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An evaluation of mushroom growers' adoption of technology in mushroom production

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Abstract
The investigation was conducted in Jabalpur, Patan and Panagar blocks of Jabalpur district, Madhya Pradesh with the objectives to find an evaluation of mushroom growers' adoption of technology in mushroom production. The data was collected from the help of well-structured interview schedule, which was prepared on the basis of objectives of study. The data were tabulated, coded and analyzed. In this study the findings revealed that out of the total 120 mushroom growers, 58.33 percent respondents had high followed by 27.50 percent had medium and 14.17 percent had low evaluation of mushroom growers' adoption of technology in mushroom production.

Keywords: mushroom, adoption, production technology, mushroom growers

Introduction
The word "mushroom" its variations is derived from the French word *mousseron* in reference to moss (*mousse*). Mushroom production is one of the areas in which waste materials obtained from wheat and rice can be used and extra money can be earned. A mushroom is the meaty, spore-bearing fruiting body of a fungus, typically produced above ground, on soil and it is food source. Mushroom is used a delicious flavoured food having nutritional value between meat and vegetables. Mushroom is rich in albuminoid, Iron, vitamins, minerals and rich in anti-oxidants and low caloric food and very less starch, which is better for patients of heart, hypertension and diabetes. Mushroom is also known as 'vegetable meat', has occupied a favourite position in the food menu in many countries.

ICAR-Directorate of Mushroom Research, Solan is continuously supporting the start-ups of mushroom industry by technology transfer and building up the human resource by various training programmes along with the technology demonstration. In India total area of mushroom is 1.98 lakh ha, and producing about 4.87 lakh tones of mushroom per annum as compare to 330 lakh tones in China. In India, in the last five years mushroom production has almost doubled from 1.00 lakh MT to 2.01 lakh MT. (Source-Annual report 2019, ICAR-DMR, Solan)

Mushrooms can grow anywhere and not all of them are edible. Over 14,000 varieties of Mushrooms are identified all around the world, but only some specified types of it are safe to eat. Various kinds of mushroom *i.e.* Button Mushroom, Straw Mushroom, Oyster Mushroom, Milky Mushroom and Shiitake Mushroom are commercially cultivated of India. Out of the above, button mushroom has high demand and the most popular hence most farmers select this variety for commercial mushroom cultivation. In Jabalpur district of Madhya Pradesh, the oyster mushroom is more popular than the other types of mushroom because oyster mushroom is very easy to cultivate at low cost.

Materials and Methods
The investigation was conducted in Jabalpur district, Madhya Pradesh with the objectives to find an evaluation of mushroom growers' adoption of technology in mushroom production in Jabalpur district comprised of seven blocks, *viz;* Jabalpur, Majholi, Panagar, Shahpura, Sihora, Kundam and Patan. Out of 7 blocks, Jabalpur, Panagar and Patan blocks were selected purposively as these blocks were maximum number of mushroom growers. From each selected blocks, 60 percent respondents were selected by proportionate random sampling technique. Thus samples of 120 mushroom growers were prepared from Jabalpur, Patan and Panagar blocks.

The data was collected through personal interview method, with the help of pre-structured interview schedule. The statistical methods *via*, frequency, percentage, Pearson's Correlation coefficients *etc*. were used for analysis of data.

Results and Discussion

Table 1: Distribution of mushroom growers according to their profile in adoption of technology in mushroom production

