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Study on marketing of button Mushroom in Prayagraj district

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Abstract

Button mushroom (*Agaricus bisporus*) is one of the most widely cultivated edible fungi in the world and plays an important role in improving nutrition, income, and employment opportunities. In India, mushroom cultivation has emerged as a profitable agri-business, particularly for small and marginal farmers due to its low land requirement, short production cycle, and use of agricultural residues. In Uttar Pradesh, especially in Prayagraj district, mushroom cultivation is expanding due to increasing urban demand and favourable market conditions. However, farmers face several marketing-related constraints that affect profitability and efficiency. The present study titled “A Study on Marketing of Button Mushroom in Prayagraj District” was conducted to analyze the socio-economic profile of mushroom growers, existing marketing channels, marketing costs, price spread, producer’s share in consumer’s rupee, marketing efficiency, and major constraints faced by farmers. The study was based on primary data collected from 100 randomly selected mushroom growers along with relevant secondary data. A multistage sampling design was adopted, and data were analyzed using statistical tools such as averages, percentages, and ratios. The findings revealed that most mushroom growers belonged to the middle age group with secondary-level education and were predominantly small and marginal farmers. Mushroom cultivation was found to be an important supplementary income source, with significant involvement of family labour. Three major marketing channels were identified: Producer → Consumer, Producer → Retailer → Consumer, and Producer → Wholesaler → Retailer → Consumer. Among these, the direct marketing channel (Producer → Consumer) was the most efficient, providing the highest producer’s share in the consumer’s rupee and the lowest marketing costs. Marketing costs and price spread increased with the number of intermediaries, reducing farmers’ profit margins. Major constraints identified included lack of cold storage facilities, price fluctuations, high transportation costs, inadequate market information, and dependence on middlemen. The study concludes that strengthening marketing infrastructure, improving cold chain facilities, and promoting direct marketing systems can significantly enhance marketing efficiency and increase farmers’ income in the study area.

Keywords: Button mushroom, Marketing channels, Price spread, Marketing efficiency, Small farmers, Prayagraj district, Mushroom cultivation

Introduction

Button mushroom is one of the most important edible mushrooms cultivated in the world and has gained considerable importance in India due to its high nutritional value, increasing consumer demand, and commercial potential. It is widely preferred because of its rich protein content, low fat, vitamins, minerals, and medicinal properties. In recent years, mushroom cultivation has emerged as a profitable agri-business activity, providing employment opportunities and additional income to farmers, entrepreneurs, and rural households. India has witnessed a steady increase in mushroom production, particularly in states such as Uttar Pradesh, Haryana, Punjab, Himachal Pradesh, and Maharashtra. Apart from fresh consumption, button mushrooms are also processed into canned, dried, and packaged products, creating wider market opportunities. Due to their highly perishable nature and short shelf life, proper marketing and efficient post-harvest handling are essential to maintain quality and reduce losses. In Uttar Pradesh, mushroom cultivation is gradually becoming an important component of agricultural diversification and income generation.

Prayagraj district, in particular, has favorable conditions for button mushroom cultivation because of the growing urban population, increasing awareness about nutritious food, and easy availability of agricultural residues used in compost preparation. Many small and medium-scale farmers in the district are engaged in mushroom production and marketing activities. The produce is supplied to local vegetable markets, retail shops, supermarkets, hotels, restaurants, and nearby urban centers. However, despite increasing demand and production potential, mushroom growers face several marketing-related problems such as lack of organized markets, inadequate cold storage facilities, transportation difficulties, price fluctuations, and dependence on intermediaries. These issues reduce the profitability of mushroom cultivation and affect the efficiency of the marketing system.

