to teach the farmers on the theoretical aspects but to facilitate them in discovering the concepts using their ability and capacity for observation, experimentation and deduction. This implies that there is no need to design a type of school in such a way that the facilitator is a professor and the farmer is a student.

The principle of the learning process is that one can learn from another. Multi-way discussion should therefore be the central point of communication between the facilitator and the farmer. The facilitator should be able to answer the questions raised from the farmers with practical examples and exercises rather than giving direct answers. This is because, the exercises are helpful to strengthen learning by discovery approach. We should note to all the school participants that 20% of the people learn by listening, 40% by seeing it and 80% learn by doing it or discovering it. The exercises should focus directly on the surrounding environment, local materials and specific agricultural problems of the farmers. The farmers should be encouraged to actively participate in the learning processes. All these processes contribute for the learning process to be more effective and successful.

The facilitator should explain for the group that we can learn from experiences of each other. In every stage of the sessions, the learning process should be designed in such a way that the discussion is attractive, attentive and pleasant by supplementing with practical examples, exercises, samples, drawings or photographs. Two or more facilitators could be used where appropriate to share responsibilities and create enabling environment for the free discussion of sub-groups during exercises. There should be agreement among the school participants and the facilitator on the time required for each session, frequency of meeting for the school and the date of learning. In general, it is important to note that the learning process should focus in sharing what we know and discovering what we do not know.

Time needed: 2 - 3 hours

Materials required: Flip charts, pencils, markers, flat files

Steps

1. Explain the objectives and outcomes of the FFS approach and the learning processes to the school participants
2. Describe the differences between learning in the field and learning in the classrooms
3. Ask the participants to form small sub-groups of about 4-5 persons each for group exercises
4. Activate the sub-groups to discuss on the following points:
 - a. List down on what they would like to learn from the school
 - b. What are your expectations out of the school
 - c. Suggest what should happen and what should not happen during the learning processes in the school
5. As the end of the exercises, ask one group to present their group works for the other group
6. Activate a discussion among the groups on the presentations. Discuss in detail and reach consensus on the expectations that could be met and that are not likely to be met in this school.
7. Following the presentations of the groups, the facilitator will present and explain the basic principles and approaches of the school, its advantages and contributions for strengthening knowledge and skills, previous experiences and success stories of the school and the sessions suggested in this school
8. Activate a discussion on the facilitators presentations
9. Discuss on the future plan and frequency of meeting for the school, dates and time of meeting, and length of the learning process in a day.
10. Get feed-back from the participants about the session and the learning processes
11. Wrap-up the session of the day by summarizing the main points discussed during the exercises and the outputs obtained
12. Close up of the session by reminding the theme of the next session, date and time of next meeting

Some suggestions to facilitate group discussion

- Does learning by theory or practical help some one better to learn? Reasons.
- Is learning process in the classrooms or in the field better to gain practical knowledge and skills?
- Should there be classes once in a week or once in two weeks?
- At which season should each session be better learnt?
- Should there be classes for the whole day or for half day?
- What do you expect from the school?
- Can one learn better through theory in the classes or by conducting practical experiments in the fields?

Responses for such questions can help activate and orient the discussions to explain the need for FFS approach further. It would contribute that learning with observations and experimentation is better than learning just by theory.

Session 2: Knowledge, attitude and practice assessment on soil management for potato production

Activity 2.1 Fertilization practices

Many farmers are using different types of inorganic fertilizers with different rates to their potato crop while others are using organic fertilizers either manure or compost. Use of crop rotation and intercropping is also common in some parts of the country.

Learning outcome

- Farmers will have exchanged information and experiences concerning their existing fertilization practices and be able to explain why these practices have been adopted
- The outcomes of what the farmers know will be documented

Time required: 2 - 3 hours

Materials: - Papers, markers, pencils, notebook

Steps

1. Revise the previous session
2. Brief on the days activity
- 3 Explain the learning outcome and the procedure of this exercise to the participants
- 4 Ask the FFS participants to visit few fields owned by some of the participants, choosing fields if possible, with different soil type.
- 5 Ask the owner of the field to explain what type of soil fertility practices have been applied including types of fertilizers , rates of fertilizers (inorganic and organic

fertilizers), method of application used and promote discussion, and share with farmers the observations on soil fertility practices in that particular field. Repeat the same procedure in other farmers' fields.

