

## International Journal of Agriculture Extension and Social Development

Volume 8; Issue 1; January 2025; Page No. 229-233

Received: 20-10-2024  
Accepted: 30-11-2024

Indexed Journal  
Peer Reviewed Journal

### Outcome of mushroom cultivation training conducted by the Mushroom Research and Training Institute, Pantnagar

<sup>1</sup>Deepika Verma and <sup>2</sup>Amardeep

<sup>1</sup>Assistant Professor, Department of Home Science, Uttarakhand Open University, Haldwani, Nainital, Uttarakhand, India

<sup>2</sup>Associate Professor, Department of Agricultural Communication, College of Agriculture, G.B. Pant University of Agriculture and Technology Pantnagar, U. S. Nagar, Uttarakhand, India

DOI: <https://doi.org/10.33545/26180723.2025.v8.i1.d.1534>

Corresponding Author: Deepika Verma

#### Abstract

Purpose of this study was to measure outcome of mushroom training conducted by the Mushroom Research and Training Institute (MRTC), Pantnagar. The study was conducted in three villages of Udham Singh Nagar district of Uttarakhand. Data were collected through pre-tested semi-structured interview schedule and Focus Group Discussion. Ex-trainees of MRTC, Pantnagar were selected through census method as respondents. Study found that majority of the trainees also started this venture after training but many of them discontinued it. Some of the trainees also reported that they have learnt the things to the extent that they can train other people also and applying knowledge and skills in their mushroom production practices. Income was found varying in different years but an increasing trend was observed as far as production, investment and income was concern. Therefore, it was suggested that effort should be made to minimize the constraints for enhancing mushroom production and amelioration the socio-economic status of the mushroom trainees.

**Keywords:** Mushroom, training, trainees, outcome

#### Introduction

Mushrooms are long been valued as high medicinal and nutritional food by many societies around the world. Rosmiza *et al.* (2017) <sup>[6]</sup> suggested that to mitigate the environmental shift and increasing population demand, the only way is to integrate sustainable agricultural practices for the eradication of poverty and hunger and to fill the cleft between the different economic classes while also contributing to the sustainability of the ecosystem. Mushroom cultivation is considered as an alternative source of income for uplifting the living standards of rural households and to add good-quality protein in their diets (Kumar *et al.*, 2017) <sup>[3]</sup>. To promote mushroom as an enterprise training is very important part. Dalmia and Kumar (2018) <sup>[2]</sup> reported that the demand of mushrooms has been increasing day by day due to population growth, market expansion, changing of consumer education and awareness along with the developments in the manufacturing industries, storage facilities and transportation. Nagraj *et al.* 2017 <sup>[5]</sup> and Arora R.K. (2017) <sup>[1]</sup> found that professional training had extended the information on farmers, farm women, and rural youth in regards to all the subcomponents of mushroom cultivation. Trainings have been widely accepted strategy with high returns on investment. There is an urgent need to impart technical knowledge to farm women and youth to adopt mushroom production as an income generating activity for enhancing their income. In this context, MRTC, Pantnagar is continuously engaged in training courses on mushroom production technology and its related aspects for farmers,

farm women and rural youth on various aspects of production of mushroom.

#### Materials and Methods

Mushroom Research and Training Institute, Pantnagar in collaboration with state government is providing mushroom cultivation training to the people for self-employment and upliftment of rural people in the state. Objective of the study was to measure outcome of mushroom cultivation training in terms of selected parameters. Present study was carried out in three villages of Rudrapur block, namely Shimla Pistur, Chattarpur and Bhuarani of Udham Singh Nagar District. Purposive sampling was followed for selection of village, training institute (MRTC, Pantnagar) and training programme (Mushroom production training for Below Poverty Line). Another reason for selecting these training programmes is that BPL are considered as economically backward section of the society and government has initiated some efforts in improving their quality of life by providing them several ways and means including training for promoting tendency of self-employment among them. Thus it was considered worthwhile to select these training programmes. The various indicators of impact of training were identified by reviewing Kirkpatrick model and other literature focused on training impact assessment. The ex-post-facto research design was used to meet out the objectives set forth for the study. A census method was followed for selection of total 48 ex-trainees. Data regarding outcome were collected from 26 adopter of mushroom production who were the ex-trainees of MRTC, Pantnagar.

Relevant data on various was collected keeping in view the objectives set forth for the study which was further analysed and tabulated by applying appropriate statistical tools and techniques.

**Results and Discussion**

Outcome of the mushroom training was measured in terms of inception time of mushroom production after training, discontinuance of mushroom cultivation by the trainees, arrangement of inputs for mushroom production, investment, production and income, utilization pattern of produced by the growers, form of consumption at home, marketing for mushroom, income utilization pattern, employment potential of mushroom cultivation and excess production management.

