

RESEARCH ARTICLE

Impact of Mushroom Production and Post-Harvest Management on Promotion of Agri-Preneurship and Alternative Livelihoods of Rural Youths (Women) Under Arya Project of Sambalpur District

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ABSTRACT

The Attracting and Retaining Youth in Agriculture (ARYA) programme implemented by the Indian Council of Agricultural Research aims to promote entrepreneurship among rural youth through agri-based enterprises. Mushroom cultivation has emerged as a promising enterprise due to its low land requirement, high nutritional value, and income-generating potential. However, the adoption of mushroom enterprises among rural youth remains limited due to several technological, economic, marketing, and institutional constraints. The present study was conducted in the Sambalpur district of Odisha to identify and prioritize the constraints perceived by rural youth in adopting mushroom enterprises under the ARYA programme. A total of 120 rural youth beneficiaries were selected using purposive sampling from villages covered by the Krishi Vigyan Kendra. Primary data were collected through a structured interview schedule. The Garrett ranking technique was employed to analyze and prioritize the constraints. The results indicated that lack of organized marketing channels (Rank I), lack of technical knowledge on mushroom cultivation (Rank II), high initial investment for infrastructure (Rank III), limited availability of quality spawn (Rank IV), and lack of institutional credit facilities (Rank V) were the major constraints faced by rural youth. The findings highlight the need for improved technical training, market linkages, financial assistance, and extension support to strengthen youth-led mushroom enterprises. Strengthening these components will significantly contribute to sustainable agri-entrepreneurship and rural livelihood development in the region.

Key words: Adoption constraints, attracting and retaining youth in agriculture programme, Garrett ranking technique, mushroom enterprise, rural youth, Sambalpur district

INTRODUCTION

Agriculture remains the primary source of livelihood for a significant portion of the rural population in India. However, declining farm profitability, land fragmentation, and limited employment

opportunities have discouraged rural youth from pursuing agriculture as a profession. To address this issue, the Indian Council of Agricultural Research launched the Attracting and Retaining Youth in Agriculture (ARYA) programme to create sustainable agri-entrepreneurship opportunities for rural youth.

The ARYA programme aims to provide skill development, technology transfer, and financial support to rural youth so that they can establish

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viable agricultural enterprises. Various enterprises such as mushroom cultivation, beekeeping, seed production, integrated farming systems, and nursery management are promoted under this program.

Among these enterprises, mushroom cultivation has gained considerable attention due to its low land requirement, short production cycle, and high economic returns. Mushroom cultivation can provide additional income and employment opportunities for rural youth, particularly in regions with limited agricultural land.

Despite these advantages, the adoption of mushroom enterprises among rural youth remains relatively low. Several constraints related to production technology, market access, financial resources, and institutional support affect the successful establishment of mushroom enterprises.

Studies on agricultural innovation adoption indicate that farmers often face multiple barriers, such as a lack of technical knowledge, limited credit access, and inadequate marketing infrastructure, which significantly hinder the adoption of new agricultural enterprises.

Similarly, research analyzing agricultural adoption constraints using Garrett's ranking technique has identified factors such as lack of credit facilities, price fluctuations, and labor shortage as major barriers affecting agricultural enterprises.

The Garrett ranking method is widely used in agricultural extension research to convert respondents' ranks into quantitative scores, enabling researchers to prioritize the most critical constraints affecting adoption behavior.

In the context of youth entrepreneurship in agriculture, understanding the constraints perceived by rural youth is essential for designing effective policy interventions and extension programs. Identifying these constraints will help improve the implementation of ARYA interventions and enhance the sustainability of mushroom enterprises.

Therefore, the present study was undertaken with the following objectives:

1. To identify the constraints perceived by rural youth in adopting mushroom enterprises under the ARYA programme.
2. To prioritize these constraints using Garrett's ranking technique.
3. To suggest policy and extension strategies for improving the adoption of mushroom enterprises.

MATERIALS AND METHODS

Study Area

The study was conducted in the Sambalpur district of Odisha, which is located in the western region of the state. Agriculture is the primary livelihood of the rural population in the district. The Krishi Vigyan Kendra (KVK), Sambalpur, plays a key role in implementing the ARYA programme and promoting youth-based agricultural enterprises such as mushroom cultivation.

The district has favorable climatic conditions for mushroom cultivation, particularly oyster mushrooms and button mushrooms, making it a suitable enterprise for rural youth.

Sampling Procedure

A multistage sampling technique was used for the study.

1. Sambalpur district was selected purposively due to the implementation of the ARYA programme
2. Four blocks with active ARYA interventions were selected
3. From each block, villages with mushroom enterprises were selected
4. A total of 120 rural youth beneficiaries involved in mushroom enterprises were selected as respondents.

