Plant Archives Vol. 25, No. 1, 2025 pp. 2955-2963 e-ISSN:2581-6063 (online), ISSN:0972-5210

Plant Archives

Journal homepage: http://www.plantarchives.org

DOI Url : https://doi.org/10.51470/PLANTARCHIVES.2025.v25.no.1.424

SOCIO-ECONOMIC IMPACT OF MUSHROOM CULTIVATION ON MUSHROOM GROWERS IN KANGRA VALLEY OF HIMACHAL PRADESH, INDIA

Saina Walia[1], Girish Mahajan[2]*, Rajesh Thakur[1], Manoj Gupta[1] and Brij Bala[1]

[1]Department of Agricultural Economics, Extension Education and Rural Sociology- C.S.K.H.P.K.V., Palampur, H. P., India.

[2]Krishi Vigyan Kendra-Hamirpur-Bara - 177 044, Himachal Pradesh, India.

*Corresponding author E-mail : Lovely_nickname@rediffmail.com

(Date of Receiving-10-01-2025; Date of Acceptance-22-03-2025)

ABSTRACT

Studying the socio-economic status of mushroom growers is crucial because it helps understand the impact of mushroom cultivation on the livelihoods of the farmers; particularly in rural area, revealing how mushroom farming can contribute to income generation, food security and overall socio-economic development. The study was conducted in Kangra valley of Himachal Pradesh. A sample of 60 mushroom growers was randomly selected from the adopted blocks to study the impact of mushroom cultivation. Relevant data were collected through personal interview. The data were analyzed using appropriate statistical tool. The findings revealed that average family size was 5.22 with small farms having more family size (5.43) than the large farms (4.8). The proportion of joint families was higher (51.67%) compared to that of nuclear families (48.33%) in all farm situation. It was discovered that not even a single mushroom grower was younger than 25 years. A comparison between small and large mushroom producers revealed that the percentage of heads in the age group of 40-60 was higher for large farms (85%). The overall sex ratio was around 994 with large farms having comparatively more sex ratio (1087) than small farms (955). The overall literacy rate of the head was 91.67 per cent with male having more literacy rate (95.12%) than female (84.21%). The proportion of the head of family having mushroom cultivation as a major occupation was 51.69 per cent. In subsidiary occupation, 60.97 per cent of the heads were engaged in mushroom cultivation. Agriculture constitutes the primary source of employment and income for 62 per cent of the total population and this dependency was more on small farms than on large farms. The findings also revealed that as the size of mushroom unit increases, the total size of land holding as well as cultivated land decreases. The average cultivated land consists of 0.3033 ha which accounts for 74.34 per cent of the total size of the land holding. The cost and return analysis of button mushroom suggested that net returns over total cost and over variable cost increases with increases in farm size whereas reverse was observed for oyster mushroom. Besides these findings, there are few challenges which inhibit the farmers/ mushroom growers not to take up this venture on a commercial and large scale. These are: first mushrooms have a short shelf life, requiring proper storage and marketing strategies to prevent losses. Second, maintaining optimal temperature and humidity levels for mushroom cultivation can be challenging and lastly proper pest and disease control practices are essential to ensure consistent production. Therefore, immediate attention should be given to solve these problems so that lucrative return could be obtained from mushroom farming, whereby mushroom growers could improve the overall living standard of living of his/her family.

Key words : Mushroom cultivation, Mushroom grower family size, Age, Education.

Introduction

Mushroom cultivation can have a significant positive socio-economic impact, particularly in rural areas, by providing a reliable source of income for farmers, improving household nutrition, generating employment opportunities, and utilizing agricultural waste, thereby enhancing livelihoods and reducing poverty vulnerability. Due to high demand for mushrooms in urban areas, producers can easily access markets and sell their products at competitive prices. Mushroom cultivation can

empower rural communities by providing them with a viable economic activity, leading to improved social status and self-reliance.

