



ISSN (E): 2277- 7695

ISSN (P): 2349-8242

NAAS Rating: 5.23

TPI 2021; SP-10(12): 289-292

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www.thepharmajournal.com

Received: 07-10-2021

Accepted: 09-11-2021

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Farm women perception regarding usage of hermetic bag for storing pulses

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Abstract

Storing and maintaining agricultural produce after harvesting without grain/seed infestation is challenging, particularly at the household level. Even if numerous insecticides and other chemicals are applied during storage, pest invasion is still a possibility. To combat insect attack when grains are being kept, a new technique is required that is not only cost-effective and protects seed quality, but also simple to use and reuse. In this scenario, a grain storage bag termed as Hermetic bag was investigated at the AICRP-WIA, PJTSAU Lab and then delivered to farm women in villages to keep their harvested pulses/grains for duration of ten months. The study was aimed to know the insight of farm women concerning Hermetic Grain Storage Bag and also to test its efficacy at domestic level. Data were collected through semi structured questionnaire, key informants and direct observation. A total of 50 sample household heads were selected by simple random sampling techniques. Results revealed that the storing of pulses in hermetic bags for more than one year without insecticide was possible at home and also it was light in weight, comfortable to use and easy to store the grains.

Keywords: farm women, hermetic bag, storing pulses

Introduction

Post-harvest losses of grains and pulses are extensive and a major threat to food security (Basavaraja and Mahajanashetti, 2007) ^[2]. In India storage of harvested seed account for major portion of losses along with damages that occur during the post harvesting operations. Some studies have stated that maximum of the losses during storage were caused by high moisture content, insects, molds and poor production practices which result in weight loss, poor germination of seeds, loss in nutritive and market value (Asha and Mukesh, 2019) ^[1].

The majority of farmers' traditional storage procedures comprise of jute bags and woven polypropylene bags, which are ineffective against the challenge posed by insects and rodents for a myriad of purposes (Kaminski & Christiansen, 2014) ^[3]. In conventional storage method majority of the farmers were extensively using pesticides and fumigants which are hazardous to health and environment in order to control pests and molds. This condition demands for a suitable cost effective storage technology where the double layered hermetic bags, with inside layer made of 20 microns plastic was provided for farm women to store the seed. These Hermetic storage bags kill insect pests through suffocation and dehydration within as repellent insecticide and avoid infestation of seed.

Methodology

Exploratory research design was adopted to evaluate the 50 farm women opinion concerning about usage of Hermetic Bag for storing pulses for which Interview schedule was developed. Percentages and Frequencies were used to analyze the data.

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Results

Age of the respondents

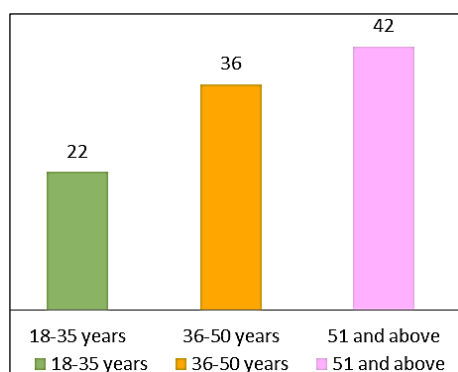


Fig 1: Distribution of sample by Age group (N=50)

The findings (Figure 1) of the study indicated that forty two per cent of the farm women were belonging to the age group of above 51 years whereas thirty six per cent were of 36-50 years of age group. Only twenty two per cent of the farm women were between the age group of 18-35 years. The sample of study consisted of women of adult age group.

Status of education of the respondents

From the Figure 2, the data revealed that twenty six per cent of the farm women had completed high school education followed by twenty two per cent did their secondary school of education. The women who possessed primary education were eighteen per cent and degree (16%) and respondents of the study who can read and write were (10%), six per cent found to be post graduates and only 2 per cent of respondents were illiterate.