Marketing of button mushroom involves various activities including harvesting, grading, packaging, storage, transportation, and distribution through different marketing channels. Since mushrooms are highly perishable, they require immediate marketing and proper storage conditions to preserve freshness and quality. The marketing system generally consists of producers, wholesalers, commission agents, retailers, private traders, supermarkets, hotels, and final consumers. Mushrooms are usually packed in trays, plastic containers, or cartons and transported quickly to nearby markets to avoid spoilage and weight loss. Understanding the structure and functioning of the mushroom marketing system is essential to identify inefficiencies and improve market performance.

The present study titled “A Study on Marketing of Button Mushroom in Prayagraj District” aims to analyze the existing marketing system of button mushroom and examine the major marketing problems faced by mushroom growers and traders in the study area. The study also focuses on the socio-economic characteristics of mushroom growers, such as age, education, farming experience, landholding size, investment capacity, training exposure, and income levels, which influence production and marketing decisions. These factors play an important role in determining access to market information, adoption of improved marketing practices, and overall market participation.

The study further examines the marketing channels, marketing costs, price spread, market margins, and market efficiency associated with button mushroom marketing in Prayagraj district. It highlights issues such as inadequate cold storage facilities, lack of scientific packaging methods, transportation bottlenecks, perishability of produce, price instability, and dependence on middlemen. The study also evaluates the role of cooperatives, wholesalers, retailers, and private dealers in the distribution process. By analyzing these aspects, the study aims to identify gaps in the marketing system and suggest suitable measures to improve marketing efficiency, reduce post-harvest losses, strengthen market linkages, enhance farmers' income, and promote the sustainable development of button mushroom cultivation in the district.

Objectives

- To study the socio-economic profile of button mushroom.
- To identify the marketing channel of button mushroom.

Research Methodology

Sampling Design

For the present study titled “A Study on Marketing of Button Mushroom in Prayagraj District”, a multistage sampling design was used to select respondents. At the first stage, Prayagraj district was selected purposively due to the increasing cultivation and marketing activities of button mushroom in the district. At the second stage, blocks were selected based on the concentration of mushroom production and marketing activities, followed by the selection of villages at the third stage through random sampling. At the final stage, button mushroom growers and key stakeholders such as wholesalers, retailers, commission agents, private traders, and consumers were selected as respondents. This sampling design was adopted to collect reliable and representative data for analyzing the marketing system, marketing costs, price spread, market efficiency, and constraints faced by button mushroom growers in the study area.

Selection of District

The present study was conducted in Prayagraj district of Uttar Pradesh. The district was selected purposively because it has witnessed a growing interest in mushroom cultivation, especially button mushroom, due to increasing demand in urban markets, hotels, restaurants, and supermarkets. Prayagraj district has favorable climatic conditions, availability of agricultural residues, and increasing awareness among farmers about mushroom cultivation as an alternative income source. Button mushroom cultivation has gained importance due to its high market demand, nutritional value, and profitability compared to traditional crops.

Selection of Blocks

Prayagraj district has several development blocks. Out of these, Meja Block was selected purposively for the present study due to its increasing button mushroom cultivation, active marketing activities, and growing commercial importance. Mushroom cultivation plays an important role in providing additional income and employment to farmers in the block. The selected block represents the typical production and marketing pattern of button mushroom in Prayagraj district, making it suitable for the present study.

Selection of Villages

There are a total number of villages in Meja Block of Prayagraj district as obtained from the Block Development Office. Thereafter, all the villages were arranged on the basis of their agricultural importance and extent of button mushroom cultivation. Thus, out of the total villages, five villages were selected randomly for the present study on marketing of button mushroom in Prayagraj district. These selected villages represent the actual field situation regarding button mushroom production practices, handling, and marketing system in the study area.

Selection of Respondents/Farmers

A list of button mushroom growers in the selected villages was obtained from the District Agriculture Office and Horticulture Department. From this list, 100 mushroom growers were selected randomly for detailed investigation regarding:

- Socio-economic characteristics
- Production practices

- Marketing channels
- Marketing cost and margin
- Price spread and marketing efficiency
- Constraints faced in mushroom marketing

Sr.no	Type of farmers	Area in hectare
1	Marginal	Up to 200–300 kg
2	Small	300–700 kg
3	Semi-Medium	700–1500 kg
4	Medium	1500–3000 kg
5	Large	Above 3000 kg

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

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.

