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Original Research Article

Impact of Training on Mushroom Production Technology on Knowledge and adoption by Rural Youth: A Study in Samastipur District of Bihar

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A B S T R A C T

As an institution, KVKs are playing strategic role in technology back-stopping, knowledge management and advisory to various stake holders like farmers, farm women, rural youths and extension personnel. The present study was conducted at KVK, Samastipur to see the impact of its training programme on mushroom production technology for rural youth and farm women. It was found that The 97.78% trainees and 73.89% non beneficiaries (without training) had knowledge about improved mushroom production technology and about 56.97% beneficiaries and 29.70% non-beneficiaries fully adopted the improved technology whereas 35.45% beneficiaries and 16.97% non-beneficiaries onlypartially adopted improved technology of mushroom production. Non- beneficiaries also lacked knowledge about growing season, spices, spawn details. Only 20 per cent of beneficiaries adopted the recommended rate of spawn full while 53.33 of non-beneficiate adopted any improved practices.

Keywords

KVK, Mushroom production technology, Knowledge, Adotion

Introduction

Agriculture occupies a key position in Indian economy providing a source of livelihood for a majority of the population. Successes in agricultural front with high production levels, especially in food grains have indeed been achieved. (Singh et al, 2020).

Training plays a pivotal role for enhancing the competence of extension functionaries' through diffusion of innovations at actual workplace (Meena and Singh, 2012). Transfer of technology is main obstacle in realizing agricultural potential in India (Singh *et al.*, 2014).

Improved agricultural technologies even when as technically sound are of limited value if they are not accepted by the farmers. New agricultural technologies developed and transferred by the conventional research and extension efforts, have not been adopted uniformly by the farmers operating under widely varying agro-climatic and socio-economic environments when adequate attention is not paid to the agro-climatic and

socio-economic milieu in which the farmers operate (Kumar *et al.,* 2012). In Bihar crop productivity trends have been below the Indian average for most cereal crops, and far below their potential yield, even after Bihar's fertile land and water resources. About 85 per cent of the farmers are small and marginal but sharing only 50 per cent of the land. The 80 % of operational farm holdings in India as well as in the eastern India is less than one hectare. Integrated farming system is a reliable way of obtaining high productivity with substantial nutrient economy in combination with maximum compatibility and replenishment of organic matter by way of effective recycling of organic residues/wastes etc. obtained through integration of various land- based enterprises. (Kumar *et al.,* 2012)

The Indian Council of Agricultural Research (ICAR) has been responding to the contemporary challenges and other issues of Indian agriculture through various initiatives. Indian Council of Agricultural Research (ICAR) has established Krishi Vigyan Kendras (KVKs) in the country to take the latest agricultural technologies to the farmers and end users by making provisions for multidisciplinary team of scientists in each KVK. As an institution, KVKs are playing strategic role in technology back-stopping, knowledge management and advisory to various stake holders like farmers, farm women, rural youths and extension personnel. Training and demonstration are integral part of KVK extension system. Krishi Vigyan Kendra playing an important role in encouraging rural farmers and farm women to take up simple and quick income generating enterprises from where they can earn additional income. Cultivated mushrooms have now become popular all over the world. Mushroom cultivation can directly improve livelihoods through economic, nutritional and medicinal contributions. Mushroom is a popular food due to their special flavour, nutritive value and medicinal properties. Mushrooms are a good source of vitamin B, C and D, including niacin, riboflavin, thiamine, and folate, and various minerals including potassium, phosphorus, calcium, magnesium, iron and copper. (Shahi *et al.,* 2018). However the gap between technology developed/released and the technology disseminated/adopted is quite wide (Singh and Shekhar, 2015). Training courses aim at enhancing adoption and diffusion of innovations. Some of the outcomes envisaged for any training programme were gain in knowledge, gain in skill acquired and ultimately in more adoption and integration among farming community. An important indicator of the impact of training programme is the extent, to which they have adopted the package of practice of mushroom cultivation technology. Mushroom production has become one of few enterprises which rural women of both district has adopted in big way both at household level and as commercial enterprise as a source of income generation after the proper dissemination of technology through KVK (Shahi *et al.,* 2018).

