

RESEARCH PAPER

Economic Analysis of Post-harvest Losses of Rice in Thanjavur District of Tamil Nadu

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ABSTRACT

This study is intended to analyze the post-harvest losses of rice in Thanjavur district of Tamil Nadu. Primary data were collected from 60 rice growers and 30 rice processors in the results shows that the majority of post-harvest losses viz., occurs in rice growers while in harvesting of rice accounts for 500 kg with the value of ₹ 8500/- then major losses which goes on cleaning and winnowing (700 kg stood the value of ₹ 11,900/-) followed by drying, transportation from rice field to road and threshing cost incurred during storage and value Addition/Processing, the material cost accounts for ₹ 1850/-. The rice processor also has been losses at the time transporting from production point to rice mill with 300 kg in terms of value ₹ 2400/- and in Grain scattering while threshing / Combine harvesting would occur in minimum level of losses. Rice processor has been incurred the cost of ₹ 4150/- for gunny bag for the storage and using the godown charges of ₹ 5000. While the harvesting of rice, the foremost problem of entry of rodents and pig followed by Delaying of middleman to settle the amount, Flooding at the time of harvesting/winnowing, non-availability of combine harvester as well as right path way and Low price of the produce. Government may be increasing the number of rice procurement centre at the time of harvesting with higher price to safeguards the rice growers from the middleman intervention.

HIGHLIGHTS

- ❶ The majority of post-harvest losses viz., occurs in rice growers while in harvesting of rice accounts for 500 kg with the value of ₹ 8500.
- ❷ Major losses which goes on cleaning and winnowing (700 kg stood the value of ₹ 11,900/-) followed by drying, transportation from rice field to road and threshing cost incurred during storage and value Addition/Processing.

Keywords: Rice, post-harvest losses, middleman, procurement centre

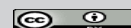
Agricultural products and commodities that produced on the farm levels have to undergo a series of operations such as harvesting, threshing, winnowing, drying, bagging, transportation, storage, processing, marketing and exchange before they reach to the final consumer, and there are substantial losses in crop output at all these stages. In developing countries, greater than 40% of the losses occur during post-harvest and processing operations. In developing countries, rice is the dominant cereal crop, and in the food supply chain,

agricultural production, post-harvest handling and storage are the segments with the highest losses (Gustavsson *et al.* 2011).

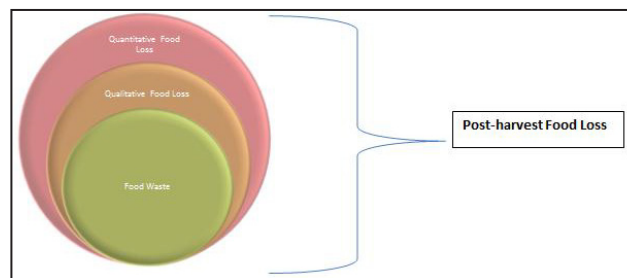
Post-harvest Food Loss (PHL) is defined as measurable qualitative and quantitative food loss along the supply chain, starting at the time of

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harvest till its consumption or other end uses (De Lucia and Assennato, 1994; Hodges, Buzby and Bennett, 2011).



Hodges *et al.* (2011) stated that “in less developed countries inefficient post-harvest agricultural systems lead to a loss of food that people would otherwise eat, sell, or barter to improve their livelihoods”. They also stated that poor post-harvest handling can lead to both weight and quality losses; and they add that “grains may be scattered, dispersed or crushed during handling and may be subject to bio-deterioration.” In hot climates, if unfavorable weather prevents sufficient crop drying, then post-harvest loss (PHL) increases and molds, mycotoxins and poor-quality food can lead to significant health costs and morbidity, particularly for persons already affected with high health risks or disease. Hodges *et al.* (2011) contributed the largest share of PHL to the farm, largely due to the choice in crop and variety selection, and due to selection of harvest methods. However, they add that most efforts to reduce PHL have been made toward crop storage aspects for food security.

