

RICE SAMPLING PROTOCOL

FIELD PROCEDURE

1. Familiarize the field team with the **Precautionary Notes on Avoiding Contamination**.
2. Harvest panicles manually (120 days after planting), only from upright and unlodged plants.

IN THE LABORATORY^a

3. Manually thresh the panicles and place the fresh grains in clean, unused, properly labeled brown paper bags.
4. Dry the rough rice in an oven at 35–45°C for up to 3 days to achieve a moisture content of 12–14%. (To minimize grain breakage or fissures, avoid overdrying; periodically monitor the moisture content of the samples). Allow the dried grains to equilibrate for about 3 days. To obtain optimum milling yields, after drying, store the rough rice in clean sacks or bags for at least 2 months after harvest.
5. Collect a representative sample of 50–120 grams of rough rice (refer to *Collecting a Representative Sample* and Figure 1 in **Precautionary Notes on Avoiding Contamination**), depending on which mill will be used.
6. To date, no dehuller has been identified that does not contaminate a sample. Two alternatives can be used for dehulling paddy grains^b:
 - *Manually remove hulls with clean Teflon-covered forceps.*
 - *Replace the contaminating compound on the Satake THU-35A dehuller with noncontaminating PVC compound (contact Dr. Stangoulis for details on this product) and then dehull the grains.*
7. The following mills^c tested by the International Rice Research Institute (IRRI) can be used to mill large samples (>70 grams) of brown rice:
 - *The McGill No. 2 friction-type mill or Grainman No. 60 (Grain Machinery Mfg. Corp, Hialeah, FL, USA) require 120 grams of rough rice and will produce approximately 60 grams of milled rice, depending on the quality of the grains and the moisture content before milling.*
 - *The Satake TM-05 pearling (abrasive) mill with abrasive mesh # 36 requires at least 50 grams of rough rice to achieve a milling degree and quality similar to that produced by the Grainman mill.*
 - *The modified Brazilian-made Suzuki rice dehuller and polisher can mill a sample as small as ~10 grams. (Contact Dr. Barry for details on this mill).*
 - *A modified Kett mill will take a very small (<10 g) sample size. (Contact Dr. Stangoulis for details).*

(continues ►)

8. Collect 2–5 grams of milled rice. Package samples in clean, new, properly labeled, paper #1 coin envelopes, and store them in a cool (20°C), dry, insect-free location until ready for analysis.

For more information, contact:

Dr. Gerard Barry, HarvestPlus Rice Crop Leader (g.barry@cgiar.org)

or

Dr. James Stangoulis (james.stangoulis@flinders.edu.au)

^aThis sampling protocol was adapted from a manual developed by Professor Bienvenido O. Juliano for the Asian Development Bank's Micronutrient Project: Breeding Rice for Better Iron Nutrition The manual can be obtained from Dr. Stangoulis or Dr. Barry.

^bAvoid any soil, hull, or bran contamination, and avoid touching the brown rice with your bare hands. If required, use powder-free plastic gloves, not rubber gloves.

^cClean the mill thoroughly after each sample.