

## Training need assessment of mushroom growers and constraints: A study in Nainital district of Uttarakhand

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### ABSTRACT

Mushroom farming is one of the most potent sources of subsidiary income generation for small and landless farmers. The study was conducted in Haldwani and Bhimtal block of Nainital district, Uttarakhand, India. Three villages viz., Bhasani, Gaulaparao and Saungaun were selected randomly. A sample of 120 respondents was selected through purposive sampling method. Data was collected through structured interview schedule. Results revealed that the mushroom growers belonged to middle age group, major proportion of the respondents were educated upto middle school, had joint family and majority of the farmers have medium mushroom farming experience. More than half of the sample population relied on fellow farmers for information and updates regarding agriculture and related topics. Mushroom growers perceived lack of infrastructure as major constraint. Majority of respondents required training on marketing strategies. Results indicated that mushroom farming experience, information seeking behaviour and income through mushroom cultivation were significantly related to training needs of mushroom growers.

**Keywords:** Mushrooms, seasonal cultivation, training needs assessment, mushroom growers, constraints

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About 70 percent of Indian farmers have per capita income less than Rs. 15,000 with landholding less than 1 hectare (Kumar and Chahal, 2018). Only 10 percent of farming community earns more than Rs 30,000. The four point action plan of NITI Aayog, Govt of India for Doubling Farmers Income is remunerative price for farmers by reforming the existing market structure, raising productivity, reforming agriculture policy and relief measures. As per Fortune Business Insight (2020) global mushroom market size was valued at 46.1 billion in 2020 and is expected to grow at CAGR of 9.5 percent from 2021 to 2028. According to Karthick and Hamsalakshmi (2017), mushroom farming as an income source is helpful to stop farmer's migration. Kumar *et al.* (2013) concluded that in Uttarakhand hills intensive mushroom cultivation can lead exponential growth in

mushroom grower's economic status as this requires very less land for establishment and inputs are locally available with low cost while, output has a good monetary value. Constraints faced by mushroom growers are mainly lack of technical know-how and lack of marketing channels. Other constraints can be lack of availability of spawn, compost, etc. (Shirur *et al.* 2017). The ratio between extension workers and farmers is quite wide (1:1162) due to which information gap prevails (The Hans India, 2018). Thus, Mushroom growers are facing many problems due to lack of knowledge, information and education. The present manuscript is an attempt to study the socio-economic and communication characteristics of mushroom growers; to identify the constraints faced by the mushroom growers; to study the relationship between the selected socio-economic profile

characteristics and training needs of mushroom growers.

## MATERIALS AND METHODS

The study was conducted in Nainital district of Uttarakhand. Out of 13 districts in the state, Nainital district was selected for the study due to its climate and its proximity to the market. Nainital has total eight blocks in the district, out of which two blocks Haldwani and Bhimtal were selected randomly by Chit method. Three villages viz. Bhasani, Gaulaparao and Saungaun were selected randomly by chit method. The details regarding mushroom cultivators were procured through Krishi Suchana Evam Salah Kendra, Block office, Haldwani; Pradhan of Gaulapara; KVK Jyolikot and Indo-Dutch Horticulture Technology Pvt Ltd, Bhimtal. A total of 120 mushroom growers were selected for the study, who used at least 30 or more than 30 mushroom bags for cultivation with minimum 2 years of mushroom farming experience. The general information of respondents was collected through pre-structured interview schedule. Data was collected from the selected study area during the month of April and May 2022.

### Garret ranking for study of constraints faced by mushroom growers

The perceived constraints were listed in 10 points and respondents were asked to rate the constraints on a scale of 1 to 10 based on their own experience. Later, Garret ranking method was used to analyze the data collected and ranked on the basis of the perceived constraint of mushroom growers. These orders of constraints were transformed into units of scores by using the following formula.

$$\text{Per cent position} = [100 (R_{ij} - 0.50)]/N_j$$

Where,  $R_{ij}$  - Rank given for the  $i$ th factor by the  $j$ th individual

$N_j$  - Number of factor ranked by the  $j$ th individual.

