

Original Research Article

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Study on Marketing of Hybrid Wheat Seeds in Maunath Bhanjan District of Uttar Pradesh with Special Reference to Socio-Economic Profile of Respondents and Evaluation of Marketing Costs, Margins, Price Spread and Market Efficiency

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ABSTRACT

Keywords

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The study was designed with the conspicuous objective of evaluating the costs involved in soybean cultivation and repayment from soybean production in the study area. Primary data were collected from 80 soybean growers stationed in 10 randomly selected villages in a purposively selected block of Wardha district. The respondents were grouped into three size categories: marginal, small, and medium. Founded on their size of holding. The secondary data was collected from various sources. It was observed that the total cost of cultivation for marginal small and medium soybean growers was Rs 23071.85, 25919.21, and 26602.55, respectively, on an average cost of cultivation of Rs 26394.69 on one hectare of land for soybean. The yield of soybean procured by the producer in the study period was found to be 11.44 qt/ha on an overall basis and higher in medium farms. Gross income from per hectare of soybean cultivation was estimated at Rs 39598.08, and net return was Rs 13203.39 per hectare. The cost of production of soybean was calculated at Rs 26394.69 qt/ha. The benefit cost ratio was found to be 1:1.50.

Introduction

Soybean (*Glycine max*) is one of the most important oil crops in the world and also has tremendous importance as a food legume. Soy oil finds a variety of uses for domestic and industrial purposes, besides its use in

several food preparations and animal feed. With a 53% global production share of all oilseed crops, soybeans find an important place in most of the agricultural production systems of major countries, including the USA, China, Brazil, Argentina, and India. It has found an important place in major crop improvement programmes,

and consequently, there has been a considerable increase in its production and productivity over the last two decades. A number of stable, high-yielding, and biotic stress-resistant varieties have been developed using various traditional and modern crop improvement tools. Herbicide-tolerant transgenic soybean has witnessed huge commercial success and has become a leading biotech crop. At the same time, modifications to the fatty acid profile of soy oil and improvements in protein content and nutritional quality have established soybean as one of the most viable commercial crops. Soybean is a native of China. Farmers have realised that there will be exceptionally good prices on soybeans in 2021. Hence, there has been a decision to have 10–12% more area under soybean cultivation. Local soybean prices have been more than doubled since the start of the 2021–23 marketing year on October 1 and hit a record high of nearly 8100 rupees per 100kg on a sharp rise in soy meal exports.

The marketing of hybrid wheat seeds has become an important aspect of agricultural development in India, especially in states like Uttar Pradesh where wheat is one of the major food crops. Hybrid wheat seeds are widely preferred by farmers because they provide higher yield, better resistance to pests and diseases, and improved adaptability to changing climatic conditions. In Maunath Bhanjan district, agriculture is the primary occupation of the rural population, and the use of quality hybrid seeds plays a significant role in increasing farm productivity and farmers' income. Efficient marketing of hybrid wheat seeds ensures timely availability of seeds to farmers through proper distribution channels such as wholesalers, retailers, and local dealers.

The present study, titled “Study on Marketing of Hybrid Wheat Seeds in Maunath Bhanjan District of Uttar Pradesh,” aims to analyze the socio-economic profile of the respondents and examine the marketing efficiency of hybrid wheat seeds in the study area. The socio-economic characteristics of farmers, such as age, education, landholding size, family structure, occupation, and annual income, greatly influence their awareness, purchasing capacity, and adoption of hybrid seeds. Understanding these factors helps in identifying farmers' preferences and decision-making behavior regarding seed usage.

The study also focuses on evaluating marketing costs, marketing margins, price spread, and market efficiency in the hybrid wheat seed market. Marketing cost includes

transportation, storage, packaging, and other expenses incurred during the movement of seeds from producers to farmers. Marketing margin refers to the profit earned by intermediaries, while price spread indicates the difference between the producer's price and the price paid by farmers. Market efficiency measures the effectiveness of the marketing system in delivering seeds at reasonable cost. The study will help identify existing marketing problems and provide useful suggestions for improving the distribution and availability of hybrid wheat seeds in the district.

The objectives of the study are to examine the socio-economic profile of the respondents in the study area and to evaluate the marketing costs, marketing margins, price spread, and market efficiency of hybrid wheat seed.

Materials and Methods

Sampling Design

For the present study entitled “Study on Marketing of Hybrid Wheat Seeds in Maunath Bhanjan District of Uttar Pradesh”, a multistage sampling design was adopted for the selection of respondents. In this design, district was considered as the first stage unit, block as the second stage unit, villages as the third stage unit, and farm households as the final sampling unit. The methodology was adopted to fulfill the objectives of studying the socio-economic profile of respondents and evaluating marketing costs, marketing margins, price spread, and market efficiency of hybrid wheat seeds.