Analyzing the socio-economic traits of the sample mushroom growers is crucial since it provides insight into the farmers' circumstances and aids in decision making. It offers a wide range of policies and programmers to assist farmers in resolving various issues. In order to improve the sampled farmers' economic position through appropriate actions, a socio-economic status is required. Therefore, this study contains information on a variety of socioeconomic factors, such as family size, age, education, occupation of the family members and the mushroom grower, land holding and cost and returns of mushroom. Keeping all these facts in mind, the present study was conducted to find out the impact of mushroom cultivation on the socio-economic condition of the farmers and the constraints faced by them during mushroom cultivation.

Materials and Methods

The study was organized in Kangra district of Himachal Pradesh. Simple random sampling designed was employed for the selection of mushroom growers. The complete list of the mushroom growers of the district was prepared in consultation with the officials of the Indo-Dutch mushroom Project, Palampur. From the list prepared a sample of 60 mushroom growers were selected randomly. The selected mushroom growers were categorized into two categories on the basis of number of compost bags placed in their mushroom house *i.e.*; small and large by using cumulative square root frequency method. Primary data was collected from 60 mushroom growers on well structured and pre tested schedule on various aspects such as family size, age, education, sex, occupation of the family members and the mushroom growers, land holdings and the cost and returns of mushroom. Data were collected pertaining to the agricultural year 2023-24 and were analyzed using appropriate statistical tools.

Results and Discussion

Family structure and size

Both the size and the structure of the family plays crucial role in the sustainability and productivity of the farm. A larger family size means more hands to help with labor- intensive tasks and it will contribute to greater productivity and efficiency of the farm. It also offers diverse experiences and knowledge which can be combined to solve the complex problems. Table 1 highlights the distribution of sample farms according to size and type of family. The average size of the family was 5.22 with small farms having more family size (5.43) than the large farms (4.8). Males (2.78) dominated in small farms whereas in large farms there were more females (2.5).

Table 1 : Distribution of sampled farms according to size and type of family.

S. no.	Particulars	Farm Size		
		Small	Large	Overall
	Number of Mushroom Growers	40	20	60
1.	**Average family size**	5.43	4.8	5.22
i.	Male	2.78	2.3	2.62
ii.	Female	2.65	2.5	2.6
2.	**Type of family**			
i.	Nuclear	19 (47.50	10 (50)	29 (48.30)
ii.	Joint	21 (52.5)	10 (50)	31 (51.67)
	Total	40 (100)	20 (100)	60 (100)
3.	**Family size distribution**			
i.	Upto 3 members	10 (25)	5 (25)	15 (25)
ii.	4-5 members	13 (32.5)	7 (35)	20 (33.33)
iii.	6-8 members	12 (30)	8 (40)	20 (33.33)
iv.	Above 8 members	5 (12.5)	0 (0)	5 (8.34)

Note: Figures in the parentheses indicate percentages to the total in each category.

Table 1 indicates that the proportion of joint families was higher (51.67%) compared to that of nuclear families (48.33%). Large farms had a higher percentage of nuclear families (50%), whereas small farms had a higher percentage of joint families (52.5%). It can also be visualized from the table that majority of the households had 4 to 5 and 6 to 8 members (33.33%). Only 8.34 per cent of households had more than eight members. Small farms had more proportion of 4-5 members and in case of large farms there were more proportion of 6-8 members.

Age wise distribution

The distribution of mushroom growers and their family members according to their age is of utmost importance as it helps to know the total active labor which is present in the household. Secondly, it will help determine the

Table 2 : Age wise distribution of head of the family. **(Number)**

S. no.	Age Group	Farm size								
		Small			Large			Overall		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1.	25-40	8 (30.77)	9.00 (64.29)	17 (42.50)	3.00 (17.65)	- -	3 (15.00)	11 (25.58)	9 (52.94)	20 (33.33)
2.	40-60	16 (61.54)	5.00 (35.71)	21 (52.50)	14.00 (82.35)	3 (100.00)	17 (85.00)	30 (69.77)	8 (47.06)	38 (63.33)
3.	>60	2 (7.69)	- -	2 (5.00)	- -	- -	- -	2 (4.65)	- -	2 (3.33)
	Total	26 (100)	14 (100)	40 (100)	17 (100)	3 (100)	20 (100)	43 (100)	17 (100)	60 (100)