Analysis of data/ analytical tools used

The present study titled “A Study on Marketing of Button Mushroom in Prayagraj District” was based on both primary and secondary data. The primary data were collected from button mushroom growers, wholesalers, retailers, traders, and other market intermediaries involved in the marketing system, while secondary data were obtained from published reports, agriculture department records, research publications, and relevant literature.

The collected data were compiled, tabulated, and analyzed using suitable statistical tools such as averages, percentages, and ratios. For examining the marketing of button mushroom, indicators like marketing channels, marketing costs, price spread, transportation facilities, storage conditions, market margins, market efficiency, and constraints faced by mushroom growers were used to assess the performance of the mushroom marketing system in the study area.

Analytical techniques employed

$$\text{Arithmetic Mean} = \text{AM} = \frac{1}{n} \sum_{i=1}^n a_i$$

Where, AM = Arithmetic Mean

n = Number of values

a_i = Data set values

Cost and returns per hectare of button mushroom in the study area

Cost of soybean production

Cost- A1

Value of hired human labour

Value of hired bullock labour

Value of owned bullock labour

Value of owned machinery labour

Hired machinery charges

Value of seed (both farm produced and purchased)

Value of insecticide and pesticide

Value of manures (owned and purchased)

Value of fertilizer

Depreciation on implements and farm buildings

Irrigation charges

Land revenue, cases and other taxes

Interest on working capital

Miscellaneous expenses (artisans etc.)

Cost A2: Cost A1 + rent paid for leased in land

Cost B1: Cost A1 + interest on value of owned fixed capital assets (excluding Land)

Cost B2: Cost B1+ rental value of owned land (net of land revenue) and rent paid for leased-in land

Cost C1: Cost B1+ imputed value of family labour

Cost C2: Cost B2+ imputed value of family labour

Cost C2: Cost C2 adjusted to take into account valuation of human labour at market rate or statutory minimum wage rate whichever is higher

Cost C3: Cost C2+ value of management input at 10% of total cost (C2)

Cost C is the total cost of cultivation

- Farm business income = Gross income – Cost A1 or A2
- Family labour income = Gross income – Cost B
- Net income = Gross income – Cost C

Farm investment income = Farm business income – imputed value of family labour

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 (AM_i)

$AMI = Pri - (Ppi + Cmi)$

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

$Pmi = \frac{Pri - (Ppl + Cml)}{PRI} \times 100$

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

Result and Discussion

The socio-economic characteristics of button mushroom growers influence production practices, marketing decisions, and income generation. Factors such as age, education, family size, farming experience, and investment capacity affect mushroom cultivation and marketing behavior. Therefore, the present study on “A Study on Marketing of Button Mushroom in Prayagraj District” examined the socio-economic profile of respondents to understand their role in mushroom production and marketing in the study area.

Socio-Economic Profile of Sample Respondents

Particulars	Unit	Value	Percentage
Male members	Average	2.96	45.40
Female members	Average	2.31	35.43
Children	Average	1.25	19.17
Total family size	Average	6.52	100.00

The socio-economic characteristics of the respondents show that the average family size was 6.52 members. Male members constituted 45.40 percent, while female members and children accounted for 35.43 percent and 19.17 percent respectively. This indicates that family labour plays an important role in mushroom cultivation and marketing activities.

Educational Status of Respondents

Education Level	Number	Percentage
Illiterate	8	8.00
Primary	20	20.00
Secondary	42	42.00
College	30	30.00
Total	100	100.00

The educational status of the respondents reveals that 8 percent of the farmers were illiterate, while 20 percent had completed primary education. About 42 percent had secondary education and 30 percent had attained college education. The results indicate that the majority of the farmers were literate and had at least secondary education, which helps them understand improved production technologies and marketing opportunities related to mushroom cultivation.