**Outcome of training**

Any training expected to give some outcomes. The training under study was also conducted with some expectations. The basic objective of training was to train rural poor in mushroom cultivation, so that they can adopt this activity as income generation venture. Thus to study this aspect information related to mushroom production i.e. investment, production, income, arrangement of the inputs, use and marketing of produce and use of income etc were gathered and analyzed. Data related to these aspects have been systematically presented as follows:

**Inception time of mushroom production after training**

The main aim of mushroom production training was to motivate people to adopt mushroom production as an income generation activity after training. Data related to this aspect presented in the Table 1. As mentioned earlier that out of 48 trainees only 26 started growing mushroom for getting additional income. The time of inception of this venture by the trainees presented in Table 1 indicates that out of 26 trainees, 84.61 per cent started mushroom cultivation within one year after getting training. Only 3.85 trainees started it after one year of training and rest 11.54 per cent trainees were those who were already engaged in this income generation activity even before attending the training.

**Table 1:** Distribution of trainees on the basis of time of inception of mushroom production after training.

Sl. No.	Inception time	Respondents n=26
1	Within one year	22 (84.61)
2	After one year	1 (3.85)
3	Doing it before getting training	3 (11.54)

**Note:** Figures in parenthesis indicate the percentage in respective category

From the facts presented in table it can be summarized that majority of the trainees started mushroom cultivation as an income generation activity. It shows that such training may be helpful in opening income generation avenues for poor people. From informal discussion with trainees it was also found that trainees who did not or could not start mushroom production faced some problems in getting financial support from government, otherwise the proportion of trainees who started it could have been more.

**Discontinuance of mushroom cultivation by the trainees**

Table 2 shows data regarding discontinuance of mushroom cultivation by the trainees who had already started it. It is clear from table that out of those who started it earlier 65.38 per cent discontinued the same and only 34.62 per cent of them continued this venture.

**Table 2:** Distribution of trainees on the basis of discontinuance of mushroom cultivation.

Sl. No.	Status	Respondents n=26
1.	Who continued	9 (34.62)
2.	Who discontinued	17 (65.38)

**Note:** Figures in parenthesis indicate the percentage in respective category

From the above data it can be concluded that however majority of the trainees (26 out of 48) started it as an income generation activity. Out of those 34.62 per cent are still continuing to grow mushroom. It is also clear that majority of those who started it 65.38 per cent were unable to continue it due to one or another reasons. During discussion with trainees it was emerged that there were many reasons for discontinuance but majority of them reported outbreak of disease, poor marketing facility, poor quality of spawn, etc. as main reasons of discontinuance.

**Arrangement of inputs for mushroom production**

Data regarding input management by mushroom growers has been presented in table Table 3. It is clear from table all the growers arrange the straw, chemicals, polythene bags and other minor inputs from their own village or from near by villages market. All of them purchased small implements like sprayers from Rudrapur market. It is also clear that MRTC, Pantnagar, other mushroom growers in village and Delhi based commercial suppliers supply the spawn to these growers.

**Table 3:** Details of input arrangement by the all the growers

Sl. No.	Input and place wherefrom they procure it					
	Straw	Spawn	Chemical	Polythene bags	Sprayers	Other
1	Village	Village grower	Village	Village	Rudrapur	Village
2	Village	MRTC	Village	Village	Rudrapur	Village
3	Village	Delhi based commercial suppliers	Village	Village	Rudrapur	Village
4	Village	Delhi based commercial suppliers	Village	Village	Rudrapur	Village
5	Village	Delhi based commercial suppliers	Village	Village	Rudrapur	Village
6	Village	MRTC	Village	Village	Rudrapur	Village
7	Village	MRTC/Village grower	Village	Village	Rudrapur	Village
8	Village	MRTC/Village grower	Village	Village	Rudrapur	Village
9	Village	MRTC/Village grower	Village	Village	Rudrapur	Village

From Table 3 it can be concluded that this venture indirectly supports the economy of other villagers who supply various inputs to growers on payment basis.

**Investment, Production and Income**

The details provided by the growers, who are continuing mushroom production after training till the date of investigations, show different trends. All the growers used to grow the button mushroom only. It was found that during the first year after adopting mushroom production as an enterprise, the maximum production was 1000 kg. and minimum production was 85 kg with a 62.75 per cent to 76.53 per cent increase in income. Another grower produced a 500 kg of mushroom with an 85 per cent increase in income. One grower had a 42.86 per cent increase in income by producing 400 kg of mushrooms. Other growers produced 500, 500, 300, 100 and 500 kg mushrooms with an increased income of 85.71 per cent, 75 per cent, 70.588 per cent, 78.38 and 78.79 respectively.

