

Encouraging Women and Self-Help Groups to Adopt Mushroom Cultivation

*Rani Yadav¹, Dr. Medha Saha², Dr. Subuhi Nishad³, Dr. Kishan Kumar Sharma⁴ and Sunil Kumar Gupta⁵

¹B.Sc. (Hons.) Horticulture (3rd Year), Pt. K.L.S. College of Horticulture and Research Station, Rajnandgaon, Chhattisgarh, India

²Assistant Professor, Department of Floriculture and Landscape Aarchitecture NSS Programme Officer, Pt. K.L.S. CHRS, Rajnandgaon, Chhattisgarh, India

³NSS Coordinator, Indira Gandhi Krishi Vishwavidyalaya (IGKV), Raipur, Chhattisgarh, India

⁴Assistant Professor, Department of Plant Pathology, NSS Programme Officer, Pt. K.L.S. CHRS, Rajnandgaon, Chhattisgarh, India

⁵Ph.D. Scholar, Department of Post Harvest Management, Pt. K.L.S. College of Horticulture and Research Station, Rajnandgaon, Chhattisgarh, India

*Corresponding Author's email: yrani5258@gmail.com

Mushroom cultivation is a suitable livelihood diversification activity for rural women and Self-Help Groups (SHGs) because it can be undertaken on a small scale, requires comparatively limited land, converts agricultural residues into value-added food, and can generate income within a short production cycle. This paper presents an NSS-oriented extension framework for encouraging women and SHGs to adopt mushroom cultivation in rural communities of Rajnandgaon district, Chhattisgarh. The proposed intervention combines baseline assessment, awareness campaigns, practical demonstrations, hands-on training, low-cost production-unit establishment, spawn and substrate management, hygiene and crop protection education, record keeping, value addition, packaging, and market linkage. Particular emphasis is placed on reducing the knowledge and confidence barriers that commonly restrict first-time women entrepreneurs. The paper uses a participatory extension approach in which NSS volunteers act as facilitators between technical institutions, SHGs and village communities. The framework also proposes measurable indicators for knowledge gain, training participation, production adoption, enterprise continuity, product sales and household-level livelihood benefits. The approach is intended to strengthen women-led micro-enterprises while promoting circular use of crop residues and local food entrepreneurship.



Keywords: Mushroom cultivation, Women empowerment, Self-Help Groups, NSS, Rural livelihood, Entrepreneurship, Value addition

Introduction and Background

Rural livelihood systems in India are increasingly influenced by seasonal employment, small and fragmented landholdings, rising input costs and the need for additional income sources. Women contribute substantially to agricultural and household activities, yet their participation in income-generating enterprises is often constrained by limited access to

technical knowledge, finance, markets and business networks. Strengthening women-led enterprises therefore requires technologies that are practical, scalable and compatible with household responsibilities. Mushroom cultivation offers an opportunity for such livelihood diversification. Unlike many field crops, mushrooms can be produced in small spaces and do not necessarily require ownership of large agricultural land. Oyster mushroom production, in particular, can be introduced through locally available agricultural residues such as paddy straw after suitable treatment and hygienic preparation. The production cycle is comparatively short, allowing growers to learn, evaluate and reinvest over successive batches. Self-Help Groups provide an institutional platform for collective learning, savings, credit, procurement, production and marketing. When technical training is combined with group-based enterprise planning, SHGs can reduce individual risk and improve access to inputs and buyers. NSS volunteers can support this process through awareness generation, community mobilization, demonstration support, documentation and follow-up, while technical institutions provide scientific guidance. The present paper focuses on an NSS extension model for encouraging women and SHGs to adopt mushroom cultivation in Rajnandgaon district, Chhattisgarh. The emphasis is not only on production technology but also on confidence building, enterprise planning, food safety, value addition and market linkage.

