



Empowering Rural Youth in Puri District through Mushroom Cultivation for Sustainable Livelihoods

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ABSTRACT

Mushroom cultivation presents itself as a lucrative and sustainable opportunity that warrants encouragement among young individuals, fostering their engagement in agriculture. Notably, within the Puri district, there is a discernible upswing in the adoption of mushroom cultivation. However, for this trend to evolve into a genuinely profitable venture, it is crucial to equip farmers with the requisite training and knowledge. Recognizing that young people are the primary contributors to income, their active involvement is pivotal. In an attempt to enhance the earnings of rural unemployed youth, a comprehensive training program was implemented, benefitting 50 participants aged between 20 and 40 yrs. This initiative encompassed a diverse range of activities, such as practical demonstrations, structured training sessions, exposure visits, extension initiatives, provision of essential startup resources, and facilitation of access to government schemes and programs. As a direct outcome of their involvement in the ARYA Project, these previously unemployed youths have undergone a significant transformation, notably enhancing their capacity to contribute to their families' income.

Key Words: Development, Income, Mushroom, Production, Rural, Youth.

INTRODUCTION

Agriculture and allied sectors are the heart of the social growth of our country (Sharma and Rathore, 2022). The ARYA project is more important for rural youth in agricultural development with respect to the security of India. In the ARYA project, the younger generation will be interested in taking to farming as a profession only if farming becomes both economically and intellectually attractive (Choudhary *et al*, 2022). ARYA programme has proved to be a constructive idea of the ICAR which diligently attracts rural youths towards the agri-preneurship and retaining them in agriculture for a profitable surplus. After the intervention of KVK in terms of promotion of different agri-enterprises, rural youth got the exposure of certain scientific methods of mushroom cultivation, bee keeping, poultry and fish farming that resulted in adoption and establishment of these enterprises for their income diversification and livelihood security (Sahoo *et al*, 2023).

The global mushroom industry has expanded very rapidly in the last two decades by the addition of newer types of mushrooms for commercial cultivation

(Sharma *et al*, 2017). Mushroom supplementation is an agronomic process which consists of the application of nutritional amendments to the substrates employed for mushroom cultivation (Carrasco, 2018). Mushroom cultivation is a good enterprise for small, marginal and landless farmers as it is grown on agricultural waste, requires less land, and require short span of time to grow. Mushroom is now getting significant importance due to their nutritional and medicinal value and today their commercial cultivation is being done at large scale (Singh and Singh, 2017). It has proved as potential source for employment generation, food, nutrition and medicine security in tribal dominating rural India (Thakur, 2020).

Mushroom cultivation stands out as a promising and sustainable opportunity, particularly in the agricultural landscape. The Puri district has witnessed a notable surge in the practice of mushroom cultivation, signalling a potential for economic growth. However, to truly capitalize on this trend, it is essential to provide farmers with the necessary training and knowledge. Recognizing the pivotal role of young

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individuals as primary income generators, the ARYA Project initiated a comprehensive training program aimed at elevating the economic prospects of rural unemployed youth. Mushroom cultivation has emerged as a distinctive and sustainable livelihood option in Puri, benefiting from the favorable climate and the availability of space in the partial shade conditions of coconut orchards. The district's significant contribution of mushrooms to nearby cities has attracted a growing number of small and marginal farmers to engage in mushroom cultivation for economic sustenance. Beyond livelihoods, this practice also serves as a substantial source of employment opportunities (Markam *et al*, 2018).

MATERIALS AND METHODS

A total of 50 youths were selected and underwent training, covering technological support, exposure visits, linkages, input supply, and marketing aspects as part of the ARYA Project. Primary data were gathered through structured questionnaires, interviews, and direct observations, while secondary data were obtained from various published and unpublished documents, including insights from individuals, experts, and organizations involved in the mushroom farming sector. The training program targeted 50 participants, aged 20 to 40yrs, and employed a multifaceted approach. Suitable statistical methods, such as frequency, percentage, mean score, standard deviation, rank order, and correlation, were used in the collection, treatment, and analysis of the data to obtain descriptive and inferential statistics.