During the second year after adopting mushroom production as an enterprise year, it was found that the maximum production was 1000 kg. and minimum production was 300 kg. and the growers had a 33.33 per cent and 33.33 per cent increase in income. Another grower produced 900 kg a mushroom with a 60.42 per cent increase in net income. One grower had 40.28 per cent decreased income of earning net income by producing 900 kg of mushrooms. Other growers produced 650, 600, 500, 500 and 400 kg of mushroom with an increased income of 64.58, 64.15, 90.77, 95.83 and 80 per cent respectively.

As far as production and income during the third year after adopting mushroom production as an enterprise is concerned, it was found that 400 kg. was the minimum production reported by only one grower with, an increased income of 57.08 per cent. Three growers reported that they produced 500 kg mushrooms with an increased income of 62.00 percent, 60 per cent and 75.00 per cent. Only one grower produced 1000 kg of mushroom with an increased income of 43.75 per cent. The three growers got an increased income of 50 per cent, 56.41 per cent and 73.68 per cent by producing the same quantities, i.e. 1500 kg.

As far as production and income of the year during the fourth year after adopting mushroom production as an enterprise is concerned, it was found that the maximum production was 1500 kg. and minimum production was 100 kg. Growers had increased income of 48.62 and 66.67 per cent. Another grower produced 1200 kg of mushroom with an increased income of 56.52 per cent. One grower had an increased income of 39.02 percent by producing 1200 kg of mushrooms. Other growers produced 670, 800, 890, 1000, 5000 kg. mushrooms with an increased income of 39.02 per cent, 62.07 per cent, 66.20 per cent, 30.99 per cent and 48.62 per cent respectively. It was also found that one of the growers did not produce mushrooms this year because of some important work, but he wished to continue this venture. After having discussion with growers, it was found that they sold their produce at different rates. The further rate of mushrooms also depends on market demand, quality and depend on the beginning and end of the season.

Data indicates the trend in the quantity of mushrooms produced by the growers. From the data it is clear that in most of the cases there was an increasing trend in the

quantity of mushrooms produced by the growers in four consecutive years. It was found that in most cases, investment made by the growers has increased in four consecutive years. Studies show that there is no set trend as the net income of most of the growers varied in different years. From the above data it can be concluded that growers are used to growing more quantities of mushrooms in successive years and investing more money also. They are also getting some income from this venture.

**Table 4: Utilization pattern of produced by the growers**

Mushroom growers who are continuing mushroom venture were asked to report the utilization pattern of the produce. Table 4 reveals that majority of the respondents (88.89%) use mushroom for both self-consumption and for selling and rest 11.11 per cent grower grew mushroom solely for sale purpose.

**Table 4:** Distribution of growers on the basis of utilization pattern of produce

Sl. No.	Use of produce	Growers (n=9)
1	Only for self consumption	0 (0.00)
2	Only for selling	1 (11.11)
3	For both self consumption and selling	8 (88.89)

**Note:** Figures in parenthesis indicate the percentage in respective category

From the data it can be concluded that majority of the growers not only sell the produce but also utilize for self consumption. After discussion with grower it was also found that all the mushroom growers produce their crop with major objective of sale but some time they consume it at family level also.

**Form of consumption at home**

Mushroom growers who consumed mushroom at home were also asked to report the form of consumption of mushroom at home. Table 5 reveals that all the growers consume it in the form of vegetable only and none of them make other value added products.

**Table 5:** Distribution of growers on the basis of form of utilization mushroom

Sl. No.	Form	Growers (n=8)
1	Vegetable	8 (88.89)
2	Other	0 (0.00)

**Note:** Figures in parenthesis indicate the percentage in respective category

From data it can be concluded that all the growers are aware of the use of mushroom as food and did not believe in prevailing misconceptions related to mushroom. Data also indicate that growers were either not aware of value added products of mushroom or did not like these products as none of them practiced it.

**Marketing for mushroom**

Data related to marketing for mushroom presented in the Table 6 indicates that all the growers sell their produce to retail shopkeepers of different town/city like Rudrapur, Haldwani, Moradabad and Sitarganj and only 11.11 per cent growers also sold their mushroom to wholesaler in near by

Mandi. None of them found selling the produce directly in their own village or near by villages.

