

Review Article

STORAGE LOSSES IN FEED INGREDIENTS BY RODENTS AND ITS CONTROL

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Introduction

In feed mill godown control of losses is very important to improve the profitability of feed production. The storage losses are affected by several factors, which can be classified into two main categories: biotic factors (insect, pest, rodents, fungi) and abiotic factors (temperature, humidity, rain) (Abedin *et al.*, 2012). The post-harvest losses of wheat are estimated to the tune of 8 per cent of production. In this total loss of 8 per cent is due to threshing- 1.0%, transport- 0.5%, rodents-2.5%, birds-0.5%, insects-3.0% and moisture-0.5% (Sreeramulu *et al.*, 2005).

Biological Factors:

Biological losses of foodgrains is due to insects, rodents, mites, birds and properties of grains (Girish and Nayer, 1979). Post harvest losses in food grains has estimated the total loss about 9.33 per cent owing to unscientific storage wherein rodents, insects and micro organisms destroy food grains (Government of India, 1971). It is estimated that 6.6 per cent of food grains is lost in storage. Of this amount, 2.25 per cent is attributed to insects, 2.50 per cent to rodents and the remainder to birds and moisture (Moore *et al.*, 1973).

Rodents:

It consume the stored material and contaminate with excreta, hair and dead materials. Each rat void 10,000 droppings and 4 litres of urine annually. Each rat eats 8.5% of its body weight/day. The losses caused by rats are 2.5% of total stored products.

Among the various pests, detrimental to the well being of man is rodents, because of its economic importance.

The most important species of rats which cause considerable loss are:

- Bandicoot rat (*Bandicoota indica*)
- Indian mole rat (*Bandicoota bengalensis*)

- Indian field mouse (*Mus booduga*)
- Black rat or House rat (*Rattus rattus*)
- Brown rat or Common rat or Norwegian rat (*Rattus norvegicus*)
- House mouse (*Mus musculus*)

Rodents cause damage to stored food through direct damage, wastage and contamination (Drummond, 2001) and so affect both grain quantity and quality. Rats bring the quantitative loss to the tune of about 2-3 per cent in stored foodgrains, and one rat on an average consumes 10 kg of grains in a year besides contaminating more than 10 times, what it actually consumes due to its excreta and hair (Borker, 1985). The rat consumes about 26 gm of food/rat/day (Deoras, 1967). Mice also consume considerable quantities of grains, i.e. about 26 gm per week (3-4 gm/mice/day) and they render much grains unsuitable for milling (Row, 1962). According to the Central Food Technological Research institute, Mysore, six rats consume the food of one man. It is also estimated that 300 rats consume about a tone of foodgrains in a year.

Control:

- Hermetic storage: It is also known as sealed storage or airtight storage. It is used in developing countries due to its effectiveness and avoidance of the use of chemicals and pesticides. The method creates an automatic modified atmosphere of high carbon dioxide concentration using sealed waterproof bags or structures (silo). The hermetic storage units were themselves very efficient in killing the pests and insects without any use of phosphine fumigation (Costa, 2014).
- Keeping the store clean and remove any spilt grain.
- Store bags in tidy stacks set up on pallets.
- Store any empty or old bags and fumigation sheet on pallets, and if possible in separate stores.
- Keep the store free of rubbish, burn or burry it.
- Keep the area surrounding the store free of tall weeds.
- Keep the area in the vicinity of the store free of any stagnant water and common points of rodent entry into buildings.

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