The percent position is converted into scores by referring to the table given by Garrett and Woodworth (1969). Then for each factor the scores of the individual respondents were added together and divided by the total number of respondents for whom scores were added. Mean scores for all the factors were arranged in descending order and the most influencing factors were identified through the ranks assigned.

### Weighted mean score for ranking

Weighted mean was used for analyzing the training needs of mushroom growers and was calculated by multiplying the weight with the quantitative outcome associated with it and then adding all the products together. If all the weights are equal, then the weighted mean and arithmetic mean will be the same. Weighted Mean is an average computed by giving different weights to some of the individual values.

$$\text{Weighted mean} = \frac{\{\sum_{i=1}^n \text{weight } n \times X_n\}}{\sum_{i=1}^n \text{weight } n}$$

In the present study, a list of major components was prepared. In this regard, the mushroom growers were advised to put a “tick” in one of the three response categories (viz., most needed, needed and not needed) provided against the identified specific items under each major component based on their perceived needs for providing training to them for further improvement in their mushroom farming system and livelihood. The results were calculated as weighted score for each of the thematic area identified for the training needs.

## RESULTS AND DISCUSSION

### Socio-economic characteristics of mushroom growers

Table 1 represents the 12 categories under which the 120 respondents were interviewed for age, gender,

**Table 1.** Distribution of respondents according to socio-economic characteristics (n=120)

Categories		Number of respondents	%
<b>1.</b>	<b>Age (in years)</b>		
	i. Young age (below 26 year)	17	14.17
	ii. Middle age (27-50 year)	82	68.33
	iii. Old age (above 51 year)	21	17.5
<b>2.</b>	<b>Gender</b>		
	i. Male	90	75
	ii. Female	30	25
<b>3.</b>	<b>Caste</b>		
	i. General	80	67
	ii. OBC	27	22.5
	iii. SC	10	8
	iv. ST	3	2.5
<b>4.</b>	<b>Education</b>		
	i. Can read only	1	0.8
	ii. Can read and write	11	9.2
	iii. Primary	23	19.2
	iv. Middle	24	20.0
	v. High school	49	40.8
	vi. Graduate	12	10.0
<b>5.</b>	<b>Family type</b>		
	i. Joint Family	62	52
	ii. Nuclear Family	58	48
<b>6.</b>	<b>Occupation</b>		
	i. Labour + Mushroom grower	1	0.83
	ii. Business + Mushroom grower	28	23.34
	iii. Service+ Mushroom grower	39	32.5
	iv. Farming + Mushroom grower	52	43.33
<b>7.</b>	<b>Landholding</b>		
	i. Low (less than 0.5ha)	11	9.2
	ii. Medium (0.5 -2.87 ha)	91	75.8
	iii. High (more than 2.87 ha)	18	15
<b>8.</b>	<b>Annual income(Lakhs per annum)</b>		
	i. Low (less than 2.52)	17	14.2
	ii. Medium (2.52-4.67)	82	68.3
	iii. High ( more than 4.67)	21	17.5
<b>9.</b>	<b>Mushroom farming experience(years)</b>		
	i. Low (less than 2 years)	13	10.8
	ii. Medium (2-4.5 years)	82	68.4
	iii. High (more than 4.5 years)	25	20.8
<b>10.</b>	<b>Inter-personal network of information seeking</b>		
	i. Low	27	22.5
	ii. Medium	73	60.8
	iii. High	20	16.7
<b>11.</b>	<b>Mushroom production (kg/day in 1.5 month)</b>		
	i. Low (less than 7.86)	14	11.70
	ii. Medium (7.86- 14.2)	88	73.33
	iii. High (more than 14.2)	18	15
<b>12.</b>	<b>Income through mushroom production (Rs./day in 1.5 month)</b>		
	i. Low (less than 1100)	23	19.17
	ii. Medium (1100-1887)	75	62.50
	iii. High (more than 1887)	22	18.33

