Varietal preferences and marketing dynamics of samai (little millet) among farmers in Thiruvannamalai district, Tamil Nadu

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ABSTRACT

This paper presents an investigative study on the market chain and cultivation practices of small millets, specifically focusing on little millet (samai), in the Tiruvannamalai district of Tamil Nadu. The research aimed to understand farmers' varietal preferences, adoption rates of little millet and the marketing channels utilized. Data were collected from 120 farmers across four villages in the Jamunamarathur block through pre-tested interview schedule. The findings revealed that nearly half of the surveyed farmers possessed a medium level of awareness regarding millet cultivation technologies. Varietal preference analysis indicated that Chittan was the most favoured little millet variety, followed by ATL-2 and Sadai Samai, likely due to perceived advantages in local conditions and market demand. In terms of marketing, an overwhelming majority (91.67%) of farmers relied on wholesale traders, with village-level small traders playing a minimal role. The study underscored the presence of a complex and multi-layered market chain, involving numerous intermediaries, from farmers and village-level traders to wholesalers and processors in distant locations like Nashik.

Keywords: Millets; samai;, market chain; price spread; awareness; varietal preference; marketing channels

INTRODUCTION

Millets are familiar for their resilience, capability to survive under high temperatures and in degraded soils and least necessities of water, pesticides and fertilizers (Saleh et al 2013). Millets are small, round grains grown in warm climates worldwide, known for their nutritional richness and environmental sustainability. They are high in protein, fiber and essential minerals and are gluten-free. Additionally, millets offer a variety of antioxidants that help combat free radical damage in the body (Peshave and Jadhav 2024).

Samai (*Panicum miliare* Lamk) (syn *P sumatrense* Roth ex Roem and Schult) is widely cultivated as a cereal across India, Nepal, western Burma, Sri Lanka, Pakistan and southeast Asian countries. It is grown both in the tropics and sub-tropics and even at an altitude of 7,000 feet (Sundararaj and Thulasidas 1993). The crop is hardy and provides reasonable harvest even in degraded soils under unfavourable weather conditions. Nutritionally the grains are comparable or even superior to major cereals. The grain protein is rich in essential amino acids (Nirmalakumari et al 2006).

The major little millet growing states are Odisha, Gujarat, Maharashtra, Karnataka, Andhra Pradesh and Madhya Pradesh. In India, it was cultivated over an area of 2.34 lakh ha with total production of about 1.27 lakh tonnes and productivity of 544 kg per ha during 2015-16 (Prabhakar et al 2017). It is grown in Dharmapuri, Salem, Erode, Coimbatore, Madurai and Vellore districts of Tamil Nadu (Vasanthapriya and Asokhan 2019).

In Cittansamai, Peru, little millet is a staple, with Cittan samai being the most popular local variety. Farmers traditionally sow it in rainfed conditions during June-July. They've largely switched from the long duration Peru samai to the quicker-growing Cittan

samai. This change was driven by uncertain rainfall and the benefit of growing a second crop like horse gram or niger. Historically, these millet crops were organically grown, but now farmers are increasingly using chemical fertilizers due to a shortage of organic manure (Karthikeyan and Ramesh 2014).

Millets are true champions in tough environments. They thrive in dry, semi-arid regions with limited water because they're incredibly resistant to stress (like drought and pests). These grains deliver high yields even on poor soil with minimal maintenance, making them vital for food security where other crops struggle (Awika 2011).

Growing little millet often comes with a set of real struggles for farmers, as highlighted by Sinha and Kulkarni (2014). Imagine just scattering seeds – that's how it's often done. But this makes it incredibly hard to manage weeds or work between the plants. Many farmers also stick to mixed cropping mainly to survive, not necessarily to make a profit and they often grow these crops without manure or fertilizer. All this, combined with not using improved varieties or performing timely actions like proper tilling, sowing or weeding, sadly leads to reduced returns. It's not for lack of trying; socio-economic constraints often prevent farmers from adopting better management practices. What's more, for a long time, research into improving these crops and farming methods was largely neglected. Even today, there's no organized way to produce and supply seeds of improved varieties and no reliable market to sell any surplus at a fair price. It really boils down to a significant lack of essential support for these hardworking farmers.

