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Impact of skill development training on mushroom cultivation on knowledge gain of rural women SHG

[1]SA Ganie, [2]BA Zargar, [3]ZA Badri, [4]BA Pandit, [5]FA Raina and [6]Syed Shujat Hussain

[1, 2, 3, 4]Krishi Vigyan Kendra Shopian, SKUAST-K, Srinagar, Jammu & Kashmir, India

[5]Krishi Vigyan Kendra Kupwara, SKUAST-K, Srinagar, Jammu & Kashmir, India

[6]Krishi Vigyan Kendra Pulwama, SKUAST-K, Srinagar, Jammu & Kashmir, India

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Corresponding Author: SA Ganie

Abstract

Mushroom is considered to be nutritious food, rich in protein, low in fat and carbohydrates. Mushroom cultivation is simple, low cost and plays a significant role to alleviate poverty and generate employment opportunity for educated unemployed youth in rural areas. The present study was undertaken to assess the impact of training on knowledge gain about mushroom production as an enterprise. One hundred and eighty seven trainees were imparted training on mushroom cultivation by conducting a series of vocational training programmes at KVK Shopian. The training programmes were evaluated by finding out the knowledge gain by the participants and suggestions given by trainees so that improvement in future training may be done. The knowledge level of farm women improved by attending these training programmes. It was observed that 90.6% gained knowledge about identification of edible mushrooms, 88.6% gained knowledge about materials and techniques used for cultivation of different types of mushrooms and 85.7 gained knowledge about medicinal and nutritive value of mushrooms. The trainees suggested that more emphasis should be given on practical classes, supplying of quality spawn on time by KVK and wide publicity of mushroom nutritional benefits of mushroom consumption. It was also observed that the credit linkages and market support if created locally will encourage other rural women to adopt mushroom cultivation as a business.

Keywords: Mushroom cultivation, training, impact, knowledge gain

Introduction

Global climate change in terms of increasing temperatures, carbon-di-oxide and low and erratic rainfall are some of the impacts we are witnessing. India with its huge population has to deal with the very basic problem of inadequate regional food supplies, diminishing quality of health and delicately balancing the ecosystem under the changing climate scenario. The magnitude of these problems is set to increase as the world's population continues to grow. It is going to be an enormous task under the changed climatic conditions due to low unpredictable yield of major edible grain crops, scarcity of water, land erosion and low productivity. There will be a need to diversify agriculture and search for new sustainable technologies and novel food resources to fill the gap. The technologies chosen have to be ecologically sound so that sustainable production can be undertaken without damaging the environment. Edible mushroom production technology can be an effective biological tool which can offer partial but meaningful solutions through the generation of relatively cheap source of high quality food protein, the provision of health-enhancing dietary supplements/mushroom nutriceuticals and the bioconversion/bioremediation of environmental adulterants for the maintenance of balanced ecosystems which will help in restoring and replenishing earths overburdened ecosphere. Empowerment of rural women has emerged as an important issue in today's world. Mushroom farming plays a very significant role to eradicate malnutrition, alleviate poverty and create employment opportunity for rural unemployed folk specially the rural farming community (Rachna Goel, and Sodhi, 2013) [9]. Now days, mushroom cultivation in rural areas has become an essential activity in order to increase the rural economy. Mushrooms can be used as food supplements, health related food formulations, medicines, cosmetics and as natural biocontrol agents in plant protection with insecticidal, fungicidal, bactericidal and herbicidal activities. Many drugs and dietary food supplement contain some components responsible for improving our immune system produced by mushroom and thus it plays a very significant important role in human health, nutritional and medicinal formulations (Mshandete, 2011) [7]. Mushroom is not only a rich source for nutritious protein, it is also effectively used in the production of highly effective medicinal products (Chang and Wasser, 2012; Wasser, 2014) [2, 13]. Mushroom production was started in the start of 18th century. At present, the world's total edible and medicinal mushrooms production was estimated at over 34 million tonnes. China is the main producer of mushrooms, producing over 30 million tons. This is accounted for about 87% of total production (Royse *et al*., 2017) [10]. Besides, mushroom cultivation also helps to reduce pollutants in the environment. The

bioconversion of lignocellulosic biomass to food and useful products showed a significant impact on pollution levels (Chang, and Buswell, 2003 and Koutrotsios *et al*., 2014) [1, 5]. Mushroom is an indoor crop grown independently of sunlight and does not require fertile land (Nagaraj *et al*. 2017) [8]. Using their spare time, Women can do mushroom cultivation together with household activities. This additional earning can be a perk to their family income, thus relieving much pressure on a male member of the family involved in agriculture practices.