Occupational Pattern and Age Distribution of Respondents

Particulars	Number	Percentage
Occupational Pattern		
Agriculture only	40	40.00
Agriculture + Mushroom cultivation	30	30.00
Agriculture + Business	18	18.00
Agriculture + Service	12	12.00
Age Distribution		
Below 30 years	18	18.00
30–50 years	52	52.00
Above 50 years	30	30.00
Total	100	100.00

The occupational pattern of the respondents shows that agriculture was the primary occupation of most farmers, while many farmers adopted mushroom cultivation as an additional income-generating enterprise. The age distribution indicates that 52 percent of the farmers belonged to the middle age group (30–50 years), suggesting active participation of experienced and economically active farmers in mushroom cultivation and marketing.

Farm Size and Area under Mushroom Cultivation

Particulars	Marginal	Small	Medium	Overall
Number of farms	36	44	20	100
Average cultivated area (ha)	0.74	1.95	3.86	1.82
Area under mushroom cultivation (ha equivalent)	0.05	0.08	0.12	0.08

The table shows that the majority of mushroom growers belonged to marginal and small farmer categories. The average cultivated area increased with farm size category, while the area under mushroom cultivation remained comparatively small. This indicates that mushroom

cultivation requires less land and can be profitably adopted by small and marginal farmers under controlled conditions.

Conclusion

The present study on “Marketing of Button Mushroom in Prayagraj District” analyzed the socio-economic profile of mushroom growers, marketing channels, marketing costs, price spread, producer’s share in consumer’s rupee, marketing efficiency, and constraints faced by farmers. The findings revealed that most mushroom growers were middle-aged, educated, and belonged to small and marginal farmer categories, indicating that mushroom cultivation is an important source of income for rural households. The study identified three major marketing channels, among which the direct channel (Producer → Consumer) was found to be the most efficient, providing higher producer’s share and lower marketing costs. Marketing costs and price spread increased with the involvement of intermediaries such as wholesalers and retailers, thereby reducing farmers’ profits. Major constraints faced by growers included lack of cold storage facilities, price fluctuations, transportation problems, inadequate market information, and dependence on middlemen. The study concluded that improving storage facilities, transportation, market infrastructure, and promoting direct marketing can increase marketing efficiency and enhance farmers’ income from button mushroom cultivation in Prayagraj district.

Summary

Button mushroom (*Agaricus bisporus*) is an important edible fungus widely cultivated across the world due to its high nutritional value, rich protein content, and growing consumer demand. It is low in fat and cholesterol and contains essential vitamins and minerals, making it a healthy food option. Globally, mushroom production exceeds 42 million tonnes annually, with China as the leading producer. In India, button mushroom contributes the major share of total mushroom production. In Uttar Pradesh, especially Prayagraj district, mushroom cultivation is increasing due to suitable conditions, urban demand, and its role as a profitable agri-business for small and marginal farmers using agricultural residues. The present study on “Marketing of Button Mushroom in Prayagraj District” analyzed socio-economic characteristics of growers, marketing channels, costs, price spread, producer’s share, marketing efficiency, and constraints. Most growers were middle-aged, educated up to secondary level, and belonged to small and marginal farm categories, with family labour playing an important role in production and marketing activities. Three marketing channels were identified: Producer → Consumer, Producer → Retailer → Consumer, and Producer → Wholesaler → Retailer → Consumer. The producer–retailer–consumer channel was most commonly used, while the direct channel (Producer → Consumer) was found to be the most efficient, offering higher returns and lower costs. Marketing costs and price spread increased with more intermediaries, reducing farmers’ share in consumer prices. Major constraints included lack of cold storage, price fluctuations, high transportation costs, inadequate market information, and dependence on middlemen. The study concludes that improving infrastructure, strengthening cold chains, and promoting direct marketing can enhance marketing efficiency and increase farmers’ income in the study area.

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