Though a lot of research is done by All India Coordinated Research Project on Millet Improvement and State Agricultural Universities, still there is a need to intensify the area and production of millets.

Millets, one of the oldest staples in human history, faced reduced importance and cultivation due to the widespread shift towards growing rice and wheat driven by urbanization and industrialization (Banerjee et al 2024).

This paper sets out to understand what varieties of little millet farmers prefer, how widely they're adopting these varieties and the marketing channels they use to sell their millet products.

METHODOLOGY

The study was conducted in the Tiruvannamalai district of Tamil Nadu. Of its eighteen blocks, Jamunamarathur block was selected based on the maximum area under samai (little millet) cultivation. From this block, four villages (Koviloor, Nimmyampattu, Palamarathur and Pulliyur) were randomly chosen for the study. Thirty respondents were selected from each village using a proportionate random sampling method, resulting in a sample size of 120. The data were collected through a pre-tested interview schedule. Following collection, data were coded and tabulated. The adoption of cultivation practices and the constraints faced among the farmers were assessed. Finally, statistical tools were used to analyze the data.

RESULTS and DISCUSSION

Awareness level of farmers on millet cultivation technologies: Awareness level of farmers about millet cultivation technologies is shown in Table 1.

Table 1. Distribution of respondents according to their awareness level on millet cultivation technologies

Awareness level	Respondents (n = 120)	
	Number	Percentage
Low	28	23.33
Medium	57	47.50
High	35	29.17

Most farmers, nearly half of those surveyed, had a medium level of awareness (47.50%). Farmers with high awareness made up just over a quarter of the group (29.17%). The smallest group had low awareness, accounting for 23.33 per cent of the respondents. This suggests that while a significant portion of farmers were moderately informed, there was still a substantial segment with either limited or high awareness, indicating a varied landscape of knowledge regarding new millet farming techniques.

Varietal preference of farmers for samai varieties: Table 2 depicts the the varietal preference and adoption of samai varieties among the farmers.

Table 2. Distribution of respondents according to the varietal preference for samai for adoption

Variety	Respondents (n = 120)	
	Number	Percentage
Co4	62	51.67
ATL-1	67	55.83
ATL-2	78	65.00
Sadai Samai*	72	60.00
Vellai Samai*	68	56.67
Karu Chittan*	63	52.50
Thalaivirichan*	60	50.00
Chittan*	88	73.33

*Local varieties; Multiple responses

The data outline the varietal preferences of the 120 surveyed farmers for samai (little millet) adoption, indicating that farmers often preferred multiple varieties. Chittan stood out as the most popular choice, favoured by a significant 73.33 per cent of respondents. Following closely in preference were ATL-2 and Sadai Samai, selected by 65.00 and 60.00 per cent of the farmers respectively. Other traditional varieties like Vellai Samai, ATL-1, Karu Chittan and Co4 also garnered substantial interest, with preference rates ranging from 56.67 down to 51.67 per cent. The variety with the lowest reported preference for adoption among those listed was Thalaivirichan, chosen by exactly half (50.00%) of the respondents.

This distribution suggests a strong inclination towards certain varieties, particularly Chittan, for their cultivation, likely due to perceived advantages in local conditions or market demand. This preference may be due to uniform maturity, drought tolerance, good cooking quality and large seed size.

Millets have the advantage of superior adaptation to high temperatures and infertile soils with low water holding capacity. In specific villages around Tiruvannamalai and Vellore districts, where these constraints are important, millets can compete effectively as a food crop and as a fodder against other cereals that must be transported across long distances at considerable expense.

As a result of this project, opportunities for millet-based value-added products and production possibilities of millets in low fertile soils were found having more potentiality in these districts.

In a study in Haryana, Bhakar et al (2024) revealed that farmers possessed a moderate level of awareness about millet production, with a significant percentage of respondents being familiar with different types of millets, associated challenges and benefits of improved varieties.