**Table 6:** Distribution of growers on the basis of place of marketing of produce

Sl. No.	Place of marketing of mushroom	Growers (n=9)
1	In their own village	0 (0.00)
2	In near by village	0 (0.00)
3	In their own and near by villages	0 (0.00)
4	In mandi	1 (11.11)
5	Retail shopkeepers	9 (100)

**Note:** Figures in parenthesis indicate the percentage in respective category

From above data it can be concluded that in rural areas mushroom as a food is not very popular so there is least developed market. Unlike the rural area, the market of this produce is well developed in urban areas. It can also be summarized that growers do not sold their produce door to door through direct marketing as there is well develop market in near by urban areas.

### Income utilization pattern

Income utilization patter of mushroom growers has been presented in Table 7. It indicates all the growers utilizes income from mushroom production in meeting household expenditure, extending business and saving. Table evince that all the growers spend 40-80 per cent income from mushroom production to meet their house hold expenditure. They also invest 10-40 per cent amount of this income to extend this venture. All of them save 10-40 per cent income for future.

**Table 7:** Details of income utilization pattern of all the growers (Multiple response)

Sl. No.	Use of income from mushroom production		
	Use (in %)		
	Only for household expenditure	For extending the business	For saving
1	40	20	40
2	70	10	20
3	50	30	20
4	70	10	10
5	40	40	20
6	80	10	10
7	40	30	30
8	40	20	40
9	70	10	20

From the Table 7 it can be concluded that this venture is contributing a lot to family income of the growers as out of total income from mushroom cultivation the major proportion (60-90%) is being utilized for either meeting house hold expenditure or for saving.

### Employment potential of mushroom cultivation

To access the employment potential in this venture, all the growers were asked whether they need support of workers to run this venture or not? Data collected on this aspect has been presented in Table 8 clearly indicates that all the growers need assistance of other people to run this venture.

**Table 8:** Distribution of growers on the basis of employment

potential of mushroom cultivation

Sl. No.	Need of assistance	Growers (n=9)
1	Yes	9 (100)
2	No	0 (0.00)

**Note:** Figures in parenthesis indicate the percentage in respective category

It can be concluded that this venture not only provides a self employment venue to growers but also generates some employment for local people. After discussion with growers, they expressed that they require assistance in form of labour from outside as well as from their family.

### Excess production management

Data regarding excess production management has been presented in Table 9. It is clear from Table 9 that none of the growers ever faced the problem of excessive production. Some of them also reported that sometimes they were unable to fulfil the market demand.

**Table 9:** Distribution of growers on the basis of excessive production management:

Sl. No.	Production	Growers (n=9)
1	Faced the problem of excessive production	0 (00)
2	Never faced the problem of excessive production	0 (100.00)

**Note:** Figures in parenthesis indicate the percentage in respective category

From data it can be concluded that mushroom growers produce mushroom as per the demand and marketing scenario.

### Conclusion

Study found that the most of the adopters started mushroom cultivation within one year after getting training. About two third adopters discontinued the mushroom cultivation. All the growers arrange the straw, chemicals, polythene bags and other minor inputs from their own village or from nearby villages market. Majority of the growers use mushroom for both self-consumption and for sale. All the growers consume it in the form of vegetable only and none of them make other value-added products. All the growers sell their produce to retail shopkeepers of different villages, towns, cities and to wholesaler in nearby Mandi. Out of total income from mushroom cultivation, the major proportion is being utilized for either meeting house hold expenditure or for saving. Trainees need assistance of other people to run this venture which ultimately generates some employment for local people.

### References

- Arora B, Kamal S, Sharma VP. Sensory, nutritional and quality attributes of sponge cake supplemented with mushroom (*Agaricus bisporus*) powder. *Nutr Food Sci.* 2017;47(4):578-590. Available from: <http://dx.doi.org/10.1108/NFS-12-2016-0187>.
- Dalmia K, Kumar R. Impact assessment of vocational mushroom cultivation training programme on knowledge gain of rural women. *Int J Pure Appl Biosci.* 2018;6(3):265-270.

3. Kumar S, Chand G, Kumar A, Patel DK. Mushroom cultivation: A friendly profession for rural and economic development in eastern Bihar. *Indian J Ext Educ.* 2017;53(2):65-69.
4. Majumder D, Das PK, Gogoi R. Adoption of recommended mushroom production technology and strategies for developing mushroom industry in Assam. *Mushroom Res.* 2009;18(2):83-90.
5. Nagaraj R, Arunkumar P, Hanumanthaswamy BC, Rathod Jyoti M. Mushroom production for self-employment – An impact study. *Int J Curr Microbiol Appl Sci.* 2017;6(9):2991-2997.
6. Rosmiza MZ, Davies WP, Rosniza Aznie CR, Jabil MJ, Mazdi M. Prospects for increasing commercial mushroom production in Malaysia. *Mediterr J Soc Sci.* 2017;7(1):406-407.  
DOI: 10.5901/mjss.2016.v7n1s1p406.