

Integrated Farming for Economic Stability: Success of a Woman Farmer in Mushroom and Honey Production

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INTRODUCTION

Situation analysis/Problem statement: West Champaran district, located in the North West Alluvial Plain Zone, experiences a humid sub-tropical climate with significant temperature variations between summer and winter. Within this district, the Done area, lying in the Himalayan foothills and bordering Nepal, remains particularly underdeveloped. The population here is predominantly composed of Scheduled Tribes who are mostly marginal or landless farmers, heavily reliant on forest resources for their livelihood. Frequent natural calamities, especially floods, pose severe challenges to agriculture and allied activities. During the flood season, water stagnation can last up to four months, cutting off villages from the mainland and leading to acute economic and nutritional insecurity. Basic facilities such as electricity are scarce, further compounding the region's struggles. Given these circumstances, there is a pressing need for alternative livelihood options that are both resilient to climatic shocks and suitable for the socio-economic conditions of the area. Mushroom cultivation and apiculture emerge as viable solutions due to their low land requirement, potential for high returns, and adaptability to small-scale setups. However, entrepreneurship in the region is hampered by several constraints, including inadequate infrastructure, lack of funding, technical skill gaps, socio-cultural barriers, and limited access to organized markets. Specific to these ventures, mushroom cultivation faces issues like temperature fluctuations and pest attacks, while apiculture is challenged by honeybee colony health and environmental concerns. Despite these obstacles, Nirmala Devi have shown commendable initiative to opt for both the ventures. Initially lacking scientific knowledge and practical skills, she connected with the Krishi Vigyan Kendra (KVK) at Narkatiyaganj and participated in vocational training on mushroom cultivation and apiculture. With continued technical support and input assistance from KVK experts, she successfully established her own enterprise, which has since provided her with both economic stability and improved nutritional security.

Plan, Implement and Support/KVK

Intervention(s): The team at Krishi Vigyan Kendra (KVK), Narkatiyaganj conducted an assessment to identify knowledge gaps in the implementation of integrated farming approaches within agriculture and allied sectors in the region. During this process, they came into contact with Smt. Nirmala Devi, who was primarily engaged in small-scale farming. Eager to enhance her livelihood and contribute to her family's income, Nirmala expressed a keen interest in learning about apiculture and mushroom cultivation—two promising components of integrated farming systems. Recognizing her enthusiasm and potential, the KVK team encouraged her participation in a Rural Youth Training Programme on "Bee Keeping and Mushroom Production", which was specifically designed to equip aspiring farmers with practical skills and scientific knowledge. Through this program, Nirmala gained valuable insights into modern techniques of mushroom cultivation and beekeeping. To further strengthen her capabilities, she was provided with additional skill development training on scientific mushroom production, which included hands-on learning and exposure visits to successful enterprises, allowing her to see firsthand the operational models of thriving agro-based businesses. In her continued pursuit of knowledge, Nirmala also successfully completed a specialized training programme on Scientific Beekeeping, organized by the National Botanical Research Institute (NBRI), Lucknow, in collaboration with KVK Narkatiyaganj. Her dedication and proactive approach led to her selection under the Tribal Sub-Plan programme, through which she received honeybee boxes and other necessary inputs from the KVK team to initiate her apiculture venture. Nirmala's journey exemplifies the impact of targeted capacity-building interventions in empowering rural women and promoting sustainable livelihood opportunities through integrated farming practices.

Details of Practices followed by the farmer:

The farmer use to following practices in case of different enterprises

For mushroom production: Selection of mushroom type according to season, preparation of substrate for mushroom spawning, bag incubation, maintenance of bags, Harvesting and post-harvest handling.

