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Success stories from north-eastern India:

Empowering rural livelihoods through scientific pig rearing and mushroom cultivation

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The Farmer FIRST Programme (FFP), implemented in Central Agricultural University, Imphal, and ICAR Research Complex for NEH Region, Umiam, has significantly contributed to empowering rural livelihoods in north-eastern India through scientific interventions in pig rearing and mushroom cultivation. Through hands-on training, technical guidance, and input support, smallholder farmers and rural youth have adopted improved practices, transforming traditional piggery and mushroom production into profitable and sustainable enterprises. Integration of piggery, mushroom cultivation, fish farming, and vermicomposting demonstrates resource-efficient and diversified farming systems. These participatory, science-led, and locally adaptive interventions enhance income, food security, and employment, while fostering community-based knowledge sharing. The experiences underline the transformative potential of such initiatives to empower rural communities, build resilience, and promote sustainable livelihoods in smallholder farming landscapes of north-eastern India.

Keywords: Farmer FIRST Programme, Integrated farming, Rural livelihoods, Rural entrepreneurship, Smallholder farmers

LIVESTOCK-BASED and allied agricultural interventions are essential for improving income, nutrition, and resilience among smallholder farmers in north-eastern India. Recognizing this, the Farmer FIRST Programme (FFP) has promoted scientific pig rearing and mushroom cultivation through training, technical guidance, and input support. By bridging the gap between research and practice, the programme empowers farmers and rural youth to adopt improved husbandry and entrepreneurial practices. The experiences of Shri Songaning from Ukhrul district, Shri S Lawrance from Senapati district, Manipur and Shri Raymond B Marwein from Ri-Bhoi district of Meghalaya demonstrate how locally adaptive technologies, capacity building, and integrated farming systems can transform livelihoods, strengthen food security, and promote sustainable rural development.

Pig rearing

Livestock-based livelihood interventions play a pivotal role in enhancing income and nutritional security among small and marginal farmers in North Eastern India. Recognizing this, the Farmer FIRST Programme (FFP) implemented by Central Agricultural University (CAU), Imphal, has introduced scientific pig rearing practices to improve productivity and sustainability in rural communities. Through training, input support, and continuous technical backstopping, the programme has successfully transformed traditional piggery units into profitable and resilient enterprises. The following two success stories from Ukhrul and Senapati districts of Manipur, illustrate how knowledge empowerment and locally adaptive technologies can significantly uplift rural livelihoods and promote community-based dissemination of improved livestock management practices.

Shri Songaning's success in pig rearing from Shangshak village: Shri Songaning, a resident of Shangshak Khullen village, Ukhrul district, Manipur, is one of the progressive farmers benefitting from the Farmer FIRST Programme (FFP) implemented by Central Agricultural University (CAU), Imphal. Under the livestock-based livelihood intervention, he initially received four piglets. Although one piglet succumbed

early, he continued rearing the remaining three using locally available and low-cost feed resources such as kitchen waste, colocasia, banana stem, pumpkin, maize, and rice brew residue. He also invested around ₹3,000 annually in basic veterinary care and limited use of commercial feed.

Before the intervention, Shri Songaning had an interest in pig rearing but lacked adequate scientific knowledge and technical skills. The FFP bridged this gap by providing hands-on training, scientific guidance, and continuous technical support. Consequently, he adopted improved husbandry practices, maintained better hygiene and disease control, and enhanced pig health and productivity.

Through these improved practices, he achieved a net annual income of ₹56,500 from his piggery unit. He sells adult pigs at ₹16,000 each and piglets at ₹6,500 each. By incorporating local pig breeds to meet household consumption and market demand, he has strengthened food security and income stability. This case exemplifies the impact of technical support and resource optimization in transforming rural livelihoods through scientific pig farming under the FFP. It also demonstrates potential for replication in other remote areas with similar agro-ecological conditions.

Story of Shri S Lawrance, Maopungdong Village: Shri. S Lawrance, a progressive farmer from Maopungdong village, Senapati district, Manipur, is another successful beneficiary of the Farmer FIRST Programme (CAU, Imphal). Prior to the intervention, he had limited knowledge of scientific pig rearing practices. After attending training and capacity-building sessions under the project, he began implementing improved husbandry techniques. Under the FFP initiative, he received three piglets, two males and one female. One male pig was reared to maturity and sold for ₹15,000, while the female pig attained reproductive maturity within the first year and farrowed eight piglets. Despite losing two piglets at birth, a common case of pre-weaning mortality, the remaining six were successfully raised under improved management.

In the same year, he sold three piglets at ₹6,500 each, generating an income of ₹19,500, while retaining others to sustain his piggery. Showing community spirit, he also

donated one healthy female piglet to his elder brother, Shri S. Puijon, thus promoting horizontal dissemination of improved technologies within his village.