Mushroom farming requires less capital investment, and varieties of mushrooms can be grown around the year. The mushroom substrate is clean agricultural waste material that is readily available and can be produced in temporary structures and arrangements (Shahi and Singh 2018) [11]. The production of spawn and preparation of value-added products are considered enterprise mushroom production with immense economic potential. Extensive training has generally been considered the outlet for an exchange of concepts within a community (Mazumdar *et al*. 2020) [6]. Therefore, training has been a widely accepted strategy with high returns on investment. Assessment of knowledge and skill development within the community, especially among women trainees through these outlets, is much essential for the evaluation and standardization of training programs and their modules. This assessment also brings problems and challenges which women are facing who are currently involved in mushroom cultivation practices (Kavitha *et al*. 2019) [4]. Thus, the present study has been done to assess the knowledge gain by women farmers for mushroom production as an enterprise/self-employment. The training was given by KVK Shopian, SKUAST-K to unemployed farm women to increase their income and make them self-dependent entrepreneur in the future. The entrepreneurial training programmes being planned and organized for rural women through KVK Shopian aims to improve the entrepreneurial attitude of rural women through managing their day-to-day activities. An evaluation study of such entrepreneurial training programmes would help to give idea about the possibility of improving the training programme in future. In order to know the impact of these training programmes on knowledge up gradation of the trainees, the present study was conducted.

Materials and Methods

This study was conducted in four blocks of Shopian by KVK scientists. Mushroom cultivation showed a new way of socio-economic development for the SHG women due to its low capital investment and high yields obtained even under rural condition. It can be used as supplement for protein lacking food items and can also be easily cultivated in indoors and marketed locally and get good profit. Keeping in view the above fact, off campus trainings in addition to the short term vocational training courses on mushroom cultivation were organized time to time in these selected four blocks to women SHG. Necessary technical literatures were distributed among the selected women farmers. For evaluating the impact of training programmes a questionnaire was formulated comprising of general information, background of participants, landholding etc. A pre-test was conducted to know the level of knowledge of participants regarding variety, nutritive value, diseases of mushrooms, preparation of casing, harvesting techniques as well as their storage and preservation etc. Similarly, after completion of the training course, post evaluation was performed in order to assess the knowledge gained by the trainees and effectiveness of training. To test the knowledge of trainees, a set of questions related to mushroom growing, nutrients present in mushroom, different products prepared from mushroom, storage and harvesting of mushroom etc. were used. Hence, gain in knowledge was calculated from the difference of scores obtained in pre and post knowledge test of the trainees. Likewise, the suggestions from the trainees were recorded for bringing further improvement in the training. The data were tabulated and analyzed using frequency, percentages and ranking.

Results and Discussion

Socio-economic profile

The participants differed in their socio-economic status based on age, caste, education, occupation, landholding, annual income and mushroom cultivation experience. The data (Table 1) showed that the age of participants was between 20 to 45 years. Majority of trainees were in age group of 25 years (64.17%), whereas 24.06% were 25-40 years of age and only 11.76% were above 40 years of age. Information with respect to caste showed that 52.94% of the participants belong to backward caste followed by general caste 32.08%, whereas 14.97% were from schedule caste. Assessment of the trainees with respect to education indicated that 41.71% studied up to senior secondary level followed by matriculate (24.06%) and Graduate (13.36%).

More than half of trainees belonged to farming background community followed by 26.20% belonged to students whereas 5.34% were house wife's and only 0.53% belong to service class.

It was found that 82.89% of the participants were getting low annual income, 14.44% of them had medium annual income and only 2.67% were getting high annual income. With respect to mushroom cultivation experience, majority of trainees 88.23% had low experience followed by 11.76% with medium experience. It was also observed (Table 1) that 90.90% farmers were having marginal land holding whereas few farmers (2.67%) were large landholders. Further, 6.41% participants were from landless category. Considering all the above said evaluating parameters it was evident that mushroom farming enterprise does not require much land and therefore, landless farmers were found to be interested to adopt this enterprise to supplement their family income.

Table 1: Socio-economic profile of women trainees. (n= 187)

S. No.	Particular	Trainees attended mushroom cultivation	
		Frequency	Percentage
1	**Gender**		
	Male	0	0.00
	Female	187	100.00
2	**Age**		
	Upto 25 years	120	64.17
	26-40 years	45	24.06
	Above 40 years	22	11,76
3	**Caste**		
	Schedule caste	28	14.97
	Backward caste	99	52.94
	others	60	32.08
4	**Education**		
	Primary	7	3.74
	Middle level	9	4.81
	Matric culate	45	24.06
	Senior secondary	78	41.71
	Diploma holder	10	5.34
	Graduate	25	13.36
	Post graduate	13	6.95
5	**Occupation**		
	Farming	125	66.84
	Business	2	1.06
	Service	1	0.53
	House wife	10	5.34
	Student	49	26.20
6	**Land holding**		
	Land less	12	6.41
	Marginal (< 1 ha)	170	90.90
	Big (> 1ha)	5	2.67
7	**Annual income**		
	Low	155	82.89
	Medium	27	14.44
	High	5	2.67
8	**Mushroom cultivation experience**		
	Low	165	88.23
	Medium	22	11.76
	High	0	0.00

Reasons of participation

The factors which motivated the respondents to join the training course were given for ranking in order of importance as perceived by them. As shown in the table-2, 29.94 percent respondents joined training course to adopt mushroom growing an enterprise, 18.71 percent wanted to learn about mushroom growing techniques for self-consumption and 10.69 percent joined the training course just to get the certificate of training. Lesser participants showed their interest to improve their knowledge about mushroom spawn production and to teach fellow farmers about mushroom growing. Similar results were also reported by Suharban *et al* (1991) [12]. Similar results were also reported by Kaur (2016) [3]. It was evident that majority of respondents joined the training course to adopt mushroom growing as an enterprise.

