Making field observations: Preparing the field and establishing the nursery

This module is the first of a set of four modules on 'formal' field observations to be made during the course of the whole curriculum; Modules 14, 18 and 23 will later complement this module.[1] The main objective of the PLAR-IRM Center is to learn new techniques and alternative management practices for integrated rice management. One of the methods used for learning in the PLAR-IRM Center is the field application of new techniques acquired during the PLAR-IRM sessions. Because these techniques are often new, farmers are advised to limit the field application of these new techniques to a specific plot, surrounded by bunds, during the first year. This will enable better comparison of performance with other fields (managed using farmers' normal techniques) and evaluation of whether the new techniques are indeed more effective. Therefore, each member of the PLAR-IRM Center will identify one bunded plot in his/her field, in which the new ideas will be put into practise. In this plot, he/she will implement some of the new techniques learnt during the PLAR-IRM sessions. Since the step-wise introduction of alternative crop management options is the basis of 'Integrated Rice Management,' this plot is called the 'IRM field' (*see* Module 9, in which the principles of the IRM field were introduced).

❶ Discuss what kind of observations farmers make when they are in the rice field.
❷ Introduce the notion of 'observation indicator.'
❸ Give examples of the importance of making valuable observations, which help in accurate analysis and decision-making.
❹ Visit the field to make observations on two fields at crop-establishment stage and on two seedling nurseries.
❺ Synthesize the results of the observations in plenary session.
❻ Continue to fill in the recording form for the IRM field.

Learning objectives

At the end of this module, farmers will be able to:

- Exchange their experiences and practical observations about crop management practices and environmental factors observed on the field.
- Review the importance of regular field observations, and their usefulness in the analyses of the health of the crop and environmental factors so as to take decisions for appropriate action.
- Decide which observations to make and what indicators to observe; in this case, specific indicators related to field preparation and nursery establishment are to be defined.
- Record the information from field observations.

1. Modules 19 and 24 also focus on field observations; however, they specifically concern the farmers' experimentation plots.

1. Farmers and the PLAR-IRM team meet at the PLAR-IRM Center. The facilitator briefly reviews the previous module and invites farmers' feedback.

2. One of the PLAR-IRM team members explains the learning objectives and procedures for the current module.

3. The facilitator encourages discussion on the meaning of observation, the types of observations farmers make in their fields, of the crop and its environment. The following topics are addressed:
   - What is: 'Making observations'?
   - Why do we make observations? Why is it necessary (or not) to make observations?
   - How do we make observations?
   - What are the points of reference when making observations?
   - How frequently should observations be made?
   - Are some periods of the year/cycle more important than others for making observations?
   - Is it useful to record what has been observed?
   - How should observations be used or what is the usefulness of what we observe?

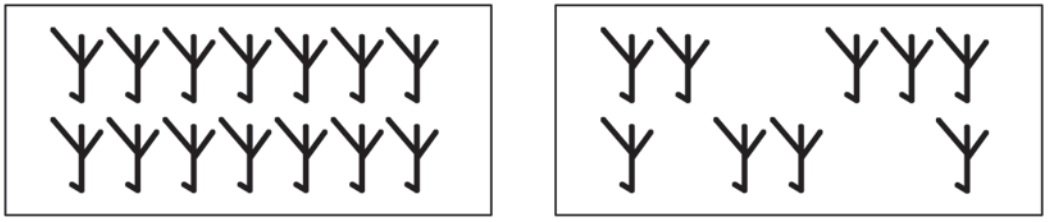
4. The facilitator explains the importance of observing and introduces the notion of 'observation indicator.'

   - Making regular observations in the field is one of the major tools of the PLAR-IRM approach. The facilitator explains that in the following weeks a lot of observations will be made. Making observations will allow the farmer to verify whether the work has been done well, whether plant development is satisfactory, and whether insects or diseases are threatening the plants.
   - It is important to make valuable observations and, to do so, one has to be aware of what to observe. The elements to observe will be called 'observation indicators.' An indicator is a sign one observes in and around the rice field, it characterizes, e.g. the 'good health' of the plant or of the field. 'To observe' means that one watches certain phenomena very carefully, such as the state of the field or the growth and health of the plant:
     – The facilitator invites the farmers to give some examples of indicators;
     – If necessary, he/she explains that it is something that will be 'observable' in the field, i.e. that can be seen with the naked eye;
     – The facilitator gives some examples, e.g. 'a completely flooded field.' We learnt in one of the previous modules that it is important to have a

completely flooded field to ensure total decomposition of crop residues and weeds so as to avoid early weed re-growth after transplanting. Now, a 'completely flooded field' is an easily observable indicator. On the contrary 'poor land-leveling' is not an observation indicator when the field is flooded, as land-leveling was done in the past. However, 'the quality of land-leveling' can be a factor *explaining* why a rice field is not completely flooded;

- It is very important for the farmers to understand exactly what an observation indicator is. Consequently, it is necessary to define the word 'indicator' in the local language. For instance, in Baoulé the word for indicator is *N'Zolié*;
- Factors or reasons for the 'poor state of health' of crops in any field can be associated with the management practices, or with the environmental conditions. In our example, poor tillage is a management practice;
- The main objective for making and analyzing observations is to take appropriate decisions for action to correct the situation or to prevent the re-occurrence of the phenomenon.

