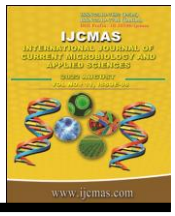
Int.J.Curr.Microbiol.App.Sci (2022) *11*(08): 17-22

International Journal of Current Microbiology and Applied Sciences
ISSN: 2319-7706 **Volume 11 Number 08 (2022)**
Journal homepage: http://www.ijcmas.com



Original Research Article https://doi.org/10.20546/ijcmas.2022.1108.003

An Economic Analysis of Post Harvest Losses of Major Oilseeds in Mungeli District of Chhattisgarh State

Subhas Patrey* and M. K. Deshmukh

Department of Agricultural Economics, IGKV, Raipur, C.G., India

**Corresponding author*

Keywords

Posts harvest losses, soybean, groundnut, oilseeds

Article Info

Received:
05 July 2022
Accepted:
06 August 2022
Available Online:
10 August 2022

A B S T R A C T

The present study was carried out during 2020-21 with an aim to examine the production and post harvest losses of major oilseeds in in Mungeli district in Chhattisgarh state. The study's focus was on two blocks that were carefully selected, namely Mungeli and Pathariya in the Mungeli district. There were 60 respondents overall, and the sample size was made up of 22, 18, 12, and 8 marginal, small, medium, and large farmers, respectively. A schedule for conducting interviews was used to collect the data, which was then appropriately statistically analysed. Age, education, sex, group size, occupation, annual income, and farm size were all examined as independent variables when examining the various characteristics of the respondents in order to learn more about the economics, post-harvest losses, disposal pattern, constraints, and suggestions for the major oilseed production in the study area. The total post-harvest losses for soybean and groundnut were determined to be 72.80 and 7.33, 91.96 and 7.31 kg per hectare and kg per quintal, respectively. For all of the major oilseeds, insufficient drying and threshing had the biggest impact on post-harvest losses. The highest marketable surplus was found in the disposal pattern for soybean, where it was higher at 95.96, followed by groundnut, where it was less at 88.35.The majority of the buyers of the oilseed farmers' produce were wholesalers and village merchants. All the groups faced problems regarding decreasing yield due to growing the crop regularly in same field as well as availability of labour in right time. In the case of soybean lack of processing unit is a main constraint in marketing of oilseeds this problems need to be rectified. According to the study, there is a need to improve oilseed storage, drying, threshing, productivity, marketing, and prices in order to decrease post-harvest losses, increase profitability, and improve marketing through suitable policy interventions.

Introduction

The total production of food grains at around 240 million tonnes at present, the total losses work out at around 15-25 million tonnes. With the given per capita cereal consumption requirement in India, the above grains lost would be sufficient to feed more than 100 million people. Losses in food crops occur during harvesting, threshing, drying, storage, transportation, processing and marketing. In the field and during storage, the products are threatened by insects, rodents, birds and other pests. Moreover,

the product may be spoiled by infection from fungi, yeasts or bacteria. Food grain stocks suffer qualitative and quantitative losses during storage. The quantitative losses are generally caused by factors such as incidence of insect infestation, rodents, birds and also due to physical changes in temperature, moisture content, etc. The qualitative loss is caused by reduction in nutritive value due to factors such as attack of insect pest, physical changes in the grain and chemical changes in the fats, carbohydrates, protein and also by contamination of mycotoxins, besides, residue, etc. The storage Losses of grains is a very sensitive issue as it depends upon agro climatic conditions. In order to minimize the losses during storage operation, it is important to know the optimum environment conditions for storage of the product, as well as the conditions under which insects/pests damage the produce.

According to FAO study, about 70 percent of the farm produce is stored by farmers for their own consumption, seed, feed and other purposes. In India, farmers store grain in bulk using different types of storage structures made from locally available materials. For the better storage, it is necessary to clean and dry the grain to increase its life during storage. In addition, storage structure, design and its construction also play a vital role in reducing or increasing the losses during storage. With the scientifically constructed storage, it is also essential that the grain being stored is also of good quality. At the village, generally harvesting is done at high moisture content and therefore, before storing the same, it is necessary to obtain the desired moisture to obtain safe post storage grain. While there are small storage structures at the farmers' level, the bulk storage of food grains is done by the government in FCI, State and Central Warehousing Corporations, etc. The major construction material for storage structures in rural areas at the farmer level are mud, bamboo, stone and plant materials. Generally, they are neither rodent proof nor secure from fungal and insect attack. On an average, out of total 6 per cent losses of food grains in such storage structures, about half is due to rodents and rest half is due to insects and fungi. The storage at the farmer level includes: coal tar drum bin, domestic Hapur bin, Chittore stone bin, double walled polyethylene lined bamboo bin, Pusa bin and so on. The bulk storage of food grains is done mainly by traders, cooperatives and government agencies like FCI, CWC, SWC and grain marketing cooperatives. There are many kinds of storage systems followed depending on the length of storage and the product to be stored. Some examples are cover and plinth storage, community storage structures, rural godowns and scientific warehouses.

