



ADOPTION OF STORAGE PRACTICES OF FOOD GRAINS AMONG THE FARMERS OF NORTHERN HILLS OF CHHATTISGARH, INDIA

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Abstract

The present study was conducted during the year 2014-15 in two blocks of Surguja district and two blocks of Surajpur district of the Chhattisgarh State, India. Eight villages were selected randomly from each selected blocks to make a total of 32 villages in the sample. Five farmers were selected randomly from each selected village. Thus, the total 160 farmers ($5 \times 32 = 160$) were considered as respondents for this study. The study observed that, majority of the respondents (64.37%) were found in the medium level of adoption regarding food grains storage practices. The practice wise adoption observed in food grains storage practices were drying of food grains before storage (100%), appropriate method of sun drying of grains (92.81%), use of different traditional storage structures (70.93%), proper cleaning of storage structure before storing grain (55.94%). The independent variables studied *viz.*, education, caste, farming experience, annual income, land holding, scientific orientation, knowledge about food grains storage practices, sources of information, contact with extension agencies and had positive and significant correlation with adoption of food grains storage practices. Whereas, size of family, occupation and social participation were non-significantly correlated with adoption of food grains storage practices.

Key words : Knowledge, adoption, food grains storage practices.

Introduction

Out of the three basic needs of mankind, food is the first and most important one. With population growth rate of 1.50% in the world, it is the most important concern of providing food to the population. This inevitable population growth will place increasing demands on the production of food grains, which currently comprise 67-80% of human food supply and diet. Grain losses due to poor storage accounts 10 to 20% of overall production. Properly storage of grains are equally important to grain produced. India produces about 259.32 million tones of food grains annually (FAO, 2012).

Food grains undergo a series of operations such as harvesting, threshing, winnowing, bagging, transportation, storage and processing before they reach to the consumer. There are remarkable losses in crop output at all these stages. The food grain losses in India from 2005-2013 is 1,94,502 metric tones (FCI, 2014).

The estimated post-harvest losses at the farm level are 3.82 kg/q for rice and 3.28 kg/q for wheat in 2003-04 (Basavaraja *et al.*, 2007). Post-harvest losses account for 9.5% of total pulses production. Among post-harvest

operations, storage is responsible for the maximum loss (7.5%). Processing, threshing and transportation cause 1%, 0.5%, 0.5% losses, respectively (Birewar, 1984).

Objectives

1. To determine the extent of adoption regarding various storage practices of food grains
2. To study the relationship of independent variables with the adoption of food grains storage practices.

Research Methodology

The present study was carried out in purposively selected Surguja and Surajpur district of northern hills agro-climatic zone of Chhattisgarh during 20014-15. There are total seven blocks in Surguja district namely Ambikapur, Batauli, Sitapur, Mainpaat, Udaipur, Lakhanpur and Lundra, out of which Ambikapur and Lakhanpur were selected and total six blocks in Surajpur district namely Surajpur, Bhaiyathan, Odgi, Pratappur, Premnagar and Ramanujnagar out of which two blocks Ramanujnagar and Bhaiyathan were selected randomly for the present study. Out of total villages of Ambikapur, Lakhanpur, Ramanujnagar and Bhaiyathan blocks, eight

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villages from each block were selected randomly, thus the total 32 villages from four blocks were selected. The data were collected through personal interview with the help of pretested schedule developed with regard to food grains storage practices.

For assessing adoption, 15 questions related to food grains storage practices were structured. The responses obtained from the respondents to those questions were related on the three point continuum *i.e.* complete adoption, partial adoption and no adoption with the numerical score of 2, 1 and 0, respectively. The respondents extent of adoption was ascertained in terms of selected practices of food grains storage practices. The adoption index was worked out as follows:

$$\text{Adoption index} = \frac{\text{Sum of adoption score actually obtained by the respondents}}{\text{Maximum possible obtainable adoption score by the respondents}} \times 100$$

Results and Discussion

Adoption of storage practices of food grains among the farmers

From the table 1, it is observed that, majority of the respondent were found in the medium level of adoption 64.37 per cent, 20.00 per cent of the respondent were found in high adoption while, 15.63 per cent of the respondent were found in low adoption regarding food grains storage practices.

Table 1 : Distribution of respondents according to overall adoption regarding food grains storage practices. (n= 160)

| S. no. | Category | Frequency | Per cent |
|--------|----------------------------|------------|---------------|
| 1. | Low (up to 14 score) | 25 | 15.63 |
| 2. | Medium (15-22 score) | 103 | 64.37 |
| 3. | High (23 and above score) | 32 | 20.00 |
| | Total | 160 | 100.00 |

$$\bar{X} = 18.48$$

$$S.D. = 4.42$$

Practices wise average adoption regarding food grains storage practices

It could be inferred from table 2 that the practice wise adoption regarding food grains storage practices observed in descending order of rank were cent per cent of the respondents drying food grains before storage, 92.81 per cent respondents adopt appropriate method of sun drying of grains, 70.93 per cent of respondents adopt different storage structures, 55.94 per cent respondent proper clean their storage structure before storing grain, half of the respondent take precaution to avoid moisture in stored grain, 49.06 per cent respondents adopt control method for rat in storage, 45.31 per cent of respondents take precaution of reuse of old gunny bags, 40.93 per cent respondents identifying storage grain pests time to time, 35.63 per cent of respondents adopt different method for keeping storage structure air tight, 35.31 per cent respondent take care of grain bags while staking, 26.87

