Impact of vocational training programme on mushroom cultivation under the project Attracting and Retaining Youth in Agriculture (ARYA)

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ABSTRACT

The present study was conducted to assess the impact of training on knowledge gain about mushroom cultivation as an enterprise/self-employment. A training on mushroom cultivation under the project Attracting and Retaining Youth in Agriculture (ARYA) was imparted to 60 trainees who had attended three training courses from 2019-2020 to 2021-22. The impact of the training was assessed by pre- and post-evaluation testing in terms of improvement in knowledge on different aspects. Of the total respondents, 90.00 per cent were males; 58.33 per cent were in the age group of 31-40 years; 71.67 were from backward class, mainly senior secondary (35.00%), majority (58.33%) engaged in farming, 80.00 per cent having low annual income, 96.67 per cent having low experience in mushroom cultivation and 76.67 per cent having marginal landholding (<1 ha). It was found that majority (63.33%) of the respondents joined training programme to adopt mushroom growing as an occupation. The gain in knowledge of the trainees from pre-training to post-training ranged from 28.33 to 60.00 per cent. Majority of the respondents (91.67%) suggested that quality spawn may be supplied to them in time. Results also revealed that most of the beneficiaries were found to be satisfied with almost all parameters of training after post-evaluation test of training.

Keywords: Mushroom cultivation; training; evaluation; knowledge gain; suggestions

INTRODUCTION

Mahendergarh district is located in the southwestern part of Haryana bordered by Alwar district of Rajasthan in south, Sikar in the southeast and Jaipur in the west, Bhiwani district of Haryana in the north and Rewari in the east. The rural population of Mahendergarh district is about 88 per cent. About 70 per cent of the total area of the district is under agriculture. Animal husbandry provides an additional source of income to the rural people of the area. It also supplements the income of scheduled caste and backward class families. Climate of the district is suitable for various allied activities for strengthening the living standard of the rural youth.

Mushroom cultivation is a profitable enterprise as it can be started with low investment and in small space. By adopting this enterprise rural youth, particularly from small landholding families, will strengthen the economic status of farming community. It has given an opportunity to educate and unemployed rural youths to become income generators and supplement their families' income.

Farmers of district Mahendergarh are mostly engaged in farming and household activities. They are dependent on seasonal employment in agriculture and fetching very low income from their farm produce. Mushroom cultivation is a novel component of agriculture that can be easily integrated in the farming

system to enhance the income of the farmers or can even be taken up as an independent activity on commercial scale. Cultivation of edible mushrooms is one of the most economically viable processes for the bioconversion of lingo-cellulosic wastes (Cohen et al 2002). Mushroom growing is one agricultural activity in which rural farmers can play a vital role without sacrificing their household responsibilities (Biswas et al 2012).

To find out the success of any training programme, a periodic appraisal and evaluation of what is being done, is essential so that suitable changes can be made to make training programmes more effective. Vocational training programmes take into account all methods and means which result into skill development in rural youth in the areas of their interest (Lal and Tondon 2011).

In this context, Krishi Vigyan Kendra, Mahendergarh, Haryana imparted trainings on mushroom cultivation especially to the rural youth, farmers and farm women during 2019-2020 to 2021-22. A training under the project Attracting and Retaining Youth in Agriculture (ARYA) was conducted for them in order to evaluate the outcome of the training programme, assessing the socio-economic profile of the trainees, gain in knowledge, reasons of participation in training and outcome and suggestions after attending the training.

METHODOLOGY

Selection of participants: The training programme on mushroom cultivation was focused on rural youth, farmers and farm women for those who were trained in mushroom cultivation at KVK, Mahendergarh, Haryana. A total of 60 trainees were enrolled; out of which 54 were men and 6 were women. Some glimpses of the training programme on mushroom cultivation are shown in Plate 1.

Collection of data: A questionnaire was formulated comprising general information of the participants before the training. A pre-evaluation test was conducted to know the level of knowledge of participants regarding mushroom cultivation techniques, preparation of spawn, substrates preparation, marketing of fresh product, preservation, value addition, etc. Thorough training on various aspects of mushroom cultivation was imparted during the training programme. Similarly, after completion of the training course, post-evaluation was conducted in order to assess the knowledge gained by the trainees and effectiveness of the training.

To test the knowledge of trainees, a set of 10 questions, related to mushroom growing, nutrients present in mushrooms, different products prepared from mushrooms, storage and harvesting of mushrooms etc, was used. Hence, deviation or gain in knowledge was calculated from the difference of scores obtained in pre- and post-knowledge test of the trainees as per below:

$$\text{Deviation/gain in knowledge} = \frac{\text{Post-evaluation score} - \text{Pre-evaluation score}}{\text{Total number of respondents}} \times 100$$

Preparation of bedding/compost: Wheat straw, jowar seed, polythene bags, cooking utensils, spawn and polythene sheets were the materials used for mushroom spawn and cultivation.