Materials and Methods

Selection of district

Chhattisgarh state consists of three agro climatic zones i.e. Northern hills, Chhattisgarh plain and Bastar plateau. Out of these three zones, Chhattisgarh plain zone was selected which contains 14 districts. Out of the 14 districts, Mungeli district was selected purposively.

Selection of blocks

Out of the total 3 blocks (Mungeli, Pathariya and Lormi) of Mungeli district. i.e., Mungeli and Pathariya blocks were be selected purposively on the basis of maximum area under selected major oilseeds for the purpose of the study.

Selection of villages

Two villages were be randomly selected from each block. Accordingly, total four villages Goindri and Khairi from Pathariya block & Silli and Nuniakachar from Mungeli block were be selected.

Selection of respondents

A sample of 60 respondents is selected by using probability proportional to size techniques method subject to condition that at least 5 respondents were be included on sample from each of four categories of farms i. e. marginal farmers 22, small farmers 18,

medium 12 and large farmers 8. 15 farmers were be randomly selected from each villages total 60 farmers were be selected.

Total post harvest losses occurring at each of stage of the process

The post-harvest losses at the farmer level were calculated using averages and percentages. The following operation involved gathering and analysing information about post-harvest losses from the farmers: Harvesting, threshing, cleaning/winnowing, drying, storage, and transportation.

The sum of all these losses was used to estimate the total post-harvest losses. In the current study, the following function was specified.

Total PHL Sum of PHL at each stage of oilseeds production during different stages of interconnected activities from the time of harvest to transportation.

Total PHL = ΣSi… (1)

Where,

PHL = Post harvest loss

S = Stages of loss from harvest to transportation

i = 1,2,… n, number of stages

Through an interview method based on farmer memory recall, basic information about the procedures for harvesting, threshing, transporting, winnowing, drying, storage system, mode of transportation, and losses during these activities was gathered from the farmers. By using farmers' values, which were based on his memory and experience, tabular analysis was done to acquire post-harvest losses up to the farm level. Farmers were provided a reference range that had been previously researched to aid in the creation of values at each stage of the study in order to collect the values of post-harvest losses.

Results and Discussion

Post harvest losses

Post harvest losses of soybean

The post-harvest losses suffered by the sampled soybean growers are shown in Table 4.15. It depicts that on an overall basis 7.33 kg per quintal and 72.80 kg per hectare. From marginal to large farmers, it ranged from 67.84 kg per hectare to 79.57 kg per hectare.

In the case of soybean, the stage of drying (24.28 percent) resulted in the highest post-harvest losses in (kg/ha), whereas transportation caused the least loss (5.70 percent). As a result of the findings of this study, better low-cost soybean dryers or drying sheets may be provided to soybean growers as a kind of government assistance.

Post harvest losses of groundnut

The post-harvest losses suffered by the groundnut growers sampled are shown in Table 4.16. It depicts that on an overall basis 7.31 kg per quintal and 91.96 kg per hectare.

From marginal to large farmers, it varied from 88.55 kg per hectare to 97.70 kg per hectare. In the case of groundnut, the stage of threshing (23.01 percent) resulted in the highest post-harvest losses in (kg/ha), whereas transportation caused the least loss (5.55 percent). As a result, based on the outcomes of this research.

The overall post harvest losses in soybean were observed in 72.80kg/hectare&7.33 kg/quintal.

From marginal to large farmers, it ranged from 67.84 kg per hectare to 79.57 kg per hectare.

The stage of drying (24.28 percent) resulted in the highest post-harvest losses in (kg/ha), whereas transportation caused the least loss (5.70 percent).

