

Evaluating the results of the cropping season

Evaluating the results of the cropping season is a very useful tool to measure the work done during the season and also to identify ways and means of improving the performance of the farm (Reference 27). It draws comparisons between the results obtained by different farmers and also between the IRM field (or other experiments) and the other fields. The evaluation consists of a simple value–cost analysis, comparison of performance, and identification of improvements for the next season. The evaluation is thus not only an analysis of the end-of-season results, but also a first step in the preparation for the next season.



Learning objectives

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

- Evaluate the major activities performed during the season.
- Estimate crop production costs.
- Know how to establish a financial balance-sheet of the season—comparing the usual crop management practices with those implemented in the IRM field or in any of the experiments.
- Identify alternative management options that should improve their financial balance-sheet.



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 initiates a debate on the major production factors the farmers put in place, covering the whole cropping season.
4. The farmers discuss discrepancies between what was planned and what was actually done.
5. Two volunteer farmers present their financial balance-sheets for the season that has just ended.
 - A large sheet of strong packing paper is shown with three columns.
 - The facilitator invites the farmers to list the major production factors and inputs used in the column on the left: only those factors or inputs that involved a monetary cost or an 'in kind' exchange are listed.

- ❶ Discuss production factors.
- ❷ Prepare the financial balance-sheets for two volunteer farmers.
- ❸ Analyze and discuss the differences in terms of production costs and benefits between the two farmers.
- ❹ Calculate and discuss costs, benefits and ratios.
- ❺ Compare the IRM fields (or any other experimental treatments) with fields where the usual crop management practices were implemented, calculate additional costs, additional benefits and ratios.
- ❻ Summarize results in plenary session.

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- In the other two columns, each farmer reports the actual money (nominal) cost spent per surface unit¹ related to conventional crop management practices.²
 - The facilitator assists the farmers in adding up all the costs to calculate the total.
6. The farmers analyze the different production costs, their relative importance and effectiveness.
 7. Then, the two farmers present the results they obtained from their plots in terms of rice production and value per unit of surface area.



Costs–values (per unit surface area)	Farmer 1	Farmer 2
1. Cost of production factors and inputs		
Seed		
Plowing		
Transplanting		
Herbicide		
Fertilizer		
Weeding		
Threshing		
Insecticide		
Harvesting		
Transport from field to city		
<i>Total costs (A)</i>		
2. Production		
Weight		
<i>Production value (B)</i>		
3. Net benefits: B–A		

8. The farmers complete the financial balance by calculating net benefits: production value (B) minus total costs (A).
9. The farmers compare and discuss the results.
 - To help the farmers understand the concepts of costs, benefits and ratios, the facilitator can visualize monetary ‘units’ using (e.g.) small stones or leaves.³
 - What are the reasons explaining the differences?
 - What could be done to improve the results?

1. In the case of the rainfed lowlands in central Côte d’Ivoire, the farmers subdivided their fields into plots called ‘squares,’ each covering 2500 m².

2. It will be preferable to begin with the cultural practices called ‘usual,’ distinguishing them from the practices establish in the IRM fields and other experiments, which will be dealt with in Section 11.

3. In Bamoro and Lokakpli, one stone represented 10,000 FCFA (Box 26).

10. Then the facilitator presents the yields obtained from the IRM fields and a control field (Module 25) or from any of the experiments done during the season (e.g. fertilizer experiments).
 - A large sheet of strong packing paper is used to draw a table with enough columns to show the alternative options (i.e. management practices; *see table below*).
 - The facilitator asks the farmers to list the production factors and the inputs used in the column on the left: only the additional factors and inputs used in the implementation of the management alternatives are taken into account; the additional cost of the IRM field or of a specific treatment is calculated (A).
 - Then, the benefits additional to the conventional practice (control field) are calculated (B).
 - Afterwards, net benefits are calculated in comparison with the farmers' conventional practices (B–A).
 - Finally, ratios are calculated of the additional value over the additional cost (B/A). The facilitator explains that the investment in the new practice is not interesting when the ratio is lower than 1.5.
 - The production factors that are easily accounted, e.g. family labor, will also be discussed.