Selection of District

There are 75 districts and 18 divisions in Uttar Pradesh. Maunath Bhanjan district was selected purposively for the present study because wheat is one of the major crops cultivated in the district and the use of hybrid wheat seeds has increased significantly in recent years.

The district has a well-developed agricultural market structure and active participation of seed dealers and farmers in hybrid seed marketing.

Selection of Blocks

There are 9 development blocks in the district. Out of these, one Ranipur block was selected purposively for the present study on the basis of maximum area under hybrid wheat cultivation. The agro-climatic conditions of the

selected block are highly suitable for the cultivation of hybrid wheat. The farmers of this block have been cultivating hybrid wheat for several years, which makes it an appropriate area for the study.

Selection of Villages

There is total 87 villages in Ranipur block obtained from the block development office. Thereafter these villages were arranged in order on the basis of area of cultivation. Thus, out of total villages 5% villages were selected randomly for the present study.

Selection of Respondents/Farmers

A separate list of farmers using hybrid wheat seeds was collected from village records and local agricultural officers. Farmers were classified into different categories on the basis of landholding size. From the selected villages, respondents were selected randomly through proportionate allocation method. A total of 100 respondents were selected for detailed investigation.

The primary data required for the study were collected through personal interviews using a pre-tested structured schedule.

Information regarding socio-economic characteristics, marketing channels, marketing costs, marketing margins, and prices of hybrid wheat seeds was collected from the respondents for analysis.

Selection of Respondents/Farmers

Sr. No.	Category	Size Class
1	Marginal Farmers	Below 1.00 hectare
2	Small Farmers	1.00 – 2.00 hectare
3	Semi-Medium Farmers	2.00 – 4.00 hectare
4	Medium Farmers	4.00 – 10.00 hectare
5	Large Farmers	10.00 hectare & above

(<https://www.pib.gov.in>)

From this list 100 respondents were selected randomly through proportionate allocation to the population.

Analysis of data/ analytical tools used

The present study entitled “Study on Marketing of

Hybrid Wheat Seeds in Maunath Bhanjan District of Uttar Pradesh” was conducted to analyze the socio-economic profile of respondents and to evaluate marketing costs, marketing margins, price spread, and market efficiency of hybrid wheat seeds. Both primary and secondary data were used for the study. The collected data were carefully compiled, tabulated, and analyzed using suitable statistical and economic tools to achieve the objectives of the study.

Analytical techniques employed

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Chi-Square: A chi-square (χ^2) statistic is a test that measures how a model compares to actual observed data. The data used in calculating a chi-square statistic must be random, raw, mutually exclusive, drawn from independent variables, and drawn from a large enough sample.

Chi-square tests are often used to test hypotheses. The chi-square statistic compares the size of any discrepancies between the expected results and the actual results, given the size of the sample and the number of variables in the relationship.

Where, X^2 = chi squared

O_i = observed value

E_i = expected value

Marketing Cost: The total cost, incurred on marketing either in cash or in kind by the producer seller and by the various intermediaries involved in the sale and purchase of the commodity reaches the ultimate consumer.

$$C = C_f + C_{m1} + C_{m2} + C_{m3} + C_{m4} + C_{mn}$$

Where, C = Total cost of marketing of commodity

C_f = Cost paid by the producer from the time of produce leave farm till he sale it

C_{m1} = Cost incurred by the middleman in the process of buying and selling the product.

Market Margin:

This is the difference between the total payments (cost + purchase price) and receipts (sale price) of the middle man (ith agency). Absolute margin of the middle man (Ami)

$$AMI = Pri - (Ppi + Cmi)$$

(a) Percentage margin of the middle man (Pmi)

$$Pmi = \frac{Pri - (Ppi + Cmi)}{PRI} \times 100$$

Where, Pri-the total value of receipts per unit (sale price)
Ppi-the purchase value of good per unit (purchase price).
Cmi-the cost incurred on marketing per unit

Price Spread:

Price spread was worked out to estimate the difference between the price paid by farmers and the price received by seed producers.

$$PS = CP - FPPS = CP - FPPS = CP - FP$$

Where:

PS = Price Spread

CP = Consumer's Price

FP = Producer's Price

Marketing Efficiency: It was calculated using Acharya's Modified Marketing efficiency as follows-

$$MME = \frac{FP}{MC + MM}$$

Where

MME is modified measure of marketing efficiency FP = Price received by producer

MC'= Marketing cost MM = Marketing margin.