Note: Figure in parentheses indicate the percentage to the total in each category

Table 3 : Age wise distribution of family members on sample farms. **(Number)**

S. no.	Age Group	Farm size								
		Small			Large			Overall		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1.	<15	19 (17.12)	14 (13.21)	33 (15.21)	8 (17.39)	9 (18.00)	17 (17.71)	27 17.76)	23 (14.65)	50 (15.97)
2.	15-25	41 (36.94)	30 (28.30)	71 (32.72)	20 (43.48)	13 (26.00)	33 (34.37)	61 (40.13)	43 (27.39)	104 (33.23)
3.	25-40	21 (18.92)	38 (35.85)	59 (27.18)	3 (6.52)	19 (38.00)	22 (22.92)	19 (12.50)	58 (36.94)	81 (25.88)
4.	40-60	17 (15.31)	8 (7.55)	25 (11.53)	8 (17.39)	5 (10.00)	13 (13.54)	25 (16.45)	13 (8.28)	38 (12.14)
5.	>60	13 (11.71)	16 (15.09)	29 (13.36)	7 (15.22)	4 (8.00)	11 (11.40)	20 (13.16)	20 (12.74)	40 (12.78)
	Total	111 (100.00)	106 (100.00)	217 (100.00)	46 (100.00)	50 (100.00)	96 (100.00)	157 (100.00)	156 (100.00)	313 (100.00)
6.	Sex-ratio (no. of female per 1000 of males)		955			1087			994	

Note: Figure in parentheses indicates percentage of the total in each category.

proportion of the younger and older generations. Younger generations are generally more aware than older ones in terms of adopting new technologies whereas vice-versa in terms of decision making.

Age wise distribution of the head of the family

Table 2 presents the age wise distribution of the head of the family. The table revealed that out of the total members maximum number of mushroom growers belongs to the age group of 40-60 (63.33%) followed by age group of 25-40 (33.33%) and greater than 60 (3.33%). It was discovered that not even a single farmer was younger than 25 years old. A comparison between small and large mushroom producers revealed that the percentage of heads in the 40–60 age groups was higher for large mushroom growers (85%), while the percentage of heads in the 25–40 age groups was higher for small mushroom growers (42.5%) when compared to large mushroom grower (15%). The working population was found to be 100 per cent in large farms whereas it was 95 per cent in small farms.

Age wise distribution of the family members

The age distribution of family members on various farm categories was displayed in Table 3. It was visualized that a greater number of males belongs to the age group of 15-25 (40. 13%) followed by <15, 40-60 age group with 17.76%, 16.45%, respectively. However, when it

Table 4 : Educational Status of head of the family. **(Number)**

S. no.	Particulars	Farm size								
		Small			Large			Overall		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1.	Illiterate	1 (4.00)	2 (13.33)	3 (7.50)	1 (6.25)	1 (25.00)	2 (10.00)	2 (4.88)	3 (15.79)	5 (8.33)
2.	Primary	2 (8.00)	3 (20.00)	5 (12.50)	1 (6.25)	- -	1 (5.00)	3 (7.32)	3 (15.79)	6 (10.00)
3.	Middle	1 (4.00)	2 (13.33)	3 (7.50)	- -	- -	- -	1 (2.44)	2 (10.53)	3 (5.00)
4.	Metric	9 (36.00)	6 (40.00)	15 (37.50)	6 (37.50)	2 (50.00)	8 (40.00)	15 (36.59)	8 (42.11)	23 (38.33)
5.	10+2	10 (40.00)	2 (13.33)	12 (30.00)	6 (37.50)	1 (25.00)	7 (35.00)	16 (39.02)	3 (15.79)	19 (31.67)
6.	Diploma	- -	- -	- -	1 (6.25)	- -	1 (5.00)	1 (2.44)	- -	1 (1.67)
7.	Graduation	2 (8.00)	- -	2 (5.00)	1 (6.25)	- -	1 (5.00)	3 (7.32)	- -	3 (5.00)
	Total	25 (100.00)	15 (100.00)	40 (100.00)	16 (100.00)	4 (100.00)	20 (100.00)	41 (100.00)	19 (100.00)	60 (100.00)
	Literate person	24	13	37	15	3	18	39	16	55
	Literacy Rate (%)	(96.00)	(86.66)	(92.5)	(93.75)	(75.00)	(90.00)	(95.12)	(84.21)	(91.67)

