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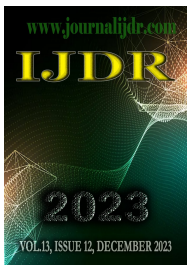

RESEARCH ARTICLE OPEN ACCESS

CONSTRAINTS AND FACTOR PROMOTING PRODUCTION OF WHITE BUTTON MUSHROOM (*Agaricusbisporus*) IN PUNJAB

***Karamvir Singh and Dr. Sunish Sharma**

DepartmentofAgriculture, Agriculture Economics Khalsa College, Amritsar, India

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****Corresponding author: Karamvir Singh***

ABSTRACT

The present study entitled "An Economic analysis of mushroom cultivation in Punjab" was conducted in Dehriwal and Tarsikka blocks of Amritsar district. The present study was planned to examine the cost-return structure of white button mushroom in Punjab. A total of 80 mushroom growers were interviewed randomly from Dehriwal and Tarsikka. Mushroom growers were divided into three categories on the basis of bed area spawned i.e., small (26), medium (40) and large (14) mushroom growers. The regression analysis inferred that factors augmenting value productivity of mushroom were age, area, experience and training received by mushroom growers. Various production and marketing problems faced by the mushroom growers were evaluated which were ranked by the farmers as major and minor problems.The study concluded that major problem faced by mushroom growers was low market price (61.93%) and disease infection (52.07%).

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INTRODUCTION

Mushroom belongs to the biological kingdom Fungi. Mushroom is an eco-friendly cash crop, which is cultivated on agricultural wastes and residues, and provide sample opportunities for employment and extra-income to the farmers (Kumar, 2013). Mushroom technology fits in the picture of today's scenario, as it is a complete technology starting from the utilization or conversion of organic wastes into consumable protein rich food addressing vast problem of malnutrition, employment generation and waste utilization (Sharma *et al.,* 2017). Button mushroom is a rich source of good quality proteins having most of the essential amino acids, vitamins and minerals and is popular for its delicacy and exotic flavour. The mushrooms also contain good amount of vitamin C and vitamins of B-complex group (Singh *et al*., 2021). India is mainly an agriculture based country which contributes nearly one-fifth of the GDP. Most of the families in India mainly depend on small family farms. For sustainable improvement in rural people livelihood mushroom entrepreneur could be very good opportunities in India. Intensivetype ofmushroom production could provide good alternative income. Henceitis of great importance form arginal farmers to cultivate mushroom Kakraliya *et al*., 2021).

RESEARCH METHODOLOGY

The present study is carried out at Department of Agriculture, Khalsa College, Amritsar, India. The data on mushroom production and inputs such as wheat straw, fertilizers, insecticides, pesticides, human labour, electricity, etc., were collected from the selected respondents. The selected respondents were classified into three categories on the basis of their mushroom production. Thus, there were 26 (32.5%) small, 40 (50%) medium and 14 (17.5%) large mushroom growers in the sample.

Linear Regression Model: Regression analysisis helpful statistical method that can be applied in investment on mushroom farm to determine the degree to which particular independent variables are influencing dependent variables.

Factors affecting value productivity of mushroom:

In our study, we observe deight variables i.e., Y: Yield

X_1	:	Education
X_2	:	Extension
X_3	:	Age
X_4	:	Netoperatedarea
X_5	:	Experience
X_6	:	Molases
X_7	:	Spawn
X_8	:	Training received by growers

We can assess the overall model fit using the (adjusted) R^2 and significance of the p-value.

Henry Garrett's Ranking Technique: This technique was used to

evaluate the problems faced by the mushroom growers. The orders of meritgiven by the mushroom growers were converted into rank by using the formula. To find out the most significant factor which influences the mushroom growers, Garrett's ranking technique was used. As perthis method, mushroom growers have been asked to as sign the rank for all factors and the outcomes of such ranking have been converted into score value with the help of the following formula:

$$\text{Percent position} = \frac{100(Rij - 0.5)}{Nj}$$

Where,

Rij=Rank given for theith variableby j^{th} respondents Nj= Number of variable ranked by j^{th} respondents

With the help of Garrett's Table, the percent position estimated is converted into scores. Then for each factor, the scores of each individual are added and then total value of scores and mean values of score is calculated.The factors having highest mean value is considered to be the major problem faced by mushroom growers.

eco-friendly profession and can provide employment in both rural and semi urban areas.