Mani et al (2024) explored the awareness of millets among the farmers of the Marathwada region and revealed that great millet and pearl millet garnered high awareness, while little millet, proso millet and kodo millet exhibited lower awareness among the respondents. The study also showcased varying awareness of millet nutritional content, with 44.12 per cent having a medium overall awareness. Respondents suggested measures like training programmes, online resources and awareness campaigns to boost millet usage.

Malaiarasan et al (2022) investigated the determinants of millets production at the farm household level in India and revealed that the price of millets is the key factor affecting the choice of millets production and area expansion. Ensuring a higher price for millets may encourage the expansion of area under millets. As millets are considered less input-intensive crops and rich in nutrients, more area adoption under millets may help achieve the sustainable development goals of food security and efficient use of resources.

Marketing channels used by the small millet growers: Fig 1 details the distribution of 120 respondents according to the marketing channels they employed for selling millets. The data reveal a strong preference for, or reliance on, wholesale traders, with an overwhelming majority of 91.67 per cent utilizing this channel. In stark contrast, village-level small traders played a minimal role in the marketing process for these respondents, being used by only 8.33 per cent of them. This highlights a clear trend where the surveyed millet sellers predominantly opted for larger, presumably bulk, buyers over smaller, local trading options.

While assessing the market potential of millets, it was found that, millet had more market ability for bird feed and value-added millet products like biscuits and vermicelli. In Tiruvannamalai, higher productivity and lower marketing costs (associated with higher population densities and better market infrastructure) offered better prospects for expanding millet sales.

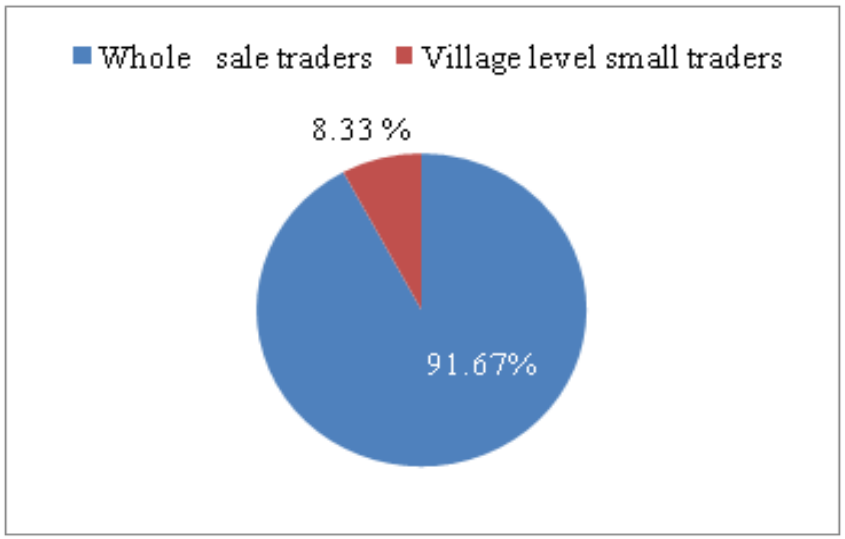

Fig 1. Marketing channel used by millet growers

However, it would still be difficult for millets to compete with other cereals grown on substantially more productive lands in these regions.

Marketing channels

Producer (farmer) – Whole sale traders – Processors at Nashik (processing units)

Producer (farmer) – Village level traders – Retailers at Madurai and other places (processing units)

Small traders at village level: Village-level small traders acted as the second link in the market chain, operating directly within or close to the villages where farmers resided. They often provided advances to farmers, which were typically adjusted on the same or next day, with the traders retaining a 3 per cent margin, equivalent to Rs 60 per 100 kg bag of produce. These traders dealt primarily in small quantities, handling no more than 15 to 20 quintals (1.5 to 2 tonnes) per day from their village or nearby areas, accumulating approximately 60 tonnes annually. Once a transportable quantity was pooled, they quickly moved the stock to the next level of market actors, usually bigger traders, within the same day. Additionally, they collected an extra 2 kg of grain from farmers as part of their procurement process.