Note: Figure in Parentheses indicate percentage to the total in each category

comes to female, the majority of them are in the 25-40 age range (36.94%) followed by age range of 15-25 (27.39%). 71.25 per cent of the total population fell within the working population age range. When comparing large and small farms, it was discovered that small farms (71.43%) have high percentage of people in the 15-60 age group than the large farms (70.83%). When comparison was made across male and female of small and large farms, it was found that a greater number of males were in the age group of 15-25, whereas a greater number of females were in the 25-40 age group. The overall sex ratio was around 994 with large farms (1087) having comparatively more sex ratio than small farms (955).

Educational Status

Education plays a crucial role to provide the individual with the knowledge and skill needed to improve the economic outcomes by adoption of advance technology, different marketing strategies etc. A person with good education will be more aware of and utilize government initiatives. It also increases awareness and empowers people to make informed decisions. Educational status can significantly influence an individual quality of life and opportunities. Education wise distribution of mushroom growers and their families are given in Tables 4 and 5.

Educational status of head of the family

The educational qualification of the head provides the best possible final decision regarding access to different resources. It is evident from the Table 4 that maximum number of head have done matriculation (38.33%) followed by senior secondary (31.67%). Only about 8.33 per cent of the population was illiterate. There was more percentage of females, who have done matriculation in the large farms (50%) than the small farms (40%). The overall literacy rate of the head was 91.67 percent with male having more literacy rate (95.12%) than females (84.21%). When comparison was made across small and large farms, the literacy rate was more among small farms (92.5%) than large farms (90%).

Educational status of the family members

The education of the family members has a profound and multifaceted impact on the well-being and progress

Table 5 : Gender wise educational status of family members. **(Number)**

S. no.	Particulars	Farm size								
		Small			Large			Overall		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1.	SG	11.00 (10.00)	5.00 (4.81)	16.00 (7.48)	1 (2.13)	2 (3.85)	3 (3.03)	12 (7.64)	7 (4.49)	19 (6.07)
2.	Illiterate	- -	6.00 (5.77)	6.00 (2.80)	1 (2.13)	4 (7.69)	5 (5.05)	1 (0.64)	10 (6.41)	11 (3.51)
3.	Primary	5.00 (4.55)	12.00 (11.54)	17.00 (7.94)	1 (2.13)	6 (11.54)	7 (7.07)	6 (3.82)	18 (11.54)	24 (7.67)
4.	Middle	6.00 (5.45)	21.00 (20.19)	27.00 (12.62)	3 (6.38)	9 (17.31)	12 (12.12)	9 (5.73)	30 (19.23)	39 (12.46)
5.	Metric	27.00 (24.55)	23.00 (22.12)	50.00 (23.36)	14 (29.79)	15 (28.85)	29 (29.29)	41 (26.11)	38.00 (24.36)	79.00 (25.24)
6.	senior secondary	29.00 (26.36)	32.00 (30.77)	61.00 (28.5)	10 (21.28)	14 (26.92)	24 (24.24)	39 (24.84)	46 (29.49)	85 (27.16)
7.	Diploma	5.00 (4.55)	2.00 (1.92)	7.00 (3.27)	5 (10.64)	2 (3.85)	7 (7.07)	10 (6.37)	4 (2.56)	14 (4.47)
8.	Graduation	25.00 (22.73)	3.00 (2.88)	28.00 (13.08)	11 (23.40)	- -	11 (11.11)	36 (22.93)	3 (1.92)	39 (12.46)
9.	PG	2.00 (1.82)	- -	2.00 (0.93)	1 (2.13)	- -	1 (1.01)	3 (1.91)	- -	3 (0.96)
10	Total	110.00 (100.00)	104.00 (100.00)	214.00 (100.00)	47.00 (100.00)	52.00 (100.00)	99.00 (100.00)	157.00 (100.00)	156.00 (100.00)	313.00 (100.00)
11.	Literate people	110	98	208	46	48	94	156	146	302
12.	Literacy Rate	100	94.23	97.20	97.90	92.31	94.95	99.36	93.59	96.49