KVK, Samastipur established in 2004 in 50 Acres of land at Birauli, 8 km away from the University headquarters and 15 km from the Samastipur district town is a leading institution imparting training and conducting capacity building programmes in the state.KVK, Samastipur has undertaken many interventions like training, On Farm Trials (OFTs), Front Line Demonstrations (FLD) and other capacity building programmes to enhance the well-being of farmers through enhancing agriculture production, productivity and profitability. As the resources are getting marginalized and there is tremendous pressure on natural resources with divergence of agricultural land and water towards industrial, urban and non-agriculture sector and food security is one of the major concerns (Singh et al, 2014). As of

today, there are limited research studies conducted to evaluate performance of KVK in order to analyze quality of working and ultimately impact on farming community. Therefore the attempt was made to assess the Impact of Mushroom Production Technology Training on Knowledge and adoption of Rural Youth.

Materials and Methods

The present study was carried out in Samastipur district which has been purposively selected as it is situated in a district which is a hub of agriculture education in the state of Bihar. For collecting information, 30 beneficiaries of KVKs vocational training on mushroom and 30 non-beneficiaries from adopted KVK villages, were randomly selected, thus a total of 60 respondents were selected from operational villages of KVKs.

Information on various independent variables i.e., Age, Occupation, Monthly income, Education level, Social participation, Size of land holding, Family size, Farm mechanization, Contact with Extension agent, Training received, FLD Training received, Economic motivation, and Sources of information were identified and collected for the study, whereas the dependent variables for the study were level of knowledge and extent of adoption. All the variables were measured under the set rules and procedures, with scale and schedules developed for the study. An interview schedule was prepared, pilot study were conducted and used in personal interview with respondents.

Results and Discussion

Knowledge about mushroom production technology

Knowledge is an important component of human behaviour and treasure. Unless it is possessed it cannot be used. The meaning of 'knowledge' as given in Webster's dictionary as "acquaintance with fact, range of information, awareness etc. accumulated by mankind as far as one knows within the range of one's information". In psychology, knowledge is often referred to as the totality of cognitive behaviour with reference to a physical and hypothetical object. In other words, knowledge is the totality of understood information possessed by a person. Rogers and Shoemaker (1971) while describing the model of the innovation decision process, considered knowledge as a function of stage of decision making process when an individual is exposed to the existence of an innovation and gains some understanding of how it functions. "How to knowledge" and "Principle knowledge". Bloom (1956) defined knowledge as all the behaviour and test situation which emphasized the remembering either through recall or recognition of ideas, material or phenomena.

The knowledge level of beneficiaries and non beneficiaries regarding mushroom production were presented in table 1.

The results revealed that 95.78 per cent of mushroom training beneficiaries and 73.89 per cent of non beneficiaries were found with significant knowledge related with improved mushroom production technology. Only 13.33 per cent of beneficiaries had knowledge about spawn producing agencies in their locality. Non- beneficiaries were found to have no knowledge about growing season, spices, spawn details. Thus it can be concluded that beneficiaries had more knowledge about mushroom cultivation and its production technology. The findings therefore conclude that KVK training programs had made significant impact on knowledge level of beneficiaries with respect to mushroom production.

Extent of adoption of mushroom production technology

Level of adoption of improved agricultural production system would depend on the production and productivity. The selected respondents were asked with a set of open-ended questions to assess the adoption. Their responses were analyzed, summarized and tabulated. Further responses were classified in none, partial and full category of adoption. The frequencies, percentages and ranks were computed for the adoption. The results of adoption of mushroom production technology were reported in table 2.

The result placed in table indicated that 56.97 per cent of beneficiaries and 29.70 per cent of non-beneficiaries were found full adoption for the improved technology whereas 35.45 per cent beneficiaries and 16.97 per cent non-beneficiaries were partially adopted the improved technology. Only 20 per cent of beneficiaries were fully adopted the recommended rate of spawn while 53.33 of non beneficiate adopting any improved practices.