Data Collection

Primary data were collected using a structured and pre-tested interview schedule. The respondents were asked to rank the constraints they faced in adopting mushroom enterprises.

The constraints were categorized into five groups:

- Technological constraints
- Economic constraints
- Marketing constraints
- Institutional constraints
- Sociopsychological constraints.

Garrett Ranking Technique

To prioritize the constraints perceived by respondents, the Garrett ranking technique was employed.

The formula used for calculating the percent position is:

$$\text{Percent Position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

Where:

- R_{ij} = Rank given for the i^{th} factor by the j^{th} respondent
- N_j = Number of factors ranked by the j^{th} respondent.

The obtained percent positions were converted into Garrett scores using the Garrett conversion table. The mean scores were then calculated and ranked accordingly.

The constraint with the highest mean Garrett score was considered the most severe constraint.

RESULTS AND DISCUSSION

Technological Constraints

Technological constraints significantly influenced the adoption of mushroom enterprises among rural youth. The study revealed that a lack of technical knowledge regarding mushroom cultivation practices was one of the most serious constraints faced by respondents. Mushroom cultivation requires specialized knowledge related to spawn preparation, substrate sterilization, humidity management, and disease control. Many rural youth lacked adequate technical training and hands-on experience in these practices. Another major technological constraint identified was the limited availability of quality spawn and inputs. Availability of certified spawn is essential for successful mushroom cultivation. In many cases, rural youth had to depend on distant suppliers, which increased costs and reduced production efficiency. These findings are consistent with studies showing that a lack of technical knowledge and training is one of the primary barriers to the adoption of agricultural technologies.

Economic Constraints

Economic constraints were another important barrier affecting mushroom enterprise adoption. The Garrett ranking analysis indicated that the

high initial investment required for constructing mushroom houses and purchasing equipment was perceived as a major constraint.

Many rural youth lacked adequate financial resources to establish the required infrastructure. In addition, access to institutional credit was limited due to collateral requirements and complicated loan procedures.

Studies have shown that lack of credit facilities and high input costs are among the most significant barriers limiting the adoption of agricultural enterprises among farmers.

Marketing Constraints

Marketing constraints emerged as the most critical barrier affecting the sustainability of mushroom enterprises.

The Garrett ranking results indicated that the lack of organized marketing channels ranked first among all constraints. Most respondents depended on local markets where demand and prices were uncertain.

Mushrooms are highly perishable commodities and require proper storage, packaging, and transportation facilities. Lack of cold storage and transportation infrastructure increased post-harvest losses.

Research on agricultural marketing constraints has also highlighted that the absence of specialized markets and price instability significantly affects farmers' income and adoption behavior.

Institutional Constraints

Institutional constraints related to extension services and training programs also affected the adoption of mushroom enterprises.

Although training programs were conducted under the ARYA programme, many respondents reported limited follow-up support and technical guidance after the training programs.

Studies related to youth in agriculture have also indicated that farmers often expect continuous interaction with scientists and extension workers to solve field-level problems.

Sociopsychological Constraints

Sociopsychological factors such as risk perception and social attitudes also influenced adoption behavior.

Some rural youth perceived agriculture as a less profitable occupation compared to urban employment opportunities. Fear of enterprise failure and lack of family support also discouraged youth from adopting mushroom enterprises.

These findings highlight the importance of promoting successful role models and success stories of agri-entrepreneurs to motivate rural youth.

Garrett Ranking of Constraints

Rank	Constraint	Category
I	Lack of organized marketing channels	Marketing
II	Lack of technical knowledge in mushroom cultivation	Technological
III	High initial investment for infrastructure	Economic
IV	Limited availability of quality spawn	Technological
V	Lack of access to institutional credit	Economic
VI	Inadequate training and follow-up support	Institutional
VII	Lack of market information	Marketing
VIII	Fear of enterprise failure	Sociopsychological

CONCLUSION

The study revealed that rural youth involved in mushroom enterprises under the ARYA programme face multiple constraints related to marketing, technology, finance, and institutional support. Among these constraints, lack of organized marketing channels, inadequate technical knowledge, and high initial investment requirements were identified as the most critical barriers.

To enhance the adoption of mushroom enterprises, the following measures are recommended:

1. Strengthening capacity-building programs through regular hands-on training
2. Establishing spawn production units and input supply centers at the district level
3. Developing organized marketing channels and value chains for mushroom products

4. Providing youth-friendly credit schemes through banks and financial institutions
5. Strengthening extension services and continuous technical support from KVKs.

Addressing these constraints will significantly improve the sustainability of mushroom enterprises and encourage rural youth to actively participate in agriculture.

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