

How to avoid grain post-harvest losses

It is estimated that around 37 percent of food is lost annually in Sub-Saharan Africa, with 76 percent of that occurring during handling and storage due to poor infrastructure.

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Mindless handling of harvested grain leads to significant losses to farmers and negatively impacts food security.

The Food and Agriculture Organisation (FAO) estimates that up to 30 percent of grain in places like Sub-Saharan Africa is lost often due to poor infrastructure, handling, storage, and market access, resulting in reduced farmer income and food insecurity.

Some other estimates actually indicate that around 37 percent of food is lost annually in Sub-Saharan Africa, with 76 percent of that occurring during handling and storage due to poor infrastructure.

In another report produced by FAO, it was estimated that if all value chain stages up to consumption are considered, approximately one third of all human food produced yearly is wasted or lost.

"On average this amounts to around 1.3 billion tons of food, valued at nearly US\$ 1 trillion (FAO

2016 and 2019a), a figure that is unacceptable."

In another report published by the World Bank and FAO (2011), the value of grain post-harvest losses in Sub-Saharan Africa was estimated at US dollars 4 billion per year. Every effort must therefore be made to reduce the enormous post-harvest losses.

Uganda is a Sub-Saharan country where smallholder farmers are the majority.

The global postharvest loss reports mentioned above are about the country.

"Those are the losses made annually and they undermine efforts to reduce poverty and food insecurity.

Experts say we lack access to improved post-harvest management practices, innovations, and essential technologies, including equipment, machines, and technical and business skills.

Climate change

Climate change has caused unpredictable weather patterns and quite often farmers are forced to harvest such crops as beans and maize during rainy periods and store them in their moist state, leading to damage during threshing and mold during storage.

A science research report published December, 20 2025 in *The Guardian* said, "The destruction of food supplies by crop pests is being supercharged by the climate crisis, with losses expected to surge, an analysis has

concluded. The key global crops, wheat, rice and maize, are expected to see the losses to pests increase by about 46 percent, 19 percent, and 31 percent respectively when global heating reaches 2C, the scientists said."

The Guardian article authored by Environment Editor, Damian Carrington, revealed that global heating is helping insect pests thrive. It further says greater warmth enables pests to develop faster, produce more generations each year and attack crops for longer as winters shorten.

Protecting harvested crop

The Executive Director of the Mpigi-based SAWA Agricultural Development Company, Charles Katamba, says farmers must be taught how to protect their harvested crops from pests and rodents to reduce losses.

He is also quick to mention that post-harvest losses are in many cases caused by careless handling and lack of storage space and equipment.

"Crops such as beans and maize should not stay too long in the field after attaining maturity," he says. "The birds may feed on the maize when it is in the field which means losses to the farmer. Crops such as beans should be harvested when they reach maturity and show symptoms like yellowing or when completely dry. The harvesting should not take place when it is too hot after midday to avoid pod shattering in the field and reduce yields. Harvesting of beans should

not take place when it is raining and the beans are wet as this will transfer pathogens to other uninfected areas within the farm."

He also says farmers should not leave beans to over-stay in the field after maturity and start shattering in the field. The beans that drop in the field get lost to the farmer.

According to the agriculturalist, harvested beans should be dried on clean mats or tarpaulin and should be threshed by beating with sticks, taking care not to damage the beans. After threshing the beans or seeds should be winnowed, dried and sorted before storage.

With regard to storage, Katamba recommends that farmers should obtain pic bags which are purposely made for protecting grain against pest attack.

"After ensuring that the beans are sun dried for at least three days,

the beans should be sorted and put into pic bags and tightly closed by trying to prevent sufficient oxygen from getting into the bag," he says.

"Insect pests cannot thrive where there is no oxygen."

Another tip is that bags should be placed on a raised platform - and not too close to walls - to avoid contact with the ground as this could cause moulding.

Accordingly, Katamba adds, farmers should remove any rubbish and cut the grass around the store to discourage rats and other rodents from gaining entrance into the store.

"Beans should never be dried on the bare ground as they can get dirty and wet. There should always be somebody to guard the beans spread out to dry under the sun to cover them with tarpaulin or to remove them in case it rains," he says.

The beans or the maize drying under the sun must be protected from domestic animals and birds such as chicken and ducks which may walk over them and drop excrement over them.

"Beans must be winnowed to remove chaff, dust, and whatever other foreign matter. I also encourage the use of indigenous knowledge to protect grain which requires frequent sun drying. Drying must be done on clean tarpaulin and the beans or grain should be thinly spread on the drying surface to facilitate free passage of air."

Consultation key

Katamba also advises farmers to consult the area agricultural services extension officers for advice on which pesticides to apply on harvested grain and carefully apply the pesticides strictly according to user directions set by the manufacturer.

"Most of our farmers cannot individually afford moisture meters. But if they form groups and save together, they can buy a moisture meter which they can use in turns to find out if their beans are dried up to the recommended level of about 13 percent."

The absence of technology to measure moisture content and facilitate proper drying of crops before storage results in moulding of the crops and health hazards for the consumers. Where farmers keep the beans in ordinary bags there is a big risk of high post-harvest loss especially through fungal growth during storage.

Some farmers protect their grain against pests by putting it in plastic containers and tightly covering them. Other farmers employ local welders to fabricate metal containers which they tightly cover to prevent pest multiplication and survival due to lack of oxygen.

Frequent price fluctuations also contribute to post-harvest losses. When the crop prices fall, the farmers usually decide to hold on to the crops until the prices improve. But it may take too long before this happens and the crops may dampen and mould. Lack of cold facilities and quick transport means to markets cause losses to farmers who harvest fresh beans.

A farmer sorts beans before storage. Post-harvest losses are in many cases caused by careless handling and lack of storage space and equipment. PHOTO/MICHAEL J. SSALI

