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Risk assessment in adoption of mushroom cultivation as a subsidiary occupation

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ABSTRACT

Mushroom cultivation as a subsidiary occupation has great potential for sustaining rural livelihood. Krishi Vigyan Kendra (KVK), Patiala has always remained a leader in extending agricultural technologies in general and mushroom cultivation in particular to enhance the economic status of rural youth. KVK, Patiala has organized seven vocational training programmes (5 days duration) on mushroom cultivation to 146 participants from 2005-06 to 2009-2010. With a view to assess the effectiveness of such training programmes the present study was conducted to assess impact of training programmes in terms of adoption and continuation of mushroom units, the knowledge gain of the participants and constraints of the mushroom growers. A maximum adoption of 40.91 per cent was observed in the year 2008-09. Continuation of mushroom units showed the decreasing trend. Initially adoption was higher in case of trainees with non-farming background as compared to trainees with farming background but continuation of mushroom production units was higher in case of trainees with farming background as compared to trainees with non-farming background. Among the various practices of mushroom cultivation maximum knowledge gain (52.2%) was observed in compost preparation. Aspect of disease and pest management was least understood by the participants (23.4%) followed by filling and spawning (37.3 %) so more emphasis should be given to these practices during training courses conducted by KVKs. As perceived by 55 mushroom growers major constraints faced by the mushroom growers were pertaining to higher cost of wheat straw, less remunerative enterprise, high incidence of nematodes, non-availability of good quality spawn, more labour intensive and lack of government policies.

Keywords: Mushroom; training; adoption; discontinuation; KVK

INTRODUCTION

India faces the most challenging task of transforming the fast emerging agricultural technologies to sustain the increase in farm productivity and economic viability of farming. A variety of extension programmes are implemented for creating awareness, educating and motivating the farmers, farm women and rural youth to adopt and manage the new agricultural technology in the fields/homes. This is one of the major contributing factors for making India a food surplus country (Samanta and Gowda 2003).

Although per hectare productivity has increased since early 1970s per farm family income has decreased due to sub-divisions of land holdings and rising cost of cultivation (Anon 2005, Anon 2010). With increasing pressure on land for more production per unit area through adoption of modern technologies and use of capital inputs marginal and small farmers are unable to keep pace with the rapid technological advances in crop production. Therefore extension endeavours are directed towards net income increase from agricultural and allied activities. Mushroom production as a subsidiary occupation has a great potential for sustaining rural livelihood because of abundantly available recyclable agro-bases like cereal straws, enormous domestic market, cheap man power, congenial climate, strong technical base and government support (Kaul 1999).

KVK, Patiala is actively engaged in imparting trainings in mushroom cultivation to the farmers/farm women and rural youth. During 2005-06 to 2009-10 seven such vocational training programmes (5 days duration) were organized in which 146 trainees participated. Despite all the favourable conditions mushroom farming is not spreading fast. There are certain inherent problems or bottlenecks which hamper fast spread of mushroom farming in India. So the present studies were conducted with the following objectives to find out the impact of vocational trainings in terms of adoption and continuation of mushroom production units, to assess the knowledge gain of the participants of training programmes and to find out the problems/constraints in adoption of mushroom farming and continuation of such units.

METHODOLOGY

The study was conducted in district Patiala of Punjab. Krishi Vigyan Kendra (KVK), Patiala has been conducting trainings on mushroom cultivation continuously since its inception. Training programmes conducted in 2005-06, 2006-07, 2007-08, 2008-09 and 2009-10 were selected to study the adoption status and long term impact of vocational training programmes. Trainees were contacted personally and through telephone to know whether they had set up the enterprise or not after getting training, were continuing with the enterprise or had discontinued the enterprise.

Adoption Status: It was measured in terms of the relative position of a respondent regarding adoption/non-adoption and discontinuation of an enterprise. This was measured in terms of percentage of past trainees setting up, continuing or discontinuing their enterprise.

146 trainees were classified into two categories viz adopters and non-adopters. Further adopters were divided into two categories viz trainees with farming background and trainees with non-farming

background. Adoption status of these trainees was classified into two categories viz continued adopters and discontinued adopters. In the innovation decision process at confirmation stage the individual (or other decision making unit) can take the decision to continue or discontinue adoption or continue rejection (non-adoption) (Rogers 2003). Discontinuance is the decision to reject the technology after having previously adopted it; non-adoption is rejection of the technology and continued adoption is to continue with the technology about which decision has previously been made.

