

REVIVING INDIGENOUS FOOD SYSTEMS: A STUDY OF MILLET CULTIVATION IN ATTAPPADY, KERALA

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ABSTRACT:

Objective: *The primary objective of this research is to examine the revival of millet cultivation in Attappady, a tribal-dominated region of Kerala, by analysing its ecological relevance, socio-economic significance, and contribution to food and nutrition security. The novelty of this paper lies in its interdisciplinary approach that situates millet revival within the broader frameworks of indigenous knowledge systems, climate resilience, food sovereignty, and state-led development interventions. Unlike earlier studies that treat millet cultivation largely as an agronomic or nutritional issue, this research conceptualises it as a socio-political process embedded in questions of marginalisation, governance, and inclusive development.*

Existing Knowledge and Research Gap: *Previous research has established that millets are climate-resilient crops with high nutritional value and that their decline in India resulted from policy neglect, market marginalisation, and the dominance of rice- and wheat-centric food systems. Studies on Attappady have documented persistent malnutrition, livelihood insecurity, and ecological vulnerability among tribal communities. However, limited scholarly attention has been given to understanding how millet revival initiatives interact with indigenous agricultural practices, institutional governance, and evolving market structures. This study addresses that gap by offering a region-specific and policy-oriented analysis.*

Rationale and Significance of the Study: *Recurring episodes of malnutrition and agrarian distress in Attappady demonstrate that food insecurity is not merely a problem of food availability but of access to culturally appropriate, nutritious, and sustainable food systems. Examining millet cultivation is therefore crucial for understanding climate adaptation strategies, tribal livelihoods, and nutrition-sensitive development policies in ecologically fragile regions.*

Parameters and Methodology *The study analyses ecological suitability, production constraints, labour dynamics, seed systems, market access, institutional interventions, and gender roles in millet cultivation. A qualitative methodology based on secondary data analysis is employed, drawing on academic literature, government policy documents, programme reports, and empirical studies.*

Outcomes: *The findings provide policy-relevant insights for strengthening millet-based livelihoods through community institutions, value addition, institutional procurement, and participatory research. The paper concludes that millet cultivation can function as a powerful instrument of food sovereignty, climate resilience, and inclusive development if supported by coordinated institutional mechanisms.*

KEYWORDS: *Millets; Attappady; Tribal Agriculture; Food and Nutrition Security; Climate-Resilient Farming; Indigenous Knowledge; Food Sovereignty*

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1. INTRODUCTION

Attappady, a tribal-dominated taluk located in the Palakkad district of Kerala, occupies a distinctive position in the agrarian, ecological, and developmental landscape of South India. Nestled along the Western Ghats, the region is characterised by undulating terrain, fragile ecosystems, erratic rainfall, and a high dependence on rainfed agriculture. The socio-economic fabric of Attappady is shaped by indigenous communities such as the Irulas, Mudugas, and Kurumbas, whose livelihoods have historically been rooted in subsistence farming, forest-based resources, and collective social institutions.

For generations, millet cultivation formed the cornerstone of food security, nutrition, and cultural identity in Attappady. Crops such as finger millet (ragi), little millet, foxtail millet, barnyard millet, and sorghum were cultivated using indigenous knowledge systems that prioritised mixed cropping, seed preservation, organic inputs, and minimal dependence on external markets. These farming systems were ecologically sustainable and socially embedded, ensuring dietary diversity, risk reduction, and resilience against climatic variability.

The post-independence period, however, marked a decisive shift in India's agricultural and food policies. The Green Revolution prioritised high-yielding varieties of rice and wheat, supported by irrigation, chemical inputs, and price incentives. Rainfed and tribal regions such as Attappady remained outside the ambit of these policies. Over time, subsidised rice distributed through the Public Distribution System replaced millets in household consumption, leading to the erosion of local food systems. This dietary transition weakened nutritional outcomes, reduced agrobiodiversity, and undermined the socio-cultural foundations of tribal agriculture.

In recent years, growing concerns over climate change, malnutrition, and the unsustainability of industrial agriculture have renewed interest in millets at national and global levels. Declared as "nutri-cereals" and promoted through initiatives such as the International Year of Millets, these crops have been repositioned as solutions to contemporary development challenges. In Attappady, state-led programmes such as the Millet Village Programme have sought to revive millet cultivation by integrating indigenous practices with institutional support. Despite these efforts, millet-based agriculture continues to face structural constraints related to production, markets, and governance. This paper critically examines these dynamics to assess the prospects and limitations of millet revival in Attappady.

2. REVIEW OF LITERATURE

The literature on millets broadly emphasises their ecological resilience, nutritional richness, and suitability for marginal environments. The Food and Agriculture Organization (FAO, 2023) identifies millets as key components of sustainable food systems due to their low water requirements, adaptability to climate stress, and contribution to dietary diversity. Scholars argue that millets are particularly relevant for addressing the dual challenges of climate change and malnutrition in developing countries.

Research on tribal agriculture in India highlights how indigenous food systems were gradually undermined by state policies, market integration, and cultural shifts. India Water Portal (2023) documents how the replacement of millets by subsidised rice altered dietary patterns and eroded food sovereignty in tribal regions, including Attappady. Studies also point to land alienation, forest restrictions, and the expansion of wage labour as factors contributing to the decline of traditional farming practices.