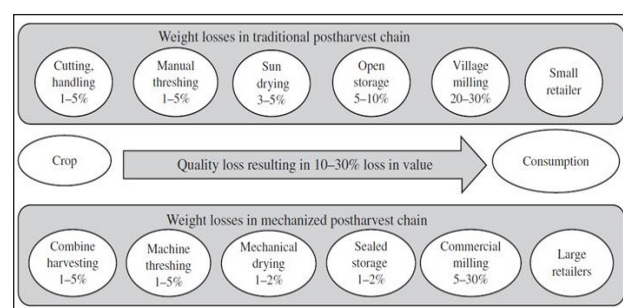


Fig. 1: Traditional versus Mechanized Post-harvest Chain

So, there is an urgent need to analyze the economic losses in rice in various stages might be more meaningful for both policy makers as well as farming community. This study has been purposefully attempting for the main objectives of to assess the post-harvest losses in paddy under different operations in Thanjavur district of Tamil Nadu.

The following specific objectives are carried out as follows:

1. to assess the post-harvest losses in paddy under different operations;
2. to identify factors responsible for such losses; and
3. to suggest ways and means to reduce the extent of losses in different operations of the farms.

METHODOLOGY

Used with the multi-stage random sampling techniques, Thanjavur district of Tamil Nadu is purposefully selected for this study. In the second stage three blocks were selected randomly. Two villages from each block were selected randomly. Then 10 rice growers from each village it will leads to totally 60 rice growing farmers, 30 rice processors were selected randomly.

RESULTS AND DISCUSSION

The collected primary data from rice growers as well as rice processors were analyzed and tabulated for easy understanding results.

Table 1: Post-harvest Losses of Rice in different Stages

Sl. No.	Stages	Loss (kg)	Value (₹)
1	Harvesting	500	8500
2	Threshing	4	68
3	Cleaning / Winnowing	700	11900
4	Drying	15	255
5	Transportation loss from field to road	10	170

It can be observed from the table 1, the majority of post-harvest losses viz., while in harvesting of rice accounts for 500 kg with the value of ₹ 8500/- then major losses which goes on cleaning and winnowing [700 kg stood the value of ₹ 11,900/-] followed by drying, transportation from rice field to road and threshing. Hence, utmost care might be taking above said operations.

Cost incurred during Storage and Value Addition / Processing has been available from the table 2, the material cost accounts for ₹ 1850/- whenever, the post-harvest operation of rice the farmers should

Table 2: Cost incurred during Storage and Value Addition / Processing

Sl. No.	Cost Incurred	Materials /Methods used	Qty (kg)	Value (₹)
1	Storage	Dharpai	1	50
2	Value addition/Processing	Removal of stone and other admixtures		30
3	By products	3 days		370
4	Shelf-life period		75	1400
5	Selling price			
				1850

kept for traditional materials will minimize the cost of operation.

Table 3: Constraints that have been faced in Post Harvest Losses of Different Stages of Rice Cultivation

Sl. No.	Constraints	Ranking
1	Entry of Rodents and piggery	I
2	Delaying of middleman to settle the amount	II
3	Flooding at the time of harvesting/ winnowing	III
4	Non availability of combine harvester as well as right path way	IV
5	Low price of the produce	V

Evident from table 3, Rice growers were opined that while the harvesting of rice, the foremost problem of entry of rodents and pig followed by Delaying of middleman to settle the amount, Flooding at the time of harvesting/winnowing, non-availability of combine harvester as well as right path way and Low price of the produce.

Table 4: Suggestions to Minimize the Post Harvest Losses of Different Stages of Rice Cultivation

Sl. No.	Suggestions	Ranking
1	To avoid the labour shortage, promote more mechanization	I
2	Need more of threshing floor facilities	II
3	Increase the number of Government rice procurement centre	III
4	Training is essential for developing mechanized harvest operator skill	IV

To overcome the post-harvest losses the rice growers were suggested that (from table 4) avoid the labour shortage, promote more mechanization followed by Need more of threshing floor facilities, Increase the number of Government rice procurement centre

and Training is essential for developing mechanized harvest operator skill.