5. The facilitator gives an example showing the importance of good observations, allowing accurate analysis and appropriate decision-making.
   - The facilitator shows a drawing of two nurseries and invites the farmers to make observations:

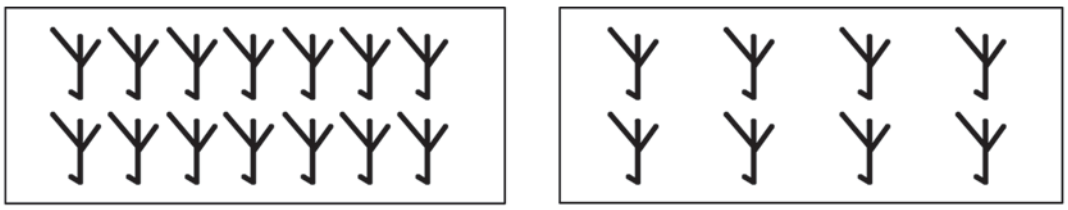


The facilitator makes sure that the farmers see that the nursery on the right has areas with a lot of seedlings and others without seedlings, i.e. density is heterogeneous;in the nursery on the left, seedling density is uniform.

   - Subsequently, the farmers will be asked to suggest and analyze what factors might have caused 'heterogeneous density' in the nursery on the right or, otherwise said, what are the reasons for some areas growing many seedlings and others only a few.

t is pssible that in the areas with few seedlings there had been waterlogging, which killed the seedlings. aWerlog - ging can be due to poor field-leveling, which is a farmer management practice. Apart from management practices, waterlogging can also be caused by environmental conditions like heavy and continuous rain.

   - Then, the farmers discuss options to avoid this problem.



- Next, the facilitator shows two other nurseries to be compared and invites the farmers to make observations.

> The facilitator makes sure that the farmers see (observe) that in the right nursery there are fewer seedlings than in the left nursery (there is a difference in density), but that the distribution of the seedlings is homogeneous in both nurseries.

- Afterwards, the farmers are invited to analyze their observations: which factors could explain that there is an area with a lot of seedlings and another with fewer?

> It is possible that the seed used in the second nursery was of poor quality.

- Then, the farmers say what they can do to avoid this problem.
- Comparing these two examples should demonstrate the importance of making good observations.

6. The facilitator explains that, in this module, observations will focus on field preparation, nursery establishment and seedling transplanting. In a few weeks, observations will be made on the next development stages of the plant.

7. The facilitator presents the field-observation *procedure*.
   - The farmers are divided into four sub-groups of four or five farmers each.
   - A farmer-facilitator and a farmer-rapporteur are chosen for each sub-group.
   - Each farmer sub-group visits four sites:[2]
     – Two sites in an advanced stage of field preparation—if possible one field in 'optimum' condition and another in 'poor' (less-than-optimum) condition;
     – Two other sites with established nurseries—if possible one with poor emergence of seedlings and the other with good emergence.
   - Each sub-group makes field observations—the farmers decide which indicators are important for them to observe, allowing them to judge field conditions and plant health.
   - Observations are discussed and analyzed within sub-groups, the farmers trying to establish the links between the indicators (what is seen) and environmental factors and farmers' management practices.

2. The observation sites will have to be prepared in advance by the team of facilitators.

8. The sub-groups of farmers and the facilitators go to the field. In turn they visit the four observation sites previously identified by the facilitators.
   - The facilitator helps the farmer-facilitator if necessary.[3]
   - The farmer-rapporteur takes notes.
9. Back at the PLAR-IRM Center, the farmers report and comment on their results:
   - The farmer-rapporteur of the first sub-group presents the results of the first observation site, 'Field preparation: Field 1.'
   - The facilitator synthesizes the results in the four-column table, in the row 'Field 1' (see below).
   - Afterwards, farmer-rapporteurs of other sub-groups 'complete' the first sub-group's report by adding comments from their sub-groups that were not mentioned by the first sub-group, and the facilitator summarizes these in the table.

Stage of observation	Observation indicators	Analysis	Decisions to be made
Field preparation			
Field 1			
Field 2			
Nursery establishment			
Nursery 1			
Nursery 2			

   - Then the farmer-rapporteur of the second sub-group presents the results of the second observation site, 'Field preparation: Field 2.'
   - The facilitator synthesizes the results in the row 'Field 2.'
   - Then, he/she invites the farmer-rapporteurs of the other sub-groups to complete the table.
   - And so on for 'Nursery establishment: Nurseries 1 and 2.'