Table.1 Post harvest losses of soybean

S.No.	Stages	Marginal		Small		Medium		Large		Overall	
		(Losses Kg/ha)	(Losses Kg/q)	(Losses Kg/ha)	(Losses Kg/q)	(Losses Kg/ha)	(Losses Kg/q)	(Losses Kg/ha)	(Losses Kg/q)	(Losses Kg/ha)	(Losses Kg/q)
1.	**Harvesting**	12.37 (18.23)	1.32 (18.23)	13.55 (18.52)	1.37 (18.48)	14.17 (18.42)	1.37 (18.39)	14.78 (18.58)	1.35 (18.59)	13.40 (18.40)	1.34 (18.28)
2.	**Transportation**	3.40 (5.01)	0.37 (5.11)	4.15 (5.67)	0.42 (5.66)	4.82 (6.26)	0.46 (6.17)	5.22 (6.56)	0.47 (6.47)	4.15 (5.70)	0.41 (5.59)
3.	**Threshing**	15.30 (22.55)	1.63 (22.51)	16.13 (22.05)	1.63 (22.00)	16.76 (21.78)	1.62 (21.74)	17.07 (21.46)	1.56 (21.48)	16.07 (22.08)	1.61 (21.96)
4.	**Winnowing**	5.18 (7.63)	0.56 (7.73)	5.52 (7.54)	0.56 (7.55)	6.33 (8.23)	0.61 (8.18)	6.85 (8.61)	0.62 (8.54)	5.60 (7.70)	0.57 (7.77)
5.	**Drying**	17.48 (25.76)	1.86 (25.69)	18.56 (25.37)	1.88 (25.37)	18.92 (24.58)	1.83 (24.56)	19.46 (24.46)	1.77 (24.38)	17.68 (24.28)	1.84 (25.10)
6.	**Storage**	14.11 (20.79)	1.50 (20.71)	15.23 (20.82)	1.54 (20.78)	15.93 (20.71)	1.54 (20.67)	16.16 (20.31)	1.47 (20.25)	15.08 (20.71)	1.51 (20.60)
Total		67.84 (100)	7.24 (100)	73.14 (100)	7.41 (100)	76.92 (100)	7.45 (100)	79.54 (100)	7.26 (100)	72.80 (100)	7.33 (100)

Table.2 Post harvest losses of groundnut

S.No	Stages	Marginal		Small		Medium		Large		Overall	
		(Losses Kg/ha)	(Losses Kg/q)	(Losses Kg/ha)	(Losses Kg/q)	(Losses Kg/ha)	(Losses Kg/q)	(Losses Kg/ha)	(Losses Kg/q)	(Losses Kg/ha)	(Losses Kg/q)
1.	**Harvesting**	18.57 (20.97)	1.59 (20.92)	19.12 (29.92)	1.51 (20.79)	19.84 (20.81)	1.47 (20.76)	20.67 (21.15)	1.48 (21.02)	19.27 (2095)	1.52 (20.79)
2.	**Transportation**	4.82 (5.44)	0.41 (5.39)	4.96 (5.42)	0.39 (5.37)	5.33 (5.59)	0.39 (5.50)	5.93 (6.06)	0.42 (5.96)	5.11 (5.55)	0.40 (5.47)
3.	**Threshing**	20.36 (22.99)	1.74 (22.89)	21.12 (23.11)	1.67 (23.00)	21.74 (22.81)	1.61 (22.74)	22.58 (23.11)	1.62 (23.01)	21.16 (23.01)	1.67 (22.84)
4.	**Winnowing**	6.67 (7.53)	0.57 (7.50)	6.98 (7.63)	0.55 (7.57)	7.57 (7.94)	0.56 (7.90)	8.12 (8.31)	0.58 (8.23)	7.13 (7.75)	0.56 (7.66)
5.	**Drying**	20.32 (22.11)	1.74 (22.89)	21.04 (23.02)	1.67 (23.00)	21.86 (22.93)	1.62 (22.88)	22.27 (22.79)	1.60 (22.72)	21.10 (22.94)	1.67 (22.84)
6.	**Storage**	17.81 (20.11)	1.52 (20.00)	18.16 (19.87)	1.44 (19.83)	18.96 (19.89)	1.40 (19.77)	18.13 (18.55)	1.30 (18.46)	18.18 (19.77)	1.44 (19.69)
Total		88.55 (100)	7.60 (100)	91.38 (100)	7.26 (100)	95.30 (100)	7.08 (100)	97.70 (100)	7.04 (100)	91.96 (100)	7.31 (100)

