

## Using good seed and rice varieties

A good start to the rice-production season begins with the selection of the rice cultivar to grow and the seed source. The varietal choice depends on the farmer’s objectives and on field constraints—for example, yield characteristics, plant height, field flooding regime, iron-toxicity occurrence, and the degree of water control. Seed production and conservation practices will determine seed purity and germination capacity (Reference 9).



### Learning objectives

At the end of this session farmers will:

- Have a good knowledge of the diversity of rice seed production, supply and conservation techniques that exist within their community.
- Be aware of ways to improve rice seed production and conservation.
- Be familiar with a number of rice cultivars that respond to certain production objectives and specific constraints.
- Select cultivars for evaluation, as a function of site-specific problems or needs identified.



### 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. Discussion of farmer rice seed production practices. The facilitator stimulates a debate on the following topics and pays attention to *differences in practices* among farmers:
  - What is seed?
  - What is the difference between rice seed and paddy?
  - How do farmers obtain their seed? What is the relative importance of seeds produced on-farm and other sources of supply? What are the other sources?
  - How do farmers produce their seeds?

- ① Identify farmer seed production practices.
- ② Identify farmer seed conservation practices.
- ③ Present basic seed production and conservation techniques.
- ④ Discuss the characteristics of good-quality seeds.
- ⑤ Conduct a demonstration of a seed germination test.
- ⑥ Identify varieties cultivated by farmers and the changes over time and why these changes have occurred.
- ⑦ Introduce new varieties that correspond to site-specific objectives and constraints.
- ⑧ Introduce farmer experiments (with a sub-group of volunteer farmers).

## Module 5

### Using good seed and rice varieties

- How often do farmers renew their seed? What are the reasons for changing seed and what are the sources of good seed?
  - Are there farmers who specialize in rice seed production? What techniques do they use? What quantities are produced and what are they used for?
  - What are major constraints related to rice seed production and distribution?
4. Discussion of farmers' rice seed conservation practices. The facilitator stimulates the debate by addressing the following topics:
- How is seed harvested and threshed?
  - What are the conservation and storage techniques?
  - What are the major constraints to seed conservation?
5. The facilitator introduces a discussion on techniques of rice seed production and conservation (Reference 9):
- Observation of the plot:
    - Identify areas within the field with vigorous, homogeneous plants that correspond to the desired variety characteristics;
    - Remove abnormal plants;
    - Remove weeds and diseased plants.
  - Activities during harvesting: harvest separately plants that represent the characteristics of the variety in terms of size and color and that are disease-free.
  - Dry the rice.
  - Thresh the rice.
  - Winnow the rice.
  - Conserve the rice.



## Module 5

### Using good seed and rice varieties

6. Farmers discuss the characteristics of good-quality seed and pay particular attention to seed purity, odd grain type and extraneous objects, and homogeneous shape and color.
7. The facilitator stresses the importance of conducting a germination test before sowing and demonstrates how to conduct the test: put a cotton towel in a plate, wet the towel, put 100 seeds on the towel, cover the seeds with another towel, put the plate in the shade and add water if necessary (Reference 9).
8. Discussion about rice varieties grown by farmers. The facilitator stimulates the debate by addressing the following topics:
  - What are the varieties that farmers currently grow?
  - For how long have these varieties been cultivated?
  - Are there specific varieties grown for commercial purposes and others for home consumption?
  - How are varieties chosen and who chooses them?
  - Do cropping practices differ by variety? If so, how?
  - What varieties were cultivated in the past? Why are they no longer cultivated?
  - What are the most important characteristics of the major rice varieties?
9. The facilitator proposes a set of new varieties, which meet farmers' major production constraints and needs (Reference 10):
  - If iron toxicity is often a major constraint, varieties tolerant to iron toxicity will be proposed.
  - If there is poor water control, varieties more resistant to flooding may be proposed.
  - With good water control, high-yielding varieties may be proposed.
  - Where rice is cultivated mainly for home consumption, varieties generally appreciated for their good taste may be tested.
10. The facilitator leads a discussion on the principles of farmer experimentation (Reference 17).<sup>1</sup>
  - He/she explains the importance of reflecting thoroughly on the 'reasons' for conducting an experiment; i.e. what does the farmer intend to find out through experimentation? What is the objective and what are the hypotheses?
  - He/she elaborates on the treatments involved, i.e. the various new varieties to test and the need to include the local variety or practice for comparison.