- 6 Return to meeting place for discussion and ask farmers to form groups and each group should summarize the different soil fertilization methods used and the reason for choosing the methods. The summary should be kept for further references.
- 7 Ask each group to present their summary and promote discussion
- 8 Get feed-back from the participants about the session and the learning processes.
- 9 Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the session.

Suggestions to facilitate the group discussion

- Do farmers use organic fertilizer or inorganic fertilizer?
- What are the main sources of inorganic fertilizer?
- What are the rates or quantities they use/ timad of land for potato production?
- How do they come to this rate?



Activity 2.2 Fertilizers and their uses

Different organic and in-organic fertilizers are available to farmers. Their use in terms of type, time, quantity and method of application may differ from place to place or from farmer to farmer in the same place.

Learning outcome

- Farmers will be able to differentiate content of the fertilizers either organic and or in-organic

Time required: 2 – 3 hours

Materials

- Samples of different fertilizers types (organic and in-organic) they use.
- Labeled Bags or any containers of inorganic fertilizers in use in the area
- Leaflets explaining rates of fertilizers.

Steps

1. Revise the previous session
2. Brief the days activity
3. Each group should have sample fertilizers and bags.
4. Each group should discuss and come with presentation on:-
 - a. what type of nutrients provided by the fertilizers
 - b. time and method of application
 - c. Advantages and disadvantages of each source (organic and inorganic)
5. Get feed-back from the participants about the session and the learning processes.
6. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises

Suggestions to facilitate the group discussion

- What are the differences between organic and inorganic fertilizer?
- Type of fertilizers available in the area
- Where and how do farmers get fertilizers?
- Modality of fertilizer application to potato crop

Session 3: Composting

Not all organic waste can be used as organic fertilizer. Most types of organic waste have to be first decomposed or broken down by a mixed population of micro-organisms (microbes) in a warm, moist, aerated environment.

During composting the organic waste are heaped together so that the heat which is evolved in the process can be saved. As a result the temperature of the heap rises, there by speeding-up the basic degradation process of nature which normally occurs slowly in organic waste which falls onto the surface of the ground. The final product of the process is compost or humus which is of value in agriculture of improving the structure and moisture-retention properties of the soil and for supplying plant nutrient as the compost finally breaks down to mineral matter.



Learning outcomes

Farmers will be able to prepare compost

Time needed: 2 – 3 hours

Materials: Large sheets of papers, marker, organic wastes, etc.

Steps

1. Revise the previous session
2. Brief the day's activity.
3. Ask the farmers if either one of them or some other farmers whom they know use compost
4. Visit with participants a farm where composting is practiced

5. During the visit ask the farmers to observe and discuss with compost owner
 - a. the activities which need to be carried out during composting
 - b. indicators when the compost is ready for use
 - c. the organic wastes used for composting
 - d. additional inputs used
 - e. how long the total composting process takes
 - f. how to use the compost in the field
6. Ask each group to report on the observations and result of their discussions made during their visit and discussion.
7. In a plenary session brainstorm with the participant farmers the benefit of composting
8. Ask each group to practice composting for the experiment to be conducted in the course of the school.
9. To practice the composting ask each group to collect organic waste for composting before the next session
10. During the following school sessions prepare with the farmers the composting heaps, monitor the composting process, turn the heaps when needed and discuss all the process and evaluate the final product before applying to the experiment.
11. Get feed-back from the participants about the session and the learning processes.
12. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises.



Fig: Compost pile

Some suggestions to facilitate the group discussion

- What are the activities that need to be carried out during composting?
- When is the compost ready for use in the field?
- What type of organic waste can be used for composting?
- What other inputs are needed for composting?
- How long the total composting process takes
- How to use the compost in the field
- What are the advantages of composting

Session 4: Participation of farmers in planning to select treatments for experimentation

The interaction between farmers, researchers and extensionists is often on top-down communications. One of the consequences of this is farmers' dependency and lack of confidence in their experimental capacity so that during the school sessions, and in particular during the field studies, farmers may strictly follow the recommendations given by the researchers / extension. Therefore, farmers need to gain confidence in their own experimental capacity so they will feel free to experiment.

