

Production potential, technology gap and economic analysis of cultivated mushrooms in Kangra district of Himachal Pradesh

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ABSTRACT

The study was conducted in five blocks in Kangra district of Himachal Pradesh which fall in two agro-climatic zones i.e. zone I and II. The technology gap showed that there was potential for improving mushroom production in the research area. The net returns from mushroom farming were significantly higher than those from cereals and other crops. Utilization of disinfectants and inputs like spawn over recommended quantities was noted as a positive technology gap.

Keywords: Mushroom, Production potential, technology gap, economic analysis, net return

Mushrooms play important role in economic and social spheres for enhancing income and nutritional status of the people in developing countries. About 70% of Indian farmers own less than one acre of land, with a per capita income of less than Rs. 15,000 (Kumar and Chahal, 2018; Joshi *et al.*, 2022). Diversification in any farming system imparts sustainability. Mushroom not only impacts diversification but also help in addressing the problems of quality health food and environment related issues. Mushroom growing is beneficial as a source of income and preventing farmer migration (Karthick and Hamsalakshmi, 2017). With the changing lifestyles and food habits, the importance of mushrooms in diet is increasing day by day. Mushrooms are important source of essential nutrients to the population of the country that is vegetarian. Their consumption in sufficient quantities provides taste, palatability, increase appetite and provide fair amount of fibre. Supplementation of mushroom recipe in Indian diet will bridge protein gap and improve the general health of

socio- economically backward communities. Edible mushrooms commonly have insignificant lipid level with higher proportion of poly-unsaturated fatty acids. Mushrooms don't have cholesterol, instead, they have ergosterol that act as precursor for Vitamin D₂ (Manikandan, 2011).

The alarming population growth has led to a drastic fall in per capita availability of gross and net cultivated area. Production of edible mushroom is a holistic way to bio-convert the agricultural, industrial, forestry and household wastes into nutritious food. Indoor cultivation utilizes the vertical space and is regarded as the highest protein producers per unit area and time almost 100 times more than the conventional agriculture and animal husbandry (Singh, 2011). This hi-tech venture has a promising scope to meet the food shortages without inducing pressure on land.

By the transfer of innovations in several disciplines, KVK institutions play a crucial role in

boosting agricultural yield and thereby food security (Sud, 2013). The present study is an attempt to examine the economic viability, productivity, production potential, technological gap and input-output relationships of different inputs used in production of white button and oyster mushroom. Survey was done in five blocks of district Kangra, which fall in two agro-climatic zones i.e. zone I and II, namely Bhawarna, Rait, Dehra, Kangra and Nagrota Surian.

Technology gap

Technological gaps with respect to inputs and management practices on mushrooms are given in Table 1 and 2. A perusal of observations reveal that farmers are opting for quality seed (spawn) as well as maximum farmers follows the recommended practices and inputs. In both the mushrooms maximum positive technology gap was observed in inputs and management strategies followed by protection measures. Table 1 reveals that the use of substrate for oyster and composting for button as well as labour as input gives the positive technology gap (0.0%). The use of electrical appliance for maintaining the

temperature and humidity shows the moderate technology gap (50.0%) but it was observed that critical input like spawn is being used more than recommended levels (30.0%).

The data in the table 2 concluded the technology gap in the management practices. The positive technology gap was observed in case of all the practices like spawn, composting, casing for button mushroom, irrigation and time of harvesting i.e. 0.0, 13.3, 6.7, 33.3 and 13.3 per cent, respectively.

Cost concepts

The study analyzed that white button mushroom was more capital intensive than oyster mushroom. Return on investment (ROI) is slightly more in button mushroom cultivation as compared to oyster mushroom as shown in Table 3. On overall farm situation, the gross returns from oyster mushroom were more than white button mushroom. It was observed that large farms had maximum gross and net returns followed by medium and small farms for both the crops. It was attributed to better management on large farms.

Table 1. Technological gaps in input use for mushroom cultivation

S. No.	Inputs	Recommended	Actual	Gap (%)
1	Spawn/ seed (g)	50,000	65,000	-30.0
2	Compost/ Substrate (kg)	10,000	10,000	0.0
3	Labour	2	2	0.0
4	Temperature maintenance by electrical appliances	2	1	50.0

Note: (-) sign shows the excess use

Table 2. Technological gaps in management practices for mushroom cultivation

S. No.	Recommended practice	Total farmers	Practicing farmers	Gap (%)
1	Spawn (From agriculture/ certified places)	15	15	0.0
2	Composting (From agriculture/ certified places)	15	13	13.3
3	Casing (Sand, coconut coir)	15	14	6.7
4	Irrigation (Time interval)	15	10	33.3
5	Harvesting time	15	13	13.3

Table 3. Return of investment in production of mushroom

Year of start	Number of farmers	Cost of inputs (Rs.)		Output (Rs.)		Return on investment (%)	
		Button mushroom	Oyster mushroom	Button mushroom (6 months)	Oyster mushroom (3 months)	Button mushroom	Oyster mushroom
2015-17	4	2,00,000	1,00,000	2,30,000	1,10,000	115.00	110.00
2018-20	5	3,00,000	1,90,000	3,50,000	2,15,000	116.66	113.15
2021-22	6	3,20,000	2,30,000	4,00,000	2,65,000	125	115.21
Mean	5	2,73,333	1,73,333	3,26,667	1,96,667	119	113

The study revealed that there was great potential for increasing the productivity of both the mushrooms in study area. Positive technology gap was observed in use of disinfectants and inputs like spawn than recommended levels. Net returns/ return on investment in button mushroom are more as it is harvested twice in one growing season of 6 months. On the other hand, oyster mushroom is a 3 months crop but the cost of production is still lower than button mushroom which makes it better option for farmers.

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