Recent scholarship has focused on millet revival initiatives in Kerala, particularly in Attappady. Herald Open Access (2022) reports positive outcomes of the Millet Village Programme in terms of food security, employment generation, and women's participation. Soumya (2025) emphasises the importance of indigenous knowledge in sustaining millet cultivation and calls for participatory approaches that integrate traditional practices with scientific research.

However, existing studies often treat millet revival as a technical or nutritional intervention, paying limited attention to broader political-economic dimensions such as market access, institutional coordination, and livelihood sustainability. There is a paucity of research that examines millet cultivation through the lenses of governance, gender, and food sovereignty. This study seeks to bridge these gaps by adopting an interdisciplinary and policy-oriented perspective.

3. OBJECTIVES OF THE PRESENT RESEARCH

The present study is guided by the following objectives:

- To analyse the ecological, cultural, and nutritional relevance of millet cultivation in Attappady
- To examine the historical and policy-driven factors contributing to the decline of millet-based food systems
- To assess recent state-led initiatives aimed at reviving millet cultivation among tribal communities
- To identify production, marketing, and institutional challenges faced by millet farmers
- To explore opportunities for sustaining millet-based livelihoods through value addition, institutional procurement, and participatory governance

4. RESEARCH METHODOLOGY

The study adopts a qualitative research design based on secondary data analysis. Data sources include peer-reviewed academic journals, government policy documents, programme implementation reports, and credible digital repositories related to agriculture, tribal development, and food security. Content analysis is used to synthesise findings across ecological, economic, and institutional dimensions.

This methodological approach is appropriate for capturing the complex interactions between indigenous knowledge systems, policy interventions, and market forces in a geographically and socially marginalised region. While the absence of primary field data is a limitation, triangulation of multiple secondary sources enhances the analytical depth and reliability of the findings.

5. RESULTS ANALYSIS AND INTERPRETATION

The analysis reveals that the revival of millet cultivation in Attappady has contributed positively to household food security and dietary diversity. Reintroducing millets into local diets has reduced dependence on nutritionally inferior staples and improved micronutrient intake, particularly among women and children. Millets have emerged as culturally acceptable and nutritionally superior alternatives that align with traditional food habits.

From a livelihood perspective, millet cultivation provides subsistence security and limited marketable surplus. Women play a central role in seed management, post-harvest processing, and food preparation. Women-led collectives, particularly those associated with Kudumbashree, have emerged as key actors

in processing millets into flour, ready-to-cook mixes, and value-added products. These initiatives have strengthened women's agency and contributed to supplementary household income.

However, production remains constrained by multiple factors. Agriculture in Attappady is highly dependent on monsoon rainfall, making it vulnerable to climatic variability. Erratic rainfall patterns, delayed monsoons, and prolonged dry spells disrupt sowing schedules and reduce yields. Although millets are more resilient than many other crops, extreme weather events increasingly undermine production stability.

Labour shortages constitute another major constraint. Traditional millet cultivation is labour-intensive, involving manual sowing, weeding, harvesting, and processing. Out-migration of younger generations in search of wage employment has intensified labour scarcity, while rising wage rates increase production costs. These factors collectively reduce the economic attractiveness of millet cultivation.

6. FINDINGS

The findings indicate that millet cultivation in Attappady is ecologically viable and culturally significant but economically fragile. While state-led initiatives have improved visibility and institutional support, the absence of assured procurement and stable markets undermines farmer confidence. Market access remains fragmented, with farmers often dependent on intermediaries and receiving a small share of final consumer prices.

Post-harvest processing and storage infrastructure remain inadequate, leading to losses and reduced value realisation. Institutional coordination among agriculture, tribal welfare, women's development, and food supply departments is weak, resulting in fragmented implementation. Delays in subsidy disbursement and procurement payments further discourage farmer participation.

Despite these challenges, significant opportunities exist. Growing urban demand for health foods, integration of millets into public nutrition programmes, and participatory research initiatives offer pathways for strengthening millet-based livelihoods. Linking millet revival with food sovereignty and rights-based development frameworks can enhance both economic and social outcomes.

7. LIMITATIONS OF THE PRESENT RESEARCH

The study relies exclusively on secondary data and does not include primary household-level surveys. As a result, micro-level income impacts, yield variations, and consumption changes could not be empirically measured. Future research incorporating fieldwork and quantitative analysis would provide deeper insights into the livelihood impacts of millet revival.

8. CONCLUSION

Millet cultivation in Attappady represents a convergence of indigenous knowledge, ecological sustainability, and development policy. While revival initiatives have generated positive outcomes in nutrition, livelihood diversification, and cultural renewal, sustaining these gains requires integrated interventions. Strengthening community institutions, ensuring secure land rights, improving value chains, and aligning agricultural policy with nutrition-sensitive and rights-based governance are essential. With sustained institutional support and ethical market integration, millets can function not merely as crops but as instruments of food sovereignty, climate resilience, and inclusive development in tribal regions such as Attappady.

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