caste, education, family type, occupation, land holding, annual income, mushroom farming experience, inter-personal network of information seeking, mushroom production and income through mushroom production and found that majority of the respondents (68%) fell in the medium age group and 75 per cent of mushroom growers were male. About 67 per cent mushroom growers belonged to general category and 40.83 % respondents were educated up to high school level. The analysis of the data revealed that every person interviewed during the study can at least able to read the content available regarding the subject matter. Out of the respondents 52% were from joint family structure. Despite of social changes, urbanization and migration of population from their native land to city areas for livelihood and better job opportunities, the area studied was dominated with joint family tradition.

About 40.3% of the respondents were dependent on agriculture as their primary source of livelihood and mushroom farming is still seen as a new idea. The venture is on the way toward its exponential growth in the region. The 75.83 per cent respondents owned medium land holding while 15 % have high landholdings and 9.2 % with low land holding. Most of the respondents (68.3 percent) fell under the medium category of family income that ranged from 2.5 to 4.6 lakh per year while 17.3 % were from high income group and 14.2 % from low income group. Average annual income of mushroom growers came out as 3.6 lakhs. Majority of the farmers (68.3 percent) were having 2 to 4.5 years of experience of mushroom cultivation. A total of 60.83 % respondents had medium level of information seeking behaviour. During the analysis it was found that 68.9 percent of the respondents rely on fellow farmers and other local person as an information source and approach for update regarding agriculture and related areas. Data analyzed and tabulated showed that majority (73%) of the respondent harvested fresh mushroom from 7.86 to 14.20 kg of mushroom/day in a period of 1.5

month whereas 15 percent respondent produced more than 14.20 kg fresh mushroom/day in 1.5 month. However, 12 percent were produced less than 7.86 kg of fresh mushroom/day in 1.5 months.

It is evident from table 1 that a greater part of the sample population (63%) had been categorized as medium income generation category through mushroom cultivation. It is clear from the analysis that 18.5% each were categorized as low and high income generation through mushroom cultivation.

### **Constraints faced by mushroom growers**

Constraints in the present study are the measure of difficulties faced by mushroom growers. Difficulties that are encountered during mushroom farming right from initial phase of setting up the venture to marketing the product is tabulated in table 2. The constraints faced were analyzed using Garrett method of ranking.

Among all the ten constraints perceived as constraints for the mushroom growers, 'lack of infrastructure' was ranked first by the respondents followed by social taboo, disease occurrence and management, non-availability of inputs, lack of awareness about loans and financial resources, lack of organized market channels, existed gap of technical know-how, perishable nature of product, lack of information about market price and least rank was given to lack of motivation. Sohi *et al.* (2020) also revealed that majority of the rural farmers i.e. 89.3 percent, encounter difficulties in setting up the agro unit.

### **Training needs of mushroom growers**

It is evident from table 3, that nine preferred needs of the respondents were analyzed by calculating the Weighted Mean Score and made their ranking. Out of which marketing strategies had first rank with score 1.52 followed by finance with a score of 1.45.

**Table 2.** Presentation of constraints faced by respondents and the rank accessed using Garrett ranking method

Constraints	Percent position (%)	Garrett score (GS)	Average	Rank
Lack of infrastructure	5	82	270.3	1
Social taboo	55	48	268.4	2
Disease occurrence and management	35	58	260.6	3
Non availability of input (as spawns and compost)	15	70	247.3	4
Lack of awareness about loans and financial resources	65	42	246.9	5
Lack of organized market channels	75	37	227.5	6
Existed gap of technical know how	45	52	209.0	7
Perishable nature of product	25	63	196.1	8
Lack of information about market price	85	29	144.1	9
Lack of motivation	95	18	132.7	10