Discussion about the IRM plots of each farmer

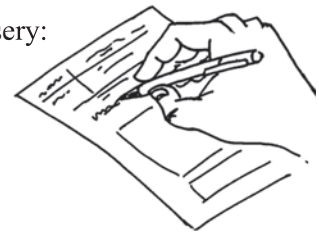
10. The facilitator asks how the farmers managed to fill in pages 1 and 2 of the recording form of the IRM field (Module 9):
    - A farmer volunteer presents how he/she filled in the first page.
    - Another farmer presents how the planning was done (page 2).

3. In the beginning, it is very important that the facilitator ensures that 'accurate' observations are made, in order to obtain good analyses and to make good decisions.

- The facilitator enquires about possible difficulties in filling in the form and suggests solutions or proposes that the farmers help each other; if necessary, an appointment is made for a meeting to help the farmers record their data after the session.

11. The facilitator introduces the notebook and the third page of the recording form for the IRM field; this is meant to train the farmers to record information from field observations made when transplanting and at the beginning of the vegetative phase.
    - The facilitator stresses the importance of recording the information: it will allow the farmers to remember the condition of the fields and plants, and it will also enable them to remember which activities contribute to the success of rice cropping.
    - The facilitator stresses the fact that recording should be done for the plot identified by the farmer, where he/she intends to implement the practices learnt during the PLAR sessions; therefore, recording will concern the IRM field, of which a sketch is made on the first page of the recording form.
    - The facilitator explains the four indicators for field preparation presented on the recording form:
      – Height and width of bunds;
      – Cleanliness of bunds and channels;
      – Incorporation of weeds and crop residues;
      – Complete flooding of the field;

      And also the seven indicators for the establishment of the nursery:

      – Length and width of the seedbed;
      – Height of seedbed;
      – Fineness of seedbed (i.e. absence of clods of soil);
      – Color of seedlings;
      – Vigor of seedlings;
      – Density of seedlings;
      – Uniformity of seedling density.

      ☛ *The facilitator explains the importance of each of the indicators*.

    - The facilitator explains that the farmers can indicate the degree of satisfaction with the state of health of their IRM field by ticking (checking) a box under the face corresponding to their judgment. If for an indicator the farmer's plot
      – gives complete satisfaction, he/she ticks the box under
      – gives moderate satisfaction, he/she ticks the box under
      – gives no or only little satisfaction, he/she ticks the box under

- The farmers will then further analyze the indicators that give no or little satisfaction. They will explain the reasons for such a judgment and give details of the factors leading to these signs of poor or less satisfactory state of health and, hence, try to make links between the indicators and the causes or factors leading to these signs or symptoms.
- For these same indicators, the farmers are questioned about the decisions they will take to improve the field (by changing their management practices) and to prevent the phenomenon re-occurring.
- The facilitator invites each farmer to fill-in page 3 of the recording form; the extension agent will help any farmer to fill-in the form as necessary (i.e. upon request).
- The facilitator also invites the farmers to record some information on the management practices during sowing. This information should be recorded on page 6 of the recording form, in the second-to-last (penultimate) table.

12. Evaluation: the facilitator asks what the farmers appreciated (or did not appreciate), what they learnt, and what they intend to do with their newly obtained knowledge. The facilitator specifically asks which new ideas this module has generated and how farmers intend to put these into practise on their IRM fields.

13. The facilitator asks a volunteer farmer to conclude the session, and then invites the farmers to the next session.

Time required

- Three hours

Materials required

- Strong packing paper and markers.
- Notebook.
- Recording forms.
- Four observation sites identified by the facilitators:
  - 2 fields ‘in preparation’;
  - 2 nurseries,
  - preferably one field and one nursery with good management practices and the others where management practices, as taught during the PLAR sessions, are not accurately implemented.

Box 11

The farmers in Bamoro said that they make field observations every day to see how their crops develop and to evaluate the effects of their efforts. Comparisons are made between neighboring fields and over years. The farmers said they generally remember everything without taking notes. They said that it is very important to observe conscientiously so as to improve their practices and to know what has to be changed for the next season. We had to stress the importance of thoroughly analyzing the observations made. It seems that many farmers make observations, but don't analyze the situation very well. However, a good analysis is necessary to identify the right solutions. For instance, one farmer said that a part of his field was bad, that's why he didn't cultivate rice on that part of the field and left it uncultivated. He didn't try to understand why rice would not grow there. His peers told him that there might be other solutions.

After these discussions, we went to the field in three teams to make observations on five plots. We saw—among other observations—two nurseries with lots of problems, immediately acknowledged by the farmers. The major problems were due to poor leveling and the lack of fineness of the seedbed (i.e. it contained clods of soil), resulting in heterogeneous germination.