

# Improved grain storage structures

## Recognize the problem

A number of losses occur after harvest in maize. Losses may occur during threshing, winnowing, drying, transporting and processing, by attack of termites, rodents and domestic animals, especially when maize overstays in the field after maturity. However, poor storage is the main cause of post-harvest losses. Poor storage can make the grains turn brown and lose quality, or even rot. The grains can also be eaten by insects and mice.

## Background

To preserve quality, maize can be stored in bins. These can be made from mud, cement, bricks or ferrocement (ferrumbu). Traditional storage bins are made of light branches, split bamboo or other types of sticks. These bins can be improved by plastering both inside and outside with mud or cement mortar which reduces the temperature inside the bin. This also prevents the entry of insects such as the larger grain borer or maize weevils. However, please note that insects could have also been brought in with the harvest. All storage facilities should be waterproof to protect the grain from groundwater and rainwater.

Concrete made bin for grain storage.



## Management

- Select a suitable site for construction near the homestead under the shade, and where no water flows during rain
- Gather materials such as cement, sand, stones, bricks, a hoe, a shovel and water
- Clear the construction using a hoe and shovel
- Make a stone topped foundation of 25-30 cm with cement mortar or a concrete slab and cover with a plastic sheet if available
- The bin walls are built 1-1.5m high with burnt clay bricks and plastered with either mud or cement mortar although mud bricks may also be used
- A brick-sized chute for removing the grain is set into the first row of the bricks as the walls are built
- The structure is plastered with mud or cement mortar both inside and outside
- The grain is filled into the bin from the opening on top
- The bin is closed with a concrete lid.
- When finished, protect the storage with an overhanging detached roof or even a permanent roof structure against rain.

The recommendations in this factsheet are relevant to: Zambia



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Edited by Plantwise.