In that situation, these small traders often operated with minimal personal investment, sometimes relying on trust-based agreements with farmers. They typically received advances and gunny bags from larger traders to facilitate their procurement activities. Their procurement price from farmers for little millet (samai) was Rs 1,900 per quintal.

Wholesalers: Wholesalers involved in procurement currently operated with their own shops and market yards (Mandies), complete with transport and storage facilities. They maintained direct links with processing mills in Theni district through brokers. These wholesalers reimbursed traders and farmers for the cost of gunny sacks, transport and loading/unloading charges. They charged a commission of 3 per cent from traders and 4 per cent from farmers. Their purchase price for barnyard millet from big traders was Rs 2,150 per quintal, incurring an additional expenditure of Rs 125. Furthermore, they paid brokers in Theni district Rs 5 per 100 kg bag for connecting them to millers. Their assumed daily trading volume ranged from 10 to 25 tonnes, with the total annual quantity handled by them varying from 5,000 to 15,000 tonnes.

Dhanabalan and Sundarajan (2014) conducted an investigative study in Tamil Nadu to understand the market chain of small millets in Tamil Nadu. They reported that the small millet market chain involved a progression from farmers who sold their unprocessed harvest, often due to a lack of storage, to village-level small processors (though their numbers were declining) and local traders. For some millets like barnyard, big traders acted as intermediaries, while wholesalers then handled larger volumes, storing and distributing the produce. Further along the chain, processors in Theni and Paramakudi, semi-processed millets before some were sent to specialized Bhagar mills in Nashik for full processing, sometimes facilitated by brokers in

Bangalore. Finally, wholesalers for processed grains in Nashik and Madurai distributed these products to retailers, who then sold directly to consumers. While once a staple for the poor, small millets were then seeing increased demand from health-conscious consumers, though price remained a barrier for wider accessibility. The authors also highlighted that a complex marketing chain and heavy price spread were key reasons why small millets had become costlier than rice and wheat and out of reach of the poor. The study identified ten major actors in the small millet market chain, suggesting that each intermediary likely added to the cost, contributing to the overall spread. The intensive processing required for small millets, often undertaken at distant locations like Nashik, also incurred significant costs that were passed on to the consumer. The study's aim to identify possible areas of intervention to reduce the consumer price and increase the on farm price realization by the farmers directly pointed to the issue of a substantial price spread where farmers received a disproportionately small share of the final consumer price. Furthermore, the absence of low-cost local processing technology for polishing small millets exacerbated the problem, necessitating transport to larger, more distant units and thereby adding to overall expenses. In essence, the price spread was significant and problematic, rendering nutritious small millets unaffordable for the population that traditionally relied on them, largely due to the lengthy, complex market chain and high processing costs.

CONCLUSION

This study meticulously uncovered the intricate layers of the little millet market chain in Tiruvannamalai district, revealing both the preferences of farmers and the challenges they faced in bringing their resilient crops to market. It became evident that while farmers were increasingly aware of millet cultivation technologies, a significant knowledge gap still existed for many. Varietal preferences were clearly pronounced, with certain types like Chittan being predominantly favoured, driven by their perceived suitability to local conditions and market desirability.

However, the journey of little millet from farm to plate was found to be far from straightforward. The reliance on wholesale traders, as opposed to direct or more localized channels, indicated a systemic challenge in market access for individual farmers. Crucially, the multi-tiered market chain, involving numerous actors from village-level traders to distant processors in Nashik, was identified as a primary driver of the substantial price spread. Each intermediary, along with the necessity for intensive and often remote processing, added to the final consumer cost. This ultimately positioned nutritious small millets as an expensive commodity, paradoxically placing them beyond the reach of the very communities that once relied on them. The study underscored a critical need for interventions aimed at streamlining this complex market structure, reducing the number of intermediaries and fostering localized, cost-effective processing technologies. Such measures would not only enhance the farmers' realization of on-farm prices but also crucially contribute to making these vital, climate-resilient grains more affordable and accessible to all consumers, thus supporting both food security and public health goals.

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