**Table 3.** Area-wise training need of mushroom farmers (n=120)

S. No	Particulars	Most needed		Needed		Not needed		Calculated weighted mean score (WMS)	Rank
		No.	%	No.	%	No	%		
1	Cultivation process	49	40.80	40	33.34	31	25.84	1.06	VI
2	Compost making	57	47.50	27	22.50	36	30.00	1.25	IV
3	Spawn and method of spawning	12	10.00	78	65.00	30	25.00	0.99	VIII
4	Environmental conditions of Mushroom house	77	64.17	14	11.67	29	24.17	1.31	III
5	Crop protection methods	37	30.84	63	52.50	20	16.67	1.19	V
6	Finance	50	41.16	45	37.50	25	20.84	1.45	II
7	Harvesting and processing	67	55.84	39	32.50	14	11.67	1.42	VII
8	Marketing strategies	79	65.84	35	29.17	6	5.00	1.52	I
9	Recycling of spent mushroom substrate	20	16.66	71	59.16	29	24.16	0.92	IX

The other training needs were environmental conditions of mushroom house (1.31) followed by compost making (1.25). Most of the respondents perceived that crop protection measures (1.19) were also training need area followed by mushroom cultivation process (1.03) and harvesting & processing (1.042). More than half per cent of respondents reported that spawn and method of spawning (0.99) was training need area followed by recycling of spent mushroom substrate (0.92).

Thus, it can be inferred that mushroom growers need training on various areas such as marketing and finance. They had less knowledge about cultivation process, recycling, harvesting and processing, etc.

#### **Relationship between selected profile characteristic and training needs of the mushroom growers**

The fourth objective “relationship between selected socio-economic characteristics and training

## TRAINING NEED ASSESSMENT OF MUSHROOM GROWERS AND CONSTRAINTS

**Table 4.** Distribution of respondents according to their relationship with training needs of mushroom growers (n=120)

S.no.	Independent variable	Correlation coefficient	t-calculated
1	Age	-0.011	0.122
2	Gender	-0.065	0.715
3	Caste	-0.079	0.175
4	Education	0.199	2.204*
5	Family Type	0.015	1.172*
6	Occupation	0.022	1.232*
7	Annual income	0.012	1.132*
8	Land holding	0.014	1.805*
9	Mushroom farming experience	0.109	1.242*
10	Mushroom production	0.218	2.429*
11	Information seeking behaviour	0.208	2.312*
12	Income through mushroom cultivation	0.308	3.516*

\*Significance at 0.05 level of probability; t value at 0.05 level of significance (df=119) =1.6577.

needs of the mushroom growers” was also analyzed and the relevant data are mentioned in the table 4.

The results indicated that education, occupation, family type, annual income, mushroom farming experience, information seeking behavior, mushroom farming experience and income through mushroom cultivation all showed positive correlation to training needs of mushroom growers at 5 percent level of significance (Table 4). Though the other independent variables like age, gender, caste showed negative correlation with training needs of mushroom growers. Earlier, Ashiegbu *et al.* (2022) stated that the mushroom farming experience is positively related with training needs of mushroom growers.

### CONCLUSION

The socio-economic profile and communication behavior of the target population is important for designing and framing future schemes, projects and strategies for the mushroom farmers of the area. Major constraints confronted by mushroom growers are lack of proper infrastructure for mushroom cultivation, storage and post-harvest value addition of

the mushroom, which hinders the economic benefit of the mushroom farmers. Farmers are unable to harness the appropriate monetary return from the mushroom harvested. Thus, there is a need to fill the existing resource gap to harness the full benefit of the available natural resources. The study also provides a clear picture that there was a major need of training for mushroom growers. Thus there is a vast scope of skill improvement through “need based training programmes”. Training programs and awareness campaign regarding marketing and financial needs of mushroom growers should be planned to aware the farmers and farming communities about the existing condition of market and possible ways to avail the best return of the marketable produce.

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