Note: Figures in Parentheses indicate percentage to the total in each category.

of an individual. Educated family members provide support and resources to help each other and can drive innovation and improve efficiency. Table 5 depicts the gender wise educational status of the family members. The overall literacy rate of the population was 96.49 per cent out of which male (99.36%) has more percentage of literacy rate than female (93.49%). The population of the female doing middle was more than males by 13.5 per cent. Only 2.56 per cent and 1.92 per cent of females have done diploma and graduation which was very less when compared to male. The percentage of population doing senior secondary was highest (27.16%) followed by metric (25.24%) and middle (12.46%). Only 3.51 per cent of the total population was illiterate out of which female proportion (6.41%) was more than males (0.64%). When compared across small and large, the literacy percentage was more in small farms by 2.25 per cent. The percentage of population doing metric was more in large farms (29.29%) than small farms (23.36%). The illiterate population was approximately similar in both the farms.

Land Utilization Pattern

Land is the primary resource of agriculture and is the backbone of food production around which farmer's economy revolves. Land utilization pattern provides insight into the efficiency, productivity and sustainability of various farming operations. The size of land holding varies from farmer to farmer and it highlights the fundamental strength of the farming family and how it is used in efficient manner by farmers and their family members. The pattern of land utilization in each farm size category could be visualized from the Table 6. The table depicts that overall average size of the land holding was 0.408 ha. Leased in of land was a practice that accounted for 14.88 per cent of the total, with small farms accounting for more of it (17.61%) than large farms (6.58%). It could be analyzed from the table that as the size of mushroom unit increases, the total size of the land

Table 6 : Land Inventory of sampled household.

(Hectares/ farm)

S. no.	Particulars	Farm Size		
		Small	**Large**	**Overall**
1	Owned	0.379 (82.39)	0.284 (93.42)	0.3473 (85.12)
2	Leased in	0.081 (17.61)	0.02 (6.58)	0.0607 (14.88)
3	Total	0.46 (100.00)	0.034 (100.00)	0.408 (100.00)
i.	Cultivated	0.362 (78.70)	0.186 (61.18)	0.3033 (74.34)
ii.	fallow land	0.041 (8.91)	0.03 (9.87)	0.0373 (9.14)
iii.	Permanent pastures	0.019 (4.13)	0.03 (9.87)	0.0227 (5.56)
iv.	Misc. (Forest, Grasses, Trees)	0.027 (5.87)	0.038 (12.50)	0.0307 (7.52)
v	Others	0.011 (2.39)	0.02 (6.58)	0.014 (3.43)

Note: i) Figures in parentheses indicate percentage to the total in each category

ii) Classification of land inventory on the basis of number of compost bags placed.

holding as well as the cultivated land decreases. The average cultivated land consists of 0.3033 ha which accounts for 74.34 per cent of the total size of the land holding. The comparison between small and large farms revealed that small farms had more percentage of cultivated area than the large farms having percentage gap of 17.52 per cent. The proportion of miscellaneous and permanent pastures was more in large farms than the small farms.

Occupational pattern of the sampled farms

The occupational pattern provides insight into the economic activities that were employed as a means of livelihood by farmer and its family members. The occupation was mainly divided into two groups main and subsidiary. The main occupation is the one in which farmer was engaged for most of the time and whereas subsidiary is the one where they were engaged partially.