Association between independent and dependent variables

Further in order to find out the impact of KVK regarding the knowledge level, the level of beneficiaries was compared with that of non beneficiaries the data were analyzed and findings presented in table 3.

The result show that there was significant association with the knowledge level in the case of non- beneficiaries and beneficiaries. However, social participation and mechanization level were found significant, association with the adoption of improved technology. Age was found beneficiaries negatively significant with adoption of improved technology in non-beneficiaries category while the variables occupation, family income, level of education, family size, and contact with extension agent, economic motivation and source of information were found to have non-significant association in all the category of respondents. In the case of beneficiaries, those having attended more number of trainings were found to be more likely to adopt improved technology.

Table.1 Distribution of respondents according to their Knowledge about Mushroom Production Technology

Sl. No.	Item	Non Beneficiaries(n=30)		Beneficiaries (n=30)	
		Yes	No	Yes	No
1.	About mushroom cultivation and compost preparation	46.67	53.33	100.00	0.00
2.	Mushroom growing is economically profitable business	90.00	10.00	100.00	0.00
3.	Mushroom cultivation is a sideline business	90.00	10.00	100.00	0.00
4.	Mushroom cultivation is an agro based industry	90.00	10.00	100.00	0.00
5.	Mushroom cultivation can start with small training	90.00	10.00	100.00	0.00
6.	Mushroom cultivation is labour oriented	90.00	10.00	100.00	0.00

	profession				
7.	Mushroom cultivation require less land	93.33	6.67	100.00	0.00
8.	Mushroom cultivation require less amount of money to start the enterprise	86.67	13.33	93.33	6.67
9.	Mushroom cultivation waste increase crop yield	93.33	6.67	100.00	0.00
10.	Mushroom cultivation gives quick return in time	93.33	6.67	93.33	6.67
11.	Mushroom can be cultivated in less costly building	93.33	6.67	93.33	6.67
12.	About spawn producing laboratory or agency in your locality?	0.00	100.00	13.33	86.67
13.	About species of mushroom are cultivated in Bihar?	43.33	56.67	100.00	0.00
14.	Which species is more preferred by the farmer?	43.33	56.67	100.00	0.00
15.	Which species is cultivated maximum in Bihar?	43.33	56.67	93.33	6.67
16.	Which species gives maximum returns (profit)?	43.33	56.67	93.33	0.00
17.	What time oyster is grown in your locality?	0.00	100.00	100.00	0.00
18.	What time button is grown in your locality?	0.00	100.00	100.00	0.00
19.	Do you agree that mushroom is highly nutritious food for vegetarian?	86.67	13.33	100.00	0.00
20.	Do mushroom contain equal protein that other non-vegetarian?	86.67	13.33	100.00	0.00
21.	Do you know that when we dry the mushroom their nutritional value declines?	86.67	13.33	93.33	6.67
22.	Mushroom is useful for diabetic patients.	93.33	6.67	100.00	0.00
23.	Mushroom is boon for heart patient.	93.33	6.67	100.00	0.00
24.	Mushroom is having anti-tumor property.	93.33	6.67	100.00	0.00
25.	Mushroom possesses anti arthritis property.	93.33	6.67	100.00	0.00
26.	Management of mushroom varies with climate	93.33	6.67	100.00	0.00
27.	Fresh air is need for mushroom varies with climate	93.33	6.67	100.00	0.00
28.	Temperature should be maintained up to 15^0c to 32^0c for mushroom cultivation.	86.67	13.33	100.00	0.00
29.	Mushroom grow fast in the poly bag even in winter season	93.33	6.67	100.00	0.00
30.	Do you know fertilizers are also added for improving mushroom production?	86.67	13.33	100.00	0.00
	Average	**73.89**	**26.11**	**95.78**	**4.00**

Table.2 Distribution of respondents according to adoption of Mushroom Production Technology