RESULTS and DISCUSSION

Socio-economic profile of respondents: The participants differed in their socio-economic status (Table 1). Of the total respondents 90.00 per cent were males and 10.00 per cent were females. Most of them were in the age group of 31-40 (58.33%) followed by >40 (25.00%) and up to 30 (16.67%) years of age. Majority were from backward class (71.67%) followed by general (18.33%) and scheduled caste (10.00%). The respondents were mainly senior secondary (35.00%) followed by graduates (26.67%) and diploma holders (25.00%). Majority of them (58.33%) were engaged in farming. It was also found that 80.00 per cent of the trainees were having low and 11.67 per cent medium high annual income. Majority of the respondents (96.67%) had low experience in mushroom cultivation. Majority of the trainees (76.67%) had marginal landholding (<1 ha), whereas, few of them (3.32%) were small farmers. Twenty per cent trainees were landless.

Mushroom farming does not require much land; therefore, marginal and landless farmers were more interested to adopt this enterprise to supplement their family income. At the same time, the respondents who were mainly doing farming, had low annual income

Table 1. Socio-economic profile of respondents

Component	Respondents (n = 60)	
	Frequency	Percentage
Gender		
Male	54	90.00
Female	6	10.00
Age (years)		
Up to 30	10	16.67
31-40	35	58.33
>40	15	25.00
Caste		
Scheduled caste	6	10.00
Backward class	43	71.67
General	11	18.33
Education		
Primary	1	1.67
Middle level	2	5.00
Matriculate	3	3.33
Senior secondary	21	35.00
Diploma holder	15	25.00
Graduate	16	26.67
Postgraduate	2	3.33
Occupation		
Farming	35	58.33
Business	4	6.67
Service	2	3.33
Housewife	6	10.00
Others	13	21.67
Annual income		
Low	48	80.00
Medium	7	11.67
High	5	8.33
Experience in mushroom cultivation		
Low	58	96.67
Medium	2	3.33
High	0	0
Landholding (ha)		
Landless	12	20.00
Marginal (<1)	46	76.67
Small (1-2)	2	3.32
Semi-medium (2-4)	0	0.00
Medium (4-10)	0	0.00
Large (>10)	0	0.00

and were educated, showed their interest in training.

Reasons of participation in training programmes on mushroom cultivation: Data (Table 2) indicate that majority (63.33%) of the respondents joined training programme to adopt mushroom growing as an occupation; 23.32 per cent to learn about mushroom growing techniques for self-consumption; 8.33 per cent just to teach fellow farmers about mushroom growing and only 5.00 per cent trainees wanted to know about mushroom growing. Kaur (2016) reported that majority of respondents joined the training course to adopt mushroom cultivation as an occupation and only 10.5 per cent just to get certificate of training.

Gain in level of knowledge after training: Pre-exposure and post-exposure scores were computed for all the sub-components of mushroom cultivation (Table 3). Data depict that the gain in knowledge of the trainees from pre-training to post-training ranged from 28.33 to 60.00 per cent. Maximum gain was observed in case of the component types of mushrooms (60.00%) followed by preservation techniques (55.00%), importance of casing (51.67%), suitable substrate (45.00%), optimum growing conditions (41.67%), harvesting methodology (41.67%), mushroom spawn (38.33%), marketing channels (38.33%) and mushroom recipes (38.33%) and lowest in case of the component nutritive value of mushrooms (28.33%).

It was noticed that pre-training knowledge scores were not much satisfactory for all the aspects of training programme. However, the knowledge scores gained by trainees after the training were more satisfactory in all aspects. It may, therefore, be concluded that respondents succeeded in acquiring knowledge after exposure to training on mushroom cultivation. The main reason behind the satisfactory gain in knowledge might be well educational background of trainees and having their keen interest in mushroom growing.