Heads of the family

It can be seen from the Table 7 that more than half of the percentage of population were engaged in mushroom cultivation (51.69%). The proportion of head of the family having mushroom cultivation as a major source was more in case of large farms (60 %) than the small farms (49.38%), which depicts that there is a high dependency on mushroom cultivation as a source of income for large farmers. The second important source of income was agriculture which constitutes for 28.81 per cent. Out of the total population of head of the family, only 1.69 per cent and 5.93 per cent of the heads were employed in government jobs and private jobs respectively. In small farms, about 11.11 per cent of the population was engaged in their own businesses. In contrast on large farms only 8.57 per cent heads were engaged in their own businesses.

In subsidiary occupation, 68.97 per cent of the heads were engaged in mushroom cultivation. Mushroom farming is a subsidiary occupation for 80.49 per cent of heads in small farms whereas for large farms, it is subsidiary occupation for 38.89 per cent of heads only.

Family members of the respondent

The occupational pattern of the members of the family has been depicted in Table 8. It was discovered that agriculture constitutes the primary source of employment and income for 62 per cent of the total population. The dependency on agriculture was more by small farms (64%) compared to large farms (59%). Private jobs which constitute for about 21 per cent, was the second significant source of income followed by government jobs and businesses which provide employment to 9 per cent and 8 per cent of the population respectively. There was more percentage of population from large farms (25%) who were employed through private jobs compared to small farms (19%) whereas in case of business more percentage of people were from small farms (8%) when comparison was made with large farms (6%).

Costs and Returns analysis

The costs and returns of button mushroom have been presented in Table 9. It can be seen from the table that total production of mushroom per 100 compost bags weighing 20kg each was more on large farms (362.38kg) than the small farms (312.21kg). The gross returns showed positive relation with the size of farm. The gross returns of large farms were found to be Rs. 47,109 whereas for small farms it was Rs. 40,587. Similarly, net returns also increase with increase in farm size. The net returns over total cost and over variable cost per 100 bags of small farms account s for Rs. 10,640 and Rs. 20,464 respectively whereas for large farms it was Rs. 23,096 and Rs. 28,568, respectively. The net returns per kg over total cost and variable cost were Rs. 52.27 and Rs. 73.50, respectively.

Table 7 : Occupational Pattern of head of the family. **(Number)**

S. no.	Particulars	Farm Size								
		Small			Large			Overall		
		Main	Subsi-diary	Total	Main	Subsi-diary	Total	Main	Subsi-diary	Total
1.	Agriculture	22 (55.00)	5 (12.20)	27 (33.33)	1 (5.88)	6 (33.29)	7 (20.59)	23 (38.33)	11 (19.30)	34 (29.06)
2.	Mushroom cultivation	7 (17.50)	33 (80.49)	40 (49.38)	14 (82.40)	6 (38.29)	20 (58.82)	21 (35.00)	39 (68.42)	60 (51.28)
3.	Business	6 (15.00)	3 (7.32)	9 (11.11)	- -	3 (17.65)	3 (8.82)	9 (15.00)	5 (8.77)	14 (11.97)
4.	Government	2 (5.00)	- -	2 (2.47)	- -	- -	- -	2 (3.33)	0 -	2 (1.71)
5.	Private	3 (7.50)	- -	3 (3.70)	2 (11.80)	2 (11.76)	4 (11.76)	5 (8.33)	2 (3.51)	7 (5.98)
	Total	40 (100.00)	41 (100.00)	81 (100.00)	17 (100.00)	17 (100.00)	34 (100.00)	60 (100.00)	57 (100.00)	117 (100.00)

Note: Figures in parentheses indicate percentage to the total in each category.

Table 8 : Occupational Status of family members. **(Number)**

S. no.	Particulars	Small			Large			Overall		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1.	Agriculture	24 (33.00)	69 (95.00)	93 (64.00)	6 (17.00)	42 (91.00)	48 (59.00)	30 (28.00)	111 (93.00)	141 (62.00)
2.	Business	12 (17.00)	- -	12 (8.00)	5 (14.00)	- -	5 (6.00)	17 (16.00)	- -	17 (8.00)
3.	Government	12 (17.00)	1 (1.00)	13 9.00	7 (20.00)	1 (2.00)	8 (10.00)	19 (18.00)	2 (2.00)	21 (9.00)
4.	Private	24 (33.00)	3 (4.00)	27 (19.00)	17 (49.00)	3 (7.00)	20 (25.00)	41 (38.00)	6 (5.00)	47 (21.00)
	Total	72 (100.00)	73 (100.00)	145 (100.00)	35 (100.00)	46 (100.00)	81 (100.00)	107 (100.00)	119 (100.00)	226 (100.00)

Note: Figures in parentheses indicate percentage to the total in each category.

