



CONSTRAINTS EXPERIENCED BY MUSHROOM GROWERS IN ADOPTING IMPROVED MUSHROOM PRODUCTION PRACTICES IN PUSA, BIHAR

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Abstract: Mushrooms (vegetarian meat/vegetable beef stick) is becoming fast popular because of its short time period between cultivation and harvesting; less initial investment and can be grown with locally available resources. Though more technology is available for boosting mushroom production, the yield so far achieved is not high. Hence, an attempt is made to find out the constraints faced by mushroom growers in adoption of improved mushroom production practices. Samastipur district of Bihar was purposively selected for the study because, Dr. Rajendra Prasad Central Agricultural University, a pioneer in mushroom production technology is located in the study area. 120 respondents from six villages of Pusa, Samastipur, Bihar forms the respondents of the present study. Primary data was collected from the mushroom growers and the responses were subjected to statistical analysis. The results indicated that unavailability of quality spawn, unavailability of skilled labor, absence of technical guidance, high transport cost, unavailability of storage facilities, high cost of spawn and long distance market were the most problematic constraints faced by the mushroom growers. Thus, it can be concluded that adequate extension service should be made available to make mushroom cultivation popular, market and marketing of the products.

Keywords: *Mushroom cultivation, Bihar, Constraints, Suggestions, Difficulties, Mushroom*

Introduction

India has a wide range of agro-climatic conditions and is largely an agricultural country with a cultivated area of about 4.37 %, generating about 620 million tons of agro waste annually (Singh and Sidhu, 2014). Mushroom cultivation not only helps recycle agro wastes, but also fills the nutritional gap prevalent among a large population of India. Mushroom cultivation in India



was initiated in Solan, in the mid-sixties. The total mushroom production in India between 2010 and 2017 was approximately 0.13 million tons, accounting for a 4.3% increase in the average growth rate of mushrooms per annum. Karthick and Hamsalakshmi, (2017) mentioned that mushroom cultivation not only provide a gainful employment to Indian rural youth but the cost of mushroom per unit area will be greatly reduced. They further added that, the mushroom production in India in the year 2020 AD, would touch the magic figure of 6,00,000 tons per annum.

Mushrooms are non-green fungal plants occurring seasonally all over the world in various habitats varying from plains to thick forests or green meadows to roadside pathways. Siddiqui (2000) mentioned that mushroom is an edible vegetable which is delicious, nutritious and having medicinal value. It is said that, “Nature alone is antique and the oldest art is mushroom”. Mushroom is commonly praised as “food for good’s”; “vegetable meat” or “vegetable beef-stick” and fast popular because of excellent nutritional values. Mushroom are recognized as the alternate source of good quality protein and are capable of producing the highest quantity of protein per unit area and time from the worthless agro-wastes.

Mushroom cultivation plays an important role to improve the strengths and livelihood of rural people through economic, nutritional and medicinal contributions. In India the first mushroom cultivation was publicized by Thomas in the year 1943 in Agricultural College, Coimbatore, who cultivated paddy straw mushroom, which led to spread the cultivation techniques throughout the India (Prakasam, 2012). Sharma et.al., (2017) revealed that button mushroom production holds the maximum share of about 73% and followed by oyster mushroom with 16%. The cultivation of *Pleurotus ostreatus* mushroom stands first in followed by *Agaricus bisporus* mushroom in India in terms of popularity and consumption (Khatun et al., 2012).



The commonly grown edible mushrooms in India are *Pleurotus sajor-caju*, *Pleurotus ostreatus*, *Pleurotus florida*, *Pleurotus djamor*, *Pleurotus eryngii*, *Auricularia polytricha*, *Hypsizygus tessulatus*, *Lentinula edodes*, *Calocybe indica*, *Volvariella volvacea* (Dhar et al., 2011). Medicinal mushrooms occurring in India are *Ganoderma lucidum*, *Phellinus rimosus*, *Pleurotus spp.* possessed profound medicinal properties (Ajith and Janardhanan, 2007). The freeze-dried mycelia and dried mushroom in capsules form of *G. lucidum* and *Cordyceps sinensis* (caterpillar mushroom) consumption are very limited in areas of Delhi, Chandigarh, and Kerala (Dhar and Sharma, 2009).

