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A Study to Evaluate Growers Response in Vocational Training Programmes on Mushroom Cultivation Organized by Krishi Vigyan Kendra, Moga

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ABSTRACT

Background: Mushroom production can play a vital role to alleviate poverty by generating employment prospects for jobless educated youth along with additional income in rural and semi-urban areas. The present study was conducted to find out the growers' response to vocational trainings on mushroom production at Krishi Vigyan Kendra, Moga.

Methods: The respondents consisted of 212 trainees who had undergone vocational training on mushroom production techniques from KVK, Moga between the years 2015-16 to 2019-20.

Result: It was observed that pre-training knowledge score was not much satisfactory for all the aspects of training programme. However, the knowledge score gained by respondents after training was more satisfactory in all the aspects. The study revealed that exposure to training had increased the knowledge of participants regarding techniques of mushroom production by 80.75 per cent. The reason behind the satisfactory change in perception level might be due to well educational background, keen interest of participants and methods followed for technology transfer to the trainees. Some trainees even adopted mushroom cultivation as self-employment and set up their own units. The study revealed that the mushroom production training has created a favourable attitude among the trainees and also enhanced the economic level of beneficiaries who adopted it as a source of livelihood.

Key words: Adoption, Mushroom, Self-employment, Vocational trainings.

INTRODUCTION

In India, around 70 per cent of farming land is occupied by mainly small and marginal farmers. As land fragmentation is increasing generation by generation, it has become difficult for small and marginal farmers to survive and keep pace with the speedy technological progress in modern agriculture. Due to small land holdings, farmers are facing challenges with income as to sustain their living, more pressure on land to produce more per unit increase. To sustain their livelihood, farmers need to adopt new technologies, but they are lacking behind with knowledge and skill of new technology. To impart entrepreneurial skills and scientific knowledge among farmers, rural youth and farm women, Indian Council of Agricultural Research has established a wide network of Krishi Vigyan Kendras (KVKs) in almost every district in India to disseminate agricultural technologies at farmers' doorstep. KVK scientists in their participatory approach are popular among farmers for organizing need-based trainings in agriculture and other allied sectors to augment farmers' income from the limited resources available. KVK, Budh Singh Wala, Moga under Punjab Agricultural University, Ludhiana has engaged in the vocational training programme of mushroom cultivation to develop entrepreneurship skills in the rural youth, farmers, and rural and farm women. Mushroom cultivation is considered to provide security to rural poor by generating added income as it is a low-cost subsidiary occupation by utilizing indoor unused space and attaining more productivity per unit. Elevation of mushroom cultivation helps in releasing pressure on land, enhancing nutrition security and status of rural youth, farmers and women by earning additional income (Manju *et al.,* 2012). It can mend socio-economic status of farmers by solving employment problems of educated and uneducated rural and semi-urban population (Rachna *et al.,* 2013). Keeping this in view, the present study was conducted to evaluate the adoption rate, reasons for participation along with their gain in knowledge, constraints faced by the trainees of mushroom cultivation programmes.

MATERIALS AND METHODS

KVK, Moga has imparted eleven such vocational trainings of five days duration related to mushroom cultivation during the year 2015-16 to 2019-20 regarding mushroom cultivation in which 212 farmers, rural youth and farm women took part. The information about the training was disseminated through KMAS, Whatsapp groups and various village training camps. Practical demonstrations, Power Point presentations and video shows on mushroom production were organized for the participants and exposure visits were also arranged to other mushroom production units to learn firsthand information based on the belief "seeing is believing". Data was collected using a questionnaire from all the 212

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Table 1: Number of training programs conducted by KVK and adoption of mushroom cultivation by the trainees during 2015-2020.