Fig.1 Post harvest losses of soybean

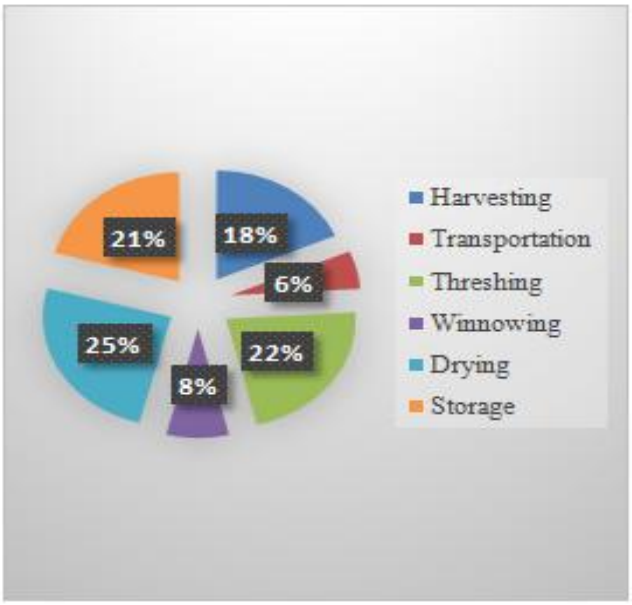
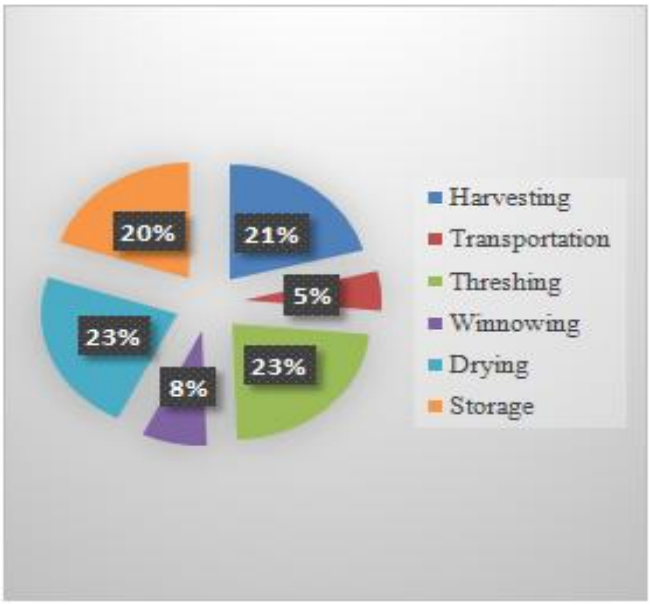


Fig.2 Post harvest losses of groundnut



The overall post harvest losses in groundnut were observed in 91.96 kg/hectare & 7.31 kg/quintal.

From marginal to large farmers, it varied from 88.55 kg per hectare to 97.70 kg per hectare.

The stage of threshing (23.01 percent) resulted in the highest post-harvest losses in (kg/ha), whereas transportation caused the least loss (5.55 percent).

References

Agrawal, N. 2015. An economic analysis of post harvest losses in major oilseeds of Kabirdham district in Chhattisgarh plains. M.Sc. thesis Indira Gandhi krishi vishwavidyalaya, Raipur, Chhattisgarh.

Bhargava, G. and Kumar, S. 2020. An economic analysis of post-harvest losses and marketing of groundnut in an Anantapur district of Andhra Pradesh. *International Journal of Innovative Science and Research Technology*, 5(10).

Debebe, S. 2022. Post harvest losses of crops and its determinants in Ethiopia: Tobit model analysis. Debebe Agriculture and Food Security.

Dexter, J. E., Jhala, A. J., Yang R., Hills, M. J., Weselake, R. J. and Hall, L. M. 2011. Harvest loss and seed bank longevity of fleax (*Linum usitatissimum*) implications for seed mediated gene flow. Weed science, 59(1): 61-67.

Fulley, V. B., Sharma, H. O. and Khare P. 2006. Harvest and post-harvest losses of soybean production as perceived by the producers of Madhya Pradesh. Agricultural Marketing, 49(3): 1-12.

Nag, S. K., Nahatkar, S. B. and Sharma, O. H. 2000. Post harvest losses of chickpea as perceived by the producers of Sehore district of Madhya Pradesh. Agricultural Marketing. 12-16.

Rohilla, H. R., Singh, H. and Chhillar, B. S. 2003. Post harvest losses caused by painted bug, in rapeseed mustard. *Journal of Oilseeds Research*, 20(2): 257-258.

Tsusaka, T. W., Singano, C. and Kumwenda, N. 2017. On-farm assessment of post harvest losses the case of groundnut in Malawi. Socioeconomics discussion paper series.

How to cite this article:

Subhas Patrey and Deshmukh, M. K. 2022. An Economic Analysis of Post Harvest Losses of Major Oilseeds in Mungeli District of Chhattisgarh State. *Int.J.Curr.Microbiol.App.Sci.* 11(08): 17-22.
doi: https://doi.org/10.20546/ijcmas.2022.1108.003