MAIZE SAMPLING PROTOCOL

FIELD PROCEDURE

1. Familiarize the field team with the **Precautionary Notes on Avoiding Contamination.**
2. Before harvesting, cover the ears with clean paper bags to avoid iron contamination from dust or soil (for example, if the plant lodges during a severe storm).
3. After the crop has reached physiological maturity (80–120 days after planting), harvest enough cobs to give a representative sample. For open-pollinated varieties, harvest 100 randomly selected ears and thresh ear-to-row to make a balanced bulk; for fixed inbred lines, harvest 3–10 good ears and thresh in bulk.

IN THE LABORATORY

4. Remove the husk from each ear manually, using a clean instrument such as a high-quality stainless steel knife or a plastic stick.
5. Store the husked ears in a clean basket with a loose cover (or a clean woven-plastic bag used solely for this purpose).
6. Place the husked ears on clean plastic drying trays. (If wooden trays are used, prevent contamination by placing the husked ears in clean, unused brown paper bags before placing them on the trays). Dry samples at 40°C for 5 days in a clean, contaminant-free and uncorroded oven. (Ovens used to dry samples for iron analysis should NOT be used to dry other samples, such as soil and root tissues, which may leave contaminant residues in the oven).
7. Shell the husked ears with clean, bare hands or wearing contaminant-free gloves. Place kernels onto a clean plastic tray and thoroughly mix kernels. Collect a representative sample of approximately 250 grams (refer to *Collecting a Representative Sample* and Figure 1 in **Precautionary Notes on Avoiding Contamination**).
8. Grind kernels to fineness (grains must pass through a 30-mesh sieve) using a noncontaminating mill (such as a Retsch mill with Teflon chambers and zirconium balls or an IKA A10).
9. Collect a subsample of 25 grams for analysis. Package the samples in clean, new, properly labeled brown paper bags, and store them in a clean, dry, insect-free location until ready for analysis.

For more information, contact:

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