

To measure extent of perceived loss of grains during storage in different methods in Tikamgarh block of Tikamgarh district of (M.P.)

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ABSTRACT

Agriculture is one of the strong holds of the Indian economy and accounted for 12.9 per cent of the country's gross domestic product (GDP) in 2014-2015, according to the central organizations (CSO) estimates. The post-harvest losses in India account to 12 to 16 million metric tonnes of food grains each year, an amount that the World Bank stipulates could feed one-third of India's poor. The monetary value of these losses amounts to more than Rs 50,000 crores per year. Keeping this fact in view the study's aims at evaluation of grain storage method which was carried out in six villages of Tikamgarh block of Tikamgarh district of Madhya Pradesh. Farmers from each village were selected by proportionate random sampling to make sample size of 120. Pre structured interview schedule was used for data collection by using personal interview method. The study revealed that grain loss in soyabean was maximum due to various factors when stored in gunny bag (6.63%) followed by gunny bags lined with polythene sheet (4.39%). Where as in case of wheat grains highest loss was seen in pucca kothi (4.97%) followed by gunny bags(4.17%),gunny bags lined with polythene (2.31%) and metal bins (1.71%). Among all storage methods less loss of food grain loss was observed in case of gunny bags lined with polythene sheet. However due to higher cost polythene lined bags these are used for small quantity. Hence it is suggested to use cheap and good storage method that will reduce grain loss and spoilage.

Keywords- Perceived loss and storage method.

Received 21.04.2019

Revised 28.05.2019

Accepted 01.07.2019

CITATION OF THIS ARTICLE

A Singh, A Singh, N K Maurya. Renewable Energy: An Assessment of Public Awareness in Jhans. Int. Arch. App. Sci. Technol; Vol 11 [2] June 2010: 15-17

INTRODUCTION

Agriculture is one of the strong holds of the Indian economy and accounted for 12.9 per cent of the country's gross domestic product (GDP) in 2014-2015, according to the central organizations (CSO) estimates. As a result of strategic approach followed after independence, the food grain production which remained at 51 million tonnes in 1951 has impressively gone upto 234 million tonnes in 2008-2009 [1]. The post-harvest losses in India account to 12 to 16 million metric tons of food grains each year, an amount that the World Bank stipulates could feed one-third of India's poor. The monetary value of these losses amounts to more than Rs 50,000 crores per year [5]. Natural contamination of food grains is greatly influenced by environmental factors such as type of storage structure, temperature, pH, moisture, etc [4]. Types of structure used, length and purpose of storage, grain treatment (eg parboiling) and pre-storage practices are all important variables affecting storage losses. The importance of these regional and crop variations immediately determines certain necessary characteristics of crop storage research [2]. For safe and scientific storage it is important to carefully select the storage site, storage structure,

undertake cleaning and fumigation, ensure proper aeration of grains followed by regular inspection of grain stock. Pest infestation in grains is affected by moisture content of grains, relative humidity, temperature, storage structure, storage period, processing, hygienic condition and the fumigation frequency followed. During storage, quantitative as well as qualitative losses occur due to insects, rodents, and micro-organisms. A large number of insect pests have been reported to be associated with stored grains. The occurrence and numbers of stored grain insect pests are directly related to geographical and climatic conditions, Almost all species have remarkably high rates of multiplication and, within one season, may destroy 10-15% of the grain and contaminate the rest with undesirable odors and flavors. Insect pests also play a pivotal role in transportation of storage fungi [6].

The major pests of stored grains include beetles (*Callosobrunchus sp*, *Trogoderma granarium*, *Tribolium confusum*), weevils (*Acanthoscel idesobtectus*), moth (*Corcyra cephalonica*) and rodents. The control measures include two types of treatment – prophylactic and curative. The prophylactic treatment involves the use of pesticides like Malathion (50% EC), DDVP (76% EC) and Deltamethrin (2.5% WP). Curative treatment involves use of fumigant Aluminium phosphide to control infested stock or godown in airtight condition. For controlling rodents rat cages, poison baits and use of rat borrow fumigation is recommended [3].

MATERIAL AND METHODS

The present study was conducted in Tikamgarh district of Madhya Pradesh. Tikamgarh district comprises of six blocks i.e. Tikamgarh, Niwari, Prithvipur, Baldeogarh, Palera, and Jatara. Out of 6 blocks one block namely Tikamgarh is selected for the study purpose because the information on various grain storage methods have already been disseminated among farmers of different villages of the block by the KVK scientists through organized training programmes. A village wise list of farmers was prepared. They were considered as respondents. The farmers from each village were selected by proportionate random sampling method to make a sample size of 120. Twenty farmers from each village were selected.

RESULT

Table -1 Extent of perceived loss of grains during storage in different methods

Food grain	Method of storage	Percentage losses on different factors				Total
		Insect	moisture	Rats	Bandicoots	
Soybean	1.gunny bags	3.25	1.25	1.72	0.41	6.63
	2.gunny bags lined with polythene sheet	2.86	1.53	0.00	0	4.39
Greengram	1.gunny bags	0.62	0	0.65	0.11	1.38
	2.plastic bags	1.12	0	1.08	0.4	2.6
	3.gunny bags lined with plastic	0.50	0	0.42	0	0.92
Urd	1.pucca kothi	0.00	0	0.00	0	0
	2.metal bins	0.00	0	0.00	0	0
	3.gunny bags	0.00	0	4.34	1.76	6.10
Wheat	1.pucca kothi	2.27	2.7	0.00	0.00	4.97
	2.gunny bags	1.14	0	2.27	0.76	4.17
	3.metal bins	1.71	0	0.00	0.00	1.71
	4.gunny bags lined with plastic	0.90	0	0.75	0.66	2.31
Bengalgram	1.gunny bags	2.23	0	1.87	0.12	4.22
	2.gunny bags lined with plastic	0.00	0	0.33	0	0.33

It is clear from Table 1 that the total loss observed in Soybean due to damage caused by various factors was highest (6.63%) in gunny bags, followed by gunny bags lined with polythene (4.39%). Whereas, in case of greengrams, highest loss was noticed in plastic bag (2.6%) followed by gunny bags (1.38%), and gunny bags lined with polythene sheet (0.92%). Further it was noticed that maximum loss (6.10%) was observed in urd stored

in gunny bags and no loss was observed in case of urd stored in Pucca Kothi and metal bins. It was also observed that in case of wheat grains, maximum loss (4.97%) was observed in Pucca Kothi followed by gunny bag (4.17%) and (1.71) per cent of loss was observed in case metal bin. In case of Bengal gram, maximum loss (4.22%) was noticed in case of grains stored in gunny bags and only 0.33 per cent of loss was noticed in case of gunny bags lined with polythene sheet.

DISCUSSION

Extent of perceived loss of grains during the storage in different method used by the respondent. It is clear from Table 1 that the total loss observed in Soybean due to damage caused by various factors was highest (6.63%) in gunny bags, followed by gunny bags lined with polythene sheet (4.39%). Whereas, in case of wheat grains, highest loss was noticed in Pucca Kothi (4.97%) followed by gunny bags (4.17%), gunny bags lined with polythene (2.31%) and metal bins (1.71%)

Among all storage structures less loss of food grains was observed in case of gunny bags lined with polythene sheet. Since these bags are airtight, hence it will not allow the moisture and insects to enter into the bags, hence less per cent of losses were noticed in these structures. However due to the higher cost of polythene lined bags these are used only for small quantity storage.

CONCLUSION

The grains are affected by insects, pests and rats during storage. Therefore, there is need to organize awareness campaigns and educate the farmers on effective grain storage methods.

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