Year	No. of trainings	No. of participants	Adopters	Non-adopters	Adoption rate (%)
2015-16	1	9	2	7	22.22
2016-17	2	37	4	33	10.81
2017-18	2	50	7	43	14.00
2018-19	3	60	13	47	21.67
2019-20	3	56	16	40	28.57
Total	11	212	42	170	19.81

respondents for overall information in terms of age, education, category, socio-economic background, land holdings and extension connections from the respondents. A pre-evaluation test was conducted to know the level of familiarity of participants regarding variety of mushroom, nutritional benefits, cultivation procedures, preparation of spawn, marketing of fresh product, preservation, value addition, *etc.* Detailed information on various phases of mushroom production was conveyed during the training programs. Likewise, after accomplishment of the training course, post evaluation was done in order to evaluate the knowledge gained and effectiveness of training for the respondents. The data was collected through a brief interview schedule, personal discussion and focus group discussion. The data was tabulated and analyzed statistically. Further, deviation or gain in knowledge was also calculated from the difference of scores attained in pre and post knowledge test of the trainees (Kavitha *et al*. 2019).

$$\text{Gain in knowledge} = \frac{\text{Post evaluations score - Pre evaluations score}}{\text{Total respondents}}$$

RESULTS AND DISCUSSION

Adoption status

The number of training programs conducted by KVK and the adoption of mushroom cultivation by the trainees are given in Table 1. It was found that 11 training programmes were conducted in 5 blocks of the district on mushroom cultivation during 2015 to 2020. It was observed that over the years a greater number of mushroom units were set up in the district and average adoption rate among the trainees increased. As in the year 2019-20 adoption rate of the enterprise reached up to 28.57 per cent in the area. But still non-adopters were on the higher side as compared to adopters as mushroom cultivation is a seasonal activity followed on small scale only. The other reasons behind the non-adoption could be unavailability of quality spawn, exploitation by middlemen, unorganized market infrastructure and lack of processing units. Similar results were also reported by Singh *et al.*, 2010 and Rachna *et al.,* 2013.

Socio-economic profile

The data on socio-economic profile showed (Table 2) that the maximum number of the trainees belong to middle age group (25 to 45 years), having education up to matric (36.79%) and higher secondary (20.28%). The main occupation of the trainees/respondents was farming (76.89 percent) and majority of them belonged to joint families (77.36%). It was observed that most of the trainees were landless (27.36%) followed by marginal (<1 ha) (24.06%) and small farmers (1-2 ha) (23.11%). Evidence with respect to caste showed that 59.91 per cent of the respondents belonged to other caste followed by schedule caste (21.70%) and backward caste (18.40%). It was clear from the information that

Table 2: Socio-economic profile of trainees.

Particulars	Frequency	Per cent
Age		
Young (18-25)	29	13.68
Middle (25-45)	100	47.17
Old (above 45)	83	39.15
Education		
Illiterate	19	8.96
Primary	21	9.91
Middle	20	9.43
Matriculate	78	36.79
Higher Secondary	43	20.28
Graduation and above	31	14.62
Occupation		
Farming	163	76.89
Business	15	7.08
Service	10	4.72
Housewife	15	7.08
Others (Retiree, labour, student)	9	4.25
Family type		
Nucleus	48	22.64
Joint	164	77.36
Farm size		
Landless	58	27.36
Marginal (<1 ha)	51	24.06
Small (1-2 ha)	49	23.11
Semi medium (2-4 ha)	31	14.62
Medium (4-10 ha)	17	8.02
Large (>10 ha)	6	2.83
Caste		
Schedule caste	46	21.70
Backward class	39	18.40
Others	127	59.91

mushroom cultivation does not need ample land so the respondents mainly consisted of the landless, marginal and small category who desired to adopt mushroom cultivation for enhanced family income.

Raw material source

For cultivation of mushroom, identification of suitable source of raw material plays a very crucial role. It requires due consideration by those who are involved in mushroom cultivation whether directly or indirectly. It was observed that aout half of trainees/participants got the spawn for mushroom cultivation from spawn producer inside or outside of the district followed by 45.75 per cent from KVK or State Agricultural University and 4.72 per cent from horticultural department (Table 3). It is also found that maximum respondents who are involved in mushroom cultivation manage themselves to get straw from their own farm followed by 26.42 per cent of respondents who manage to get straw in their own village and 16.98 percent from nearby village. Only 9.43 per cent and 3.77 per cent respondents are least dependent on block/district level farmers and middlemen for availability of straw in the district. As a preventive measure in mushroom cultivation, different chemicals as formalin to sterilize the room or shed, Furaden and Gama BHC as insecticide, fertilizers like urea, single super phosphate, Murate of potash *etc.* all are used. Majority of the trainees/ participants were getting these chemicals from pesticide shop in the district (57.55%) followed by middleman/businessman *i.e*., 35.37%. Very few mushroom growers (7.08%) were getting chemicals from own/nearby village as the reason behind this is poor knowledge regarding the chemical used in mushroom cultivation. Polythene is again a very important element in mushroom cultivation as it helps in maintaining the temperature and humidity of compost. The polyethene are mainly purchased from block/ district level polythene shop (69.81%) by the respondents as larger quantity can easily be available at those shops instead of middleman (16.51%) and village shops (13.68%).