Mushroom cultivation has become a business and export-oriented. The major export destinations for Indian mushrooms are Canada, US, Israel, and Mexico (Annual report 2017-2018). In addition, spent substrates can be used for biogas production, for fertilizer in agricultural fields and can also upgrade and used as animal feed (Zadrazil et al., 1992). Some of the studies identified that lack of proper infrastructure, discouragement by fellow farmers, lack of assured market, non-remunerative prices and poor quality of spawn were the main reasons for non-adoption and discontinuance of the mushroom cultivation enterprise (Singh, 2016).

Meanwhile, Sonam (2018) experienced that among technical constraints lapse in moisture level and controlled temperature and require adequate maintenance were the major constraints. Meanwhile, a large percentage of respondents expressed mushroom growers faced lack of proper marketing channel and exploitation by middle men. Whereas, Manohara (2019) identified the major constraints in mushroom production were contamination of crop bags and limited knowledge about cultivation, less knowledge about marketing, exploitation by middlemen, limited cold storage facility, non-availability of proper agency for mushroom purchase were the major constraints and suggested to conduct appropriate training programmes to build their capacity in the area of production and marketing of mushroom.



Statement of the problem

Mushrooms are more relevant to predominantly vegetarian India. One of the attractive factors towards mushroom farming is the short time period between cultivation and harvesting where not require much more initial investment and can be grown with locally available resources. Many researchers have been conducted and technology developed for boosting up the mushroom production. But the yield achieved so far is not encouraging as against the expectation. Unavailability of improved package of practices in one side and behavioral aspects of the farmers in other side inhibit the acceptance of technology. Hence, in present study an attempt is made to find out the constraints faced by mushroom growers in adoption of improved mushroom production practices. With this context, the following objective of the study was framed;

- To trace out the constraints faced by respondents in adoption of improved mushroom production practices
- To seek suggestions from mushroom growers to overcome the constraints and for better adoption of improved mushroom production practices

Methodology

For the study, the research design adopted was descriptive since it can answer what, where, when and how questions, but not why questions. Samastipur district of Bihar was purposively selected for the study because, Dr. Rajendra Prasad Central Agricultural University, a pioneer in developing the mushroom production technology is situated in Samastipur district. The Samastipur district of Bihar had 20 blocks, in which Pusa block is purposively selected for the study because there are more number of mushroom growers in comparison with other blocks. Out of 37 villages in Pusa block, six villages were purposively selected since they had maximum area under mushroom cultivation; which were Dhobgawan, Dighra, Gopalpur, Jagdishpur,



Khaira and Morsand. From the selected villages, 20 respondents from each village were selected randomly; thus makes 120 respondents of the present study.

Results and Discussion

The constraints faced by the farmers about input supply, labour, training, storage, economic and marketing constraints were studied and their responses were indicated in the table.1.

Table.1. Distribution of respondents based on the constraints experienced by the farmers

(n=120*)

S. No.	Constraints faced by the respondents	Frequency	Per cent
A. Constraints about supply			
1.	Substrate (straw) required is not available.	26	21.67
2.	Low quality of straw	64	53.33
3.	Unavailability of quality spawn	78	65
4.	Unavailability of fungicides/ pesticides	45	37.50
5.	Unavailability of water	53	44.17
6.	Unavailability of adequate space	49	40.83
7.	Irregular electricity supply	34	28.33
8.	Unsuitable environment	39	32.50
B. Constraints about labour/ man power			
1.	Unavailability of sufficient manpower	32	26.67
2.	Unavailability of skilled labour	48	40
C. Constraints about training and guidance			
1.	Short period of training	29	24.17