S. No.	Profile of mushroom growers	Categories	Respondents (N = 120)	
			Frequency	Percentage
1.	Age	Young (below 38 years)	55	45.83
		Middle (38 - 54)	44	36.67
		Old (above 54 years)	21	17.50
2.	Sex	Male	72	60.00
		Female	48	40.00
3.	Caste	SC/ST	35	29.17
		OBC	53	44.16
		General	32	26.67
4.	Education	Illiterate	05	4.17
		Read only	03	2.50
		Read and write	06	5.00
		Primary school	15	12.50
		Middle school	23	19.17
		High school	29	24.17
		Higher secondary school	22	18.33
		Graduate and above	17	14.16
5.	Occupation	Laborer	17	14.17
		Caste occupation	04	3.33
		Business	08	6.67
		Independent profession	03	2.50
		Farming	76	63.33
		Service	12	10.00
6. (i)	family type	Nuclear family	53	44.17
		Joint family	67	55.83
(ii)	Family size	Up to 5 members	45	37.50
		Above 5 members	75	62.50
7.	Land holding	No land	07	5.83
		Marginal (below 1 ha)	20	16.67
		Small (1 – 2 ha)	25	20.83
		Medium (2 – 4 ha)	39	32.50
		Large (above 4 ha)	29	24.17
8.	House type	Hut	02	1.67
		Kutch house	21	17.50
		Mixed house	57	47.50
		Pucca house	40	33.33
9.	Farm power	No bullocks	58	48.33
		1 – 2 bullocks	14	11.67
		3 – 4 bullocks	05	4.17
		5 – 6 bullocks / tractor	43	35.83
10.	Material possession	Bullock cart/cycle/radio/chairs	120	100.00
		Improved agricultural implements/equipments	49	40.83
11.	Social participation	No participation	38	31.67
		Member in one organization	57	47.50
		Member in more than one organization	22	18.33
		Office holder	03	2.50
12.	Experienced in mushroom cultivation	Low (below 3 years)	55	45.83
		Medium (3 to 6 years)	41	34.17
		High (above 6 years)	24	20.00
13.	Number of training received	Low (up to 2 training)	72	60.00
		Medium (3 to 4 training)	31	25.83
		High (above 4 training)	17	14.17
14.	Risk preference	Low (up to 14 scores)	09	7.50
		Medium (15 – 22 scores)	34	28.33
		High (above 22 scores)	77	64.17
15.	Market orientation	Low (6 – 12 scores)	18	15.00
		Medium (13 – 18 scores)	65	54.17
		High (above 18 scores)	37	30.83
16.	Level of knowledge	Low (up to 5 scores)	09	7.50
		Medium (6 – 10 scores)	44	36.67
		High (above 10 scores)	67	55.83

17.	Extension contact	Low (up to 10 scores)	12	10.00
		Medium (11 – 20 scores)	71	59.17
		High (above 20 scores)	37	30.83
18.	Source of information	Low (up to 9 scores)	22	18.33
		Medium (10 – 18 scores)	71	59.17
		High (above 18 scores)	27	22.50

Table 1 Showed that most of the mushroom growers *i.e*. 45.83 percent were from up to 38 years young age group, 60.00 percent were male group, 44.16 percent belonged to OBC, 24.17 percent had high school education, 66.33 percent had engaged in agriculture as occupation, 55.83 percent were joint family, 62.50 percent were above 5 members, 32.50 percent had medium size of land holding, 47.50 percent were mixed house, 48.33 percent had no bullocks, 100 percent had bullock cart/Cycle/Radio/chair, 47.50 percent had membership of one organization, 45.83 percent having low experience, 60.00 percent having low number of training received, 64.17 percent belong to high risk preference, 54.17 percent had medium market orientation, 55.83 percent had high level knowledge, 59.17 percent were medium level in extension contact, 59.17 percent were medium level in sources of information.

Table 2: Distribution of mushroom growers according to their adoption of technology

S. No.	Adoption of technology	Frequency	Percentage
1.	Low (below 10)	17	14.17
2.	Medium (10 – 20)	33	27.50
3.	High (above 20)	70	58.33

Table 2 indicated that out of the total 120 respondents, 58.33 percent respondents had high adoption, 27.50 percent had medium adoption and 14.17 percent had low adoption of technology, respectively.

Thus, maximum respondents had high adoption of technology in mushroom production.

Table 3: Relationship between profile of mushroom growers and their adoption of technology in mushroom production

S. No.	Variables	'r'-value
1.	Age	-0.564**
2.	Gender	0.117^{NS}
3.	Caste	0.118^{NS}
4.	Education	0.341**
5.	Occupation	0.316**
6. (i)	Family type	0.092^{NS}
(ii)	Family size	0.096^{NS}
7.	Land holding	0.290**
8.	House type	0.132^{NS}
9.	Farm power	0.130^{NS}
10.	Material possession	0.039^{NS}
11.	Social participation	0.282**
12.	Experience in mushroom cultivation	0.507**
13.	No. of training received	-0.629**
14.	Risk preference	0.342**
15.	Market orientation	0.254**
16.	Level of knowledge in respect to selected mushroom practices	0.721**
17.	Extension contact	0.114**
18.	Source of information	0.251**

Table 3 showed that, age, education, occupation, land holding, social participation, experience in mushroom cultivation, level of knowledge in respect to selected mushroom practices, extension contact, number of training, risk preference, market orientation and sources of information had significant relationship with mushroom growers' adoption of technology in mushroom production.

Further, coefficient of correlation indicated that the variable *i.e*. sex, caste, type of family, family size, house type, farm power and material possession had no significant relationship with mushroom growers' adoption of technology in mushroom production.

Conclusion

The investigation clearly conducted that 58.33 percent mushroom growers had high adoption of technology in mushroom production. It was due to fact that various extension activities like demonstrations, training *etc*, are frequently organized by the extension field functionaries in the villages which have helped in convincing the farmers about adoption of technology of in mushroom production. Therefore, it could be implied that extent mushroom growers has significant contribution in adoption of technology in mushroom production.

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