

RESEARCH ARTICLE

Methods of grain storage in Jabalpur region

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ABSTRACT

A survey was conducted in Panagar, Mahrajpur, Lakhadon and Bargaht villages of Jabalpur to find out the storage practices prevalent in the adjoining area. Information regarding the nature and capacity of the storage structure, material used for construction and the extent of losses to crops stored was collected. Kothi, Bunda, Mandulia, Jute and Polypropylene bags are commonly used for grain storage. An average loss of 2% occurs during the storage period. Jute and Polypropylene bags are gaining popularity as these are light in weight and easy in handling.

Keywords: Bunda, Jute, Kothi, Polypropylene bags, cereal storage

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INTRODUCTION

Storage of food grains has been an age long practice with cultivators and traders. In India, about 70% of farm produce is stored by farmers for their own consumption (FAO, 2013). Farmers store grain in bulk, using different types of storage structures made from locally available materials. The pre-treatments necessary for better storage life include cleaning and drying of the grain. Storage structure design and its construction also play a vital role in reducing or increasing the losses during storage. Storage losses constitute a major share of food grain loss in post production operations (Chouksey, 1985).

Considerable losses both in quality and quantity of food-grains take place in storage due to a number of factors. Organisms directly responsible for causing loss in stored products are insects, mites, rodents, fungi and bacteria. Pest-free storage is essential for handling crops at harvest time and to carry over reserves from year to year.

Losses of food grains may occur because of many reasons. During harvesting, handling, processing and transport grain may be scattered, dispersed or crushed. During the transportation and handling, the grains may be subject to mechanical injury which may result in bio-deterioration during the storage. Post harvest losses due to bio-deterioration may start as the crop reaches physiological maturity, i.e. when grain moisture contents reach 20-30% and the crop is close to harvest. During storage, quantitative as well as qualitative losses occur due to insects, rodents, and micro organisms.

Farmers store their produce in the locally manufactured storage structures. The storage capacity of such structures is generally low and it is difficult to maintain the proper environment for longer storage. As a result, the storage life as well as the quality of the food grains stored in such structures is low (Mishra, 2012).

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MATERIALS AND METHODS

A survey was conducted at Panagar, Mahrajpur, Lakhadon and Bargaht villages in the Jabalpur districts to collect the information regarding the types of the crop grown, method of the storage adopted, the capacity of the storage structure and the extent of the losses in the storage structures used by the farmers. A proforma was developed and it was used to collect the information about the grain storage structure and the losses of the food grain during storage (Table 1).

Table 1: Test proforma for the collection of data

S. No	Name of farmer	Area	Crops grown	Storage method	Capacity (quintal)	Extent of losses
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RESULTS AND DISCUSSION

Storage structures presently use in Jabalpur region

In the villages surveyed under present study, it was found that both males and females are engaged in agriculture and allied works. On an average 53% of the total manpower engaged in agricultural work were male. Major crops grown in Panagar, Mahrajpur, Lakhodon and Bargah villages of Jabalpur region are wheat, pulses and paddy.

Kothi, Bunda, metal bin, manduilia and drums (plastic and metal) are the most commonly used structures for the storage of farm crops in selected village of Jabalpur region. Gunny and polypropylene bags are gaining popularity among farmers of the region because of the ease in handling during transportation and storage. The storage capacity of the structures varies from 2 to 6 quintal. It was observed that an average loss of 2% occurred during the storage. Major causes of the losses are the rodents, spillage during the loading, unloading, and insect infestation.

Kothi is a circular shaped mud pot. Mud mixed with straw and dung was used to plaster the inner and outer surface of the Kothi. The capacity of Kothi varied from 1 to 4 quintals and duration of the storage is generally 1 to 2 years. Kothi is more popular in Panagar and Maharaipur villages of Jabalpur.

A bunda is a circular grain silo. It is an underground storage structure. Material used for its construction is bricks laid in cement mortar and plastered with cow dung. The capacity varied from 15 to 25 quintals. Duration of storage is 1 to 2 years. Bunda is more popular in Panagar and Maharaipur villages of Jabalpur.

In all the villages selected for survey metal bins are gaining popularity for the storage of the food grains. Material used for the construction is GI sheet. The capacity of the bins varies from 3 to 6 quintals. The duration of storage is 6 to 12 months.

The marketable surplus is commonly stored in gunny and polypropylene bags. The bags are commonly stored in interior rooms of the house. The maximum capacity of the jute and polypropylene bags was 50 kg. The storage period of the grains does not exceed more than a few months. Plastic bags are preferred over the jute bags as these bags are light in

weight and prevent the ingress of moisture from the outside. Bag storage is more popular in Lakanadon and Barghat villages of Jabalpur.

Nature and extent of losses

An average loss of 2% occurs during the storage. Stored grains suffer from both qualitative and quantitative losses during the storage. Major causes of the losses are moisture migration, insect infestation and rodent attack. The qualitative losses are due to the excess moisture and exposure duration of the grain to the moisture. This results in unpleasant development of taste and flavor.

CONCLUSION

Traditionally Kothi is being used for the storage of farm produce. The capacity of the Kothi varies from 2 to 4 quintals and the grains can be stored safely for 1 to 2 years. It is more popular in Maharajpur & Panagar villages of Jabalpur.

Bunda is generally made in those villages where ground digging is easy. The quantity of grain sufficient for the annual consumption and seed requirement for the next season is stored in Bunda.

Mandulia was often found in the region where paddy production is more than that of other crops. This is also found suitable for the storage of maize and millets.

A Jute bag with storage capacity of 50 kg is a popular practice for the storage of grains in the adjoining villages of Jabalpur. Polypropylene bags are also gaining popularity as these are light weight and resist the migration of moisture.

REFERENCES

- FAO. 2013. The Food and Agriculture Organization of the United Nations report, 2012-13.
- Chouksey, R.G. 1985. Bag and bulk storage of food grains at farmer's level. In: Storage of agricultural durables and semi-perishables. CIAE, Bhopal, 5556.
- Mishra, H.N. 2012. Grain storage method. IIT Kharagpur.