

# An Economic Analysis of Mushroom Production in Azamgarh District of Uttar Pradesh

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## Abstract

The majority of farmers in eastern Uttar Pradesh are small and marginal. The present study for economic analysis of Mushroom production has been carried out in the Azamgarh district of eastern Uttar Pradesh. A small sample of 15 Mushroom producers has been taken for the study. The economic analysis indicated the high profitability of Rs. 419367 in the single production season of Mushroom in the small area of about 745 square fits. The study reveals that diversified farming with the production of Mushroom will certainly be highly beneficial for improving the economy of poor farmers of eastern Uttar Pradesh.

**Key words:** Diversified farming, Mushroom, Marginal farmers, Economics

Mushroom is a type of fungus, which is grown on humus soil, sawdust, gains, straws etc. Mushroom is rich in vitamins, minerals and a good source of protein also. Mushroom is the major upcoming cash crop of India. Its cultivation is more profitable in comparison to other crops [1]. The mushroom cultivation in India was started in the (year 1960 in Himachal Pradesh. Now its cultivation spreads all over India. Several studies on Mushroom production [2] have been undertaken in different areas in the country. The emergence of improved varieties of Mushroom made its cultivation more profitable. With abundant agro-residue resources, cheap labor and wide range of suitable climatic conditions, we have enormous scope of producing mushrooms at cheap rates. There is need to consider these issues by the public sector and related stakeholders for continuous backing for increasing investments in research and development, expanding market access and policy reforms [3].

Mushrooms are a type of edible fungus, known for their nutritional richness and unique flavor. They are cultivated using organic substrates such as humus-rich soil, sawdust, grains, straws, and other agro-waste materials. These substrates provide the necessary nutrients and environment for mushroom growth, making mushroom farming an eco-friendly and sustainable agricultural practice. Nutritionally, mushrooms are an excellent source of vitamins, including B-complex vitamins (like riboflavin, niacin, and pantothenic acid), vitamin D (when exposed to sunlight or UV light), and various essential minerals such as potassium, phosphorus, selenium, and copper [4]. They are also recognized for being low in calories and fat while providing a good quantity of high-quality plant-based protein [5]. This makes mushrooms a valuable dietary option for vegetarians and health-conscious individuals. In recent years, mushroom cultivation has emerged as a highly profitable and sustainable cash crop in India. It requires relatively low investment, minimal land, and can be carried out throughout the

year under controlled conditions. Compared to traditional crops, mushroom farming yields higher returns in a shorter span of time, making it an attractive livelihood option for small and marginal farmers, women entrepreneurs, and urban agripreneurs alike [6].

The commercial cultivation of mushrooms in India began in the 1960s, with the first significant efforts launched in the state of Himachal Pradesh. Since then, the practice has expanded widely across the country, aided by improvements in infrastructure, awareness, and technological interventions. Today, regions across India—ranging from the cooler Himalayan belt to the tropical plains—engage in mushroom farming using different species suited to local climatic conditions. A number of scientific studies and research initiatives [7] have examined various aspects of mushroom production in different agro-climatic zones of the country. These studies have contributed to the understanding of optimal growing conditions, pest and disease management, post-harvest practices, and marketing strategies.

The present study as part of her master's degree research, adds to this growing body of knowledge, the work focuses on the economic viability and potential of mushroom cultivation as a means of rural income generation and agricultural diversification. A significant factor contributing to the increasing profitability of mushroom farming is the development and adoption of improved mushroom varieties. These high-yielding and disease-resistant strains have enhanced production efficiency and quality, thereby making the enterprise more lucrative and accessible [8]. India's vast agricultural landscape offers enormous potential for mushroom production. The country possesses abundant agricultural residues—like wheat straw, paddy straw, cotton stalks, and sugarcane bagasse—which can be repurposed as cost-effective mushroom-growing substrates [9]. Additionally, India's large pool of affordable labor and diverse climate zones provides

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favorable conditions for cultivating a wide variety of mushrooms, such as button mushrooms, oyster mushrooms, milky mushrooms, and shiitake.

## MATERIALS AND METHODS

The Azamgarh district has been selected for the present study as mushroom cultivation is becoming more popular in the district. The Thekma block has been selected out of 22 blocks in the district. Further five villages where mushroom cultivation was popular has been selected for the study. There were 75 mushroom producers in the sample villages. Fifteen mushroom producers have been selected randomly for the present study. The required information for the study has been collected from the sample mushroom growers. The data obtained from the Mushroom producers has been analyzed to work out the costs and returns in the mushroom production.

