

Commandments

for long and safe storage of pulses

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In earlier days, food grains were stored at household level as per domestic requirement. With the pace of development, the culture of domestic storage has steeply fallen down. Cultural shift compounded with ‘population explosion’ has left greater scope for long-term storage of food grains including pulses. Pulses production never reached before self-sufficient to meet out the balanced dietary requirement of average sedentary man in India (40 g pulses/day/person). Therefore, import and storage of pulses has become inevitable to reach the demand and stabilization of prices. The misconceptions on ‘pulses shelf life’ and their long-term safe storage needed to answer. This article looks into the directives that can be legislated for safe and long storage of pulses.

Keywords: Fumigation, Pulses, Safety, Storage

THE practice of pulses buffer stock was not popular before 2014-15 unlike other food grains. Shortage and shoot up in pulses prices forced Government of India to take decision on pulses buffer stock through import/procurement. Subsequently the prices of pulses came to normalcy with timely intervention of price stabilization and fund management committee. Now the situation has risen for long and safe storage of pulses buffer stock in godowns. Therefore, Department of Consumer Affairs has selected ICAR - Indian Institute of Pulses Research for providing data on present status of pulses buffer stock stored at different godowns present all over India.

A team from the ICAR-IIPR had visited more than 50 godowns across India and following recommendation/guidelines are suggested in brief for long and safe storage of pulses. The recommendation are discussed here.

Scrutiny and containment

The current protocol for pulses

import and procurement may allow the varietal mixtures at various moisture levels, which ultimately affect the grain quality in storage. The proper infrastructure must be established at the import and procurement locations for accurate grading and drying of pulses.

Decentralization of godowns

Imported or procured pulses are being transported to nearby centralized facilities during which transit losses and expenses are escalating. Establishment of localized facilities/godowns can prevent those transit losses and cost involvement.

Avoid drudgery and save time

Enormous energy is being spent for loading and unloading of gunny bags in godowns towards labour fatigue and time spent. This practice can be substituted by providing horizontal, inclined/vertical conveying system, hydraulic and fork lift infrastructure facilities at godowns. These improved facilities will prevent spillage losses along with saving energy and time.

Cost minimization

Government is spending a huge amount on maintenance of pulses stock at godown for storing and prophylactic/curative measures. Since, bruchid infestation starts from field and most likely the population carry-over to storage, both imported/procured pulses should be fumigated (pre-treatment) with Aluminium Phosphide (AIP) to kill the adult population before filling into the hermetic/vacuum packing bags. This pre-treatment operation not only reduces the initial bruchid population but also bring down the maintenance cost.

Safeguard fumigation

The present practice comprise direct placement of AIP tablets on bags for fumigation is highly unsafe. Instead, encouraging the usage of AIP sachets, which can be disposed after fumigation. Safety measure like wearing masks, gloves, caps etc. must be mandatory. The pesticide residue studies/report of pulses should be made mandatory before liquidation/delivery of the stock.

Prevent the punctures on storage bags

In existing storage system, bags are prone to punctures (due to handling with hooks and repeated sampling), which result in collapse of stacks, spillage of grains, bruchid entry etc. The novel storage bag must be designed that can hold at least 50 kg pulses in hermetic condition with one-way opening for sampling and grommet enabled holes at four corners of bag for hook lift provisions.

Promote machine stitched storage bags

The pillow formation of storage bags are generally observed in hand stitched bags leading to collapse of stack. Machine stitched storage bags provide space for grain movement within bags and prevent pillow formation. Moreover, machine stitched bags ensure the stability of stacks in godown.

Record on absolute data

Godown managers usually report gain in stored produce in terms of mass. The increase/decrease in moisture of pulses do not influence the gain/loss of pulses, as dry mass of pulses remains similar. A reliable methodology should be developed that determine the longevity of storage of pulses at specific location.

Store what we eat and eat what we store

The whole grain of pulses attracts more insect pest, moisture and microbes compared to split pulses. Therefore, storing the dehusked and split pulses in impervious bags is better option than storing whole grains.

No to millers/mediators

Investment incurred by government on procurement and

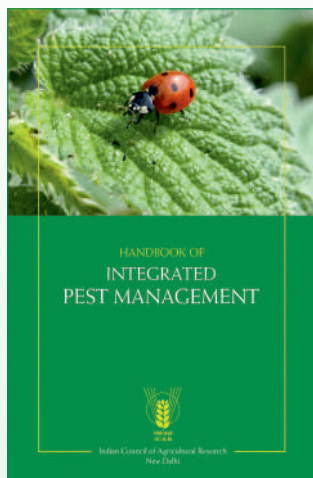
maintenance of pulses stock may become a liability as market prices are governed by wholesaler/ millers/ mediators. Upgrading the existing godowns with milling facilities (split grains can be tracked towards market to match the demand and control the commodity prices) could shift this scenario.

Storing pre-treatment (fumigation) pulses at appropriate moisture in hermetic bags allows long-term safe storage. Liquidating and subsequent procuring 1/4th of the stock will minimize the expenditure incurred on maintenance of the stock. We propose a concept “fill it – shut it – forget it” (it = pulses) in pulses storage.

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HANDBOOK OF INTEGRATED PEST MANAGEMENT

To reverse the loss of environmental resources and also to reduce biodiversity loss, the Government of India has Integrated Pest Management (IPM) as part of the National Agricultural Policy. Integrated Pest Management emphasizes the growth of a health crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms. IPM is not new – mechanical, cultural and biological tactics were used by farmers for hundreds of years before chemical pesticides became available. Besides, there are IPM techniques that have been developed more recently and are effective in suppressing pests without adversely affecting the environment.



The task of spreading the message of IPM across is tough due to poor awareness about the subject among people in line-departments as also among the farmers. The information on integrated pest management as a whole is scattered. This *Handbook* comprehensively deals with all the aspects of integrated pest management in field crops, horticultural crops under traditional, protected systems. Information on basic strategies and tactics of different methods of management including mass production of biocontrol agents, IPM policy and pesticide registration is provided in comprehensive form.

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TECHNICAL SPECIFICATIONS

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