Regression statistics off actors affecting value productivity of mushroom: The factors which influenced the value productivity of mushrooms were identified by using the linear regression model and garret ranking technique. The results of regression analysis to findout the factors affecting productivity of mushrooms are presented in this section. The regression model was used for factor affecting value productivity of mushroom. The coefficient of determination of Rs quare was calculated to be 0.88 which shows 88 percent variability of dependent variableis explained by independent variable under study. Regression analysis was done to analyse the factor affecting the value of productivity of mushroom. The coefficient of determinant was explained by seven explanatory variables. The explanatory variable i.e., age (X_3), net operated area (X_4), experience (X_5) and training received by the growers (X_8) were found significant at 5 per cent level of significance and their value turned out to be 0.001,0.01,0.0002 and 0.04875 respectively. Which means the explanatory variables had significant effect on yield of mushroom production. Where as, education, extension, molasses and spawn were found to benon significant, whose value of coefficient were calculated to be 0.8772, 0.7724, 0.7496 and 0.8732, respectively.

Table 1. Regression statistics off actors affecting value productivity of mushroom

Variables	p-value
Education(X_1)	0.8772 N.S
Extension(X_2)	0.7724 N.S
Age (X_3)	0.0019**
Net operated area (X_4)	0.0114**
Experience (X_5)	0.0002**
Molases (X_6)	0.7496 N.S
Spawn (X_7)	0.8732 N.S
Training received by growers (X_8)	0.04875**
Co efficient of multiple determination (R^2)	0.88

Note:** significantat 5 percent level

Table 2. Problems faced by mushroom growers in Punjab

S.No	Problems	Mushroomgrowers			Total
		Small	Medium	Large	
1	Uncertain market price	19	33	8	60
		(25.33)	(26.61)	(23.53)	(25.75)
2	Poorquality spawn	0	2	1	3
		(0.00)	(1.61)	(2.94)	(1.29)
3	Climate change	11	10	2	23
		(14.67)	(8.06)	(5.88)	(9.87)
4	Disease infections	24	40	13	77
		(32)	(32.26)	(38.24)	(33.05)
5	Perishable nature of mushrooms	21	39	10	70
		(28)	(31.45)	(29.41)	(30.04)
	Total	75	124	34	233
		(100)	(100)	(100)	(100)

Figures in the parent heses are the percentages of the total

Table 3. Ranking of problems faced by Respondents along with their mean percent

S.No.	Problems	Rankgivenby respondents					Mean %	Rank	Garret value
		1^{st}	2^{nd}	3^{rd}	4^{th}	5^{th}			
1	UncertainMarketPrice	25	33	22	0	0	61.93	1	75
2	PoorQualityofspawn	15	11	14	21	19	46.86	4	60
3	ClimateChange	6	4	9	31	30	38.36	5	50
4	DiseaseInfection	25	9	16	13	17	52.07	2	39
5	Perishabilityof Mushroom	8	22	20	14	16	48.12	3	24

RESULTS AND DISCUSSION

The main findings of the study are discussed as under:

Factors affecting value productivity of mushroom: Mushroom farming is increasingly becoming attractive to marginal and small mushroom growers because it is simple, low cost, labor intensive and

Production and Marketing problems faced by mushroom growers

There are some problems during production and marketing, which are essential to be addressed and as such steps could be taken to boost production of this crop (Rahman, 2018). However, very little information is known about the status of mushroom production potential benefits, challenges and opportunities in Punjab. Major problem faced by the respondents are mentioned.

The table 3.2.2 shows the problems ranked by the mushroom growers. The ranks have been obtained with the help of Garret ranking method, uncertain market price 1st rank, followed by disease infections, perishability of mushroom, poor quality of mushroom and climate change ranked 2nd, 3rd, 4th, 5th, respectively.

CONCLUSION

The factors affecting value of production revealed that with increase in area under mushroom cultivation, experience, age and training received by mushroom growers can further enhance the mushroom production significantly. The study further concluded that major problem faced by mushroom growers was low market price and disease infection.

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