Result and Discussion

The socio-economic characteristics of farmers play an important role in the adoption and marketing behavior of hybrid wheat seeds in Maunath Bhanjan. The collected information regarding farm size, age, education, gender, family type, and annual income of respondents is presented below.

Table.1 Distribution of Respondents According to Farm Size

Sr. No.	Farm Category	Size	Number of Respondents	Percentage (%)
1	Marginal Farmers	(<1 hectare)	37	37.00
2	Small Farmers	(1–2 hectare)	19	19.00
3	Semi-Medium Farmers	(2–4 hectare)	16	16.00
4	Medium Farmers	(4–10 hectare)	15	15.00
5	Large Farmers	(Above 10 hectare)	13	13.00
	Total		100	100.00

Interpretation

The data presented in Table.1 indicate that the majority of respondents belonged to the marginal farmer category, accounting for 37.00 percent of the total sample. Small farmers constituted 19.00 percent, followed by semi-medium farmers (16.00%), medium farmers (15.00%), and large farmers (13.00%). This indicates that small and marginal landholdings dominate the study area.

Table.2 Distribution of Respondents According to Age, Gender and Family Type

Particulars	Category	Number of Respondents	Percentage (%)
Age	Young (20–35 years)	67	67.00
	Middle (36–50 years)	25	25.00
	Old (Above 51 years)	08	08.00
Gender	Male	72	72.00
	Female	28	28.00
Family Type	Nuclear Family	83	83.00
	Joint Family	17	17.00
	Total	100	100.00

Interpretation

The study revealed that the majority of respondents (67.00%) belonged to the young age group of 20–35 years, indicating active participation of younger farmers in hybrid wheat seed cultivation and marketing. About 25.00 percent were middle-aged, while only 08.00 percent belonged to the old age category. With regard to gender composition, male respondents dominated the sample with 72.00 percent, whereas female respondents accounted for 28.00 percent. The family type analysis showed that 83.00 percent of respondents belonged to nuclear families, while only 17.00 percent belonged to joint families. This indicates the growing trend of nuclear family systems in rural areas.

Table.3 Distribution of Respondents According to Education and Annual Income

Sr. No.	Category	Number of Respondents	Percentage (%)
Education Level			
1	Illiterate	35	35.00
2	Primary School	24	24.00
3	Junior High School	16	16.00
4	High School	14	14.00
5	Intermediate	07	07.00
6	Graduate	04	04.00
Annual Income			
1	Below Rs. 1,00,000	37	37.00
2	Rs. 1,00,001 – 2,50,000	25	25.00
3	Rs. 2,50,001 – 5,00,000	20	20.00
4	Above Rs. 5,00,000	18	18.00
	Total	100	100.00

Interpretation

The educational status of respondents revealed that 35.00 percent of farmers were illiterate, while 24.00 percent had education up to primary school level. Respondents educated up to junior high school and high school accounted for 16.00 percent and 14.00 percent, respectively. Only 07.00 percent had intermediate education, whereas 04.00 percent were graduates. The findings indicate a moderate literacy level among farmers in the study area.

The annual income distribution showed that 37.00 percent of respondents earned less than Rs. 1,00,000 annually. About 25.00 percent had annual income between Rs. 1,00,001 and Rs. 2,50,000, while 20.00 percent earned between Rs. 2,50,001 and Rs. 5,00,000. Only 18.00 percent of respondents had annual income above Rs. 5,00,000.

Table.4 Marketing Cost, Marketing Margin, Price Spread, and Marketing Efficiency in marketing of Wheat through Channel I.

Channel-I: Producer → Wholesaler → Consumer

Sr. No.	Particulars	Hybrid Wheat seed
		Value in Rs. / Quintal
1.	Producer sale price to Wholesaler	2350
2	Marketing cost incurred by the producer	
(i)	Packaging Cost	15
(ii)	Package material cost	28
(iii)	Transportation cost	24
(iv)	Market cost	30
(v)	Labour cost	38
(vi)	Loading and Unloading Charge	25
(vii)	Weighing Charge	10
(viii)	Miscellaneous Charge	65
	Total cost (i-viii)	235
	Net price received by the producer	2115
	Wholesaler selling price to Consumer	2585
3.	Marketing cost insured by the retailer	
i.	Loading and Unloading charges	18
ii.	Charges up to the shop	13
iii.	Weighing charge	10
iv.	Town charge	30
v.	Transportation	35
vi.	Losses and miscellaneous charges	65
	Total Cost. (i-vii)	171
	Margin of the Wholesaler	
A	Total marketing cost	406
B	Total marketing margin	64
C	Price Spread	812
D	Marketing Efficiency	3.15%