Sl. No.	Item	Non Beneficiaries (n=30)			Mushroom Beneficiaries (n=30)		
		None	Partial	Full	None	Partial	Full
1.	Use of proper certified spawn	53.33	0.00	46.67	6.67	20.00	73.33
2.	Use of recommended rate of spawn	53.33	0.00	46.67	6.67	40.00	53.33
3.	You know spawn preparation	53.33	0.00	46.67	26.67	33.33	40.00
4.	Proper preparation of compost	53.33	0.00	46.67	6.67	40.00	53.33
5.	Making disinfectant of compost	53.33	0.00	46.67	6.67	40.00	53.33
6.	Compost used after flushing	53.33	46.67	0.00	6.67	26.67	66.67
7.	Proper harvesting	53.33	0.00	46.67	20.00	0.00	80.00
8.	Treatment of produce after harvest	53.33	46.67	0.00	40.00	0.00	60.00
9.	Storage practices to the produce	53.33	46.67	0.00	20.00	40.00	40.00
10.	Grading and processing of produce	53.33	46.67	0.00	6.67	53.33	40.00
11.	Quality monitoring of produce	53.33	46.67	0.00	0.00	40.00	60.00
12.	proper infrastructure of equipment	53.33	0.00	46.67	0.00	26.67	73.33
13.	seasonal management in mushroom cultivation	53.33	0.00	46.67	0.00	40.00	60.00
14.	types of cultivation adopted	53.33	46.67	0.00	13.33	40.00	46.67
15.	casing practice adopted	53.33	0.00	46.67	0.00	40.00	60.00
16.	Preventive measure against disease control	53.33	46.67	0.00	0.00	33.33	73.33
17.	Preventive measure against weed control	53.33	0.00	46.67	0.00	20.00	80.00
18.	Recommended dose of fertilizer	53.33	0.00	46.67	0.00	26.67	73.33
19.	Taking booster training programme	53.33	0.00	46.67	6.67	46.67	53.33
20.	From marketing chain to sale produce	53.33	0.00	46.67	0.00	33.33	66.67
21.	Use of proper certified spawn	53.33	0.00	46.67	6.67	66.67	26.67
22.	Use of recommended rate of spawn	53.33	46.67	0.00	6.67	73.33	20.00
	Average	**53.33**	**16.97**	**29.70**	**8.18**	**35.45**	**56.97**

Table.3 Correlation coefficient with knowledge level of respondents

Sl. No.	Factors	knowledge level		Adoption	
		Non-Beneficiaries (n=30)	Mushroom Beneficiaries (n=30)	Non-Beneficiaries (n=30)	Mushroom Beneficiaries (n=30)
1.	Age	-0.292	-0.102	-.439*	0.072
2.	Occupation	0.32	0.02	0.32	-0.033
3.	Family Income	-0.042	-0.017	0.044	0.262
4.	Education level	0.028	0.248	0.16	0.005
5.	Social participation	0.044	-0.152	0.179	-0.105
6.	Size of land holding	-0.129	0.062	-0.063	-0.138
7.	Family size	0.09	0.123	-0.023	-0.271
8.	Farm mechanization level	0.088	0.079	0.141	-0.141
9.	Contact with extension agent	0.156	0.251	0.147	-0.122
10.	Training received	0.004	0.333	0.095	-0.629**
11	FLD	0.002	0.245	0.015	-0.635**
12.	Economic motivation	-0.206	-0.126	-0.158	0.088
13	Source of information	-0.076	0.091	-0.064	0.087

** Significant at the 0.01 level (2-tailed).
* Significant at the 0.05 level (2-tailed).

In conclusions, the 97.78 per cent Mushroom training beneficiaries and 73.89 per cent non beneficiaries had knowledge about improved mushroom production technology. Only 13.33 per cent beneficiaries had knowledge about spawn producing agencies in their locality. Non-beneficiaries were lacking knowledge about growing season, spices, spawn details. The 56.97 per cent beneficiaries and 29.70 per cent non-beneficiaries fully adopted the improved technology whereas 35.45 per cent beneficiaries and 16.97 per cent non-beneficiaries partially adopted the improved technology. Only 20 per cent of beneficiaries adopted the recommended rate of spawn full while 53.33 of non-beneficiate adopted any improved practices. The findings therefore conclude that KVK training programs had made significant impact on knowledge level of beneficiaries with respect to mushroom production.

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