Agriculture Update | Vol. 6 | Issue (3&4) | Aug. & Nov., 2011 | 206-209 | *RESEARCH ARTICLE*

Technological gap in adoption of improved mushroom cultivation practices in Haryana

J.N.BHATIA, DEVENDER CHAHAL AND R.S.CHAUHAN

See end of the article for authors' affiliations

Correspondence to :

J.N. BHATIA
Krishi Vigyan Kendra, C.C.S., H.A.U., AMBALA (HARYANA) INDIA
Email: bhatia1960 @rediffmail.com

ABSTRACT

Technological gap is the gap between the level of recommendation and extent of their adoption. Accordingly, the study was conducted to know the technological gap of the mushroom growers about mushroom cultivation which is grown indoor and provides employment to the unemployed youth and small farmers to raise their social status and to earn extra income other than the filed crops. The study was conducted in Ambala, Panchkula and Yamunanagar districts of Haryana state. It was inferred from the study that the farmers had overall 32.38 per cent technological gap in adoption of improved mushroom cultivation practices. Among different categories, it was found that 32 per cent of the respondents had low level of technological gap (less than 25 per cent) and about half of the respondent (46 per cent) having medium level of technological gap (between 25-30 per cent) where as about one fifth (27 per cent) of the respondents had high level of technological gap (above 30 per cent). The maximum gap was found in case of compost making (59 per cent) followed by management practices (42.25 per cent) and casing preparation (38.07 per cent) as compared to other mushroom cultivation practices.

Bhatia, J.N., Chahal, Devender and Chauhan, R.S. (2011). Technological gap in adoption of improved mushroom cultivation practices in Haryana. *Agric.Update*, **6**(3&4): 206-209.

Key words : Technological gap, Adoption, Mushroom cultivation

Received: *Jul., 2011;*
Revised: *Sep., 2011;*
Accepted : *Oct., 2011*

INTRODUCTION

Mushrooms which are also known as fleshy fungi, attracted the attention of man since ancient times. These are ideal tools for converting agricultural wastes into protein rich non-conventional food items. Its cultivation became more important in countries like India where density of population is more as compared to the available cultivated areas because mushroom requires very less areas and there is abundant availability of agro-waste materials which can be utilized for its cultivation. Mushrooms are rich in food value and are highly recommended for people with dietary deficiencies. The Food and Agricultural Organization (FAO) of the United Nations has recommended mushrooms as a supplementary food items to the growing population of the developing countries which depend primarily on cereal diets. Mushroom protein has been universally accepted to be superior to vegetable proteins and as found as animal proteins and are therefore recognized as non conventional source of protein which can bridge the protein quality gap in the Indian diet. Mushroom production is important not only from nutritional and medicinal point of view but for exports and recycling of agro-wastes. Its culture does not require pressure on already over burdened cultivated areas as it is cultivated indoors and in additional small floor area, the vertical space can also be utilized judiciously as stated by Chadha and Sharma(1995) and Pathak *et al.(*1998).

As far as mushroom production is concerned, Haryana is the leading mushroom growing state of India and the white button mushroom is presently being cultivated by seasonal growers under natural conditions by following low cost technology (Table 1). In Haryana state, majority of the mushroom growers produce only white button mushroom (95 per cent) and very few oyster mushroom (5 per cent) of the total mushroom production in the state (Chadha and Sharma, 1995). The productivity of mushroom in Haryana can further be accelerated if the farmers adopt improved recommended mushroom practices. Pasteurized compost is absolutely essential for successful mushroom growing but unfortunately use of unpasteurized compost is widely prevalent with our small growers who

raise one or two seasonal crops. Apart from theoretical knowledge practical training is necessary to learn the art of mushroom growing (Bhatia *et al.,* 2010). Our trainees are mostly sermilite rate people. For proper education , model mushroom houses for small farmer are essential which he can emulate (Munjal, 1977) . Keeping this in view in mind, a study was undertaken to find out the technological gap in improved recommended mushroom cultivation practices and to study their relationship with socio-psychological traits of the mushroom growers in Haryana.

