

## Evaluating the PLAR-IRM curriculum

Evaluating the PLAR-IRM curriculum aims at appreciating to what extent the PLAR-IRM objectives have been obtained. PLAR aims essentially at improving farmers' knowledge and at encouraging them to apply their newly obtained knowledge on integrated and improved rice management in their own fields. This module complements Module 13, a first evaluation of the curriculum. The evaluation in this module is more in-depth. It evaluates knowledge acquired by the farmers, discusses the performance of new technologies and practices in the IRM fields, and evaluates farmers' appreciation of the learning tools and modules used in the curriculum. This evaluation will enable farmers and the PLAR-IRM team to improve their performance during the next season, and to identify the major tools and modules best suited for taking the knowledge obtained to neighboring inland valleys.



### Learning objectives

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

- Evaluate the acquired knowledge.
- Exchange ideas about the major practices implemented on their IRM fields.
- Appreciate the results of their activities in terms of yield obtained from the IRM field.
- Evaluate the learning tools and modules of PLAR-IRM.

- ❶ Evaluate, in sub-groups, the technical knowledge of the farmers, and their appreciation of the learning tools and the PLAR-IRM modules.
- ❷ Consolidate and discuss results obtained.
- ❸ Present the yields of IRM fields and control fields.
- ❹ Identify the four or five major techniques to increase yield.
- ❺ Identify the difficulties involved in applying these techniques on a larger scale, and the ways and means to overcome these constraints.



### Procedure

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 presents the *procedure* for the evaluation in sub-groups.
  - The farmers will be divided into four sub-groups of four or five farmers.
  - A farmer-facilitator and a farmer-rapporteur will be designated for each sub-group.

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4. Each sub-group receives three questionnaires: one to test knowledge of IRM practices, one to gauge farmers' appreciation of the learning tools, and one to gauge farmers' appreciation of the PLAR-IRM modules.
  - In each group, the farmer-facilitator reads the questions and tries to get a consensus on the answers, which are then noted by the farmer-rapporteur.
    - First, the questionnaire concerning IRM knowledge is addressed—the questions require a 'right' or 'wrong' answer (*see* model in Box 27);
    - Next, the second questionnaire about the learning tools and the third about the PLAR-IRM modules are discussed. For these two questionnaires, farmers provide answers by ticking a box under 'the face' corresponding to farmers' judgment—complete satisfaction, moderate satisfaction, little satisfaction,
      - the idea is not only to agree on the answers, but the group also has to discuss the reasons for its choices and answers.
5. Consolidation of results.
  - The rapporteur of each sub-group presents the results, first of the first questionnaire, then of the other two. The facilitator summarizes the results in a pre-established table (*see* Materials required *below*).

*Table for first questionnaire: IRM knowledge test*

Site/question	Number of answers per choice	Reasons for choice
Question 1	Right: Wrong:	
Question 2	Right: Wrong:	
...		

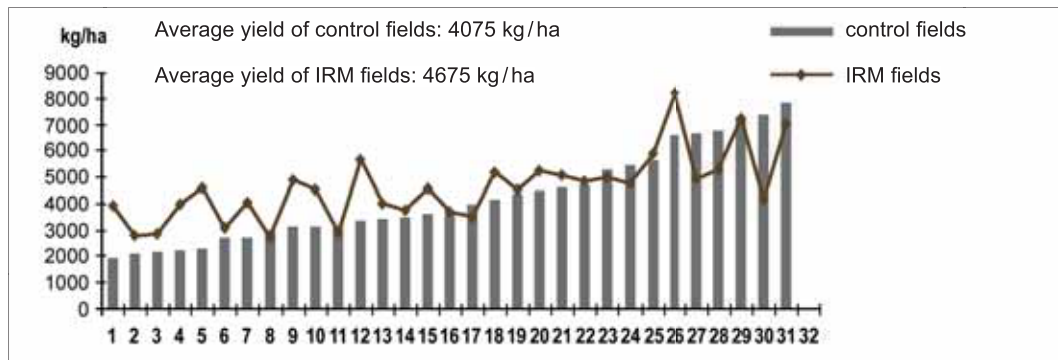
*Table for second questionnaire: appreciation of learning tools*

Learning tools	Number of sub-groups that gave score			Total of scores
	1	2	3	
Tool 1				
Tool 2				
...				

*Table for third questionnaire: appreciation of PLAR-IRM modules*

PLAR-IRM module	Number of sub-groups that gave score			Total of scores
	1	2	3	
Module 1				
Module 2				
...				

- After filling out Table 1, the facilitator repeats each question, one after the other, and stimulates a discussion on:
    - The answers given, and differences among groups;
    - The reasons for answers, reflecting ‘factorial knowledge.’<sup>1</sup>
  - Tables 2 and 3 are addressed in a similar manner—the facilitator stimulates a discussion on the learning tools and modules most and least appreciated, and reasons behind the ranking.
6. The facilitator presents the yields obtained in the IRM fields and compares them with the yields obtained in the control fields.<sup>2</sup>
- The results are presented in a pre-established table on a large sheet of strong packing paper. The yields of the control fields are in increasing order, represented by histograms. On the same vertical line of each histogram, a dot represents the yield of the IRM field.