Learning outcomes

- Farmers will have appreciated the advantages of sharing experiences and actively seek suggestions from each other.
- Farmers' confidence in understanding experimentation will be increased.
- Farmers will be aware that all participants have relevant and valuable experiences.

Time required: 2 – 3 hours

Materials: Flip charts, markers, pencil, notebook,

Steps

1. Revise the previous session
2. Brief the day's activity
3. Introduce that the Ethiopian agricultural research organization has recommended 195 kg of DAP and 165 Kg of Urea/ha for high yield of potatoes on red soil.
4. Ask the farmers to form four groups and activate discussion on the following thematic areas:

Group 1: Assuming the farmers planning to use only the recommended chemical fertilizers for potato

Group 2: Assuming the farmers planning to use only organic fertilizers (compost)

Group3 : Assuming the farmers planning to use 50% the recommended chemical fertilizer and 50% of the recommended compost

Group 4 Assuming the farmers planning to grow potatoes with out the application of fertilizers.

5. Ask each group to discuss on the possibility of using these options and their implications from their own experiences. They would discuss on the possible or expected advantages and disadvantages of these options.
6. Ask the four groups to present the results of their discussion, compare the results and discuss the differences and resemblances
7. Promote discussion by asking the participants if experimentation (study) could help them to identify which one of these treatments would be best for them.
8. Get feed-back from the participants about the session and the learning processes.
9. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises

Some suggestions to facilitate the group discussion

- What are the activities you have to carry out related to nutrient application?
- What are the inputs you need and what are the estimated costs of those inputs?
- How much time(labor) do you need to carry out each activity
- What do you think is the impact of the fertilizer practice?
- What are the differences between the four fertilizer practices?
- Instead of discussing on imagined difference could these practices be tested in the coming season?
- What are the advantages of comparing through testing?

Session 5: Work plan for field testing

Once the treatments to be tested and the locations have been decided and demarcated, the schedule of activities, and who will be responsible for what must be decided. This needs to be decided and recorded in a work plan which can be used as a guide line during the implementation phase of the test. This exercise will assist you to facilitate the work plan preparation.

Learning outcome

- Farmers will be able to plan all the activities related to the field testing/ studies

Time needed: 2 – 3 hours

Materials: Papers, markers and pencils

Steps

1. Revise the previous session
2. Brief the day's activity
3. Divide the participants into as many as groups as the number of tests, in this case four, and assign to each group randomly one test.
4. Ask each group to brainstorm all the activities that should be undertaken to carry out the test/study
5. Ask each group to list all these activities in chronological order on a paper.
6. For each of the activities written ask each group to list when to be carried out, length of time needed, materials needed, and persons responsible.
7. Allow each group to present their work plan for discussion, comments and corrections if needed.
8. Finalize and record properly the work plan.
9. Get feed-back from the participants about the session and the learning processes.
10. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises

Some suggestions to facilitate the discussion

- What are the activities you need to carry out in preparation to the study?
- What are the materials you need?
- When do have to carry out those activities?
- Who is going to do it?
- Does the work plan include all the activities? (such as data collection, data analysis etc)

Session 6: Site and land/ plot selection for experimentation

During the regular school field days farmers will observe, monitor and compare the effect of different soil management practices on crop development and soil characteristics. The selection of appropriate testing site, where external influences can be kept to a minimum, is important. This exercise/session aims to help/guide farmers in making the right choices in plot selection.

Learning outcomes

- Farmers will be able to demarcate plots for testing purpose
- Farmers will be able to select a piece of land for testing purpose

Time required: 2 hours

Materials: - Pegs, papers, pen, marker,

Steps

1. Revise the previous session
2. Brief the day's activity
3. Walk with the participants to the selected piece of land
4. Observe with participants the selected area and ask farmers to explain which criteria they have used to select the particular plot. Promote discussion on the spot
5. Remained participants of the principles of keeping all the treatments and external influences remain the same, in particular between the test plot and the control plot. This is important so as to be able to compare practices tested.
6. Ask the farmers if it will be possible to implement this principles based on the land selected (condition of soil type, water supply, drainage, sunlight, yield history etc)
7. Make the corners of the pieces of the land /trial plot with pegs
8. Draw the testing layout on a piece of paper for future reference
9. Get feed-back from the participants about the session and the learning processes.
10. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises

Some suggestions to facilitate the discussion

- Why have selected this piece of land
- Are there differences between the testing plot and the control plots or between the replications and/or blocks

Session 7: Land preparation, Fertilizer application and planting techniques

One of the factors that affect plant growth is land preparation. Properly prepared fields promote easy planting, good root development, and pest and disease management

Learning outcome

- Farmers will have further improved their understanding of land preparation in relation to growing a healthy potato crop.
- Farmers will know the advantages and disadvantages of land preparation practices in potato production.
- Farmers will have better understanding in taking care of potato seed tuber planting.

Time needed: 2 – 3 hours

Materials: Flip charts, markers, pencil, papers

Steps

1. Revise the previous session
2. Brief the days activity
3. Brainstorm with whole group on the important activities during land preparation and planting and come to an agreement
4. Ask and allow farmers to list and discuss their experiences on land preparation and planting.
5. Ask the groups to present and discuss the outputs.
6. Get feed-back from the participants about the session and the learning processes.
7. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises



Some suggestions to facilitate the discussion

- What is a good land preparation?
- What is the importance of thorough land preparation?
- What are the characteristic of well prepared fields?
- When is the best time to start first plowing?
- How does land preparation influence crop germination and establishment?
- How can land preparation help in weed, pest and disease management?
- What is the advantage of row planting in potatoes?
- What type of care should you take not to break the sprouts?
- Time of potato planting?

Session 8: Soil characterization

Through this exercise participant farmer's knowledge is widened through recalling and pooling their existing knowledge to describe soil characteristics and will be exposed to new information and skills on how to recognize soil characteristics.

Objective:

1. To characterize and describe the soils depending on their own criteria in their own words (using color, fertility status, texture)

Learning outcomes

- Farmers will be able to recognize and describe in their own words the different soil characteristics in their locality.
- Farmers will be able to describe the soil in terms of texture, structure, etc

Time required: 2 hours

Materials required: Paper, cards, pencils etc.

Steps

1. Revise the previous session
2. Brief the days activity
3. Use existing groups for exercises
4. Allow each group to move to a different sites of different soil types in the village to collect soil samples and describe the soil
5. Ask each group to discuss and describe soil characteristics of their village in their own way, in their own words
6. Ask each group to list on a piece of paper or card their description of the soil characteristics
7. Ask one member of each group to present to the other groups for discussion.
8. During presentation promote discussion
9. As a facilitator promote discussion and give explanation of the difference between scientific explanation and the farmers' explanation.

10. Get feed-back from the participants about the session and the learning processes.
11. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises

Some Suggestions to facilitate group discussion

- What criteria do you use to classify soils
- What are the implications of the soil classification for soil management
- What effects does the different soil types have on potato growth
- Any difference between the classification of farmers and the facilitator.

Session 9: Use of organic fertilizers



Organic fertilizers are important in potato production in Ethiopia, however the use of inorganic fertilizer is also becoming common in potato production, but it is becoming very difficult also due to high price of inorganic fertilizer. Therefore the use of organic fertilizer is very important that should be encouraged.

Learning Outcome

It will be clear the important of organic fertilizer and how to use it to participant farmers.

Time required

Steps

1. Revise the previous session
2. Brief the days activity
3. Ask the farmers if one of them or some other farmers they know, and use organic fertilizer instead of inorganic fertilizer and why?
4. If possible visit with the farmers one field/farm where they have mainly used organic and one they have mainly used inorganic fertilizers
5. During the visits ask the farmers to form a small groups and discuss about the difference of the two fields.
6. After the visit and discussion in small groups ask each group to present the observations and results from the discussion.
7. In a plenary session brainstorm with the farmers the benefits of organic fertilizer.
8. Get feed-back from the participants about the session and the learning processes.
9. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises.

Some suggestions to facilitator during the group discussion

- What differences in crop performance could be observed between fields fertilized with organic and inorganic fertilizers?
- What difference in soil structure could be observed in the two fertilizer types?
- What differences could be observed in input cost, labor, and yield with the use of the two fertilizer types?
- What are the benefits of using organic fertilizers?