Table 4 Reveals that in channel-I the selling price of Wheat from producer to Wholesaler is Rs. 2350, the marketing cost incurred by the producer in marketing of 1 quintal of Wheat to the Wholesaler is Rs. 235. Wholesaler selling price to consumer is Rs. 2585/quintal, marketing cost incurred by the Wholesaler is Rs. 171, margin of Wholesaler is Rs.64/quintal. Eventually the total marketing cost is Rs.488, total marketing margin is Rs.406, price spread in channel-I is Rs 470, marketing efficiency of channel-I is 3.15% respectively.

Table 5 Marketing Cost, Marketing Margin, Price Spread and Marketing Efficiency in marketing of Wheat through Channel II.

Channel-II: Producer-Wholesaler-Retailer-Consumer

Sr. No.	Particulars	Hybrid Wheat seeds
		Value in Rs. / Quintal
1.	Producer sale price to wholesaler	2585
2	Marketing cost incurred by the producer	
i.	Packaging Cost	19
ii.	Package material cost	31
iii.	Transportation cost	20
iv.	Market cost	30
v.	Labour cost	28
vi.	Loading and Unloading Charge	25
vii.	Weighing Charge	15
viii.	Miscellaneous Charge	65
	Total cost (i-viii)	233
	Net price received by the producer	2352
3.	Wholesaler selling price to Retailer	2818
4.	Marketing cost insured by the Wholesaler	
i.	Loading and Unloading charges	20
ii.	Grading	21
iii.	Packging	30
iv.	Market Fee	37
v.	Losses and miscellaneous charges	65
	Total cost (i-v)	173

Margin of wholesaler		406
5.	Retailer Selling price to Consumer	3300
6.	Marketing cost insured by the Retailer	
i.	Weighing charges	24
ii.	Loading and unloading charges	33
iii.	Town charges	30
iv.	Carriage up to shop	37
v.	Miscellaneous charges	70
	Total cost (i-v)	194
Margin of Retailer		
A	Total marketing cost	600
B	Total marketing margin	348
C	Price Spread	948
D	Marketing Efficiency	2.48%

Table.5 Reveals that the selling price of Wheat from producer to wholesaler is Rs. 2585/ quintal, marketing cost incurred by the producer in marketing of. 1 quintal of wheat is Rs.233. Selling price of wheat from wholesaler to retailer is Rs. 2818, marketing cost incurred by the wholesaler is Rs. 173, margin of the wholesaler is Rs.406, selling price of Wheat from retailer to consumer is Rs. 3300 marketing cost incurred by the retailer is Rs. 194, margin of the retailer is Rs. 288. Eventually the total marketing cost in channel-II is Rs. 348 total marketing margin in channel-II is Rs 948, price spread in channel-II is Rs. 1699, marketing efficiency of channel-II is 2.48% respectively.

Table.6 Comparison between Marketing Cost, Marketing Margin, Price Spread, and Marketing Efficiency in marketing of Wheat through channel-I and Channel-II in the study area.

Sr. No.	Particulars	Value in Rupees / quintal	Value in Rupees / quintal
		Channel I	Channel II
1.	Net price received by the producer	2115	2532
2.	Consumer paid price	2585	3300
3.	Total marketing cost	406	600
4.	Total marketing margin	64	348
5.	Price spread	812	948
6.	Marketing Efficiency	3.15%	2.48%

Table.6 Reveals that comparison of marketing cost, marketing margin, price spread, marketing efficiency in marketing of wheat in channel-I, channel-II. In channel I, net price received by the producer is Rs 2115, Consumer paid price in channel-I is Rs 2585, the total marketing cost in channel I is Rs. 406, the marketing margin was Rs. 64, the price spread seen in channel I is Rs. 812 and marketing efficiency of Channel-I is. 3.15% In Channel-II, net price received by the producer is Rs 2532, Consumer paid price in channel-II is Rs 3300, total marketing cost is Rs. 348, total marketing margin in channel -II is Rs 948, price spread in channel -II is Rs. 1699, marketing efficiency of channel – II is 2.48% respectively.