METHODOLOGY

The study was undertaken in three districts *viz.,* Ambala, Panchkula and Yamuna Nagar districts of Haryana state, which were selected purposively because of having the maximum number of seasonal mushroom growers. From these district two blocks from each district having maximum mushroom growers *viz.,* Ambala-1 and Ambala-II from Ambala district , Panchkula and Kalka from Panchkula district and Radour and Chachrouli from Yamunanagar district were purposively selected. From these six blocks of three district, twenty villages were selected. Five respondents were randomly selected from each of the selected villages. Thus, size of sample was 100 mushroom growers to measure the technological gap pertaining to recommended packages and practices of mushroom by the university for that suitable interview schedule was prepared. A personal interview technique was used to collect the information and data from the respondents. The correct answer was awarded a score of two, partially correct one and incorrect reply was given no score. The scores thus, obtained under various aspects of mushroom cultivation practices were summed up both respondent wise as well as component wise. The weighted commulative frequency method was followed for computing low, medium and high level of technological gap.

The selected recommended practices were grouped into seven aspects on the basis of their nature for the purpose of exploiting the findings of the study on the technological gap in adoption of mushroom cultivation practices. The technological gap in respect of different aspects of the technology were computed in percentage by the following formula:

$$\text{Technological Gap Index} = \frac{R - A}{A} x100$$

where,

R = Maximum possible adoption score, that a respondent could be awarded in respect of a given component of the technology.

A=Score obtained by a respondent by virtue of his adoption of a given component of the technology.

The data thus obtained were tabulated and analyzed accordingly.

OBSERVATION AND ANALYSIS

The results of the present study as well as relevant discussions have been presented under following sub heads:

Distribution of respondents :

To get an overview of the respondents with respect to technological gap in adoption of mushroom practices , the farmers were categorized into low level of technological gap (less than 25 per cent), medium (between 25 and 30 per cent) and high (above 30 per cent) level of the technological gap as shown in Table 1. This categorization was based on the basis of mean score and standard deviation of the adoption score obtained by the respondents.

It is evident from the results obtained in Table 2 that farmer's technological gap score ranged between 6-20

Table 1 : Scenario of mushroom production in Haryana

Years	1998	1999	2000	2001	2002	2003	2004	2005	2010
Prod. (M.ton)	3000	3500	5000	6000	7000	7500	7000	7200	8055
No. of units	675	800	1000	1170	1300	1310	1277	1316	1350
Income (Lakhs)	600	700	1250	1620	21000	2250	1990	2370	2552
No. of family engaged	4725	5600	7000	8190	9100	9700	9247	9500	10000

Table 2 : Distribution of mushroom growers according to their extent of adoption of mushroom cultivation practices (n=100)

Sr.No.	Category	Technological gap score	Ranged in percentage	Percentage of respondents
1.	Low	6-12	< 25	32
2.	Medium	13-14	25-30	46
3.	High	15-20	> 30	27

Score range: 6-20, Mean technological gap score: 12.44 (25.92%)

with a mean score of 16.42 which is equal to 32.38 per cent. It is certainly considerable and needs to be minimized by making extensive extension efforts. Further, the results obtained also revealed that 32 per cent of the respondents fell in low category *i.e.* having a technological gap less than 25 per cent. About half of the respondents 46 per cent having medium level of technological gap (between 25 and 30 per cent) and about one-fourth of the respondents (27 per cent) having high level of technological gap (above 30 per cent). These findings are in agreement with the results of Bhatia (1991) and Dass (1996) for other crops. The studies thus indicated that about fifty per cent of the respondents (46 per cent) were having medium to high level of technological gap. This calls for a serious consideration both by mushroom scientists and growers and needs utmost introspection.