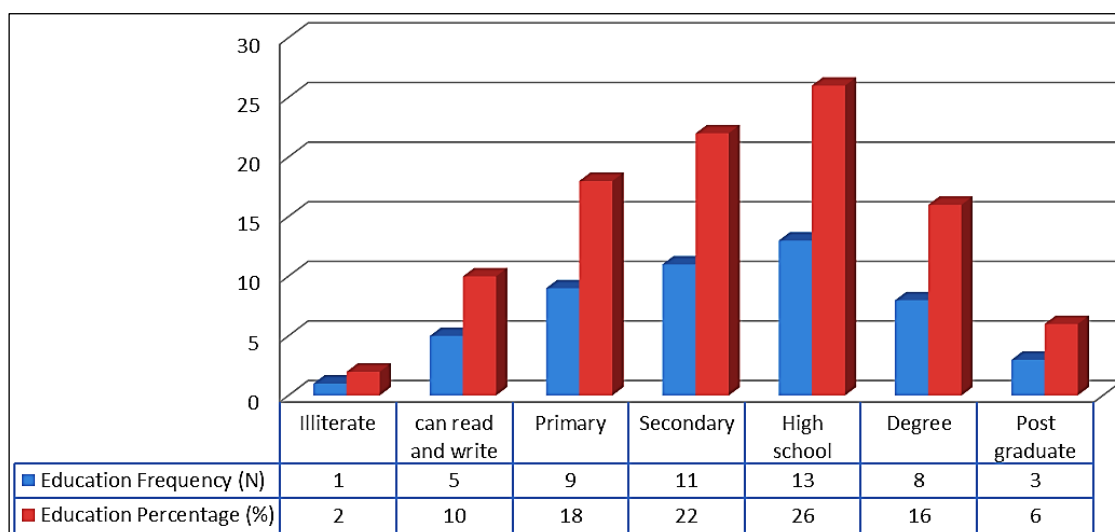


Fig 2: Distribution of sample by education (N=50)

The findings stated that most of the sample was found to be school pass outs, followed by graduates.

Occupation of the respondents

The results (Figure 3) of the study revealed that forty six per cent of women occupation found to be farming whereas twenty eight per cent of women were employees and twenty six per cent were housewives.

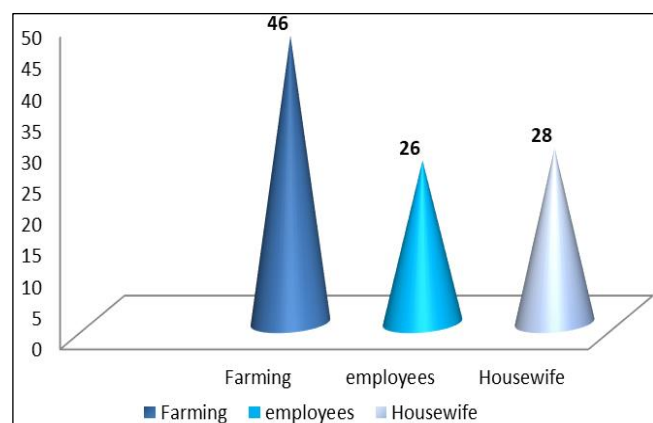


Fig 3: Distribution of sample by occupation (N=50)

category whereas thirty two per cent of farm women come under SC/ST category. However, twenty two per cent were of OC category (Figure 4)

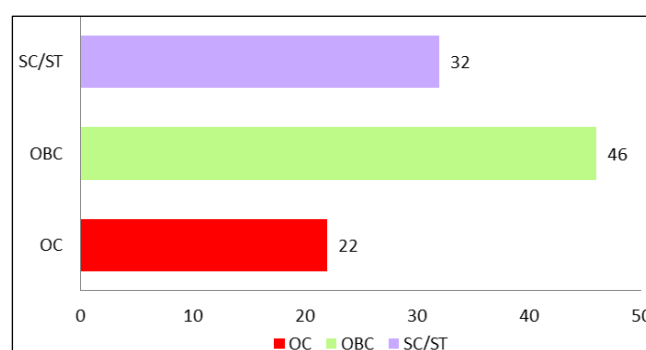


Fig 4: Distribution of sample by caste (N=50)

Experience in cultivation

The findings (Figure 5) of the study revealed that equal percentage (32%) of the farm women had 1-15 years and 16-30 years of work experience in cultivation which implies that since the sample comprised of only 20 per cent of women aged between 31-45 years, they had long years of work experience. Only 16 per cent of farm women experienced 46-60 years in cultivation.

Caste of the respondents

Forty six per cent of the farm women were belonging to BC

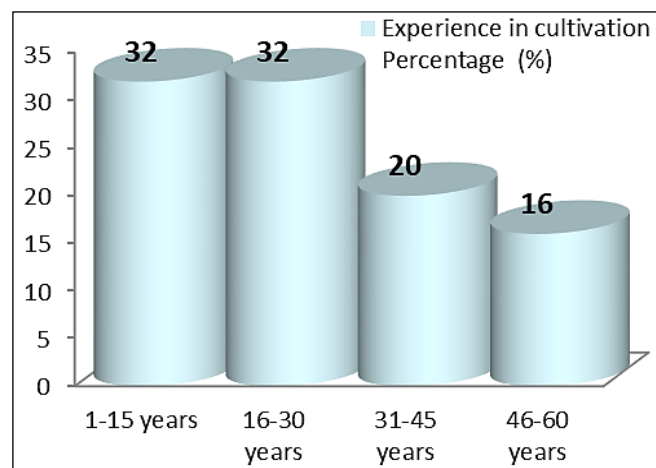


Fig 5: Distribution of sample by experience in cultivation (N=50)

plastic drums (16%).

