

# Production Guide for Maize: Post-Harvest Storage



## Introduction:

Post-harvest storage is a crucial stage in maize production to prevent quality deterioration and losses due to pests, diseases, and adverse environmental conditions. Proper storage techniques are essential for maintaining the nutritional value and marketability of the harvested maize. This guide provides comprehensive information on post-harvest storage practices for maize, including storage options, preparation, moisture management, pests and diseases control, and monitoring.

## Storage Options:

### 1. Storage Structures:

- Silos: Metal or concrete silos are excellent for large-scale storage, ensuring protection against rodents, insects, and adverse weather conditions.
- Cribs: Traditional wooden cribs are suitable for small-scale farmers and are cost-effective. However, they need regular maintenance and protection from pests.
- Bags: Polypropylene or jute bags are commonly used for small to medium scale storage and transportation. They should be clean, dry, and free from holes to prevent mold growth and insect infestation.

### 2. Storage Conditions:

- Temperature: Maize should be stored in a cool and dry environment, preferably below 15°C (59°F), to minimize mold growth and inhibit insects' reproductive activity.
- Relative Humidity: Maintain a relative humidity of 13-14% to prevent moisture condensation and mold development.
- Ventilation: Proper ventilation is crucial to avoid moisture build-up and maintain good airflow within the storage structure.

## Preparation for Storage:

### 1. Drying:

- Harvest maize at the appropriate moisture content (between 14-15%) to prevent spoilage during storage.
- Dry maize until the moisture content reaches 12-13% for long-term storage, as lower moisture levels reduce the risk of mold growth.
- Use mechanical dryers or sun drying methods, ensuring that grains are turned regularly for even drying.

### 2. Cleaning:

- Remove any foreign matter, damaged grains, and weed seeds from the maize to minimize contamination and pest infestation.
- Use sieves or winnowing to separate smaller particles, chaff, and debris from the harvested maize.

## Moisture Management:

### 1. Moisture Testing:

- Regularly monitor the moisture content of stored maize using a moisture meter.
- Target a moisture content of 12-13% for long-term storage and adjust ventilation and drying methods accordingly.

### 2. Aeration:

- For larger storage structures, consider using aeration systems to circulate air, control temperature, and maintain uniform moisture content.
- Introduce airflow through perforated ducts or fans to prevent heat build-up and reduce the risk of moisture condensation.

### Pests and Diseases Control:

#### 1. Insect Control:

- Use synthetic insecticides, such as grain protectants, to control and prevent insect infestations. Follow recommended dosage and safety guidelines.
- Practice proper hygiene and cleanliness to minimize pests' attraction and breeding sites.
- Regularly inspect stored maize for signs of insects or pest damage, such as webbing, tunnels, or live insects.

#### 2. Rodent Control:

- Apply rodent-proof measures, such as using tight-fitting lids, wire mesh, or traps, to prevent rodent access to stored maize.
- Keep the storage area clean and free from spilled grains or debris, as rats and mice are attracted to food debris.

### Monitoring:

#### 1. Storage Inspection:

- Regularly inspect the stored maize for signs of mold growth, insect infestation, or temperature variations.
- Remove and dispose of any infected or damaged grains promptly to prevent further spreading.

#### 2. Record Keeping:

- Maintain records of storage conditions, moisture content, and any actions taken to address issues during storage.
- This information will help in evaluating storage practices and making improvements for subsequent harvests.

### Conclusion:

Efficient post-harvest storage practices are crucial to preserve maize quality, minimize losses, and ensure a steady supply for market demands. By following the recommendations provided in this production guide, farmers can effectively manage post-harvest storage for maize, reducing spoilage, and ensuring a profitable outcome.