In a study, Kaur (2016) observed that maximum gain in knowledge was observed for diseases of mushrooms and their prevention (94.1%) and variety of mushrooms (92.9%). Kavitha et al (2019) assessed the impact of the trainings on mushroom cultivation and reported that 63.88, 59.72 and 55.55 per cent of the trainees deviated knowledge on types of mushroom, preservation techniques and importance of casing after training. Nagaraj et al (2017), in a study in Shivamogga district of Karnataka, revealed that exposure to training had increased the knowledge of farmers, farm women and youths regarding all the subcomponents of mushroom production. It was observed that 71.43 per cent of the trainees deviated knowledge on types of mushrooms and 74.29 per cent on mushroom recipes after the training. Goel and Sodhi (2013) found that, among the various practices of mushroom cultivation,

Table 2. Reasons of participation in training programme on mushroom cultivation

Reason	Respondents (n = 60)		Ranking
	Frequency	Percentage	
To adopt mushroom growing as an enterprise	38	63.33	I
To learn mushroom growing for self-consumption	14	23.32	II
To teach fellow farmers about mushroom growing	5	8.33	III
Just to know about mushroom growing	3	5.00	IV

Table 3. Gain in knowledge about different components of mushroom cultivation

Component	Number of respondents (n = 60)		
	Pre-training	Post-training	Increase in knowledge
Nutritive value	37 (61.67)	54 (90.00)	+17 (28.33)g
Optimum growing conditions	26 (43.33)	51 (85.00)	+25 (41.67)e
Types of mushroom	12 (20.00)	48 (80.00)	+36 (60.00)a
Suitable substrate	26 (43.33)	53 (88.33)	+27 (45.00)d
Mushroom spawn	19 (31.67)	49 (81.67)	+23 (38.33)f
Marketing channels	32 (53.33)	55 (91.67)	+23 (38.33)f
Preservation techniques	21 (35.00)	54 (90.00)	+33 (55.00)b
Importance of casing	26 (43.33)	57 (95.00)	+31 (51.67)c
Harvesting methodology	25 (41.67)	50 (83.33)	+25 (41.67)e
Mushroom recipes	35 (58.33)	58 (96.67)	+23 (38.33)f

Multiple responses; Figures in parentheses are per cent values

Plate 1. Glimpses of some activities held during training programme on mushroom cultivation

Table 4. Suggestions given by the trainees for improving mushroom enterprise

Suggestion	Respondents (n = 60)		Ranking
	Frequency	Percentage	
Quality spawn may be supplied in time	55	91.67	I
They should be helped to get financial assistance from banks	45	75.00	II
Linkage with marketing channels may be strengthened	39	65.00	III
Exposure visits may be conducted to the farms of successful entrepreneurs	25	41.67	IV
Practical manual on mushroom cultivation may be provided	19	31.67	V
Value addition in mushrooms	12	20.00	VI

Multiple responses

maximum knowledge gain (52.2%) was observed in compost preparation and aspect of diseases and pest management was least understood by the participants (23.4%) followed by variety/cultivation method (37.3%). Vishwakarma et al (2023) reported that after training, 73.6 per cent of the trainees demonstrated improved understanding of different types of mushrooms; 75.2 per cent gained knowledge of nutrition and health benefits, harvesting methods and preparation of compost and 76.8 per cent recognized the preparation of compost. Singh et al (2019) observed that pre-training knowledge score was not much satisfactory for all the aspects of training programme on mushroom cultivation. However, the knowledge score gained by respondents after training was more satisfactory in all aspects.

Suggestions given by the trainees: Suggestions given by the trainees during the training programme are listed in Table 4. Majority of the respondents (91.67%) suggested that quality spawn may be supplied to them in time, which ranked first. Three-fourth of them (75.00%) suggested that they should be helped to get financial assistance from banks followed by linkage with marketing channels may be strengthened (65.00%); exposure visits may be conducted to the farms of successful entrepreneurs (41.67%) and practical manual on mushroom cultivation may be provided (31.67%). Only 20.00 per cent gave the suggestion that they may be taught about value addition in mushrooms, which ranked last.

Kaur (2016) also indicated that the respondents suggested for more emphasis on practical classes, supplying of printed material and wide publicity of the programme for bringing improvement in training programmes. Goel and Sodhi (2013) indicated that availability of quality spawn (62.0%), insurance of crop (53.0%) and reducing the cost of inputs (45.0%) were three major suggestions for successful development of mushroom entrepreneurship in Punjab.

CONCLUSION

The study concluded that there was a considerable gain in knowledge about mushroom cultivation after exposure to training. The gain in knowledge of the trainees from pre-training to post-training ranged from 28.33 to 60.00 per cent. The knowledge scores gained by trainees after the training were more satisfactory in all aspects. Majority of the respondents (91.67%) desired that quality spawn may be supplied to them in time followed by 75.00 per cent who sought help to get financial assistance from banks and 65.00 per cent who were keen to have linkage with marketing channels. Mushroom cultivation is an enterprise in which requirement of land is not a big issue so even landless farmers can get additional income through this venture. Training on mushroom cultivation technology through Krishi Vigyan Kendra, Mahendergarh showed better influence on the farmers and rural youth to practice mushroom cultivation as an allied activity to increase their income which, in turn, would improve their standard of life.

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