Session 10: Soil fertility management

The use of inorganic fertilizer in many places is becoming discouraging to farmers due to high cost. On the other hand, there is a debate that the use of inorganic chemicals causes environmental pollution and also use of only inorganic fertilizers may not be sustainable as these materials are imported and expensive. The use of integrated nutrient management (using both organic and inorganic fertilizers) could be the solution to such a problem.

Learning objective/outcome

The knowledge of the farmers on the integrated nutrient management (use of organic, inorganic fertilizers with different agronomic practices) will be increased.

Time required: 3 hours

Materials: Papers, tape, markers, flip charts,

Steps

1. Revise the previous session
2. Brief the days activity
3. Ask the farmers if either one of them or some other farmers whom they know use compost
4. Ask the participants if they use integrated nutrient management
5. If they do, ask those who practice it to explain to the participants
6. In a plenary session brainstorm the advantages of integration of different nutrient source and cropping management.
7. Explain to the farmers this will be observed from the experiment that is to be conducted in the course of the school.
8. Get feed-back from the participants about the session and the learning processes.
9. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises

Session 11 Diagnosing nutrient deficiency symptoms

Plants develop abnormal appearance or growth when they receive an inadequate supply of particular plant nutrient. Recognizing of such deficiency symptoms will allow to a farmer to take appropriate measures in his potato field.

Learning outcome

Farmers have diagnosed abnormal appearance or signs of abnormal growth as a result of nutrient deficiencies



Fig: Nitrogen (a and b), Phosphorus (c), and potassium (d) deficiency symptoms on potato leaves

Time required: 2 – 3 hours

Materials required: Pencil, notebook, pen, markers, and flip chart

Steps

1. Revise the previous session,
2. Brief the days activity
3. Ask the participant farmers to explain if they have ever observed such deficiency symptoms or they already have in their field.
4. Ask the participants to walk to a field where they have observed the deficiency symptoms or abnormal plant growth.
5. Ask the participants to form 4-5 groups to observe and discuss about the abnormalities in the growth of potato. Tell the each group to observe whether the symptom is only in few plants, lower leaf or young leaf etc. If possible discuss on the cause of such abnormality and its control measures.
6. Ask the group representatives to present the conclusions they reached with their members about the abnormality.
7. Explain cause of the abnormal growth and deficiency symptoms from scientific point of view.
8. Get feed-back from the participants about the session and the learning processes.
9. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises

Suggestions to facilitate the group discussion

- How do you differentiate nutrient deficiencies on your potato crop?
- At what stage of the crop do you observe the symptom?
- On which part of the plant do you observe the symptom?

Session 12: Monitoring and evaluation of the experiment

Introduction

At this stage, an experiment on integrated nutrient management of potato has been conducted to overcome the problems related to soil fertility. After the experiment has been completed, there is a strong need to monitor its progress over time in terms of performance of the crop, yield obtained and other characteristics. This stage is very important to decide and demonstrate for the farmers on the practical importance of integrated nutrient management systems. It also helps to determine the economically optimum combination of organic and inorganic fertilizers. The farmers have to participate actively in the monitoring process and they have to take their own observations and notes over time.

Objectives

1. To observe and record the changes over time of the performance of potato under different options of fertilization
2. To determine the economically feasible rate of organic and inorganic nutrients required for the growth of potato
3. To evaluate the integrated nutrient management systems on potato, its strengths, weaknesses and modifications suggested

Learning outcomes

- The changes over time of the performance of potato under different options of fertilization will be monitored, evaluated and recorded
- The economically feasible rate of organic and inorganic nutrients required for the growth of potato will be determined
- To evaluate the integrated nutrient management systems on potato, its strengths, weaknesses and modifications suggested

Time needed: 2 – 3 hours per monitoring and evaluation day

Materials required: note book, pencil, pen, markers, flat files, magnifying lens,