Extent of technological gap in adoption of mushroom:

It could be seen from Table 3 that maximum technological gap was observed in case of compost preparation (59 per cent) followed by crop management practices (42.25 per cent) and casing preparation (38.07 per cent). The minimum technological gap was found in spawn and spawning (12.82 per cent), time of cultivation (19.33 per cent) and harvesting and packaging (20.25 per cent). The minimum gap in these practices may be the result of having higher knowledge and adoption level on these practices. The higher technological gap in case of compost making, casing preparation and crop management practices may be due to the reasons that these cultivation practices require skills and sufficient finances , lengthy as well as cumbersome processes as well. These observations are in conformity to the findings of Chadha and Sharma (1995) and Sarkar *et al.* (1995). It suggests that concerted efforts should be made to bridge these gaps in compost preparation, casing preparation and management practices. These practices play a very vital role in increasing the productivity of the mushroom. The possible reasons for higher technological gap in adoption of recommended practices by the respondents may be due to their inability to seek more information by less participation in extension activities, poor skill development, low level of socio-economic status and small land holdings. The reasons for poor adoption by the respondents were also reported by Tiwari and Kapoor (1988). Mahapatra *et al.* (1997) in their studies however, reported that in farm training and regular contact with the farmers have positive and significant impact on adoption of mushroom farming technology and its acceptance as a mean of livelihood generation.

Table 3 : Technological gap among mushroom growers an different practices of mushroom cultivation

Sr. No.	Practices	Max. score	Mean technological gap score	Mean score (%)
1.	Time of cultivation	3	0.58	19.33
2.	Mushroom strain /var.	11	3.85	35.00
3.	Compost making	5	2.95	59.00
4.	Spawn and spawning	6	0.78	12.82
5.	Casing preparation	13	4.95	38.07
6.	Crop management practices	4	1.69	42.25
7.	Harvesting packaging	8	1.62	20.25
	Overall score	50	16.42	32.38

Relationship between farmer's personal social communicational, economic and psychological traits and technological gap:

The correlation coefficient ('r' value) was worked out to known the association between social, physiological and economic traits such as age, education, family education, mass media exposure, extension contact, training received, land holding, annual income, occupation , change proneness, economic motivation , scientific and risk orientation with the technological gap in adoption of mushroom cultivation practices. It could be seen from Table 4 that among selected independent variables of the mushroom growers education, family education extension contact, and training received, annual income, change proneness, economic motivation, scientific and risk orientation had significant and negative association with

Table 4 : Correlation co-efficient between technological gap and socio- psychological traits

Sr. No.	Characteristics (independent variables)	Correlation co-efficient ("r" value)
1.	Personal characteristics	
	Age	-0.0390
	Education	-0.2669*
	Family education	-0.1912*
2.	Socio-communication characteristics	
	Mass media exposures	-0.0528
	Extension contact	-0.6526*
	Training received	-0.5882
3.	Economic characteristics	
	Land holding	-0.1575
	Annual income	-0.2157*
	Occupation	-0.2424*
4.	Psychological characteristics	
	Change proneneis	-0.0585*
	Economic motivation	-0.2954*
	Scientific orientation	-0.4523*
	Risk orientation	-0.7387*

* indicates significance of value at p=0.05, respectively

the technological gap. It implies that technological gap of the respondents decreased with each unit of the increase in their education, extension contact, and training received, annual income and scientific and risk orientation as reported by Bhatia (1991) and Dass (1996) and Singh and Patel (1988).

It can also visualized from the Table 4 that other independent variables such as age, mass media exposures , land holding, occupation and change proneness also had negative association with the technological gap but not to the extent of significant level. These observations are in conformity with the findings as reported by Bhatia (1991), Singh *et al.* (1996), Dass (1996) and Christian *et al.* (2003) in some other studies.

