GOOD PRACTICES 73: September 2025

From Forest to Market: A Community-Led Mahua Flower Microenterprise for Livelihood Security

In this good practice note, A. Poshadri, M. Sunil Kumar, G. Shiva Charan, D. Mohan Das, K. Rajashekar, and Y. Praveen Kumar present their work transforming the lives of marginalised Adivasi tribal women through sustainable Mahua flower processing.

CONTEXT

Adilabad district has the highest tribal population in Telangana. With 35.32% (250,461) of its residents being tribal, many are smallholder farmers or landless labourers dependent on rainfed agriculture. Low productivity, debt cycles, and migration plague these communities, while their rich Non-Timber Forest Produce (NTFP), particularly Mahua (*Madhuca indica*), remains undervalued. Mahua, revered as the "Tree of Life," is central to tribal culture and survival (Box 1).

Box 1: Mahua

Mahua (Madhuca indica), commonly known as Ippa or Irp locally, plays a crucial role in Telangana's dry forests. Its seasonal flowering from March to April is vital for tribal communities, providing nutrition, income, and cultural significance. Trees at higher altitudes bloom earlier due to warmth, while those in valleys bloom later. Mahua flowers have a higher nutritional value than rice, apples, bananas, mangoes, and raisins. Dried flowers contain 6.67% protein and 68% carbs; fresh flowers have 54.06% sugars, including 3.43% sucrose. Dried flowers are rich in calcium, iron, phosphorus, and potassium and contain bioactive compounds like carotenes. This profile makes Mahua a superfood supporting immunity and health.

The tribal women who collect and sell dried Mahua flowers through cooperatives, such as the Telangana Girijan Cooperative Corporation (TGCC), receive as little as Rs. 30/Kg. Studies indicate that Mahua has the potential to employ 1.63 lakh people annually, but the current trade benefits only 28,600, with intermediaries capturing the majority of the value. The challenge is shifting from low-value Mahua flower sales to premium nutritional products. While one tree yields Rs. 1,500–2,500 in raw flowers, tribal families often earn little through unfair barter due to limited processing skills and market access.

The ICAR-Krishi Vigyan Kendra (KVK) Adilabad addressed this challenge by training women's collectives to produce high-value Mahua laddus. This initiative aimed to diversify livelihoods through value addition, enhance nutrition security via Mahua's rich dietary profile, and strengthen women's SHGs as sustainable microenterprises, while promoting responsible NTFP utilisation to balance economic and environmental benefits.

This Good Practice Note is produced and published as part of a collaborative effort between CRISP and ICAR-ATARI, Hyderabad.

GOOD PRACTICES

Assessing the situation

The KVK Adilabad conducted a benchmark survey of over 500 farmers across various tribal villages during the 2018-19 fiscal year. Information was also gathered from local NGO workers, Integrated Tribal Development Agency (ITDA) officers, Forest officers, GCC officers, SERP (Society for Elimination of Rural Poverty) officers, and local doctors to identify constraints in producing value-added products from mahua flowers.

Our survey revealed that tribal women encounter numerous challenges in transforming mahua flowers into value-added products, primarily due to limited access to processing technologies, technical expertise, and adequate infrastructure within their communities. This forces them to sell dried flowers at minimal prices to the Girijan Cooperative Corporation (GCC). While these women possess traditional knowledge of preparing various mahua-based foods—such as Ippa kudumulu (steamed rice and mahua cakes), Ippa roti (unleavened bread made with wheat/jowar flour and mahua), ready-to-eat snacks (from Bengal gram flour and mahua), fried mahua flowers (Ippa vepudu), curries combining hibiscus leaves with mahua, sweetened jaggery treats (Ippa arisalu), ghee-toasted puffed corn with mahua powder (Ippa sattu pendi), fermented mahua alcohol (Ippa sara), and edible oil from mahua seeds—most of these products face low market demand—additionally, difficulties in scaling up production due to their perishable nature further limit their economic potential.

Traditional Mahua Flower-Based Foods

This Good Practice Note is produced and published as part of a collaborative effort between CRISP and ICAR-ATARI, Hyderabad.

