Where Mushrooms Take Root, Livelihoods Take Shape

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With growing interest in healthier diets, mushroom cultivation is gaining importance in India's horticulture sector and offers scope for further growth. Mushrooms are valued for their nutritional profile, being generally low in calories, fat, and carbohydrates while providing protein, dietary fibre, vitamins, and minerals. They can be cultivated with limited land and in rural, urban, and peri-urban settings.

From Waste Picking to Growing Opportunity

A modest space, a few mushroom cultivation bags, and a new skill can create pathways to diversified livelihood opportunities. Across India, mushroom cultivation is emerging as a viable livelihood option for farmers, women, and rural youth. For **Ruthu of Ippatam** village in Guntur district, **Andhra Pradesh**, the journey began with a search for an alternative source of livelihood. At the age of 20, she was working as a waste picker and aspired to establish an independent livelihood.



Training on 'Mushroom Production Techniques' for Waste Pickers

This opportunity emerged through a short-term training programme under the Skill Training for Rural Youth (STRY) initiative. Krishi Vigyan Kendra (KVK), Guntur, provided training in mushroom production, covering key stages such as composting, spawning, casing, pinning, cropping, and harvesting. The programme was conducted with support from the State Agricultural Management and Extension Training Institute (SAMETI), Andhra Pradesh, and the National Institute of Agricultural Extension Management (MANAGE), Hyderabad.

Spawning is the process of mixing mushroom spawn with compost.

Casing is the application of a layer of casing soil over the compost after spawn running to promote mushroom formation. The casing soil acts as a moisture reservoir, helping maintain moisture and providing suitable conditions for mushroom growth.

Pinning is the stage when tiny mushroom structures, known as pinheads, begin to appear on or near the casing surface.

In India, where many farmers operate small and marginal holdings with limited capital, mushroom cultivation offers a viable option as it uses **agricultural waste** as a growing medium and requires less land, water and financial investment than many conventional farming activities. It also offers potential as an agribusiness venture, addressing key concerns such as resource utilisation, employment generation, sustainability and nutritional security.

Applying the skills acquired during the training, Ruthu began cultivating milky mushrooms and established a regular supply to the local market. Her production reached approximately **8 kg per day**, generating a monthly income of around **₹35,000**. She has also learnt the importance of using clean paddy straw free from disease and good-quality spawn, while maintaining the right temperature and moisture levels during cultivation. Her learnings and experiences encouraged three to four other community members to take up mushroom cultivation on a small scale, with guidance and support from her.

Ruthu's experience illustrates how targeted skill development, when translated into practical application, can support livelihood diversification and local knowledge-sharing. What began as a short training programme became a foundation for income generation and encouraged others in the community to explore mushroom cultivation as a livelihood option.

<u>One Woman, Many Livelihoods: The Making of a Mushroom Village</u>

A livelihood initiative can create far-reaching change when individual enterprise inspires collective action. In Anantpur village, **Anita Devi's journey from mushroom cultivation to community leadership** illustrates how a locally rooted livelihood can create economic opportunities for rural women and strengthen community-based enterprise. For Anita, mushroom cultivation began with the aspiration to earn an independent income. Training at Dr. Rajendra Prasad Central Agricultural University and GB Pant University helped build her knowledge, while her engagement with Krishi Vigyan Kendra (KVK), Harnaut block, Nalanda district, Bihar, in 2010 provided direction for her entrepreneurial journey. Encouraged by KVK officials, she began cultivating oyster and milky white mushrooms, varieties suited to local conditions and suitable for cultivation using agricultural waste.



Anita Devi with Oyster Mushroom Bed

Her initiative gradually inspired other women in Anantpur village to explore mushroom cultivation. The practice spread to neighbouring villages, and in 2012, the State Agriculture Department declared Anantpur a **Mushroom Village**. Anita came to be known as the ***"Mushroom Mahila"*** **(The Mushroom Lady),** reflecting her growing role in promoting this livelihood within the community. As cultivation expanded, access to quality mushroom spawn emerged as an important requirement. With support from the National Horticulture Mission, Anita established a spawn production laboratory with a **subsidy of ₹15 lakh**, helping address a critical input requirement. She further strengthened collective enterprise by establishing **Madhopur Farmers Producers Company Limited**, which works with mushroom producers and sellers and helps connect women with government schemes and markets.

By 2023, more than **250 women from Jeevika Self-Help Groups** are associated with mushroom-based livelihood activities in Nalanda. Anantpur's recognition as the ***Mushroom Village of Bihar*** reflects the wider community adoption of an initiative that began with one woman's pursuit of economic independence. Anita Devi's journey demonstrates how skill development, institutional support, access to critical inputs, and collective enterprise can reinforce one another to expand livelihood opportunities.

When an Engineer Chose to Grow Mushrooms

Mushroom cultivation is increasingly creating livelihood opportunities beyond traditional farming, including for professionals seeking to establish land-efficient enterprises. **Anjanaben Gamit, a civil engineer from Tapi, Gujarat**, explored this opportunity after reading an article on oyster mushroom cultivation published by KVK Tapi in the *Agro-Sandesh*. Recognising the potential of mushroom cultivation without requiring extensive landholdings, she visited Krishi Vigyan Kendra (KVK), Tapi, and participated in a four-day training programme on *"Entrepreneurship Development through Mushroom Cultivation"*. With technical guidance from KVK scientists, she began cultivating oyster mushrooms in 2017, making use of the resources available to her.