---

1. This is a first introduction to farmer experimentation. This topic will be addressed again in Module 12 when dealing with the layout of experimental plots. As a rule, the whole group of farmers can take part in the experiments, but in practice it is better to have a smaller group of farmers, e.g. some 10 farmers, who are actually interested in the experiment and agree to spend some of their time on that as well as to share information with other farmers (Reference 17).

## Module 5

### Using good seed and rice varieties

- He/she stimulates the discussion on the conditions for experiment: the place, seed quantities, farmer management practices, etc.
  - He/she gives first ideas about monitoring of experiments and the role of the group of farmers that will conduct the experiments, he/she also elaborates on the need to organize regular field visits and to share information during the experimentation.
  - Farmers will choose the specific type of experiment they want to conduct. As a rule, a farmer will not register for more than one type of experiment. If he/she is interested in several types of experiment, the facilitator will help them to make a priority choice.
11. 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.
12. The facilitator asks volunteer farmers to conclude the session, and then invites farmers to the next session.



#### Time required

- Two to three hours



#### Materials required

- Strong packing paper and markers.
- Seed samples.
- Plate and cotton towel for germination test.

## Module 5

### Using good seed and rice varieties

#### Box 5

The discussion on varieties and seeds in Bamoro is summed up as follows:

- Most farmers said they select part of their rice field that will be used for seed production to be used the following season. To select this part, they mainly rely on plant size: they normally prefer plants of a ‘good height.’
- Other farmers (a minority) do not do that but they harvest all the paddy without distinction and keep part of the paddy, which will be used as seed the next season.
- The quantities kept as seed vary from 10 to 50 kg; whatever is not sowed will be consumed or sold.

Farmers explained that they normally do not renew their seed. Farmers change varieties when there is a higher demand for a new variety, i.e. the ‘market’ pays a better price for a certain variety. All farmers currently use Bouaké 189; some have been using this variety for 18 years, others for 3 years only; some farmers also buy seed when they consider that it is no longer of good quality or if conservation has not been adequate.

The discussion continued on seed conservation practices. The following techniques were mentioned for seed conservation: jars well covered and inside the house, bags hanging in the house, bags in the granary. Because of devastation caused by rats, sacks or jars are closed tightly. It is important to adequately dry the seeds before storing them, otherwise there is risk of mold and germination will be poor. Conservation in sacks is not considered good practice, because the risk of mold is too high; also, the rice at the bottom of the sack can heat up when seed is not properly dried.

- The question was asked as to whether farmers produce seed for others. Farmers said it could be a good idea to provide seed to farmers who failed to produce their own seed. However, farmers do not think of ordering seeds beforehand (the idea of a seed purchase arrangement with a seed producer did not attract them and purchase is clearly a last resort when personal seed production has failed).
- Presently, Bouaké 189 in particular, is cultivated. There are a few farmers who tried or who still cultivate small quantities of WITA 1, 3, 7, 8, 9 and 12 and Tox 31. The ‘old’ varieties that were cultivated before, such as IR5, Omaroso, Malodjan, Djouknin and Gambiaka, have a longer cycle than Bouaké 189. Growing Bouaké 189 means that a farmer can in principle grow two rice crops on the same field in a year if water is available. Farmers especially appreciate Bouaké 189 for its high yield, medium duration, resistance to diseases, adequate tillering and good resistance to iron toxicity.