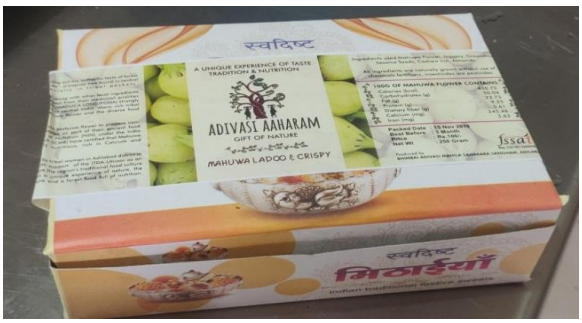
Capacity Development

On- and off-campus trainings, field visits, and 17 hands-on demonstrations were conducted across 28 tribal hamlets to promote mahua-based entrepreneurship. Participants learned hygienic harvesting techniques to preserve the freshness and nutritional value of the flowers. Sustainable collection during the February–May season provides climate-resilient livelihoods for tribal women, particularly when families face seasonal unemployment. The training programs specifically trained members of the Bheem Bai Adivasi Sahakara Sangam in preparing balanced, nutritious mahua laddus using locally grown seasonal crops such as groundnuts and sesame as primary ingredients. Additionally, participants received training in proper storage techniques to ensure year-round availability of mahua laddus in local markets with extended shelf life. The training covered drying methods, ingredient selection (including cashew nuts, almonds, groundnuts, sesame, jaggery, dried dates, and cardamom), preparation steps for Mahua-dry fruit-nut laddus, their nutritional benefits and allowances, hygienic production, sanitation, FSSAI compliance, labelling, packaging, shelf-life extension, microenterprise management, market linkages, and entrepreneurship development for sustainable business.

Empowering Tribal Women through Enterprise: Members of Bheem Bai Adivasi Sahakara Sangam

This Good Practice Note is produced and published as part of a collaborative effort between CRISP and ICAR-ATARI, Hyderabad.

Partnership and Infrastructure Development



The 'Adivasi Aharam' brand of Mahua laddus, packed and ready for market

The KVK partnered with a tribal farmers' society called Prajamithra Rythu Paraspara Sahayaka Sahakara Sangam (Utnoor, Adilabad) to establish the exclusive women's society "Bheem Bai Adivasi Sahakara Sangam" in 2019. This initiative initially involved 35 tribal women farmers in Mahua flower processing and value-added activities. KVK Adilabad provided a multipurpose micro-processing flour mill (worth Rs. 30,000) to the society under the Tribal Sub Plan (TSP) program during the year 2018-19. The District Collector and ITDA also supported the tribal women's society and released funds for the development of modern kitchens to ensure the seamless production of mahua laddus.

KVK Adilabad conducts hands-on skill training for tribal women on value-added Mahua products

CHALLENGES FACED DURING IMPLEMENTATION

Fresh mahua flowers are at risk of cross-contamination from soil and debris, compromising hygiene. To prevent this, using tarpaulin sheets under trees before flowering ensured clean collection. Tribal women initially faced challenges in sourcing high-quality ingredients, resulting in inconsistent mahua laddus. Connecting with a reliable vendor provided a steady supply of standard ingredients. Variations in jaggery syrup quality and ingredient ratios caused inconsistent texture and flavour. Standardised Brix-level guidelines ensured uniform quality. Scaling beyond 10kg batches caused inconsistent taste and texture; developing detailed SOPs solved this. Rancid odours from oxidation of low-quality oils were eliminated by switching to more stable oils, extending shelf life. Sourcing quality packaging materials locally proved to be difficult; however, partnerships with suppliers in Hyderabad improved presentation and preservation.

This Good Practice Note is produced and published as part of a collaborative effort between CRISP and ICAR-ATARI, Hyderabad.

