

**Example of best practices and available tools
for the use of indigenous and traditional knowledge and practices for adaptation¹**

Inputs provided by:

Food and Agriculture Organization of the UN

Title of practice/tool

Indigenous methods of seed storage in Nepal

Description of practice/tool

The local Community-based Organizations (CBOs), farmer cooperatives and farmer groups at local level practice traditional methods of seed storage. Such traditional methods should be identified and implemented at the community level for further evaluation and promotion. The traditional practices need locally relevant improvements to meet the emerging challenges such as increased fluctuation of weather and climatic conditions.

The traditional seed storage practices include: heap and kunio storage of maize, mat bin or Bhakari, mud bins (Deri or Kothi), earthen clay pots (Ghyampo), metal pots (Gagro), urmi or suli method (Maize), plastic bags/containers, and jute bags. The local materials used in seed storage are: neem, bojo, timur, marich, titepati leaves/powders for controlling stored grain pests, sun drying of seeds and cleaning through winnowing, rinsing containers with oils/kerosene, covering mouth of seed containers with ash and chaitaune (e.g. farmers of Kapilbastu). The improved seed storage structures/practices include: improved metal bins, split bamboo bins (Chitrako Bhakari), pusa bin (an improvement in mud bins), sealed storage containers, super grain bags, non-conditioned ventilated godowns, potato seed storage under diffused light, cellar stores for storing fruits, zero energy storage of vegetables/potato.

Sun drying is practiced by farmers for drying seeds before storing. Farmers dry seeds for about 4-6 times depending on the moisture content. Some farmers use storage containers cleaned with oil or kerosene, while others treat the seeds with indigenous plant materials like ash, neem, titepati, marich, bojo powders to protect seeds from storage pests.

The community based organizations (CBOs), cooperatives and farmers' groups often follow traditional methods of seed storage. These organized groups, however, face multiple difficulties. They possess non-conditioned store house to store large quantities of seeds on commercial basis; seed producing farmers' groups or cooperatives are limited, both in number and capacity and can serve farmers in accessible districts only to a limited extent. Agro-vets and some private dealers are the only agencies providing seeds in remote districts. However, due to roads and transportation related problems, they are not able to provide timely and required amounts of seeds of improved

¹ Please use this template for providing inputs related with one example. If you have more than one example, please provide them in separate files using this template.

varieties to farmers in those districts. At the moment, agro-vets are concentrating on vegetable seeds (mostly imported hybrids) while National Seeds Corporation (NSC) meets only 10% of the seed demand of farmers.

With the objective of creating a local knowledge base on seed storage, the FAO pilot project has facilitated identification and promotion of traditional out-door and in-door storage methods.

Traditional out-door storage structures:

- Bery/Bhakari (Made of bamboo splits and timber).
- Muja-ko Bhakari (made of straw/reed)
- Thungki (wooder-granary with roofing)
- Thangro (timber/bamboo drying/storage rack)
- Dhansar (a separate house made of timber and planks for storage, few big farmers are only using it)

Traditional in-door storage structures/containers

- Kath-ko Bhakari (made of wooden planks and plat form)
- Gundari-ko Bhakari (made of straw/ bamboo mats)
- Chitra/Choya-ko Bhakari (make of bamboo splits and strippings)
- Kotho (made of bamboo splits and strippings)
- Doko (made of bamboo stripping and splits)
- Dalo/Bamboo basket (made of bamboo stripping and splits as well as reeds).
- Dehari and Kothi (Mud-bins-respectively smaller and bigger in sizes).
- Gagro and Ghyampo (clay pots-respectively smaller and bigger in sizes)
- Dhukuti (mansony structure-brick wall Bhakari).

Field demonstrations were carried out on improvement in the use of poly-lined bags or polythene sacks inside the storage bin to eliminate the difference between internal and external environments. Likewise, the traditional seed storage containers such as dehari (indoor structure made from a mixture of mud, straw pieces, and dung) are modified with the use of polythene sheets on both sides of the structures and painting the external body with bitumen to disrupt the influence by changes in external weather. The rodent problem is found to be reduced by placing a strip of metal plate all around the base of these structures (about 10 inch height). The earthen pot "Ghyampo" (clay pots) for storing seeds are improved by painting the external body with white enamel and putting a double walled lid to control moisture content.

Overall recommendations to farmers included drying seeds to 8-10% moisture level in order to reduce incidence of storage pests; placing storage containers in a dry, damp-proof area with proper sanitation. In addition, storage containers should be located at least 30 cm away from the house walls and 30 cm above the ground placed in a wooden plank. These demonstrations were carried out for rice in Kapilbastu and Siraha and that on potato in Arghakhanchi; those for wheat were conducted in Kapilbastu, Siraha and Udaipur.

Region

- *Asia*

Country

Nepal

Sector

- *Food security, agriculture and fisheries*

Name of implementing institution/s

FAO

Further information

Nepal: Managing climate risks and enhancing resilience in Nepal

(<http://www.fao.org/climatechange/56995/en/>)

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