Indigenous grain structures and methods of storage

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The present study was undertaken to identify the various indigenous grain storage structures and the methods of storing grains in these structures in Dharwad district of Karnataka state. The storage structures were found to vary depending upon the climatic conditions and rainfall. The study revealed the use of Kanaja / Galagi, a bamboo structure very common in paddy growing areas. Sandaka is a wooden structure used to store smaller quantities of grains especially pulses for household consumption. Kothi is a proper room for storing large quantities of grains. Utranis are mud pots for storing small quantity of grains. Hagevu is an underground storage structure used to store large quantity of grains, common in the dry agro climatic zone where moisture level is low. Of the storage methods used, the study revealed the use of natural products like neem leaves, ash, smearing of cooking oil, salt, Bengal gram leaves, turmeric, garlic, chilly seeds and castor seeds for effective storage. Rural folk have designed their own structures and methods for storing grains with locally available materials. These eco-friendly and safe storage structures in use since a very long period have withstood the test of time.

Keywords: Indigenous grain storage structures, Indigenous grain storage, Traditional grain storage methods

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Women folk have accumulated knowledge of household practices over generations by observation, experimentation and by handling age-old people’s experiences and wisdom. Certain practices are unique to a given culture of a society and vary between countries, regions, villages and even communities. This knowledge of the people that has been tried and tested over generations has been termed as indigenous knowledge. Indigenous practices emanate from the cultural context of the people concerned and evolve in close contact with specific environmental conditions and are based on traditional societies intimate knowledge of their environment. These reasons imply that indigenous knowledge is eco-friendly and safe both to man and his environment. It is estimated that 60-70 per cent of food grains produced in the country is stored at home level in indigenous structures ranging from bamboo baskets to mud structures, gunny bags and modern bins. The containers are made with a variety of locally available materials and differ in design, shape, size and functions. The materials include paddy straw, wood, bamboo, mud bricks cow dung, etc. Proper storage of food grains is necessary to prevent spoilage, increase keeping quality and for monetary reasons. The practice of using natural sources for storage of various household items dates back to the very earliest periods of known history. There is evidence of ash, sand and herbs used in ancient civilization, which have been credited with mystical power for increasing storage life. Many of these practices find their credibility even in the modern era. The logic behind the use of this material is that they are user friendly and are also associated with scientific reasoning.

Methodology

The present study was undertaken to identify the various indigenous grain storage structures and methods of storing grains in these structures. The study was conducted in Dharwad district. Parts of the district fall in three agro climatic zones i.e., the northern transition zone, the dry zone and the hilly zone. The storage structures vary depending upon the climatic conditions and the rainfall.

Results and discussion

Some of the grain storage structures made from locally available material are:

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**Kanaja/Galagi**

This grain storage container is made out of bamboo, cylindrical in shape and the height varies (Fig. 1). The *Kanaja* is plastered with mud and cow dung mixture to prevent spillage and pilferage of grains. The top is also plastered with mud & cow dung mixture or covered with paddy straw or gunny bags. This structure is common in paddy growing areas of the transition and the hilly zones.

**Sandaka**

Boxes made out of wood are used for storing pulses and seeds, and smaller quantities of grains for home consumption (Fig. 2). These boxes known as *pettige* or *sandaka* have storage capacity of three to twelve quintals. A big lid is placed on the box and a small outlet is made on the lid to take out the grains. In some cases, partition is also made inside the box to store two or three types of grains. Legs of about 0.3048 m are fixed at the bottom of the box to keep it above the ground level to protect it from moisture. The box is regularly polished for its maintenance. This structure is quite common in almost all households of the district where the family grows a sizable quantity of grains.

**Kothi**

This is a proper room constructed with a large door for pouring grains (Fig. 5). A small outlet for taking out grains is provided at the bottom. This structure is used for storing jowar and paddy. It is found mainly in large landholding households i.e., where large quantities of grains are grown.

**Utrani**

These are mud pots used for storing small quantity of grains (Fig. 3). These pots made up of burnt clay by village potter, are of different shapes and sizes. The earthen pots are placed at the floor level and each pot is kept one on top of the other.

**Hagevu**

This is an underground structure used to store the grains (Fig. 4). It is a simple, dug out pit lined with straw ropes to prevent damage due to moisture. In some cases, *hagevu* is constructed with stones as an indoor structure. After filling the structure with grains to its full capacity, the jowar stalks are spread on top in a thick layer and the structure is finally sealed with mud plaster. In some cases, a small square or circular opening is provided at the top. The inlet opening is kept above the ground level. The advantage of this structure is that fumigation is not required for disinfections. Grain can be stored without damage from insects and moulds for a longer period and it saves space for storage. But it is not suitable for storage of seeds. This storage structure is suitable for dry agro climatic zones where moisture level in the soil is low and is mainly used to store jowar.

**Methods of storing grains**

Many people at domestic level use natural sources for storage purposes. Some ecofriendly methods of storing grains at household level are:

**Cereals**
- Jowar grains are sun dried thoroughly and filled up in gunny bags during cool early morning when dew is still present. If the grains are put during the hot hours insects develop.
- Cereals are mixed with neem leaves or ash and stored in gunny bags.

**Pulses**
- Pulses are first sun dried and then mixed with ash or chilly seeds, neem leaves, castor seeds or chilly powder.
- Pulses after drying are smeared with any cooking oil or preferably castor oil, and then mixed with ash.
- Pulses are sun dried and stored in cotton bags.

**Rice**
- Rice is mixed with neem leaves or salt.
- Turmeric and garlic are mixed with rice grains.

**Dhal**
- Thoroughly sun dried and stored.
- Dhal is roasted, cooled and stored in air tight boxes.
- Dhal or pulses are put in cotton bags and kept in larger storage structures like the bamboo structures, where large quantity of grains are stored.
- Bengal gram after sun drying is mixed with Bengal gram leaves and stored. The leaves prevent change in grain colour and insect infestation.
Conclusion

Rural folk have designed their own structures and methods for storing grains with locally available material. These structures made of bamboo; straw and other plant materials, allow free flow of air but cause insect infestation and damage by rodents. However, that the structures have been in use and are even in use today is proof that they have withstood the test of time and the greatest advantage is that they are ecofriendly and safe methods of grain storage.

References