Conclusions:

To promote the adoption rate of mushroom cultivation and to minimize the technological gap, the following measures are suggested such as extension agencies should give more emphasis and conduct training especially on the practices which are complex in nature. The trainings should be given to farmers at the appropriate time and as per the convenience of the mushroom growers. Apart from theoretical knowledge, practical training is necessary to learn the art of mushroom growing. We should ensure that after this training, the trainee would be in a state to take up mushroom growing as a career. Our trainees are mostly sermilite rate people. For proper education, model mushroom house for small farmer are essential which he can emulate. Further more, timely loan should be provided to the mushroom growers at low interest rate and good quality inputs should be provided at the subsidized rates at the village /block level by the government agencies. Those who formulate the project including technical advisors, administrators who finally sanction the funds and the executors have no accountability about the success of the project. This lack of accountability percolates to the lowest level. Mostly the retardation of the progress is due to non –availability of funds. Covernment should establish processing units for the mushroom to prepare some value added products so that the mushroom growers can get appropriate return of their produce and the extension workers should visit the mushroom house regularly to provide the technical know how to the mushroom growers.

System of project formulation, recruitment and training of scientific personnel, provision of basic experiment and literature facilities are matter of serious concern which need improvement. However, even under the existing circumstances, if some essential gaps are filled, there would go a long way in accelerating the pace of mushroom development in the Haryana in a long way.

Authors' affiliations:
DEVENDER CHAHAL AND R.S. CHAUHAN, Krishi Vigyan Kendra, C.C.S., H. A.U., AMBALA (HARYANA) INDIA

REFERENCES

Bhaita, J.N., Ahuja, S. and Thakral , S.K. (2010) . Empowering rural women through mushroom farming: A profitable enterprise. In: Santosh Tikkoo (Eds.). Professionalism in Home Science Academic Excellence Delhi, pp.503-510 .

Bhatia, R. (1991). Sugarcane cultivation: Technological gap and constraints. M.Sc.Thesis, COA, C.C.S., Haryana Agriculture University, HISAR, HARYANA (India).

Christain , B.M. Vyas, H.U. and Patel , K.H. (2003). Adoption of IPM strategy by cotton growers . *Agric. Extn. Rev.,* **15** (2) : 10-11.

Chadha , K.L. and Sharma, S.R. (1995). *Advances in horticulture* Vol. **13** *Mushroom* . In : K.L.Chadha and S.R.Sharma (Eds.) Mushroom Research in India –History , Infrastructure and Achievement, pp. 1-33, Malhotra Publishing House, NEW DELHI (India) .

Dass, R. (1996). Sorghum production technology: Technological gap and constraints analysis with special reference to Haryana. M.Sc. Thesis , COA , C.C.S., Haryana Agriculture University, HISAR, HARYANA (India).

Munjal , R.L. (1997). Slow progress of mushroom research development in India. Lead paper presented in National Mushroom Conference, 1997 pp. 83, Solan (HP).

Mahapartra, S.C., Dass, N. and Chattopadhyay, R.N. (1997). Transfer of mushroom farming technology as one of the livelihood generating activities in rural areas and its adoption by the farmers of South West Bengal. Proc. Indian Mushroom Conference, 1997, pp. 81, Solan (HP).

Pathak, V. N., Yadav, N. and Gaur , M. (1998). *Mushroom production and processing technology* p. 176. Agro Botanica, BIKANER RAJASTHAN (India).

Sarkar, B.B. Bhattacharjee , A. K. , Mukhopadhyay, K. K. , Amar Dass and Chatterjee, N.G. (1995). Mushroom in Tripura . *Agric. Extn. Rev.,* **7**: 27-31.

Singh , H. and Patel , H.N. (1988). Role of scoio-economic characteristics of farmers in adoption of improved practices. *Maharashtra J. Extn. Edu.,* **7** : 263-264.

Singh, B., Shehrawat , P.S. and Singh , S.(1996) . Technological gap in the recommended cotton production practice. *Agric. Extn. Rev.,* **8**:24-25.

Tiwari , S.C. and Kapoor , P. (1988). *Mushroom cultivation :* An economic analysis. Mittal Publications, DELHI (India).

****
******