

## **Practical guide: harvest procedure for pearl millet trials managed by farmers**

### **1. Planning for harvest**

All the farmers in a village who grew a trial agree on a day for the harvesting, involving others as necessary or helpful (NARI, NGO, UP, extensor service). It is advisable to avoid the days of the weekly market, or holidays. It is advisable that one person with appropriate experiences works with the farmers, especially during the first year(s).

### **2. Preparing harvesting bags and labels**

It is highly advisable to prepare the harvest bags and labels before reaching the trial field. One bag per plot, each with two labels is required. Write the plot number, trial and village ID on the bag, and on the two labels. The labels and the bags have the same information written on them. One label will be put inside the bag, and the other one attached to the outside of the bag. Pieces of paper are sufficient for this. Please use a black water and light resistant marker for writing on both, the bags and the labels.

### **3. Presentation of the trial and the harvest procedures**

To ensure a good harvest, it is essential that everyone who is harvesting knows the layout of the trial and the harvesting procedure. Thus the owner of the trial field explains in which direction the plots have been sown. The supervisor may explain details of the harvest procedure.

### **4. Marking the rows for harvest and counting of hills to be harvested**

In case not all the rows in each plot are to be harvested, the first plant of each of the rows to be harvested is bent down. Once all the rows to be harvested for each plot have been identified, we proceed to counting the hills to be harvested. The number is recorded on the labels and bag, or directly in the fieldbook. Any anomalies, like missing rows, possible sowing errors, or damage to parts of the plots shall be noted in the fieldbook, in the column for remarks.

Place the harvest bags and the two labels each in front of each plot. Check that the number written on the bag and the label correspond to the plot number in the field, and the plan.

### **5. Harvesting panicles**

Once the rows have been identified, harvest can begin. If the plants grow very tall, it may be advisable to first cut or bend the plants, before cutting off the panicles. Ensure that plants belonging to the same plots are cut, or bent into the same directions, within their plots.

All panicles with mature grains from the designated rows shall be harvested, including those that were damaged (by birds, ruminants, or others). The harvested panicles are placed on top of the harvest bag. Please check carefully that all panicles have been harvested, before starting the counting of the panicles.

### **6. Counting panicles**

All harvested panicles shall be counted, as long as they have mature grains on them. If many panicles are damaged, please estimate the total number of fully damaged panicles, as precisely as possible. All panicles, even fully damaged ones will be put into the harvest bag after counting.

Please note the number of panicles harvested, and if necessary the number of empty panicles carefully estimated.

### **7. Observations during or just after harvest is completed**

While the panicles are lying on the harvest bag, a visual evaluation of them is highly appropriate, as varietal differences may be very clear. Please choose with the farmer who is growing the trials the characters/traits he would like to observe and note, and agree on a scoring system. Please note any specific observation the farmer may have.

### **8. Storing and drying harvest bags**

Once the evaluations and the counting are finished, the harvested panicles can be placed inside the harvest bag, with one of the labels inside of the bag, and the other label is tied to the outside of the bag. The bags are carried to one spot near the edge of the field, where they can be picked up for transporting to the place where they can be dried and possibly threshed as well later on.

### **9. Weighing**

Before starting the threshing, ensure that all the bags are placed in the order of the plots, as in the fieldbook. The next step is the weighing of the harvest, with appropriate precision. Then the panicles from one bag at a time are threshed and winnowed and weighed again.

For recording the weights correctly, please use a balance that has a precision of best 10g, at the least it should be 100g precision. *Please do not use balances that only show 0.5 or 1 kg differences.* While weighing ensure that you weigh the panicles, or the grain, without the weight of the harvest bag. If the harvest bags are not all the same, the panicles or the grain will have to be removed from the bag for weighing, and then returned to their respective bags. Weigh the grain, or panicles always in the same plastic tub or bucket. The tub should be resting stably on the weighing table, and be well centered. The balance should be standing on level ground (if your balance has an indicator: the bubble should be in the middle of the black ring). Please ensure that you are weighing only in a wind free place, as the wind may catch the weighing tub, and thus change the weights. If necessary, organize a big cardboard box to place the balance inside. Record the weights always in the same units, best in grams. Please note the unit with which you are weighing in the fieldbook columns for panicle and grain weight.

### **10. Threshing**

As pearl millet grain are quite small it is important to ensure that the panicles are not threshed inside a mesh-plastic bag, as the grain can slip out. It is best to use a heavy cotton bag for threshing, by beating the panicles inside the bag with sticks. Before putting the panicles in the bag for threshing, they should be weighed (panicle weight). When removing the grain from the threshing bag, it can easily be separated from the most of the chaff, and then weighed again (grain weight).

### **11. Grain storage**

The threshed grain can now be used for any possibly culinary evaluation, and may be stored for this purpose, or otherwise consumed by the family. The threshed grain will germinate, if sown again, but the variety may change. If you are interested to obtain seed of a specific variety, please do not hesitate to send a request to the project partners.