

DIFFERENT STORAGE SYSTEMS OF WHEAT AND CONSTRAINTS TO ITS ADOPTION

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Wheat is an important crop in the country and maximum area and food grade production of country is covered by wheat production. Eighty percent of the harvested grains are stored at household level in traditional storage structures (Birewar et al. 1980). Improper storage conditions at household level may lead to quantitative and qualitative losses by insects and micro-organisms leading to damage and loss of grain stored. Hence, it is important to create storage facilities along with the increase in production of grains. The improved grain storage structures have been developed. The scientific and effective grain storage practices were identified and recommended for use during storage of grain at household level. But the constraints encountered lead to the limitation in adopting these scientific grain storage structures and practices. Laborius and Harnish (1989) emphasized the need for better pest control methods, more coordinated research and improved extension services to improve the understanding of control of stored grain pests. So as to identify the constraints encountered by the farm women/farmers, during use of these grain storage practices at household level, the present study was planned and carried out with following objectives.

1. To determine the changes in quality and quantity of wheat under different storage system.
2. To identify the constraints encountered by farm women/farmers, in adoption of scientific grain storage practices at household level.

METHODOLOGY

The study was conducted in the four villages viz. Ferojpura, Chandpura, Raipura and Pandola of Sheopur district in Madhya Pradesh. From every village, 30 farm families were selected, thus 120 farm families were selected randomly. The wheat samples stored in different treatments were procured from those farm families for qualitative and quantitative analysis such as weight loss, loss of grain, Insect/pest infestation, moisture content and germinability. In regard to constraints same village and farm families were selected by using the method of proportionate random sampling. An exploratory research design was adopted and respondents were personally interviewed with the help of schedule for investigation about the constraints in adoption of scientific grain storage practices at household level.

Research Findings and Discussion : The findings are presented as under :

1. Effect on Quantity and quality of wheat under different storage system

It may be noted from Table-1 that the maximum weight loss of grain (8.43 kg/qt) was recorded under Gunny bags with ash 5 kg/qt and lowest weight loss (1.51 kg/qt) was recorded in plastic bags with 1 ampule/qt. The loss of weight (2.37 kg/qt) and (3.36 kg/qt) was found in Earthen pot with celphos 1 pouch/qt and Khothi with Neem leaves 5 kg/qt respectively. In regard to loss of grains under different storage system the highest loss

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(19.36%) was found in Gunny bags with ash 5 kg/qt and lowest (7.4%) in plastic bags with 1 ampule/qt respectively. Loss of grains (13.16% and (17.95%) was found in Earthen pot with celphos 1 pouch/qt and Kothi with Neem leaves 5 kg/qt respectively.

Table-1: Effect of different storage systems on the quantity and quality of wheat.

Storage structure with treatments	Parameters of quantity and quality evaluation				
	Weight loss in storage (kg/qt)	Loss of grain in storage(%)	Insect/pest infestation capacity(%)	Moisture content (%)	Germinability (%)
Gunny bag + Ash 5 kg/qt	8.43	19.36	9.61	11.88	66.00
Kothi + Neem leaves 5 kg/qt	3.36	17.96	36.48	18.00	80.80
Earthen pot + Celphos 1 pouch/qt	2.37	13.16	1.0	8.95	96.60
Plastic bag + 1 ampule/qt	1.51	7.40	2.21	10.85	84.70
Mean	3.91	14.47	12.32	12.42	82.02

The extent of insect infestation of wheat was very low 1.0 percent in earthen pot (with celphos 1 pouch/qt) with a maximum of 36.48 percent in Kothi (with neem leaves 5 kg/qt) followed by 9.61 percent in gunny bags (with ash 5 kg/qt) and 2.21 percent in plastic bags (with 1 ampule/qt). The mean value was 12.32 percent. The table No.1, clearly shows that storage of wheat in Kothi is not safe (Usha Singh et al. 1999). The moisture content of grain in Kothi (18%) may be the main reason for high infestation. The moisture content in plastic bag (with 1 ampule/qt) is 10.85 percent. There was a little difference in the percentage of moisture content in gunny bags (with ash 5 kg/qt) 11.88 percent and Earthen pot (with celphos 1 pouch/qt) 8.95 percent. It may be due to the variation in storage structures.

The germinability of wheat stored in earthen pot (with celphos 1 pouch/qt) was higher 99.6 percent, where there was very low infestation. The percentage of germinability of wheat stored in Gunny bags (with ash 5 kg/qt) was lowest 66 percent in which infestation was 9.61 percent. In case of Kothi (with neem leaves 5 kg/qt) and plastic bag (with 1 ampule/qt) the germinability was 80.8 percent and 84.7 percent respectively. This condition might have been created due to storage structures. Sometimes insects attack only outer part of the grain which does not hinder the germinability (Khare et al., 1974).

2. Constraints in use of scientific grain storage practices

Table-2, reveals that the important problems encountered by majority of the farm women/farmers in adoption of scientific grain storage practices, were reported to be the lack of separate

Table-2: Distribution of respondent according to constraints use of scientific grain storage practices.

S.No.	Constraint	Respondents (N=120)	
		Number	Percentage
1.	Lack of knowledge of stored grain pests	71	59.16
2.	Lack of information about chemical control of stored grain pests.	84	70.00
3.	Lack of guidance for use of improved storage structures.	68	56.66
4.	Lack of finance for construction of improved storage structures.	66	55.00
5.	Dangerous and hazardous nature of chemical control.	98	81.66
6.	Lack of separate place for storage of grains.	109	90.83
7.	Lack of knowledge about fumigants.	93	77.50
8.	Poor quantity of grains for storage.	47	39.16
9.	No need for construction of scientific grain storage structures.	38	31.66

place for storage to grains (90.83%). Same findings were found by Sudha Darbha, R.S. Bhople and P.S. Shinde 1997. Dangerous and hazardous nature of use of chemicals control of stored grain pests (81.66%). Lack of knowledge about fumigants and (77.5%) stored grains pests (59.16%) and their chemical control of stored grain pest (70%), no need for construction of scientific grain storage structures (31.66%) and lack of guidance about their use (56.66%). Lack of finance for construction of improved storage structure and poor quantity of grains for storage were found (55%) and (39.16%) respectively.

CONCLUSION

It could be concluded from the findings that the percentage of grain loss increases with the increase in weight loss and infestation increases with the increases in moisture content. The percentage of germinability was high in earthen pot (with celphos 1 pouch/qt). In regard to constraints the use of chemicals and fumigants during storage of grains was observed to be less. The major storage constraints reported were lack of separate place, dangerous and hazardous nature of chemical control and lack of knowledge about fumigants. These constraints can be overcome by creating awareness amongst rural women/farmers by imparting trainings and demonstrations.

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