2.	Absence of technical guidance.	67	55.83
3.	Unavailability of literature on mushroom	32	26.67
D. Economic constraints			
1.	High initial cost	45	37.50
2.	No facility of bank loan	59	49.17
3.	High rate of wages	38	31.67
4.	High cost of spawn	68	56.67
5.	High cost of fungicides and pesticides	43	35.83
E. Constraints about market			
1.	No fixed market	32	26.67
2.	Long distance market	74	61.67
3.	Fluctuation in market rates	65	54.17
4.	Low demand at local place	48	40
5.	Low market rates	22	18.33
6.	Not getting money of marketed produce	19	15.83
7.	Not payment/ receipt of money of marketed produce	25	20.83
F. Constraints about transport			
1.	Unavailability of transport	67	55.83
2.	High transport cost	84	70
G. Constraints about storage			
1.	Unavailability of storage facilities	69	57.50
2.	High cost of packing material	58	48.33



From table.1, it could be interpreted that regarding the constraints about supply, most of the farmers reported unavailability of quality spawn (65%) as the most problematic constraint, followed by low quality of straw (53.33%), unavailability of water (44.17%), unavailability of adequate space (40.83%), unavailability of fungicides/ pesticides, unsuitable environment (37.50%), irregular electricity supply (28.33%) and substrate (straw) required is not available (21.67%). Meanwhile, unavailability of skilled labor (40%) is the most problematic constraint about labor, followed by unavailability of sufficient manpower (26.67%).

In addition to this, absence of technical guidance (55.83%) is the most problematic constraint about training and guidance, followed by unavailability of literature on mushroom (26.67%) and short period of training (24.17%). Meanwhile, high transport cost (70%) is the most problematic transport cost, followed by unavailability of transport (55.83%). Eventually, unavailability of storage facilities (57.50%) is the most problematic storage constraint followed by high cost of packing material (48.33%).

Simultaneously, regarding economic constraints, high cost of spawn (56.67%) is the most problematic, followed by no facility of bank loan (49.17%), high initial cost (37.50%), high cost of fungicides and pesticides (35.83%) and high rate of wages (31.67%). Whereas, long distance market (61.67%) is the most problematic constraint regarding market constraints, followed by fluctuation in market prices (54.17%), low demand at local price (40%), no fixed market (26.67%), no payment/receipt of money of marketed produce (20.83%), low market rates (18.33%) and not getting money of marketed produce (15.83%).

The suggestions given by the farmers of the present study to overcome the constraints experienced in adopting improved mushroom production practices was studied and indicated in table.2.



Table.2. Suggestions given by the farmers in adopting improved mushroom production practices

(n=120)

S. No.	Suggestions given by the farmers	Frequency	Percent
1.	Spawn should be available in time	58	48.33
2.	Credit should be available earlier and timely	34	28.33
3.	Availability of fertilizer and other inputs should be at time	42	35
4.	Technical advice and training should be given at time	49	40.83
5.	Proper plant protection measure should be given	37	30.83
6.	Electricity facility should be available	45	37.50
7.	Proper marketing facility should be available in the area	67	55.83
8.	Availability of transport facility	62	51.67

It could be understood from the table.2, that most of the farmers suggested that there should be proper marketing facility should be available in the area, followed by availability of transport facility, spawns should be available in time, technical advice and training should be given at time, electricity facility should be available, availability of fertilizer and other inputs should be at time, proper plant protection measures should be given and credit should be available earlier and timely.



Conclusion

The reasons for lagging behind the mushroom cultivation might be lack of adequate extension service to make mushroom cultivation popular, market and marketing of the products. Besides, mushroom cultivation requires intensive cultivation technique as well as some religious factors also might be the causes of its less familiarity. Farmers who are involved with mushroom cultivation face various problems which also create hindrance in Mushroom cultivation. To make Mushroom cultivation familiar as well as popular and profitable business these problems should be identified and ascertained. Further, the following are the recommendations of the present investigation;

1. Transporting and marketing facilities should be improved.
2. Co-operative or societies should be established for mushroom cultivation.
3. Technical guidance and quality inputs like spawn, straw, fungicides, pesticides, etc should be available at right time.
4. Price regulation should be done for procuring inputs for mushroom cultivation.
5. Lack of contact with external market to sell products at regular and standardized price.
6. Training should be provided with more intensive care.
7. Lack of standard rules and regulations in procurement of harvested mushrooms.
8. Creating awareness on improved mushroom cultivation practices through various mass media sources.
9. Government support should be given
10. Providing loans, subsidies and credit in timely manner.



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