

Pradhan Mantri VanDhan Yojana

Promoting Tribal Enterprise through
Value Addition, Branding and Marketing of Forest Produces



Storage Plans for Value Added MFP Products – Van Dhan

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Storage Guidelines for MFP and Value Added Products - PMVDY

After the processing of Minor Forest Produce (MFP) in Van Dhan Vikas Kendras (VDVKs), the need for storing the value added products becomes imperative as they must be preserved until needed for consumption. This document provides guidelines specifying how locally processed items should be preserved.

Proper Storage Requirements:

- Any given storage system must be easy for maintenance and management.
- A good storage must be prevented from moisture and excessive air current.
- A good storage system enables free access in terms of regular check to access the state of the product.
- Any stored produce must be protected from pests, rodents and birds by allowing proper storage hygiene and maintenance.
- The storage facility must give ease of loading and offloading as the need arises. This is to create accessibility of the product.

Storage Methods:

Many people store their produce in the drying place itself which is not the right way of storage. Often the root or leaves are not dried properly which can cause harm if not stored properly. It is best to transfer the clean, dry produce to a cool, moisture-free place where rats and insects cannot follow. Warehouses are large houses or spaces that are commonly used as storage structures. They are especially constructed for the protection of the quantity and quality of processed agricultural products. The ways in which processed items can be stored are as follows:

Bag Storage: This is a very popular form of storage. Transportation of the product is done in jute bags, the bags are easy to handle and the jute bag allows you to store different items in the same room. The following should be ensured: -

- a. The storage room should be clean and free of all insects.
- b. Holes should be repaired.
- c. All old bags should be washed, shook out, and placed in the sun to dry to drive away any insects still in the sack, and should be regularly checked.
- d. The bags of produce should be neatly stacked on wooden racks away from the walls and off the floor. Bags should never lie on the floor or rest against the wall (see the Figure below) otherwise water from the floor and ground can enter into the bags and cause spoilage.

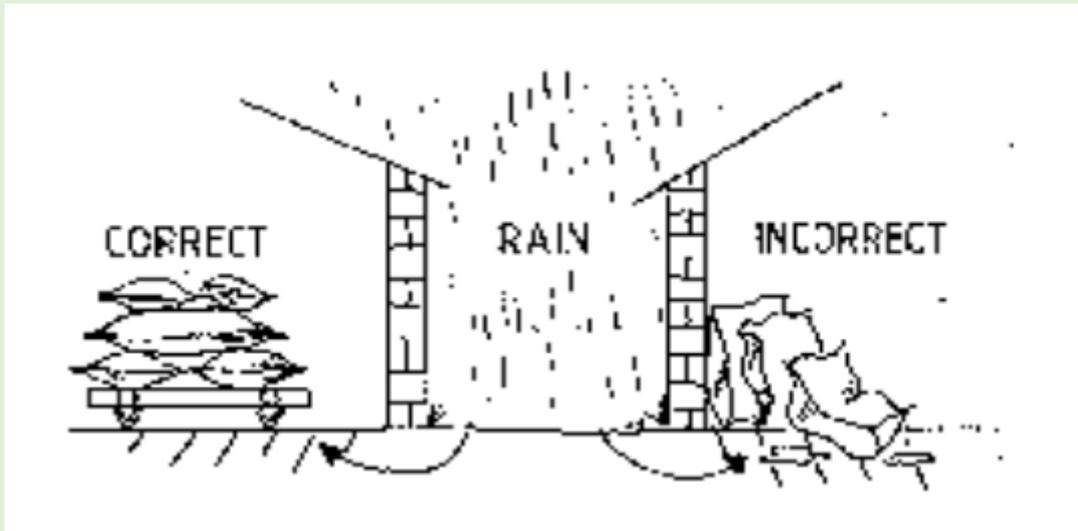


Figure: Sacks should never rest directly on the ground or against walls

For instance, dried Nagarmotha roots, dried Karanj, Kusum seeds, Neem seeds are suitable to be stored in jute/gunny bags at room temperature under moisture free conditions. Gum Karaya (graded) should be packed in heavy duty bags of about 80 kg each. The gum may be powdered and packed in 5 to 6 kg kraft paper bags or 75 to 100 kg fibre drums. Similarly, in case of guggul, the collected resin can be packed in sacks for transfer to points of sale.

Certain produce may also require polyethylene and perforated bags for storage. For instance, ground root powder of items is exposed to high levels of moisture and can be easily damaged by pests, thus lime coating and usage of polyethylene bags is suggested to preserve overall characteristics while storing them at room temperature.



Figure: Gunny bags (left) and Polyethylene bags (right) used in storage

Cold Storage: Certain products require preservation at low temperatures in order to increase their useful life. For instance, the storage life of bael fruit could be increased from 2 weeks at 30 degree Celsius to 12 weeks at 9 degree Celsius and 85-90% relative humidity. Amla fruits, which are highly perishable in nature, may be kept in cold storage for 7-8 days at 0-2 degree Celsius and 85-90% relative humidity. Dry Mahua flowers are stocked in cold storage before processing.

Air-tight containers: Oils, when not stored properly, can quickly go rancid. Air-tight glass jars are suitable for storing various processed oils such as Karanj oil, Kusum oil, and Nagarmotha oil. It is also fitting to store eatables like Mahua jam, bael jam, mahua jam, tamarind jam and their respective beverages (juice, pulp, squash) in air-tight containers. Items like gum karaya tend to form lumps when exposed to wet and humid conditions. Therefore, such items must be stored in sealed containers. Sal seeds (after separating varieties) are to be preserved in airtight containers under ambient conditions in order to prevent excess moisture (>6-8%) which damages oil quality.



Figure: Airtight jars used for storage

Special measures need to be taken to store certain items. For example:

- **Myrobalan**: Temporary sheds are often built to protect them from rains (rains harm the valuable properties of their fruits) and hence, the collected fruits need to be stored in well-ventilated containers/ baskets in damp-proof, cool rooms.
- **Wild Honey**: The extraction room or space needs to be exceedingly clean as well as the space where the honey supers or combs are stored prior to processing. Storage containers for liquid or crystallized honey should be made either of glass or stainless steel or coated with food approved plastic, paint or beeswax. Nothing should be allowed to impart any odour to the honey. Particularly if used containers are recycled, care must be taken that they are absolutely clean and have not the slightest residual odour. Containers previously used for toxic chemicals, oils or petroleum products should never be used for storing any bee products, even after coating with paint, plastic or beeswax. Storage rooms should have a temperature near 20 degree Celsius and a relative humidity of less than 65%. Storage of honey at more than 25 degree Celsius causes increasing quality loss with time, due to progressive chemical and enzymatic changes. Fermentation remains the major threat to unprocessed honey, whether it is liquid or crystallized. Therefore, storage

conditions have to prevent fermentation through either low temperature storage or by preventing further absorption of moisture. Even honeys which are not susceptible to deterioration by yeasts however, can be subject to other progressive alterations due to chemical and enzymatic action. Heat and sunlight (mostly the ultra violet (UV) spectrum) can destroy the quality of honey both in brief high exposure and in low level exposure over a long period of time. Some decay is unavoidable, but it should be kept to a minimum.