Study Area, Research Methodology and Intervention Strategy

Study Location Profile: The intervention framework is designed for rural communities in Rajnandgaon district, Chhattisgarh, including villages associated with the NSS extension activities of Pt. Kishori Lal Shukla College of Horticulture and Research Station, Rajnandgaon. The area has a strong agricultural base and a cropping pattern that includes rice, wheat/chickpea, vegetables, fruits and ornamental crops. Such a production system can provide crop residues and a social base of farm households and women's groups suitable for livelihood diversification. **Research design:** A participatory action-research approach is proposed, combining baseline household/SHG assessment, Participatory Rural Appraisal (PRA), training needs assessment, practical demonstrations and follow-up evaluation. Because this paper is prepared as an NSS extension research framework rather than a report of completed experimental measurements, numerical adoption outcomes are not presented as observed results. The indicators below are designed for field measurement during



Figure: Distribution of Educational Pamphlets to Promote Mushroom Cultivation

Research Component	Proposed Approach	Key Output
Baseline assessment	Survey women and SHGs regarding livelihood activities, skills, space, inputs, finance and market access.	Enterprise-readiness profile
PRA and group discussion	Resource mapping, problem identification and identification of interested women/SHGs.	Community-specific intervention plan

Research Component	Proposed Approach	Key Output
Technical training	Hands-on training on substrate preparation, spawning, bag filling, incubation, harvesting and hygiene.	Practical competency
Demonstration unit	Establish a small low-cost mushroom production unit with an SHG.	Local proof-of-concept
Enterprise development	Costing, record keeping, packaging, branding, value addition and marketing.	Business plan
Follow-up evaluation	Periodic visits and simple adoption/production/marketing records.	Evidence of continuity and impact

NSS Intervention Framework

The NSS extension programme can be executed through structured phases so that awareness is followed by practical skill development and then by enterprise support. The sequence is important because one-time awareness programmes rarely result in sustained adoption of a technical livelihood activity.

1. Baseline Survey & PRA Mapping: Identify women, SHGs, available production space, locally available crop residues, water availability, existing skills, financial capacity and potential market outlets.
2. Awareness and Motivation Campaigns: Conduct door-to-door interactions, SHG meetings, posters, short talks, demonstrations and local awareness events explaining the nutritional and livelihood potential of mushrooms.
3. Hands-on Technical Training: Demonstrate substrate preparation, pasteurization/cleaning procedures, spawn handling, bag preparation, incubation, fruiting management, harvesting and sanitation.
4. Model Unit and Learning-by-Doing: Establish a small demonstration unit so that SHG members can observe each production stage and maintain simple records.
5. Enterprise and Marketing Support: Train members in cost calculation, pricing, grading, packaging, local retail, direct household sales, institutional buyers and value-added products where technically appropriate.
6. Follow-up and Mentoring: NSS volunteers maintain contact with trained groups, document constraints and connect them with horticulture/agriculture experts, KVKs, extension agencies and relevant livelihood programmes.

Table 1: Suggested NSS-SHG Mushroom Enterprise Action Plan

Stage	Major Activities	Responsible/Supporting Stakeholders
Mobilization	Identify interested women and SHGs; orientation meeting.	NSS volunteers, SHG leaders, Gram Panchayat
Skill building	Practical mushroom cultivation training and hygiene education.	Horticulture experts, KVK/technical trainers, NSS
Demonstration	Low-cost unit and first production cycle.	SHG members with technical handholding
Enterprise planning	Input costing, records, pricing, packaging and sales plan.	SHG, extension staff, local market actors
Market linkage	Local retailers, households, weekly markets and institutional buyers.	SHG, NSS, local institutions
Evaluation	Production, sales, knowledge and continuation assessment.	NSS volunteers and technical institution

Results and Discussion

For a rigorous NSS research study, the results section should be generated from the actual baseline and follow-up records collected from participating women and SHGs. The following outcome framework specifies what should be measured and how the results can be interpreted without overstating unverified impacts.

Outcome Indicator	Measurement Method	Interpretation
Knowledge gain	Pre- and post-training questionnaire score.	Measures effectiveness of technical education.

Outcome Indicator	Measurement Method	Interpretation
Training participation	Attendance and practical-task completion.	Shows engagement and skill exposure.
Adoption	Number/percentage of trained members starting production.	Shows conversion from training to enterprise.
Production continuity	Number of production cycles completed.	Indicates whether adoption is sustained.
Enterprise performance	Input cost, quantity harvested, sales and gross margin records.	Assesses economic feasibility.
Women's participation	Role of women in production, finance, decision-making and marketing.	Assesses empowerment through enterprise.
Market access	Number of regular buyers and sales channels.	Measures commercial linkage.