Her initial cultivation unit was a modest **15 × 10 ft shed**, constructed using bamboo and green shade net. KVK supported her with mushroom spawn, polythene bags, and other inputs, along with follow-up technical guidance. Within **two and a half months**, her first crop yielded approximately **140 kg of mushrooms**, generating ₹28,000 against a production cost of ₹11,000. Encouraged by these results, she expanded her unit in 2019 by enlarging her mushroom house to 23 × 80 feet, investing an additional ₹1.72 lakh. Between April and December that year, she used **250 kg of spawn to produce 1,234 kg of mushrooms**. The harvest generated a gross income of **₹3.09 lakh** and a net profit of **₹2.20 lakh** after production costs.



Alongside expanding production, Anjanaben developed local market linkages to reach consumers. She packaged mushrooms in **100-200 gram packs** and supplied them through Anganwadi workers, retailers, and vegetable vendors in Vyara. Telephone-based bookings helped facilitate sales, while the district's organic market provided an additional channel for direct consumer sales. Anjanaben's experience illustrates how targeted training, institutional handholding, modest infrastructure, and locally adapted marketing strategies can support entrepreneurship in mushroom cultivation.

From 25 Bags to a Mushroom Enterprise

In Uttarakhand, a modest experiment in mushroom cultivation evolved into a diversified enterprise with growing economic and community impact. **Hiresha Verma, an IT professional from Charba village in Dehradun**, began cultivating oyster mushrooms in 2013 with just **25 bags in a servant quarter**. An initial investment of ₹2,000 generated returns of approximately ₹5,000, encouraging her to pursue mushroom cultivation as an entrepreneurial venture. She subsequently established "**Han Agrocare"**, a mushroom enterprise based in Dehradun.



Her entrepreneurial journey was strengthened by training at Krishi Vigyan Kendra (KVK), Dehradun, and the ICAR-Directorate of Mushroom Research (DMR), Solan, which helped her develop expertise in mushroom varieties and cultivation practices. She also got engaged with the Department of Mushroom, Dehradun, to access compost and spawn, and sought financial support through the National Horticulture Mission and National Horticulture Board. As a pilot initiative, she established three bamboo cultivation huts, each accommodating **500 mushroom bags**, laying the foundation for expansion.

Today, Han Agrocare has a production capacity of approximately **one tonne of mushrooms per day** and employs 15 people. Beyond commercial production, Hiresha has extended the benefits of her experience to others, training more than **2,000 women and farmers** in the hill regions.

Starting with a seasonal production of just 20 kg per day, she has built a successful enterprise with year-round production. Her unit has 10 AC rooms and a technology-equipped plant with a production capacity of 1,000 kg per day.

Her enterprise has also diversified into specialty mushrooms, including shiitake and Ganoderma, alongside value-added products such as pickles, cookies, nuggets, soup, protein powder, tea and papad. Her contribution extends beyond production and product diversification. By providing technical assistance to growers from Tehri, Pauri and Garhwal, she has helped other farmers explore mushroom cultivation as a livelihood option.

When the Hills Began to Grow Mushrooms

At a farmers' meeting in Uderkhani village, Bageshwar, **Madan Mohan** saw an opportunity to try something new. He showed interest in protected vegetable and mushroom cultivation, although he had no prior experience in either.



The opportunity emerged through ICAR-DMR Almora's work in the village under the Scheduled Caste Sub Plan (SCSP) during 2020–21. Although Madan Mohan was keen to pursue mushroom cultivation, limited financial resources constrained his ability to get started. Programme support helped bridge this gap. In 2022, a portable polyhouse was established on his farm, along with the provision of five quintals of pasteurised compost for mushroom cultivation. KVK Kafligair in the Bageshwar district of Uttarakhand provided training and continued technical guidance, enabling him to begin cultivating mushrooms with institutional support.

A **portable polyhouse** is a **low-cost, movable protected cultivation structure** developed for hill and smallholder farming conditions.

By following recommended cultivation practices and maintaining regular contact with KVK experts, Madan Mohan harvested one quintal of marketable button mushrooms. The 62.4-square-metre polyhouse also yielded **7.5 quintals** of vegetables, including tomato, capsicum, cabbage, cauliflower and French bean. Harvesting during the off-season offered an additional market advantage, as local retailers had limited supplies from Haldwani mandi. Together, mushroom and vegetable cultivation generated an income of **₹41,250,** nearly doubling his earlier farm income. His progress also encouraged fellow farmers to explore similar livelihood opportunities. His efforts were also recognized with a felicitation at the ICAR-DMR, Almora Kisan Mela.

These experiences demonstrate that mushroom cultivation can extend beyond an additional farm activity to become a pathway for livelihood diversification and entrepreneurship. When supported by appropriate training, technical guidance, and productive infrastructure, it can help farmers make better use of limited land and resources while creating opportunities for additional income.

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