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Abhishek Yadav
 P.G. Student MBA
 (Agribusiness), Department of
 Agriculture Economics, Sam
 Higginbottom University of
 Agriculture, Technology and
 Science, Prayagraj, Uttar
 Pradesh, India

Dr. Sanjay Kumar
 Assistant Professor,
 Department of Agriculture
 Economics, Sam Higginbottom
 University of Agriculture,
 Technology and Science,
 Prayagraj, Uttar Pradesh, India

Corresponding Author:
Abhishek Yadav
 P.G. Student MBA
 (Agribusiness), Department of
 Agriculture Economics, Sam
 Higginbottom University of
 Agriculture, Technology and
 Science, Prayagraj, Uttar
 Pradesh, India

Study on marketing and post-harvest losses of potato (Khufri Bahar) in Kannauj District (U.P.)

Abhishek Yadav and Dr. Sanjay Kumar

Abstract

This study aims to analyse the marketing costs, marketing margin, and price spread associated with the marketing of potatoes in a specific study area. The research focuses on understanding the financial dynamics and efficiency of various marketing channels involved in the potato supply chain. By examining these factors, the study seeks to provide insights into the economic viability and competitiveness of different marketing channels in the study area.

The research methodology involves data collection from multiple sources, including farmers, wholesalers, retailers, and relevant market stakeholders. Information on marketing costs, such as transportation, packaging, storage, and marketing fees, is gathered at each stage of the marketing process. Additionally, price data is collected to calculate marketing margins and price spreads for each marketing channel.

The collected data will be analysed using appropriate statistical methods and econometric models to estimate the marketing costs, marketing margins, and price spreads across the various marketing channels. The findings will be presented in tables, graphs, and descriptive statistics to provide a comprehensive overview of the financial aspects of potato marketing in the study area.

Keywords: Marketing costs, marketing margins, price spread, potato marketing, marketing channels, economic dynamics, efficiency, price differentials, market structure.

Introduction

Potato (*Solanum tuberosum* L.) popularly known as ‘The king of vegetables’, has emerged as fourth most important food crop in India after rice, wheat and maize. Indian vegetable basket is incomplete without Potato. Potato is a nutritionally superior vegetable due to its edible energy and edible protein. It has become an integral part of breakfast, lunch and dinner among the larger population. Being a short-duration crop, it produces more quantity of dry matter, edible energy and edible protein in lesser duration of time compared to cereals like rice and wheat. Hence, Potato is considered to be an important crop to achieve nutritional security of the nation.

Size of Samples

Table 1: Number of villages and selected farmers of Saurikh block

Table 1: Selection of Respondents, (N = 100)

Sr. No.	District	Block	Sample	Education	No of Farmers					Total
					Marginal	Small	Semi-medium	Medium	Large	
1	Kannauj	Saurikh	17	Hasanpur	2	6	2	2	5	17
2			Lalpur	4	4	2	2	2	14	
3			Biwipur	7	3	5	3	4	22	
4			Bijnaura	6	5	4	9	3	27	
5			Dadauna	9	4	2	3	2	20	
			100	Grand Total	30	20	16	23	11	100

A sample of 100 respondents was selected for the present study.

Price Spread

The price spread is worked out by computing the difference between the market price and the net price received by the producers. This difference represents the gross marketing margin.

$$P_s = P_f / P_c * 100$$

Where,

P_s = Producer's share in Consumer's Rupee.

P_f = Price of the produce received by the farmer.

P_c = Price of the produce price of the produce paid by the consumer.

Marketing Margin

Marketing Margin of middleman calculated as the difference between the total payments (marketing cost + purchase price) and receipts (sale price) of the middlemen and calculated as follows.

$$A_{mi} = P_{Ri} - (P_{pi} + C_{mi})$$

Channel-wise description of each marketing channel observed on the basis of their share in the marketing of Potatoes (Kufri Bahar)

Channel-I



Table 2: Price spread of potato (Kufri Bahar) in channel I

S. No	Particulars	Price/50 Kg
	Net price received by producer	600
Cost incurred by the producer		
A	Transportation cost	20
B	Loading and unloading charges	20
C	Miscellaneous charges	20
D	Marketing cost	60
E	Sale price of producer/Purchase price of Wholesaler	660
Cost incurred by the Wholesaler		
A	Loading & Unloading Charges	20
B	Miscellaneous charges	20
C	Post-harvest losses	20
D	Marketing cost	60
E	Margin of Wholesaler	120
F	Sale price of Wholesaler/ Purchase price of customer	840
	Total Marketing cost	120
	Net margin	120
	Price Spread	240
	Market efficiency by conventional method	0.83
	Producer's share in consumer rupee	71.42%

Table 2 reveals about the price spread of potato (50kg) in which total marketing cost was Rs.120, net margin was

Rs.120, price spread was Rs.240, marketing efficiency was 0.83, and producer share in consumer rupee was 71.42%.