Table 3: Sources of getting raw material.

Sources	Frequency	Percentage
Spawn		
Krishi Vigyan Kendra/ State Agricultural University	97	45.75
Spawn producer (Inside/Outside the district)	105	49.53
Horticulture department	10	4.72
Straw		
Own farm	92	43.40
Own village	56	26.42
Nearby village	36	16.98
Block/district farmer	20	9.43
Middleman	8	3.77
Chemicals for compost preparation		
Own/Nearby village	15	7.08
Middleman/ Businessman	75	35.37
Pesticide shop in district	122	57.55
Polythene		
Village input shop	29	13.68
Block/District input shop	148	69.81
Middleman	35	16.51

Purpose of attending training programme

The reasons which inspired the trainees or respondents to attend the training programmes were given in Table 4 in the order of their importance. As mushroom cultivation is considered as an additional source of farm income so most of the respondents/trainees (58.96%) attended the training course to adopt the mushroom cultivation as an occupation. About 10.85 percent of trainees wanted to attend training to learn the techniques for home cultivation for nutrition and other 10.85 percent wanted to get certificate of training course for bank purpose only. Farmers (9.43%) who wanted to establish a linkage with university and KVK also attended the training followed by 7.55% participants who wanted to disseminate mushroom cultivation techniques to fellow farmers and 2.36% participants were there who just wanted to know how to grow different mushrooms. Similar results were reported by Suharban *et al.* (1991) and Kaur, (2016).

Effect of training in gain in knowledge

Mandate of each training is to enhance the level of knowledge of the trainees for proper understanding of the concept. For this purpose, pre-evaluation of the training participants was conducted along with a post-evaluation test (Table 5). In pre-evaluation, knowledge about various practices like sterilization of unit, method of compost making, preparation of casing, disease of mushrooms and its prevention, Cost and income from mushroom, storage, packaging and preservation of mushroom and awareness about government schemes for loans and subsidies were found to be nil for all the participants. After attaining training, it was found to be increased among all the participants and

Table 4: Purpose of attending training programme in mushroom cultivation.

Purpose	Number	Percentage
To adopt mushroom cultivation for additional source of income	125	58.96
To learn about mushroom cultivation techniques for family consumption for nutrition	23	10.85
Just to know how to grow different mushrooms	5	2.36
To get certificate of training course for bank purpose	23	10.85
To establish linkage with university and KVK	20	9.43
To disseminate mushroom cultivation techniques to fellow farmers	16	7.55

were aware of the facts. It was observed that pre training knowledge level of participants was not satisfactory for all the aspects of training programme. Though, the knowledge gained by participants after training was more satisfactory. Sufficient gain in knowledge regarding mushroom cultivation was recorded for different aspects like variety of mushroom, nutritional facts of mushroom, mushroom spawn availability, knowledge about identification of usable and non-usable mushrooms, optimum growing temperature condition and moisture content, sterilization of unit, method of compost making, method of preparation of casing, diseases of mushrooms and its prevention, harvesting procedure, cost and income from mushroom, storage, packaging and preservation of mushroom and awareness about government schemes for loans and subsidies. The similar results were found by Rachna et al (2013), Kaur (2016) and Nagaraj *et al.,* (2017). The possible reason behind the satisfactory gain in knowledge might be the keen interest of the participants, interest to start the entrepreneurship and well educational background of the participants.