- The facilitator stimulates a discussion on the differences between control-field yields and IRM-field yields. The variability of these gaps is linked to the yield level of the control fields.
- The facilitator asks if farmers can identify the reasons for these differences in yields and leads a discussion on the major new practices the farmers implemented in their IRM fields and not in their control fields.

1. ‘Factorial knowledge’ means that the learners are not only capable of reproducing facts learnt, but they are also in the position to argue reasons for the facts known.

2. For each farmer who has an IRM field, yield has been sampled for the IRM field and for an adjacent field where the farmer did not apply the new techniques.

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7. The farmers identify the four or five major techniques that—according to them—can contribute to yield increase in the short term.
8. The facilitator stimulates the farmers to think about the difficulties that could eventually arise when implementing these techniques on a larger scale (i.e. in all their fields) and on how to address these constraints.
9. 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.
10. The facilitator invites farmers to conclude the session, and then invites them to the last session of the season.



#### Time required

- Two hours



#### Materials required

- Questionnaires: test of knowledge, evaluation of learning tools, and evaluation of modules.
- Strong packing paper with pre-established tables (Section 5).
- Yield samples from each IRM field and from the adjacent control fields (where the farmers did not apply new techniques).

*Box 27*

*Example of yield estimation*

For estimating yield in IRM fields with an area of 1000 m<sup>2</sup>, use two yield-sampling ‘squares’ of 4 m<sup>2</sup> each. If the rice area is 2,3 or 6 times bigger then use 2,3 or 6 times the squares. To delineate the yield sampling area, use a metal frame with 2 m sides or set out a square using four stakes, each two metres apart. If this cannot be done then use some other form of measuring device for which the surface area is known (i.e. a tyre or a bicycle wheel) and take sufficient samples to represent 4 m<sup>2</sup>. Place your measuring device at random in the crop, but avoiding the edges, and harvest and thresh that area separately, drying and weighing both the grain and the straw.

Where two 4 m<sup>2</sup> squares have been sampled in a 1000 m<sup>2</sup> field, the calculation is carried out as follows: if 2.5 kg of grain has been obtained from the first sampling block and 3 kg from the second, the yield estimate for the field is:  $(2.5 + 3.0)/2/4 = 0.69 \text{ kg/m}^2$ . The yield per hectare is:  $0.69 \times 10\,000 = 6.9 \text{ tonnes per hectare}$ .

If the straw yield from the first sample is 2.7 kg and the yield from the second square is 2.4 kg then the estimated straw yield for the field is:  $(2.7 + 2.4)/2/4 = 0.63 \text{ kg/m}^2$ .

Straw production per hectare is:  $0.63 \times 10\,000 = 6.3 \text{ tonnes per hectare}$ .

	Weight Sample 1 (kg)	Weight Sample 2 (kg)	Total (kg)	Average (kg)	Yield of the field (kg/m <sup>2</sup> )	Yield (t/ha)
<b>Farmer 1</b>						
IRM field						
Grain	2.5	3.0	5.5	2.75	0.69	6.9
Straw	2.7	2.4	5.1	2.55	0.63	6.3
Control field						
Grain	1.4	1.7	3.1	1.55	0.39	3.9
Straw	1.5	2.1	3.6	1.8	0.45	4.5
<b>Farmer 2</b>						
IRM field						
Grain						
Straw						
Control field						
Grain						
Straw						
...						

**It is important that results are ultimately expressed in units that farmers are familiar with, such as number of bags per ‘carre’ (i.e. 2500 m<sup>2</sup>) in the Bamoro and Lokakpli inland valleys.** Researchers in the PLAR-IRM team may still want to evaluate the moisture content of the rice grains, and standardize grain yields at 14% moisture, using the formula:  $[(100 - \text{moisture content at weighing}) / (100 - 14)] \times \text{weight}$ .

E.g. If we take Farmer 1, and grain moisture content at harvest is 17%, grain yield adjusted to 14% moisture content is  $[(100 - 17)/(100 - 14)] \times 6.9 = \mathbf{6.6 \text{ t/ha}}$ .

## Module 27









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#### Example of questionnaire




##### Box 27a: Knowledge test

1. There are 2 types of weeds:  
 right  
 wrong  
Explanation:
2. The period from flowering to maturity is the same for almost all varieties:  
 right  
 wrong  
Explanation:
3. You have to weed before applying fertilizers:  
 right  
 wrong  
Explanation:
4. All insects can damage rice:  
 right  
 wrong  
Explanation:
5. The rice stem borer causes 'onion tube':  
 right  
 wrong  
Explanation:

##### Box 27b: Appreciation of learning tools

1. The calendar and figures 
2. The map 
3. Observations and analysis in sub-groups 
4. The plenary sessions after field visits 
5. The experimentations 
6. The IRM fields and putting into practise new ideas 
7. Recording forms 
8. The evaluations at the end of the session 

##### Box 27c: Appreciation of PLAR-IRM modules

1. Module 2: Mapping an inland-valley catchment area 
2. Module 3: Making a transect walk in the inland-valley lowlands and the catchment area 
3. Module 4: Maintaining inland-valley lowland infrastructures for better water management 
4. ...