There are mainly two popular methods of producing mushroom. It is grown in the wooden trays of various sizes. This method of cultivation is followed by the large producers. Mushroom cultivation in bags is becoming more popular with small to medium growers and new entrants into the mushroom industry. This system requires a smaller capital out lay than the tray system. Bag growing offers advantages in pest and disease control by allowing fast and easy removal of infected bags.

## RESULTS AND DISCUSSION

### *Costs and returns in mushroom production*

The information on costs and returns in mushroom production collected from sample producers have been analyzed to work out the costs and returns per unit of output. The expenses on various components in Mushroom production are presented in (Table 1). The cost structure of mushroom production using the wheat straw method reveals that the total expenditure amounts to Rs. 522,873, with the major cost component being compost, accounting for 24.02% of the total. This is followed by labor charges at 19.12% and marketing costs at 16.20%, indicating that both input materials and workforce contribute significantly to overall expenses [10]. Fixed costs, including depreciation and interest on fixed investment, make up 29.74% of the total cost, suggesting a moderately capital-intensive operation. Variable costs dominate the expenditure at 54.06%, driven largely by compost, spawn, and labor. Notably, interest on both fixed and variable costs together amounts to 12.79%, emphasizing the impact of financing on profitability [11]. Given that compost, labor, and marketing represent the highest proportions of cost, these areas offer the greatest potential for cost optimization and efficiency improvements.

Table 1 Cost components of mushroom production in wheat straw method (In Rs)

Item	Cost (Rs.)
Depreciation on building	96000(18.36)
Depreciation on equipment	8500(1.63)
Interest on fixed investment @ 12%	51000 (9.75)
Sub-total (A)	155,500(29.74)
Labor charges	99958(19.12)
Electricity charges	5140 (0.98)
Compost	125600(24.02)
Casing	9675 (1.85)
Spawn	20400 (3.90)
Generator fuel	6000(1.15)
Interest on variable cost @ 12% for 6 months	15900 (3.04)
Total variable cost (B)	282673 (54.06)
Total production cost (A+B)	438173 (83.80)
Marketing cost (C)	84700 16.20)
Total cost (A + B + C)	522873 (100.00)

It is clear from (Table 1) that major cost item was 24.02 percent on compost followed by the human labor (19.12) percent of total cost. The fixed cost was Rs. 155500 and variable cost was Rs. 282673 for producing 7800 kg of

mushroom [12]. The expenses on labor, electricity, casing and spawn are presented in the (Table 1). The details about the costs and returns per kilogram of mushroom production is presented in (Table 2).

Table 2 Costs and returns from mushroom production

Item	Mushroom
Total production (Kg)	7800
Average selling price (Rs/Kg)	120.80
Gross return (Rs)	942240
Total cost (Rs)	522873
Net returns (Rs)	419367
Cost of production (Rs/kg)	67.04
Net returns (Rs/kg)	53.77

The data on costs and returns from mushroom production indicates that with a total yield of 7,800 kilograms and an average selling price of Rs. 120.80 per kg, the gross return

amounts to Rs. 942,240. After accounting for the total cost of Rs. 522,873; which includes all fixed, variable, and marketing expenses, the net return stands at Rs. 419,367, highlighting a

substantial profit. The cost of production per kilogram is Rs. 67.04, while the net return per kilogram is Rs. 53.77, indicating a strong profit margin of approximately 44.5% [13]. These figures demonstrate that mushroom cultivation under the wheat straw method is a highly profitable agricultural activity, offering significant earnings per unit of production and validating its potential as a sustainable and income-generating enterprise.

The total production of mushroom of the sample producers was 7800 kg which was sold on at the average price of 120.80 per kg and obtained the gross return of rupees 942240. The net returns in the production of 7800 kg of mushroom was Rs. 419367. The cost of production and net returns per kg. of mushroom are Rs. 67.04 and 53.77 respectively. This is now very clear that mushroom production is highly profitable [14-15]. the analysis clearly shows that mushroom production, particularly under the wheat straw

method, is a highly profitable venture. With a notable gross return of Rs. 942,240 and a net profit of Rs. 419,367 from a yield of 7,800 kg, the enterprise demonstrates a strong profit margin of approximately 44.5%. The cost and return figures per kilogram further reinforce the economic viability of mushroom cultivation, making it a sustainable and lucrative option for agricultural entrepreneurs.

## CONCLUSION

The present study clearly indicated that Mushroom cultivation is highly profitable in eastern Uttar Pradesh. Mushroom cultivation does not require costly infrastructure. Mushroom can be cultivated in plastic bags in the shaded structure of various sizes. The present study of 15 sample farmers reveals that their average income can be increased by Rs. 27958 in single mushroom production process.

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