Constraints faced by the respondents

Every mushroom grower faces few constraints while cultivation, harvesting, processing or marketing level (Table 6). The information received from the mushroom growers on the constraints indicated that major constraints faced by all the participants them included quality spawn unavailability, unorganized marketing infrastructure, exploitation by middlemen and perishable nature of mushroom causing losses for entrepreneurship in mushroom cultivation. Other factors like lack knowledge about value addition in mushroom (80.19%) and lack of processing unit (74.53%)

Table 5: Gain in knowledge after training of different components (n= 212).

Parameter	Pre-evaluation (%)	Post-evaluation (%)	Gain in knowledge
Variety of mushrooms	9.0	100.0	+91.0 (42.91)
Nutritional facts of mushroom	12.5	100.0	+87.5 (41.04)
Diseases prevented by nutrients present in mushroom	18.5	95.0	+76.5 (34.08)
Knowledge about identification of usable and non-usable mushrooms	39.5	100.0	+60.5 (28.54)
Mushroom spawn availability	5.0	100.0	+95.0 (44.81)
Optimum growing temperature condition and moisture content	18.0	95.0	+77.0 (36.32)
Sterilization of unit	0.0	92.0	+92.0 (43.39)
Method of compost making	0.0	100.0	+100.0 (47.16)
Method of preparation of casing	0.0	100.0	+100.0 (47.16)
Diseases of mushrooms and its prevention	0.0	98.0	+98.0 (46.22)
Harvesting procedure	6.0	90.0	+84.0 (42.45)
Cost and income from mushroom	0.0	95.0	+95.0 (44.81)
Storage, packaging and preservation of mushroom	8.0	86.0	+78.0 (40.57)
Awareness about government schemes for loans and subsidies	0.0	95.0	+95.0 (44.81)

Table 6: Constraints faced by mushroom entrepreneurs.

Constraints	Respondents	Percentage	Rank
Quality spawn unavailability	212	100.00	1
Unorganized marketing infrastructure	212	100.00	2
Exploitation by middlemen	212	100.00	3
Perishable nature of mushroom causes losses	212	100.00	4
Lack of knowledge about nutritional value of mushroom among villagers	181	85.38	5
Value addition in mushroom	170	80.19	6
Lack of processing unit	158	74.53	7
Non availability of skilled labour	117	55.19	8
Lack of technical knowledge/training	87	41.04	9
Unavailability of raw material like wheat/paddy straw, decomposed farm yard manure	32	15.09	10

Table 7: Suggestions given by mushroom entrepreneurs.

Suggestions given	Respondents	Percentage	Rank
Quality and certified spawn	132	62.26	1
Improved market structure	114	53.77	2
Improved storage and preservation technology	96	45.28	3
Training on value addition	78	36.79	4
Training on advanced cultivation methods	44	20.75	5

also discourages farmers as mushroom is a perishable product and if sold after processing, can fetch good price of the produce. The study also showed that non availability of skilled labour (55.19%), lack of technical knowledge/training (41.04%) and unavailability of raw material like wheat/paddy straw, decomposed farm yard manure (15.09%) were also played major constraint in adoption of the technology.

Suggestions by the respondents

Majority of the respondents (62.26%) that quality and certified spawn may be supplied on time for better cultivation practice (Table 7). Beside these suggestions, 53.77 per cent respondent suggested that there is a need in the improvement of market structure and 45.28% respondents stated that there is a need to improve in storage and preservation technology that will motivate to adopt mushroom cultivation. Other suggestions regarding addition of training programmes on value addition (36.79%) and advanced cultivation methods for mushroom (20.75%) were also mentioned by the respondents.

CONCLUSION

The results from the study indicated that by conducting training programmes can help farmers in gaining more knowledge and motivating them to adopt subsidiary occupations. As mushroom cultivation is an enterprise in which land requirement is not an issue so even landless farmers can get extra income through this cultivation. It can impact farmers positively by improving their living standards but need is to remove the constraints like marketing problems of this perishable commodity and value addition or lack of processing units which are creating hurdles in adoption of this enterprise. Also, timely availability of inputs like quality spawn and financial support may encourage farmers to adopt the technology on larger scale.

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