<i>Costs – additional value</i>	Conventional practice: control field (see first table)	IRM practices	Treatment 1	Treatment 2	...
1. Cost of inputs and production factors					
Total					
Additional (A) • Labor • Fertilizer • ...					
2. Production value					
Total					
Additional (B)					
3. Net benefits					
Total					
Additional (B–A)					
4. Ratio of additional value/additional cost (B/A)					
Ratio (B/A)					

11. Farmers exchange ideas about ways and means to improve their financial balance-sheets.
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.
13. The facilitator asks volunteer farmers to draw conclusions from the session, and then invites farmers to the next session.



Time required

- Three hours



Materials required

- Strong packing paper, markers.

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Box 26

The Bamoro farmers met at their PLAR-IRM Center. Two farmers (Christophe and Dembelé) volunteered to calculate a financial balance-sheet for the previous cropping season. Both fields were about one 'carré' (approximately 2500 m²).

	Christophe's field	Dembelé's field
<i>Crop management practices¹</i>		
Seed (CFA)	0	0
Plowing (CFA)	0	12,000
Transplanting (CFA)	6,000	0
Herbicide (CFA)	0	2,500
Fertilizer (CFA)	0	1,750
Weeding (CFA)	0	0
Threshing (CFA)	5,000	8,000
Insecticides (CFA)	0	0
Harvesting (CFA)	1,000	0
Transport from field to city (CFA)	4,000	5,000
<i>Total costs (CFA)</i>	16,000	29,250
Production (no. paddy bags)	6	9
<i>Value (CFA)</i>	93,750	135,843
Net benefits (CFA)	77,750	106,593
Note: 1. We only used cash costs; the benefit–cost analysis should normally cover all costs		

Later, we discussed the differences between the two farmers' financial balance-sheets. The farmers agreed that Dembelé had a better balance, because he had invested more by plowing correctly, by treating against weeds and by applying some fertilizer.

Afterwards, we presented the preliminary results from the experiment on fertility management. There had been six treatments (Module 10): the usual practice, without any fertilizer (CP); 200 kg NPK + 100 kg urea per hectare (T1); 100 kg NPK + 200 kg urea per hectare (T2); 50 kg TSP + 200 kg urea per hectare (T3); 200 kg urea per hectare (T4); 250 kg urea per hectare (T5). We presented the results per 'square,' because the farmers are used to this surface unit.

Financial balances using a partial budget for the experiment on fertilizer management in Bamoro, 2001 rainy season (per 'square')

	CP	T1	T2	T3	T4	T5
Fertilizer cost (= additional cost compared with CP) in FCFA	0	16,000	15,500	13,000	10,000	12,500
Production (no. bags)	6.5	7.2	7.9	7.3	7.2	7.1
Additional production compared with CP (no. bags)	0	0.7	1.4	0.8	0.7	0.6
Gross benefits in FCFA		11,000	22,000	12,500	11,000	9,500
Net benefits (benefit – additional cost) in FCFA		–5,000	6,500	–500	1,000	–3,000
Value–cost ratio		0.7	1.4	1.0	1.1	0.8

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This presentation was followed by a lively discussion, as the farmers discovered that most treatments made them lose money! Consequently, they all said that treatment T2 was the best and that they would use it for the following season. Indeed T2 could be a good strategy, as the value–cost ratio is 1.5 (usually value–cost ratios exceeding 1.5 to 2 are considered to be necessary for farmers to adopt a new technology). One of the farmers said that he definitely wanted to use some fertilizer, as he thought that it would speed up the development of their inland valley.

Afterwards, we used small stones (1 stone representing 10,000 FCFA) to explain the financial balances and the value–cost ratio in more detail. We used the following examples:



The value–cost ratio for Farmer 1 is 3. So, for every stone invested he gets three stones in return. A very good investment. We then explained the situation for Farmer 2:



The value–cost ratio for Farmer 2 is 2. So for every stone invested he gets two stones in return. Still OK. We then explained the situation for Farmer 3:



The value–cost ratio for Farmer 3 is 1.3. So for every stone invested he gets 1.3 stones in return. This is not a good investment.

The farmers mentioned that, before using fertilizers, it would be better to improve other aspects of rice management, especially water management and weed control. Farmers also discovered that the fertilizer doses used in this experiment were too high for the Bamoro valley, where water control is rather poor. We also mentioned some other sources of plant nutrients, such as burying rice straw or incorporating compost. We also discussed options to use very low doses of mineral fertilizer, giving priority to nitrogen, e.g. 50 kg of urea per hectare, and combine this with the practices discussed during previous modules—weeding before applying fertilizers, fertilizing at early tillering stage, panicle initiation or both, applying fertilizers when water level is low.