Table 2: Distribution of respondents according to practice wise adoption gap in recommended mustard production technology (n=160)

| S. no. | Practices | Adoption index (%) | Rank |
|--------|--|--------------------|------|
| 1. | Reducing moisture content (drying) of food grains before storage | 100.00 | I |
| 2. | Appropriate method of sun drying of food grains | 92.82 | II |
| 3. | Precautions taken of gunny bags before it reuse | 45.31 | VII |
| 4. | Use of different traditional storage structures for storing food grain | 70.93 | III |
| 5. | Different cleaning methods of storage structure | 55.94 | IV |
| 6. | Keeping of storage structure air tight | 35.63 | IX |
| 7. | Care while stacking the grain bags | 35.31 | X |
| 8. | Precaution taken to avoid moisture in stored grains | 47.18 | VI |
| 9. | Identification of stored grain pests | 40.93 | VIII |
| 10. | Identification of damage caused by stored grain pests | 13.44 | XII |
| 11. | Indigenous method of control of stored grain pests | 26.87 | XI |
| 12. | Chemical control of stored grain pests | 8.43 | XIII |
| 13. | Use of fumigants in storage | 3.44 | XV |
| 14. | Precaution taken during the use of chemicals in storage | 5.93 | XIV |
| 15. | Methods of control of rodents | 49.06 | V |

*Data are based on multiple responses

Table 3 : Relationship between selected characteristics and their overall adoption of food grains storage practices.

| S. no. | Independent variables | Coefficient of correlation "r" value |
|--------|---------------------------------|--------------------------------------|
| 1. | Caste | 0.1542* |
| 2. | Education | 0.2963** |
| 3. | Size of family | -0.0187NS |
| 4. | Land Holding | 0.2746** |
| 5. | Social participation | 0.0539NS |
| 6. | Occupation | -0.1082NS |
| 7. | Annual income | 0.1573* |
| 8. | Farming experience | 0.1864* |
| 9. | Sources of information | 0.3035** |
| 10. | Contact with extension agencies | 0.1903* |
| 11. | Scientific orientation | 0.2664** |
| 12. | Knowledge | 0.6987** |

** Significant at 0.01 level of probability.

* Significant at 0.05 level of probability.

NS = Non Significant.

per cent respondents adopt indigenous method for control of stored grain pests in appropriate quantity, 13.44 per cent respondents identify damage caused by stored grain pests, 8.43 per cent respondents use chemical in their storage, only 5.93 per cent respondents take precaution during chemical use while 3.44 per cent respondents use fumigants in their storage.

Relationship between selected characteristics and their overall adoption of food grains storage practices

The data in table 3 revealed that education, land holding, sources of information, scientific orientation and knowledge had positive significantly correlated with adoption of food grains storage practices at 0.01 level of probability whereas caste, annual income, farming experience and contact with extension agencies had positive significantly correlated with adoption of food grains storage practices at 0.05 level of probability. It means that adoption of food grains storage practices increase by increasing of caste, education, land holding,

occupation, farming experience, scientific orientation, sources of information, contact with extension agencies and knowledge level regarding food grains storage practices.

Where size of family, social participation and occupation had non-significantly correlated with adoption of food grains storage practices.

Conclusion

The maximum adoption observed in food grains storage practices was reducing moisture content (drying) of food grains before storage, appropriate method of sun drying of food grains, use of different traditional storage structures for storing food grains. The independent variables studied *viz.*, education, caste, land holding, annual income, farming experience, scientific orientation, source of information, contact with extension agencies and knowledge level of food grains storage practices had positive and significant correlation with adoption of food grains storage practices. Whereas, size of family, social participation and occupation had non-significantly correlated with adoption of food grains storage practices.

References

- Anonymous (2014). *Krishi Darshika*. Indira Gandhi Krishi Vishyavidyalaya, Raipur, p. 106.
- Anonymous (2014). M.thehindu.com
- Anonymous (2012-13). *Dare/icar annual report*. New delhi : 85-89.
- Basavaraja, H., S. B. Mahajanashetti and N. C. Udagatti (2007). Economic Analysis of Post-harvest Losses in Food Grains in India : A Case Study of Karnataka. *Agricultural Economics Research Review*, **20** : 117-126.
- Birewar, B. R. (1984). *Post-Harvest Technology of Pulses, Pulse Production - Constraints and Opportunities*. Oxford and IBH Publishing Co., New Delhi, India, 425-438.
- Borkar, M. M. and A. K. Rasekar (1999). Adoption of grain storages practices by farm families. *Maha. J. Extn. Edn.*, **18** : 252-254.
- Choudhari, N. M. (2003). Adoption behaviour of rural women regarding scientific storage practices of food grains in Raipur district of Chhattisgarh state. *M.Sc. (Ag.) Thesis*, IGKV, Raipur : 25-94.