Description of youth		Mushroom (Youth-50)
Age (yrs.)	20-25	9
	25-30	11
	30-35	13
	35-40	17
Education (nos.)	Primary (up to 5 th)	4
	High school (up to 10 th)	29
	Intermediate (up to 12 th)	8
	Graduation	9
Sex	Male	44
	Female	6
Caste	SC	14
	ST	-
	Others	36

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Table 1. Mushroom cultivation in the notable blocks.

Sr. No.	Block	*Small Grower	*Medium Grower	*Large Grower	Production (t/yr)
1	Pipili	390	156	21	3017.76
2	Satyabadi	269	74	8	1494.48
3	Nimapada	707	35	1	1839.12
4	Delanga	215	30	3	966
5	Puri Sadar	82	35	6	763.68

**Small growers: 0-20kg/day, medium growers: 21-50kg/day, large growers: >50kg/day.*

Table 2. Constraints in Mushroom Production.

Sr. No.	Constraint	Mean	S. D	Rank
1.	Inadequate infrastructure, such as availability of proper storage facilities, cooling units, and transportation, can hinder the timely and efficient distribution of mushroom	1.02	0.14	1
2.	Establishing robust market linkages can be challenging for small scale growers	1.02	0.14	1
3.	Lack of sufficient technical knowledge about advanced cultivation techniques, leading to suboptimal yields and quality	1.04	0.19	2
4.	Availability of training programs and educational resources for mushroom cultivation might be limited	1.04	0.19	2
	Small and marginal farmers may face financial constraints	1.08	0.27	3
5.	The extent of government support and awareness programs for mushroom cultivation	1.08	0.27	3
6.	Mushroom crops are susceptible to pests and diseases	1.10	0.30	4
7.	Availability and accessibility of high -quality mushroom spawn	1.16	0.37	5
8.	Mushroom cultivation is sensitive to climatic conditions	1.22	0.41	6
9.	Availability of suitable land for mushroom cultivation	1.34	0.47	7

RESULTS AND DISCUSSION

A temperate tropical climate prevails in the Puri district of Orissa. All year round, there is a lot of humidity, which is ideal for growing mushrooms. Scientists have vigorously promoted oyster mushrooms and paddy straw mushrooms (PSM) due to their nutritional value as well as their potential to generate revenue and jobs.

The study focused on five mushroom-dominated blocks: Satyabadi, Pipili, Puri Sadar, Delanga, and Nimapada, presenting detailed information on production levels and the involvement of farmers in mushroom cultivation in Table 1. A thorough evaluation of a mushroom cultivation enterprise was conducted, with a specific focus on the production of Paddy Straw

Mushrooms (450 Beds) and Oyster Mushrooms (200 Bags). Each unit, covering an average area of 1000 sq. ft, operates on a 21-day cycle for Paddy Straw Mushroom over 10 months and a 2-month cycle for Oyster Mushroom throughout the year. The estimated cost of production per unit is Rs. 2,22,000/-. Sales values for the produce are Rs. 120/kg for Paddy Straw Mushroom and Rs. 30/kg for Oyster Mushroom. The net economic gains per unit per year stand at Rs. 2,80,000/-. Beyond economic success, this enterprise has significantly contributed to employment generation, offering self-employment opportunities to 30 youths, with 2 manpower consistently engaged year-round. Additionally, 25 mushroom beneficiaries have availed the CM special package of Rs. 40,000/-,

further reinforcing support within the local community. The initiative garnered additional assistance through 1 Mushroom Spawn Unit and 1 Processing Unit under the MKUY Programme, demonstrating the potential for sustainable and profitable mushroom cultivation ventures in the region. Consequently, the observed correlation between knowledge and the adoption of mushroom production technology by the trainees is a noteworthy aspect of this initiative (Acharya *et al*, 2018).