For apiculture: Bee hive management, Site selection according to floral availability, Feeding management, Honey extraction, Seasonal management of boxes

Results/ Output: Through the adoption of improved agricultural practices and diversification of farm activities, the lady farmer has significantly enhanced his income and resource utilization. She is successfully doing Oyster mushroom cultivation and runs 4 cycle of oyster mushroom comprising 50 bags per cycle which fetches an impressive gross income of around ₹144,400 annually. In mushroom sector, the economic gain per unit area in terms of gross returns, net returns and BCR are recorded Rs 1,44,000, Rs 1,10,000 and 4.23 respectively. By maintaining 10 honeybee boxes, she is able to produce approximately 250 kg of honey annually, contributing to both pollination and additional income. By selling honey @500 per kg she gains a gross amount of 100000 annually. The economic gain per unit area in terms of gross returns, net returns and BCR are recorded Rs 1,25,000, Rs 80,000 and 2.78 respectively. This integrated approach not only ensures better economic stability for the family but also showcases the potential of combining traditional farming with allied activities for sustainable rural livelihoods.

Impact/ Outcome: (economical/ social/ etc.):

Nirmala Devi is a progressive and dynamic woman with a strong determination to bring about meaningful change for both her family and her community. Her unwavering zeal to improve her circumstances has driven her to explore innovative livelihood opportunities. Her husband, primarily engaged in agriculture, provides the agricultural foundation for their household, but it is through Nirmala's initiative in mushroom cultivation and apiculture that their family has experienced significant economic and social upliftment. Mushroom cultivation has proven to be a reliable and fast-yielding source of income, particularly beneficial for marginal and landless farmers. It has not only strengthened the family's livelihood but also significantly reduced their vulnerability to poverty. By

integrating mushroom farming and beekeeping, Nirmala has become a vital financial pillar of her household. Her work demonstrates how such low-input ventures can be sustainable and impactful in rural settings. Additionally, the environmental benefits of mushroom cultivation, such as the utilization of CO₂ in greenhouses to stimulate plant growth, highlight its broader ecological value. The spent mushroom waste is being used as manure and applied to crop fields. One of the notable outcomes of her success is the improvement in her family's standard of living. With the profits earned from selling mushrooms, Nirmala purchased a motorcycle, enabling her son to transport their produce to distant markets with ease. This investment not only increased

their market reach but also enhanced household mobility and access to services. The improved household conditions and overall well-being of her family stand as a testament to the transformative power of grassroots entrepreneurship. Nirmala's achievements have made her a source of inspiration in her locality. Her story has resonated with many women in the community, some of whom have followed in her footsteps and begun mushroom cultivation themselves. She has become a respected and well-known figure in nearby areas, symbolizing the potential of rural women to lead change and create a ripple effect of empowerment and development.

Economic Information

Enterprise	Gross Income (annual)	Net income	Cost-Benefit ratio	Economic Impact of technology/intervention (cost saving/ higher yield/etc.)
Mushroom	144000	110000	4.23	
Apiculture	125000	80000	2.78	Higher yield and improving their income, livelihood and nutritional security and set-forth example for other women farmers of the district.

Lesson learned and Future plans:

Before coming in contact with KVK Narkatiyaganj team, the lady mainly focuses on crop production and animal husbandry which was her sole source of income. But after gaining technical guidance from KVK, she learnt about mushroom production and bee keeping which could also fetch a higher return with small initial investment. After getting the vocational training she started doing both the enterprises and has become a successful entrepreneur. Most of her mushroom and honey are being purchased by nearby SSB battalion and retailers.

In near future she wants to expand her enterprise. Currently she prepares around 60 mushroom

bags at a time which she wants to expand up to 200 bags per cycle as the mushroom demand increases day by day. She also aims to scale up beekeeping with up to 50 honeybee boxes. She is exploring improved infrastructure and marketing strategies to support this growth. Her journey from a traditional farmer to an agri-entrepreneur has made her a source of inspiration in her locality. Several women, motivated by her success, have started mushroom cultivation themselves, fostering rural women empowerment and community development.

Supporting Images

		
Mushroom unit	Bike purchased by selling mushroom	Apiary unit