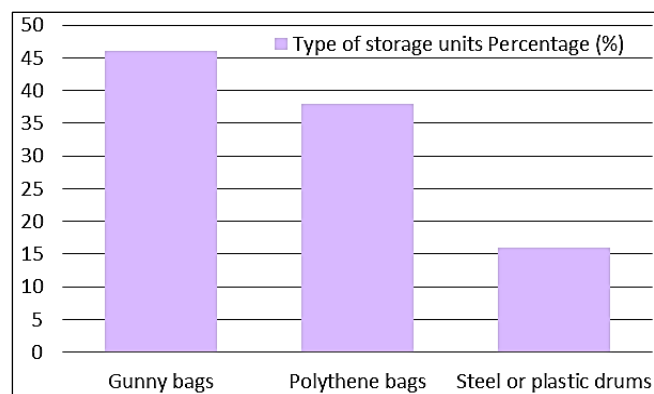


Fig 6: Distribution of sample by type of storage units (N=50)

Type of storage units

Majority of the farm women were using gunny bags (46%) for storing grains followed by polythene bags (38%) and steel or

Type of grains stored

The findings (Table 1) of the study revealed that Cent per cent of grains i.e., both cereals and pulses were in storage units.

Table 1: Distribution of sample by types of grains stored (N=50)

Types of grains stored		
Category	Frequency	Percent
Cereals	--	--
Pulses	--	--
Both cereals and pulses	50	100.0

Performance evaluation of Hermetic bag used by the women farmers

Table 2: Distribution of sample by performance evaluation of hermetic bag used by the women farmers (N=50)

Statements	SA 5	A 4	UD 3	D 2	SD 1	Total Score	Ranking Order
1. It is light in weight and comfortable to use.	18 (32.70)	26 (47.30)	6 (10.9)	--	--	212	III
2. Shape and size of hermetic bag is comfortable to use.	6 (10.9)	20 (36.40)	19 (34.50)	5 (9.10)	--	177	X
3. It is easy to store the grains.	17 (30.9)	20 (36.4)	13 (23.6)	--	--	204	V
4. It is not difficult to maintain and wash.	36 (65.50)	14 (25.5)	--	--	--	236	I
5. Hermetic bag can be used for storing more than one type of grain.	18 (32.7)	11 (20.0)	4 (7.3)	9 (16.4)	8 (14.5)	172	XIII
6. Cost of bag is within the budget.	11 (20.0)	17 (30.9)	11 (20.0)	7 (12.7)	4 (7.3)	174	XII
7. Material of hermetic bag is soft and smooth to the skin/hand.	16 (29.1)	17 (30.9)	6 (10.9)	6 (10.9)	5 (9.1)	189	VI
8. Spreading of insects in hermetic bags can be reduced.	10 (18.2)	13 (23.6)	11 (20.0)	9 (16.4)	7 (12.7)	160	XIV
9. Storing of grains in hermetic bags for more than one year can be possible without insecticide.	33 (60.0)	17 (30.9)	--	--	--	233	II
10. It is comfortable to fold and can be reusable.	17 (30.9)	16 (29.1)	3 (5.5)	7 (12.7)	7 (12.7)	179	IX
11. It reduces moisture precipitation inside.	10 (18.2)	15 (27.3)	18 (32.7)	5 (9.1)	2 (3.6)	176	XI
12. It gives more control over the grains from the insect's infestation.	24 (43.6)	15 (27.3)	4 (7.3)	4 (7.3)	3 (5.5)	207	IV
13. It is user-friendly and simple to use.	20 (36.4)	12 (21.8)	7 (12.7)	6 (10.9)	5 (9.1)	186	VIII
14. It will not be able to protect the grains from insects as inner cover was so thin.	2 (3.6)	3 (5.5)	9 (16.4)	21 (38.2)	15 (27.3)	101	XVI
15. Hermetic bag is suitable for storing all types of grains.	3 (5.5)	9 (16.4)	9 (16.4)	15 (27.3)	14 (25.5)	122	XV
16. It is far better in storing grains compared to other types of storage-like steel/plastic containers.	20 (36.4)	13 (23.6)	6 (10.9)	7 (12.7)	4 (7.3)	188	VII

Hermetic bag was given as an intervention to the study sample in storing pulses. In conventional method, they stored grains in gunny/plastic bags. The entire study sample was given hermetic bags for a period of 10 months to use it for storing grains in it.

A 5 point likert scale was used to find out the performance evaluation of a hermetic bag. Five score was given if sample had strongly agreed with the statement while 1 score was given when they had strongly disagreed with in between 4 for agree, 3 for not sure and 2 for disagree. Responses on each statement were scored and total score was obtained. Based on the total score, ranking was given.

Conclusion

Findings of the study revealed that based on ranking order, highest number of farm women said that the hermetic bag was not difficult to maintain and wash. The storing of grains in hermetic bags for more than one year was possible without insecticide. The bag was light in weight, user-friendly, simple to use and easy to store the grains. So, when compared to other types of bags, hermetic bags performed better, allowing for less grain damage. As a result, hermetic bags might be advised for preserving pulses for a longer period of time without altering its quality.

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