The success of farmers like Shri Songaning and Shri Lawrance highlights the tangible benefits of scientific interventions in livestock-based livelihood programmes. The Farmer FIRST Programme has played a crucial role in empowering rural households by building capacity, improving animal health and management practices, and fostering local innovation and knowledge sharing. These outcomes demonstrate the potential of science-led, farmer-participatory approaches to enhance income, food security, and resilience among smallholder farmers in north-eastern India.

Mushroom cultivation

Mushroom cultivation has emerged as an attractive avenue for self-employment among rural and educated youth in the north-eastern region. Owing to its low investment, minimal space requirement, and quick returns, it has become a popular enterprise in rural, suburban, and urban settings. Among the different species, oyster mushrooms are particularly preferred for their ease of cultivation, high yield potential, and nutritional value. However, the availability of quality spawn, a critical input for successful cultivation, continues to be a limiting factor.

To address this challenge, the ICAR Research Complex for NEH Region, Umiam, Meghalaya, under the Farmer FIRST Programme (FFP), has been promoting scientific training and low-cost technologies for spawn production and mushroom entrepreneurship. The success story of Shri Raymond B Marwein, an educated youth from Umsmu village, Ri-Bhoi district, exemplifies how knowledge empowerment, innovation, and scientific intervention can transform rural livelihoods and inspire youth toward agri-entrepreneurship.

Shri Raymond B Marwein, a postgraduate in Pharmacy (M. Pharm) with distinction, was an unemployed youth seeking livelihood opportunities when he first visited ICAR Research Complex for NEH Region, Umiam. During his visit, he was introduced to the scope of mushroom cultivation and the growing

Mushroom unit of Shri Raymond

demand for quality spawn in the region. Recognizing this opportunity, he decided to pursue mushroom entrepreneurship and enrolled in a seven-day intensive training programme on "Mushroom Spawn Production and Entrepreneurship Development" organized under the FFP.

The training covered both theoretical and practical aspects, tissue culture preparation, substrate development, production of mother and commercial spawn, and quality control. Special emphasis was given to low-cost methods developed by the institute to support small-scale entrepreneurs.

Establishing a low-cost spawn production unit: With the knowledge and skills acquired, Shri Raymond established a low-cost mushroom spawn production laboratory in his village. He converted two small rooms into functional workspaces with a 5×4 sq. ft. inoculation room and a 4×4 sq. ft. incubation room equipped with wooden racks. To minimize initial investment, he used conventional equipment, a pressure cooker for sterilization, an inoculation hood in place of a laminar airflow cabinet, and a well-maintained room for incubation instead of a BOD incubator.

Starting small, he prepared 500 ml of culture media in two flasks. Although half of the initial media was contaminated, his perseverance led to successful isolation of pure cultures from the samples provided by ICAR. From these, he produced 23 mother spawn packets (250 g each) with a success rate of 91.3%, and later expanded to 230 commercial spawn packets (500 g each) in his first production batch.

Sustaining and scaling the enterprise: At present, Shri Raymond produces around 500 packets of commercial spawn per week, with consistent demand from neighboring villages for 350–400 packets. He sells the spawn at ₹100/kg and also cultivates fresh mushrooms for use in tissue culture and as a source of mother spawn. His homestay business also benefits, as fresh mushrooms are served to guests, adding value to his integrated enterprise.

The initial investment of ₹90,000 covered basic infrastructure renovation and 120 mandays of labour. His current gross monthly income from spawn and fresh mushroom sales is approximately ₹40,000. His long-term goal is to upgrade his laboratory with advanced facilities and transform Umsmu village into a hub of mushroom production, creating local employment opportunities for rural youth.

Towards an integrated farming system

Building on his success, Shri Raymond has expanded his activities to establish a small-scale integrated farming system on his family land. The system includes piggery, fish culture in two ponds, vermicomposting using spent mushroom substrates, and vegetable cultivation. This holistic approach ensures resource recycling, environmental sustainability, and diversified income generation. His journey serves as an inspiration for other educated youth in Meghalaya to engage in scientific agriculture and allied sectors.

SUMMARY

The Farmer FIRST Programme (FFP), implemented by Central Agricultural University, Imphal, and ICAR Research Complex for NEH Region, Umiam, has significantly empowered rural livelihoods in north eastern India through scientific interventions in pig rearing and mushroom cultivation. Success stories of Shri Songaning from Ukhrul district and Shri S. Lawrance from Senapati district demonstrate how hands-on training, technical guidance, and input support transformed traditional piggery units into profitable, resilient enterprises, improving income, nutrition, and food security. Meanwhile, Shri Raymond B Marwein from Ri-Bhoi district established a low-cost mushroom spawn production unit after undergoing FFP training, generating regular income, employment opportunities, and promoting youth entrepreneurship. By integrating piggery, mushroom cultivation, fish farming, and vermicomposting, these interventions exemplify sustainable, resource-efficient farming systems. Collectively, these cases highlight the transformative impact of participatory, science-led, and locally adaptive technologies in enhancing livelihoods, promoting community-based knowledge dissemination, and inspiring rural youth toward agri-entrepreneurship and integrated farming practices across north eastern India.

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