Empowering Tribal Youth: Hands-on Training in Establishing Homestead Mahua-Based Beverage Enterprises

IMPACT AND SCALING

Building on the success of the Bheem Bai Adivasi Sahakara Sangam at Utnoor X Road, two women's Self-Help Groups (SHGs) sponsored by SERP in Adilabad, Telangana, were trained at the KVK, focusing on managing homestead microenterprises for Mahua laddu production, including processing, quality control, and adherence to food safety standards. The SHGs from Khairdatwa and Indravelly villages began producing Mahua-based Ladoos with 31.5% mahua flowers, costing Rs. 150 per kg to produce and selling for Rs. 400, resulting in a profit of Rs. 250 per kg. Though made by tribal women in remote areas, demand is increasing beyond their region. The laddus comply with FSSAI regulations, displaying nutritional info and daily allowance percentages. With support from SERP, they are establishing B2C marketing links through government and private channels to facilitate bulk orders, supplying wholesale to various markets, schools, and exhibitions. This high-margin enterprise boosts Mahua value addition, ensuring sustainability. The microenterprise generates Rs. 1.2–1.6 lakhs monthly, with each woman earning Rs. 15,000–20,000.

LESSONS LEARNED

1. Food processing, specifically converting Mahua flowers into products like laddus, can significantly boost tribal women's income and livelihood security.
2. Utilising Mahua's nutritional value and local crops enables diversification and value addition, opening new market opportunities.
3. Hygienic handling practices are essential for safe consumption and can be transferred to households.
4. Tribal families are actively planting and protecting Mahua trees for sustainable income and ecosystem health.
5. Women are building market linkages and developing negotiation skills, expanding beyond their communities.

This Good Practice Note is produced and published as part of a collaborative effort between CRISP and ICAR-ATARI, Hyderabad.

6. Multi-stakeholder partnerships facilitate training, quality compliance, and enterprise success.

These insights highlight the potential for scalable, sustainable benefits through targeted food processing, ecosystem management, and women's empowerment.

CONCLUSION

Supported by KVK, ITDA, and the District Administration, and ultimately embraced by consumers, this model promotes women-led entrepreneurship and sustainable utilisation of Non-Timber Forest Produce (NTFP). It also perfectly aligns with the theme of International Day of Forests 2025: "Forests and Food", while contributing to multiple Sustainable Development Goals such as SDG 1 (No Poverty), SDG 3 (Good Health and Well-being), SDG 5 (Gender Equality), and SDG 12 (Responsible Consumption and Production).

Acknowledgements: The authors thank Prof. Aldas Janaiah, Vice-Chancellor of Professor Jayashankar Telangana Agricultural University (PJTAU), Hyderabad, for his support and inspiration, and Dr. Shaik N Meera, Director of ICAR-ATARI-Zone-X Hyderabad, for facilitating tribal livelihood programs and farm productivity through TSP funding to KVK Adilabad.

Dr. A. Poshadri is an SMS (Food Technology) in KVK-Adilabad. He has 16+ years of experience in food systems and nutrition-sensitive agriculture. He can be contacted at poshadri_fst@yahoo.co.in

Dr. M. Sunil Kumar works at the Department of Horticulture, PJTAU, Hyderabad. His research interests include turmeric and Vegetable Crops. He can be contacted at sunil0529@gmail.com

Dr. G. Shivacharan serves as an Extension Scientist at the Krishi Vigyan Kendra (KVK), Adilabad. He focuses on popularising climate-resilient technologies to enhance sustainable food production. He can be contacted at shiv4one@gmail.com

Dr. Mohan Das works at PJTAU, Hyderabad. His key interests include dryland agriculture and seed-to-seed farm mechanisation. He can be contacted at mohandasdandu@gmail.com

Dr. K. Rajashekar is a Plant Protection Scientist at PJTAU, Hyderabad. He specialised in disseminating targeted pest control strategies via mass media and ICT tools. He can be contacted at kanjarla28@yahoo.co.in.

Dr. Y. Praveen Kumar works at the Department of Soil Science and Agriculture, PJTAU, Hyderabad. He is specialised in Climate-smart agriculture, Integrated Farming System and STCR-based fertilisation. He can be contacted at yadagiri.praveenrao@gmail.com