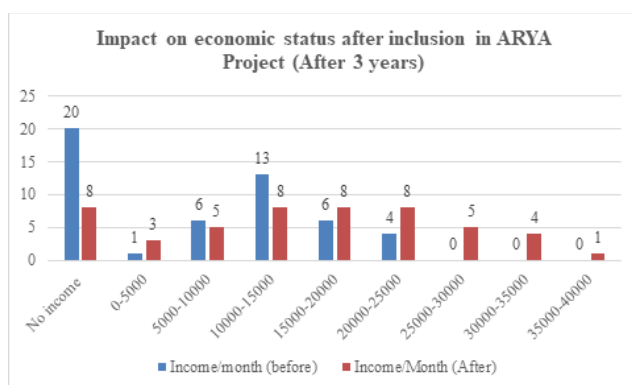
The constraints faced by mushroom growers in the Puri district may vary, but some common challenges. Efforts to address these constraints could involve targeted training programs, improved infrastructure, enhanced market linkages, and increased access to financial resources and government support for mushroom growers in the Puri district. It is evident from the Table 2 that Inadequate infrastructure, such as availability of proper storage facilities, cooling units, and transportation, can hinder the timely and efficient distribution of mushroom and establishing robust market linkages can be challenging for small scale growers ranked first as they are the prior constraints faced by the youths of ARYA. Followed by Availability of training programs and educational resources for mushroom cultivation might be limited and Lack of sufficient technical knowledge about advanced cultivation techniques, leading to suboptimal yields and quality stood second in the table. financial constraints and government support and awareness programs for mushroom cultivation ranked third. pests and diseases problem, Availability and accessibility of high-quality mushroom spawn and climatic conditions problem ranked fourth, fifth and sixth respectively. Youths faced least problem in Availability of suitable land for mushroom cultivation because they have sufficient land for mushroom cultivation.

The impact of the training on participants' income levels was evidently significant. Prior to the training, 30 out of 50 youths were earning income, ranging from Rs. 0 to Rs. 25,000, with an average income of Rs. 13,730/-. Following the training, income generation saw a notable improvement. Among the 50 participants, 12 individuals reported an increase in their income, resulting in a total of 42 youth engaged in income-generating activities. Moreover, the average income post-training rose to Rs. 18,542/-. This data reflects a substantial enhancement in income generation among the youths, with 84% of the participants now generating income compared to the initial 60%. The importance of proper training and guidance for trainees is underscored, emphasizing the role of mushroom production in providing additional income opportunities (Koodagi *et al*, 2021).

Table 3. Correlation between personal profile and constraints.

Personal profile	Constraint
Age	0.314*
Gender	0.027
Education	-0.279*
Caste	-0.377**
Family size	0.352*
Family type	0.352*
Annual income	0.282*

The coefficient of correlation between constraints and personal profile variables was presented in Table 3. Age, family size, family type, and annual income were positively correlated with the constraints. The constraints can be well managed by the youths which can not hinder their annual income. Education was negatively correlated with the constraints. Low-educated youths face more constraints as they were not aware of the technical knowledge, and educational resources and not actively involved in the training programs. Additionally, caste and constraints have a negative correlation. People from lower castes gain greatly from the government program for mushroom growing, and they do not encounter many difficulties with it. It demonstrates how researchers, policymakers, state departments, and line department of agriculture officials are getting to the ground level to assist farmers in enhancing their standard of living and becoming more self-reliant, which will reduce the problem of migration and help them become well-established agripreneurs.



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CONCLUSION

The institutional backing received from ARYA and NHM has proven to be a valuable asset in sustaining and expanding mushroom farming endeavours. Furthermore, there is an aspiration to establish a Mushroom Processing Unit with the support of the ARYA project. Thus, it is necessary to encourage successful agribusinesses by involving prospective rural youth, since this will stop migration and offer a low-investment, sustainable source of income and subsistence.

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