To study the gain in knowledge training courses organized during 2008-09 and 2009-10 were taken up to evaluate 59 participants. A simple evaluation performa consisting of 35 questions (five questions for each practice) was developed. One mark was assigned to every correct answer and zero to every incorrect answer. The same set of questions was administered before and after the training. Gain in knowledge was calculated from the difference of scores obtained in pre- and post-knowledge test of the trainees.

A sample of 55 respondents was selected proportionately to collect the data regarding reasons for discontinuance/non-adoption through structured schedule by personal interviews with the respondents. The data so collected were tabulated and analysed.

RESULTS and DISCUSSION

Adoption status: The adoption status with respect to continued adoption, discontinuance and non-adoption was based on the sample of 146 trainees from whom the response was received. The maximum adoption of 40.91 per cent was observed in 2008-09 and minimum of 34.04 per cent in 2007-08 (Table 1).

The percentage of non-adopters was on higher side (maximum 65.96%) in 2007-08. Further continuation of mushroom units showed the decreasing trend (Fig 1). In 2006 eight persons had adopted the mushroom cultivation as occupation but only two persons continued the occupation till 2010. This can be due to the fact that small scale mushroom cultivation is a seasonal activity. According to Singh et al (2010) reason for higher rate of non-adoption was that farmers do not get the training from the specialists of the discipline at the KVKs.

Initially adoption was higher in case of trainees with non-farming background as compared to trainees with farming background but continuation of mushroom production units was higher in case of trainees with farming background as compared to trainees with non-farming background (Table 2). This could be due to the fact that labour and other inputs required for mushroom cultivation are available to the farmers at their farms eg

Table 1. Adoption of mushroom growing by the trainees of vocational trainings conducted at KVK, Patiala from 2005-06 to 2009-10

Year	# Vocational trainings conducted	# Participants	Adopters	Non-adopters	% Adoption
2005-06	1	22	8	14	36.36
2006-07	1	18	7	11	38.89
2007-08	2	47	16	31	34.04
2008-09	2	44	18	26	40.91
2009-10	1	15	6	9	40.00