Steps

1. Revise the previous session
2. Brief the days activity
3. Split the group into two sub-groups of equal size
4. Visit the experimental sites and observe the performance of the treatments.
During monitoring the farmers have to observe closely any of the changes observed after a certain period of storage.
5. After the field visit let the sub-groups discuss on the points that what changes they observed on the performance of potato under different options of fertilization? Are there any modifications suggested on the experiment? What indicators are relevant to record these changes?
6. After group exercises, encourage the group representatives to present their group works. Activate a discussion among the group members after presentations.
7. At the end of monitoring stage, general evaluation need to be conducted on the integrated nutrient management of potato, its strengths, weaknesses and other values.
8. The costs incurred in this session need to be recorded
9. Get feed-back from the participants about the session and the learning processes.
10. Wrap-up the session of the day by summarizing the main points discussed and consensus reached during the exercises

Session 13: Evaluation of FFS approach on integrated nutrient management of potato

Introduction

At the end of the learning process of integrated nutrient management of potato using FFS approach, there is a strong need to evaluate the approach itself. Since FFS approach is one of the different participatory approaches, evaluating its strengths and weakness is crucial at the final stage. If the approach is believed to be appropriate from the farmers' point of view, it has to be scaled up for other enterprises by modifying according to the nature of the intervention. If there is also a need to modify the approach, a discussion can be activated how to re-design it in the future. Hence, the farmers have to be encouraged to evaluate the FFS approach taking into consideration of all the sessions from the beginning up to the end.

Objectives

1. To evaluate the FFS approach, its strengths and weaknesses
2. To discuss and suggest scaling up mechanisms of FFS approach into other enterprises
3. To discuss and design mechanisms of the school participants to share their knowledge and experiences gained from the school to their neighbors and other non-participant farmers

Learning outcomes

- The weaknesses and strengths of the FFS approach will be evaluated
- The scaling up mechanisms of the FFS approach into other enterprises will be suggested
- The mechanisms of sharing the knowledge and experiences of the school participants to neighboring and other farmers will be suggested

Notes to the facilitator

It should be noted that evaluating the weaknesses and strengths of the FFS approach is vital at the end of the sessions. At this stage, it is believed that the farmers do have knowledge and experiences of the FFS and its organizational techniques. They would also have a realization that why FFS is needed and what are its differences as compared to learning in the class rooms. Hence, the weakness of the FFS could be corrected according to the local conditions and farmers' preferences while the strengths can be scaled up to other enterprise. It is, therefore, important to activate a discussion among the farmers to freely express their feelings on any aspects of the school.

Time needed:

Materials required: Flip charts, papers, flat files, markers

Steps

1. Activate a discussion to obtain feedback from previous session
2. The facilitator should briefly summarize and recapitulate all the sessions run so far and their major outputs
3. Explain the objectives and expectations of this session
4. Split the group into two sub-groups of equal size for exercises
5. For each of the sub-groups, let them discuss and come up with consensus on the following points:
 - a. What are the weaknesses and strengths of FFS approach adopted so far on integrated nutrient management on potato?
 - b. Suggest scaling-up mechanisms of the strengths of the school to other enterprises
 - c. Suggest appropriate measures to correct the weaknesses of the school
 - d. Suggest the mechanisms of sharing knowledge and experiences of the school participants to neighboring and other farmers
 - e. Are all your initial expectations met throughout all the sessions covered in this school?

6. After group discussions, encourage the representatives of the sub-group to present their group works to other sub-group. Activate a discussion after presentations and arrive at consensus on various cross-cutting issues.
7. The facilitator should present the summaries of all the previous sessions and the outcomes. Moreover, indicate the extent to which the participants expectations identified at the beginning of the session are met.
8. At this stage, calculate the total costs incurred in this school and activate a discussion on it whether the cost is reasonable or there is a need to minimize it.
9. Activate a discussion after the facilitator's presentation and arrive at consensus on various issues.
10. Get feedback on the session of the day
11. Wrap up this session by summarizing its objectives, processes and outcomes
 - Close up the session by indicating the way forward as per the consensus reached by the school participants

SCHOOL EVALUATION

1. Review of the previous school day
2. School evaluation
 - a. evaluation of practices and technologies
 - b. school evaluation
 - c. farmers recommendation for future schools
3. Closing of the school

EVALUATION OF FFS

WHY EVALUATION OF FFS?

To be able to further improve the school curriculum, the schedule, and the facilitation process the school should be evaluated at the end of the school season.

LEARNING OUTPUT

Farmers and facilitator will have evaluated the school schedule and curriculum.