Table 2: Reasons of participation of training programme in mushroom cultivation

S. No.	Reasons	Number	Percentage
1	To adopt mushroom cultivation as an enterprise	56	29.94
2	To learn about mushroom growing techniques for self-consumption and additional source of income.	35	18.71
3	How to grow different varieties of mushrooms	26	13.90
4	To get certificate of training course for loan from bank and for Govt. subsidy etc.	20	10.69
5	To establish linkage with KVK	20	10.69
6	To transfer skill to fellow women farmers about mushroom cultivation	18	9.62
7	Just to know about mushroom cultivation	7	3.74
8	To learn techniques of mushroom spawn production at their home.	5	2.67

Increase in level of knowledge

Pre exposure and post-exposure scores were computed for all the sub-components of mushroom production (Table 3). In pre-evaluation test, the knowledge range of different participants was 0.00 percent regarding preparation of mushroom spawn to 25.25 percent in case of profitability in

mushroom cultivation. Post training score of various practices ranged from 52.3 percent in case of preparation of mushroom spawn to 100 percent in case of in case of profitability in mushroom cultivation (Table 3). Kulvir also observed the similar result18. It was thus concluded that pre training knowledge score was not much satisfactory for all the aspects of training programme. However, the knowledge score gained by participants after training was more satisfactory in all aspects. The reason behind the satisfactory gain in knowledge might be the keen interest of all the participants about this entrepreneur.

Table 3: Gain in knowledge level of trainees with respect to different operations

S. No.	Particulars	Pre-training knowledge percentage	Post-training knowledge percentage	Gain in knowledge
1	Knowledge about identification of edible mushrooms	8.2	90.6	82.4
2	Nutritive and medicinal value of mushrooms	12.5	85.7	73.2
3	Optimum growing condition	4.2	80.5	76.3
4	Diseases controlled by consumption of mushrooms	3.3	72.4	69.1
5	Materials and techniques used for cultivation of different types of mushrooms.	5.5	88.6	83.1
6	Methods of compost making	8.9	62.8	53.9
7	Profitability in mushroom cultivation	25.25	100.00	74.75
8	Common pests and diseases of mushrooms and their control	4.8	74.5	69.7
9	Preparation of mushroom spawn	0.00	52.3	52.3
10	Harvesting and storage of mushrooms	7.5	85.2	77.7
11	Value added products of mushrooms	8.25	90.5	82.25
12	Awareness of loans, schemes and subsidies for establishment of mushroom production unit	25.00	95.4	70.4

Suggestions given by the trainees

The suggestions offered by the trainees for further improvement of the training course are presented in table 4. The results showed that more importance to practical classes, the regular supply of quality spawn by KVK/University/Agriculture Department and wide publicity of mushroom nutritional benefits, organizing more practical classes and linkages with different marketing channels, were the main suggestions. Besides these suggestions, 32.08 percent of the respondents felt that financial assistance through banks and other government offices should be provided for mushroom growing and 16.04 percent respondents also gave stress on exposure visits to mushroom growers/entrepreneur's units.

Table 4: Suggestions given by trainees after training

S. No.	Suggestion	Frequency	Percentage	Ranking
1	More importance should be given on practical classes	170	90.90	I
2	Quality spawn to be supplied on time by KVK/University/Agri department	155	82.88	II
3	Publicity of nutritional benefits in rural and urban areas for increasing consumption of mushrooms	130	69.51	III
4	Practical manual on mushroom growing to be provided	100	53.47	IV
5	Linkage with different marketing channels	75	40.10	V
6	Help to get financial assistance through banks and other Govt. offices	60	32.08	VI
7	To focus on value addition	45	24.06	VII
8	Exposure visits to mushroom growers/ entrepreneur's units.	30	16.04	VIII
9	To increase training days from one week to ten days	25	13.36	IX
10	Readymade supply of compost	25	13.36	X

Conclusion

It can be concluded from the study that good conduct of training provides trainees much needed information and guidance to start and flourish any agricultural enterprise. Mushroom growing is such an enterprise in which requirement of land is not a big issue so even landless farmers can augment their income through mushroom cultivation. The farm women were surprised with the success of mushroom cultivation. Now women farmer of these villages where these training programmes were conducted are interested to take up mushroom cultivation as a major income generating activity throughout the year due to its heavy and regular demand.

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