Table 9 : Return and benefit cost analysis of button mushroom on sampled farms.

S. no.	Particulars	Units	Farm size		
			Small	Large	Overall
1.	Total cost	Rupees/100 bags	29,947	24,013	26,996
i)	Fixed cost	Rupees/100 bags	9,824	5,472	7,372
ii)	Variable cost	Rupees/100bags	20,123	18,541	19,624
2.	Total Production	Kilograms/100bags	312.21	362.38	347.3
3	Selling Price of Mushroom	Rs./Kg	130	130	130
4.	Gross Returns	Rupees/100bags	40,587	47,109	45,149
5.	Net Returns over Total cost	Rupees/100bags	10,640	23,096	18,153
6.	Net Return over Total cost	Rs/kg	34.08	63.73	52.27
7.	Net Returns over Variable cost	Rupees/100bags	20,464	28,020	25,525
8.	Net Return over Variable cost	Rs/kg	65.55	78.83	73.50

Table 10 : Return and benefit cost analysis of oyster mushroom on sample farm.

S. no.	Particulars	Units	Farm size		
			Small	Large	Overall
1.	Total cost	Rs/100 bags	17,055	12,051	14.290
i)	Fixed cost	Rs/100 bags	9,824	5,472	7,372
ii)	Variable cost	Rs/100 bags	7,231	6,579	6,918
2.	Total Production	Kg/100 bags	186	180	183
3	Selling Price of oyster mushroom	Rs./Kg	140	140	140
4.	Gross Returns	Rs/100bags	22,320	21,600	21,960
5.	Net Returns over Total cost	Rs/100 bags	5,265	9,549	7,670
6.	Net Return over Total cost	Rs/kg	28.31	53.05	41.91
7.	Returns over Variable cost	Rs/100 bags	15,089	15,021	15,042
8.	Net returns over variable cost	Rs/kg	81.12	83.45	82.20

Cost and Return analysis of oyster mushroom

Table 10 depicts the cost and returns of oyster mushroom on sampled farms. It can be visualized from the table that the total production per hundred bags of small farms (186kg) was more than that of large farms (180 kg). The gross return also showed the similar trends i.e., gross returns of small farms was more than that of large farms but in case of net returns, the results were opposite *i.e.*, the net returns of large farms was more than that of small farms. It was due to the fact that the total cost of small farms was more than the large farms. The gross returns of small farms were found to be Rs. 22,320 whereas it was Rs. 21,600 for large farms. It was discovered that in small farms, net return over total cost per 100 bags was Rs. 5,265 and Rs. 15,089 respectively whereas, it was Rs. 9,549 and Rs. 15,021 for large farms. The net returns per kg over total and variable costs on overall farms were Rs. 41.91 and Rs. 82.20, respectively. It can also be seen from the table that net return over variable cost from oyster mushroom per hundred bags were also more which indicate that oyster mushroom is a profitable venture.