Table 5: Post Harvest Losses of Rice in Different Stages from Rice Processors

Sl. No.	Stages	Loss (kg/q)	Value (₹)
1	Grain scattering while threshing / Combine harvesting	10	180
2	Transport	300	2400

Evident from the table 5, the rice processor also has been losses at the time transporting from production point to rice mill with 300 kg in terms of value ₹ 2400/- and in Grain scattering while threshing / Combine harvesting would occur in minimum level of losses.

Table 6: Cost incurred during Storage and Value Addition / Processing

Sl. No.	Operations	Materials / Methods used	Qty (kg)	Value (₹)
1	Storage	Gunny bag	2075	4150
2	By products		1.5	75
3	Shelf-life period	Godown		5000
4	Purchase price		75	1400
5	Selling price		1	38

Table 6 shows that the rice processor has been incurred the cost of ₹ 4150/- for gunny bag for the storage and using the godown charges of ₹ 5000.

Table 7: Constraints that have been faced in Post Harvest Losses of Different Stages of Rice Processor

Sl. No.	Constraints	Ranking
1	Irregular maturity of harvest	I
2	Water scarcity	II
3	Issue of cheque to the farmers, produce might be reduced in 10 kg	III
4	High damage of by products	IV

Table 7 shows that Major constraints faced by the rice processor of Irregular maturity of harvest, Water scarcity, Issue of cheque to the farmers, produce might be reduced in 10 kg followed by higher damage of byproducts.

Table 8: Suggestions to Minimize the Post Harvest Losses of Different Stages of Rice Processors

Sl. No.	Suggestions	Ranking
1	Allowing the produce to required drying in yard	I
2	Stored in a large quantity of rice with gunny bag in sequential manner	II
3	Rainy days to cover the rice bag in good condition to avoid the loss	III
4	Immediate drain the flood in the threshing floor/storage godown	IV

CONCLUSION

The majority of post-harvest losses viz., occurs in rice growers while in harvesting of rice accounts for 500 kg with the value of ₹ 8500/- then major losses which goes on cleaning and winnowing (700 kg stood the value of ₹ 11,900/-) followed by drying, transportation from rice field to road and threshing. Cost incurred during Storage and Value Addition/Processing, the material cost accounts for ₹ 1850/-while the harvesting of rice, the foremost problem of entry of rodents and pig followed by Delaying of middleman to settle the amount, Flooding at the time of harvesting/winnowing, non availability of combine harvester as well as right path way and Low price of the produce.

To overcome the post-harvest losses the rice growers were suggested that avoid the labour shortage, promote more mechanization followed by Need more of threshing floor facilities, Increase the number of Government rice procurement centre and Training is essential for developing mechanized harvest operator skill the rice processor also have been losses at the time transporting from production

point to rice mill with 300 kg in terms of value ₹ 2400/- and in Grain scattering while threshing/ Combine harvesting would occur in minimum level of losses.

Rice processor has been incurred the cost of ₹ 4150/- for gunny bag for the storage and using the godown charges of ₹ 5000.

Major constraints faced by the rice processor of Irregular maturity of harvest, Water scarcity, Issue of cheque to the farmers, produce might be reduced in 10 kg. Suggestions given by the rice processors to minimize the post-harvest losses of rice, Allowing the produce to required drying in yard followed by Stored in a large quantity of rice with gunny bag in sequential manner, Rainy days to cover the rice bag in good condition to avoid the loss and Immediate drain the flood in the threshing floor/storage godown.

Rice growers might take more care on post-harvest operations like harvesting, threshing, winnowing, transportation, packaging and value addition of rice. Adopt proper techniques to minimize the losses. Government may be increasing the number of rice procurement centre at the time of harvesting with higher price to safeguards the rice growers from the middleman intervention.

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