Channel II



Where,

A_{mi} = Absolute margin of middlemen

P_{Ri} = Total value of receipts per unit (sale price)

P_{pi} = Purchase value of goods per unit

C_{mi} = Cost incurred on marketing per unit

GMM (Rs) = Consumer s price – Producers

Marketing Costs

The total cost, incurred on marketing by the potato growers and various intermediaries involved in the sale and purchase of the commodity till the commodity reaches to the ultimate consumer was calculated as.

$$TC_m = C + \sum_{i=1}^n MC_i$$

Where,

TC_m = Total cost of persimmon marketing,

C_g = Cost paid by the grower in the marketing of his produce

MC_i = Marketing costs incurred by i^{th} middleman.

Table 3: Price spread of potato (Kufri Bahar) in Channel II

S. No	Particulars	Price/50 Kg
	Net price received by producer	600
Cost incurred by the producer		
A	Transportation cost	20
B	Loading and unloading charges	20
C	Miscellaneous charges	20
D	Marketing cost	60
E	Sale price of producer/Purchase price of Wholesaler	660
Cost incurred by the Wholesaler		
A	Loading & Unloading Charges	15
B	Post-harvest loss	20
C	Transportation	10
D	Marketing cost	45
E	Margin of Village Dealer	50
F	Sale price of Wholesaler / Purchase price of Retailer	755
Cost incurred by the Retailer		
A	Loading and unloading Charges	20
B	Post-harvest loss	10
C	Carriage up to shop	20
D	Miscellaneous charges	20
E	Marketing cost	70
F	Margin of Retailer	120
G	Sale price of Retailer/ Purchase price of consumers	945
	Total Marketing cost	175
	Net margin	170
	Price Spread	345
	Market efficiency by conventional method	0.68
	Producer's share in consumer rupee	63.49%

Table 3 reveals about the price spread of potato (50kg) in which total marketing cost was Rs.175, net margin was Rs.170, price spread was Rs.345, marketing efficiency was 0.68, and producer share in consumer rupee was 63.49%.

Table 4: Comparison table of Channel I and Channel II

Comparison points	Channel I	Channel II
Total Marketing cost	120	175
Total market margin	120	170
Price Spread	240	345
Market efficiency by conventional method	0.83	0.68
Producer's share in consumer rupee	71.42%	63.49%

Table 4 reveals about the marketing efficiency of Potato in different marketing channels in which marketing efficiency of channel I by conventional method is 0.83 and marketing efficiency of channel II is 0.68. The total marketing price was high in channel II in comparison of other channels. The maximum net margin received by market intermediaries is highest in Channel II i.e., 170.

Conclusion

Post-harvest losses along agri-food supply chain have been identified as one of the major causes of the food shortage problems in most of the developing countries. Farmers channel their limited resources to crop production, and lose the harvested produce before it reaches the market or consumers due to factors beyond their control leading to a significant loss in their expected income and jeopardizing their welfare. Hence, the problem of post-harvest losses which is responsible for food insecurity should be dealt with utmost priority with an attempt to attain food self-sufficiency, increased market participation by farmers, and proper use of our limited natural resources. This study would help the scientists, technologists, policymakers, administrators, farmers, industrialists, retailers etc. in developing strategies for improving the production and pre-harvest and post-harvest handling techniques for minimizing the post-harvest losses

and making them available to the farmers through training programs.

From the study, various causes for the post-harvest losses of potatoes were identified and following generic measures to reduce these losses are recommended

- Encouragement of adequate training of farmers for post-harvest handling techniques Establishment of processing units.
- Mechanization of harvesting and procurement.
- Appropriate cold storage facilities during transit and on-farm storage facilities.
- Following quality standards to reduce rejection rate.
- Adequate packaging and sanitation.
- A well-connected logistics network.
- Strengthening of marketing infrastructure.
- Proper pre-harvest management and appropriate time of harvest.
- Processing of unmarketable produce to avoid food wastage.
- Reliable estimates of the post-harvest losses will help in developing correct policies.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Reference

1. Agrawal GD. Price spread in marketing of Agricultural produce. The Indian Journal of Agricultural B Economics. 1949;9:94.
2. Arun Pandit, Rajesh K, Rana Pandu NK, Kumar NR. Potato marketing in India. Ind. Hort; c2003. p. 35-36.
3. Anon. Reporting of marketing of potatoes in India Burma. Manager of Publication Delhi; c1941. p. 332.

4. Balakrishnan V, Swaminathan LP, Puhazhendhi V. An analysis of price and arrivals of potato in Nilgiri District of Tamil Nadu. *Agricultural marketing*. 1981;23(4):1-4.
5. Bishal Bista, Devashish Bhandari. Potassium Fertilization in Potato, *International Journal of Applied Sciences and Biotechnology*; c2019.
6. Balwinder Singh, Sidhu DS. Price structure and price spreads in potatoes in the Punjab. *Annual research report 1979-80. Dept. of Econ, 1979-80.*
7. Glyn Harper. Potatoes, *Crop Post-Harvest Science and Technology Perishables*; c2012.
8. Hanafi. A. Integrated pest management of potato tuber moth in field and storage. *Potato Res.* 1999;42:373-380.
9. Jaspreet Singh, Lovedeep Kaur. *Chemistry Processing and Nutritional Attributes of Potatoes an Introduction.* Elsevier BV; c2016.
10. Johl SS, Dahiya PS. Potato marketing with special reference to storage and processing in the world, *Abstracts, Global conference on potato, New Delhi; c1999. p. 51-53.*