Conclusion

The socio-economic structure of the sampled farms showed that the average size of family consisted of 4-5 and 6-8 members (33.33%). The small farms had more proportion of 4-5 members and in case of large farms there were more proportion of 6-8 members. The study revealed that the majority of the families were joint (51.67%). Another sticking point that emerged from the study was that 63.33 per cent of the total mushroom growers fell in the age groups of 40-60 years. In case of small farms, the maximum number of mushroom growers was in the age group of 25-40 (42.50%) whereas in case of large farms maximum growers were in the age group of 40-60 years (85%). It was discovered that not even a single mushroom grower was younger than 25 years old. 71.25 per cent of the total population fell within the working population age range. The overall literacy rate of the heads was 91.67 per cent. The majority of the population were matriculate (38.33%) followed by senior secondary (31.67%). The overall literacy rate of the population was 96.49 per cent out of which male (99.36%) has more percentage of literacy rate than female (93.49%). The findings also indicated that as the size of the mushroom unit increases, the total size of land holding as well as the cultivated land decreases. The average cultivated land consists of 0.3033 ha which accounts for 74.34 per cent of the total size of the land holding. The proportion of the head of family having mushroom cultivation as a major source of income was more in case of large farms (60.00%) than the small farms (49.38%). This depicts that there is a high dependency on mushroom cultivation as a source of income for large farms. The cost and return analysis of button mushroom suggested that net return over total cost and net return over variable cost increases with increase in size of the mushroom unit which was due to total cost of production of mushroom on small farms was more than large farm. In contrast, reverse was observed for oyster mushroom. Besides these findings, there are few challenges which inhibit the farmers/ mushroom growers not to take up this venture on a commercial and large scale. These are: first mushrooms have a short shelf life, requiring proper storage and marketing strategies to prevent losses. Second, maintaining optimal temperature and humidity levels for mushroom cultivation can be challenging and lastly proper pest and disease control practices are essential to ensure consistent production. Therefore, immediate attention should be given to solve these problems so that lucrative return could be obtained from mushroom farming,

whereby mushroom growers could improve the overall living standard of living of his/her family.

References

Ashiegbu, G., Olagunju O. and Onyeabo E.N. (2022). Participation of Rural Youths in Mushroom Production in Umuahia Agricultural Zone, Abia State, Nigeria. *Int. J. Agricult. Manage. Develop*., **12(1)**, 1-9.

Bashir, A., Vaida N. and Dar M.A. (2018). Economic empowerment of women through mushroom cultivation. *Int. J. Res. Analy. Rev*., **5(4)**, 860-864.

Kala, S. and Hans H. (2020). Impact assessment on socio-economic profile of women mushroom growers in Samastipur district of Bihar. *J. Pharmacog. Phytochem*., **9(3)**, 1224-1227

Koirala, S. (2019). Socio-Economic Impact of Mushroom Farming in Local Community: A Study of Kalika Municipality, Padampur, Chitwan District. *Doctoral dissertation*, Department of Rural Development

Kumari, S. and Mazhar S.H. (2023). Assess the Knowledge and Adoption Level of Knowledge towards Mushroom Cultivation Technique. *Asian J. Agricult. Ext., Econ. Sociol*., **41(8)**, 32-38.

Saikia, D. and Bora M. (2023). Challenges of Mushroom Production in Assam. *Asian J. Agricult. Ext., Econ. Sociol*., **41 (3)**, 13-21.

Sharma, N., Vaidya M.K., Dixit B. and Sood Y. (2021). Mushrooms Contribution to Farm Income and the Socio-economic Conditions Analysis of the Growers. *Int. J. Environ. Clim. Change*, **11(12)**, 466-473.

Shipra, K., Kumari M. and Singh M. (2018). Impact of mushroom cultivation on economical status of rural women through skill development. *J. Pharmacog. Phytochem.*, **7(4S)**, 48-50.

Shirur, M., Shivalingegowda N.S., Chandregowda M.J. and Rana R.K. (2017). Entrepreneurial behaviour and socio-economic analysis of mushroom growers in Karnataka. *Indian J. Agricult. Sci*., **87(6)**, 840-845.

Singla, R. and Goel R. (2016). Impact of mushroom cultivation on socio-economic conditions of rural women of Patiala, Punjab. *Int. J. Farm Sci.*, **6(2)**, 251-254.

Tahir, A. and Hassan S. (2013). Economic feasibility of small scale button mushroom production in Pakistan. *Pak. J. Agricult. Res*., **26(3)**.

Thakare, A.B., Gupta S.P. and Kad M.D. (2006). Economics of mushroom production in Chattisgarh plain. *New Agriculturist*, **17(1)**, 9-18.

Thakur, M.P. (2014). Present status and future prospects of tropical mushroom cultivation in India: a review. *Indian Phytopathology*, **67(2)**, 113-125.