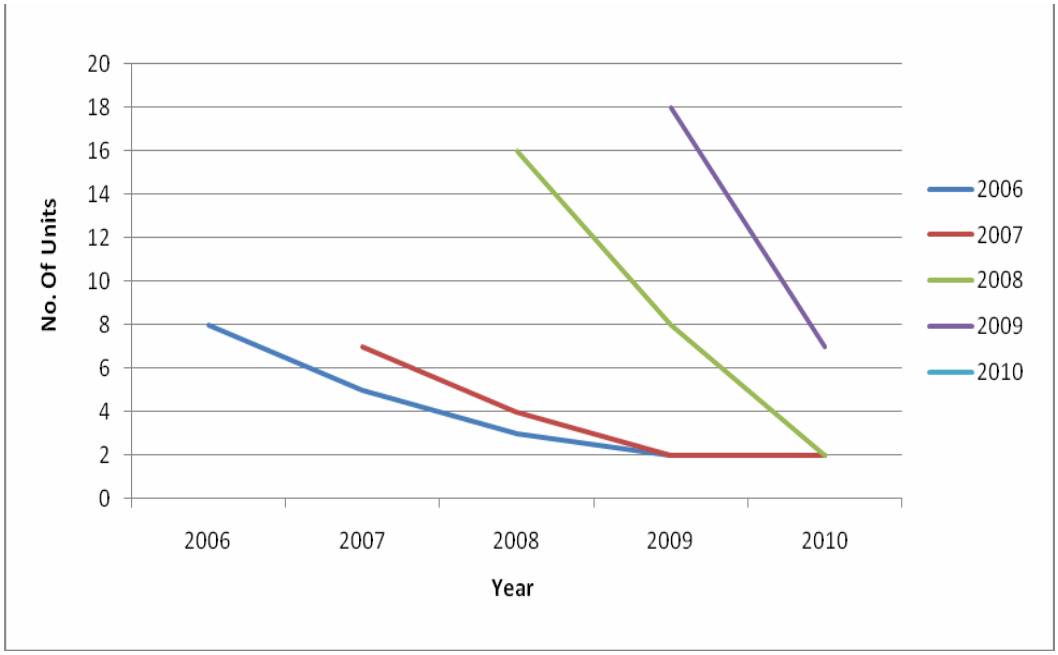

Fig 1. Continuation of mushroom units from 2006 to 2010

Table 2. Continuation of mushroom production units from 2005-06 to 2009-10

Year	Trainees with farming background				Trainees with non-farming background			
	Adopters	Continuing	% continuation	% discontinuation	Adopters	Continuing	% continuation	% iscontinuation
2005-06	3	2	66.67	33.33	5	0	0.00	100.00
2006-07	2	1	50.00	50.00	5	1	20.00	80.00
2007-08	6	1	16.67	83.33	10	1	10.00	90.00
2008-09	5	5	100.00	0.00	13	2	15.38	84.64
2009-10	2	-	-	-	4	0	0	0
Average	-	-	58.33	41.67	-	-	11.34	88.66

wheat straw (Turi) and fertilizers etc. It reduces cost of mushroom cultivation for the person from farming background.

Gain in knowledge: The data in Table 3 show the pre- and post-training knowledge score of the respondents with respect to various practices of mushroom cultivation. Pre-training score of various practices ranged from 6.8 per cent (in case of diseases and pest management) to 28.8 per cent in case of filling and spawning. Post-training score of various practices ranged from 30.2 per cent (in case of diseases and pest management) to 71.9 per cent (in case of filling and spawning). Pre-training knowledge score was not at all satisfactory for all the aspects of training programme. However the knowledge score after training was quite satisfactory among the participants in all aspects of the training programme except diseases and pest management and variety/cultivation method where the gain in knowledge was 23.4 and 37.3 per cent respectively. These two aspects were least understood by the participants. So more emphasis should be given to these practices during training courses conducted by Krishi Vigyan Kendras.

Constraints: The study indicated that nature of problems varied for non-adopters and discontinued adopters. However common constraints faced by the mushroom growers as given in Table 4 were higher cost of wheat straw, mushroom growing being less remunerative enterprise, high incidence of nematodes, availability of poor quality of spawn, enterprise being labour intensive and lack of government policies.

Similar results were reported by Mishra (2008). There should be some government policy for seed certification in mushroom farming as in field crops. Researchers should explore some low cost methods of mushroom cultivation to make it more remunerative.

CONCLUSION

The above findings clearly indicate that the Krishi Vigyan Kendras are realising the objectives of the mushroom cultivation training programmes in terms of achieving desired outcome and impact. The follow-up of the trainings by the KVKs will provide much needed guidance to the trainees and avoid discontinuance of the enterprise. KVKs should also provide marketing information to the trainees. Mushroom growing enterprise does not require additional arable land. Thus farmers with small and marginal land holdings can augment their dwindling farm income by adopting mushroom growing. More regular and robust evaluation studies are required to determine the value of investing in farmers' education and trainings by KVKs. Evaluation should be part and parcel of extension programmes and should be taken on scientific lines.

Table 3. Gain in knowledge of different practices of mushroom cultivation (n= 59)

Technology	Knowledge score		
	Before training	After training	Gain
Variety/cultivation method	70	180	110
	(23.7)	(61.0)	(37.3)
Compost preparation	45	199	154
	(15.3)	(67.5)	(52.2)
Filling and spawning	85	212	127
	(28.8)	(71.9)	(43.0)
Casing	40	179	139
	(13.6)	(60.7)	(47.1)
Crop management	33	166	133
	(11.2)	(56.3)	(45.1)
Diseases and pest control	20	89	69
	(6.8)	(30.2)	(23.4)
Food value and value addition	75	210	135
	(25.4)	(71.2)	(45.8)

Figures in parentheses are per cent values

Table 4. Constraints faced by mushroom growers in adoption of mushroom farming as an occupation (n=55)

Constraint	#	Percentage	Rank
Availability of poor quality spawn	31	56.36	IV
Cost of wheat straw	50	90.91	I
Fluctuating price prevailing in the market	21	38.18	VII
Nematode problem	33	60.00	III
Labour intensive	25	45.45	V
Less remunerative	45	81.81	II
Govt policy	23	41.81	VI
No adequate processing facility	19	34.54	VIII
Skill	15	27.27	IX

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