The present study entitled “Study on Marketing of Hybrid Wheat Seeds in Maunath Bhanjan District of Uttar Pradesh” was conducted to analyze the socio-economic profile of respondents and evaluate marketing costs, marketing margins, price spread, and marketing efficiency of hybrid wheat seeds through different marketing channels. The findings of the study provide useful insights into the existing marketing structure and socio-economic conditions of farmers in the study area. The socio-economic analysis revealed that the majority of respondents belonged to the marginal farmer category, accounting for 37.00 percent of the total sample, followed by small farmers (19.00%). This indicates the dominance of small and marginal landholdings in the district. Most respondents were young farmers in the age group of 20–35 years, showing active participation of youth in agriculture and hybrid wheat seed cultivation. Male respondents dominated the study area with 72.00 percent participation, while the majority of families were nuclear in nature. Educational analysis showed that a considerable proportion of farmers were illiterate, though many respondents had primary and secondary education. Income analysis indicated that most farmers belonged to lower and middle-income groups, which influences their purchasing capacity and adoption of improved seed technology. The study further examined the marketing costs, marketing margins, price spread, and marketing efficiency of hybrid wheat seeds through two marketing channels. In Channel-I (Producer → Wholesaler → Consumer), the total marketing cost was Rs. 406 per quintal, while the total marketing margin was Rs. 64 per quintal. The price spread in this channel was Rs. 812 per quintal, and the marketing efficiency was found to be 3.15 percent. In Channel-II (Producer → Wholesaler → Retailer → Consumer), the total marketing cost increased to Rs. 600 per quintal, and the total marketing margin

increased to Rs. 348 per quintal. Consequently, the price spread also increased to Rs. 948 per quintal, while marketing efficiency declined to 2.48 percent. The comparison between the two channels clearly indicates that Channel-I was more efficient than Channel-II because of lower marketing costs, fewer intermediaries, and a smaller price spread.

The involvement of additional intermediaries in Channel-II increased the marketing cost and reduced the share of producers in the consumer's price. Therefore, shorter marketing channels were found to be more beneficial and efficient for both producers and consumers. The study concludes that improving transportation facilities, reducing unnecessary intermediaries, strengthening direct marketing systems, and increasing farmers' awareness regarding market information can improve the efficiency of hybrid wheat seed marketing in the district. These measures will help farmers receive better prices and ensure timely availability of quality hybrid wheat seeds at reasonable rates.

The present study entitled “Study on Marketing of Hybrid Wheat Seeds in Maunath Bhanjan District of Uttar Pradesh” was undertaken to examine the socio-economic profile of farmers and analyze the marketing costs, marketing margins, price spread, and marketing efficiency of hybrid wheat seeds in the study area. The study was based on primary data collected from 100 respondents selected through a multistage sampling method. The socio-economic analysis revealed that the majority of respondents (37.00%) belonged to the marginal farmer category, followed by small farmers (19.00%). Most respondents were young farmers in the age group of 20–35 years (67.00%), indicating active involvement of younger farmers in hybrid wheat seed cultivation and marketing activities. Male respondents constituted 72.00 percent of the total sample, while female respondents accounted for 28.00 percent. The majority of respondents (83.00%) belonged to nuclear families.

Educational analysis showed that 35.00 percent of respondents were illiterate, while the remaining respondents had education ranging from primary school to graduation level. The annual income distribution indicated that 37.00 percent of respondents earned below Rs. 1,00,000 annually, while only 18.00 percent earned above Rs. 5,00,000 per year. The study further evaluated the marketing system of hybrid wheat seeds through two marketing channels. In Channel-I (Producer →

Wholesaler → Consumer), the total marketing cost was Rs. 406 per quintal, the total marketing margin was Rs. 64 per quintal, and the price spread was Rs. 812 per quintal. The marketing efficiency of this channel was found to be 3.15 percent. In Channel-II (Producer → Wholesaler → Retailer → Consumer), the total marketing cost increased to Rs. 600 per quintal, while the total marketing margin was Rs. 348 per quintal.

The price spread in this channel was Rs. 948 per quintal, and the marketing efficiency was comparatively lower at 2.48 percent. The comparative analysis indicated that Channel-I was more efficient than Channel-II because it involved fewer intermediaries, lower marketing costs, and a smaller price spread. The study concluded that reducing unnecessary intermediaries, improving transportation facilities, and strengthening direct marketing systems can improve market efficiency and provide better returns to farmers as well as quality hybrid wheat seeds to consumers at reasonable prices.

Author Contributions

Aradhana Masih: Investigation, formal analysis, writing—original draft. Amit Kumar: Validation, methodology, writing—reviewing. Mrityunjay Banerjee:—Formal analysis, writing—review and editing.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical Approval Not applicable.

Consent to Participate Not applicable.

Consent to Publish Not applicable.

Conflict of Interest The authors declare no competing interests.

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