Expected Community-Level Benefits

A well-supported mushroom enterprise can provide multiple benefits beyond direct production. Women can acquire a technical skill that is transferable across production cycles, while SHGs can develop collective procurement and marketing practices. Crop residues can be converted into a value-added food product rather than being treated only as waste. Local production may also improve access to fresh mushrooms for households and small food businesses. The NSS role is particularly valuable at the mobilization and follow-up stages. Volunteers can help identify interested members, coordinate training schedules, support documentation and encourage participation. Technical decisions regarding species, spawn quality, substrate treatment, environmental requirements and food safety should remain under the guidance of qualified horticulture/agriculture or mushroom-production specialists.

Women and SHG-Centred Enterprise Model

Enterprise Area	Recommended SHG Practice	Why It Matters
Input procurement	Bulk purchase of quality spawn and suitable substrate materials.	Can reduce individual procurement difficulties.
Production	Assign members to preparation, incubation, harvesting and sanitation tasks.	Creates clear responsibility and continuity.
Record keeping	Maintain batch-wise records of date, inputs, harvest and sales.	Supports cost and profitability assessment.
Quality & hygiene	Use clean working areas and follow recommended production practices.	Protects product quality and consumer confidence.
Marketing	Collective branding, packaging and coordinated local sales.	Improves market visibility and bargaining capacity.
Savings/reinvestment	Set aside part of enterprise earnings for the next cycle.	Supports continuity and reduces dependence on external finance.

Field Challenges Likely to be Encountered

1. Limited technical confidence: First-time growers may hesitate to start production without repeated demonstrations and troubleshooting support.
2. Quality spawn and input access: Irregular availability of reliable spawn can disrupt production cycles and reduce confidence.
3. Temperature and humidity management: Seasonal environmental conditions can influence production and require locally appropriate technical guidance.
4. Hygiene and contamination: Poor sanitation can lead to contamination and production loss, making practical training essential.
5. Time and household responsibilities: Women may have limited time for scheduled training; flexible sessions and SHG-based scheduling are therefore important.
6. Market and perishability: Fresh mushrooms have a limited shelf life, so production should be linked with local demand, rapid sales and suitable value-addition options.
7. Finance and enterprise risk: Even a small unit requires initial expenditure on spawn, substrate, bags, racks or other basic materials; group savings and appropriate institutional support can reduce the barrier.

Strategic Recommendations and Policy Action Plan

- Institutional linkage: Develop continuous partnerships among NSS units, KVKs, horticulture/agriculture departments, SHGs and Gram Panchayats for technical mentoring and enterprise support.
- Demonstration-led extension: Establish one or more model mushroom units in accessible village locations and use them as practical learning centres.
- Women-first training design: Schedule training at convenient times and use local language, visual aids and repeated hands-on practice.
- Quality-input support: Facilitate access to reliable spawn and suitable substrate materials through recognized technical sources.
- Enterprise and market support: Include costing, packaging, branding, local buyer identification and simple bookkeeping in every training programme.
- Digital and peer learning: Create SHG peer groups for sharing photographs, production records and troubleshooting questions under technical supervision.
- Monitoring and evaluation: Measure knowledge, adoption, production cycles, sales, enterprise continuity and women's decision-making participation rather than relying only on training attendance.
- Youth volunteerism: Use NSS volunteers as community mobilizers and documentation partners while ensuring that technical recommendations are provided by competent subject-matter experts.

Conclusion

Encouraging women and Self-Help Groups to adopt mushroom cultivation can strengthen rural livelihood diversification when technical training is combined with practical demonstration, enterprise planning and market linkage. The NSS framework provides an effective community platform for mobilization, awareness and follow-up because volunteers can connect educational institutions with village groups. However, sustainable adoption depends on access to quality spawn, appropriate production conditions, hygiene, finance, regular technical guidance and dependable markets. A women-centred, SHG-based approach can convert mushroom cultivation from a one-time training activity into a continuing micro-enterprise. Future NSS interventions should therefore focus on complete enterprise cycles—from awareness and production to record keeping, sales and reinvestment—and should document actual field data before claiming economic or social impact.

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