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From Poor Man's Food to Premium Superfood: The Rise and Resurgence of Millets

Asha Singh[1], Ranvijay Pratap Singh[2*], P.N. Tripathi[2] and R.K. Jaiswal[2]

[1]Madhya Pradesh State Seed Certification Agency, Panna, Madhya Pradesh (488 001), India
[2]JNKVV, Krishi Vigyan Kendra, Purushottampur, Panna, Madhya Pradesh (488 001), India

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Corresponding Author

Ranvijay Pratap Singh

: ranvijayparihar01@gmail.com

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Abstract

Millets, once regarded in many communities as the "poor man's food," are experiencing renewed recognition as nutritious, climate-resilient and commercially promising grains. Their decline was closely associated with the expansion of rice- and wheat-centred agricultural systems during the Green Revolution, changing consumer preferences and limited processing infrastructure. Their present resurgence is being driven by growing interest in nutritional security, diversified diets, climate-resilient agriculture and value-added foods. This article briefly reviews the historical transition of millets, their nutritional attributes, role in resilient agriculture, emerging markets and future prospects. Recent evidence also demonstrates that millet nutrition varies among species and genotypes and that agronomic performance depends strongly on crop and nutrient management. The resurgence of millets should therefore be viewed not simply as a "superfood" trend but as an opportunity to integrate traditional crops with contemporary nutrition, agricultural science, processing technology and inclusive value chains.

Keywords: Climate-resilient agriculture, Millets, Nutritional security, Superfoods, Sustainable food systems

Introduction

For centuries, millets formed an important component of food and farming systems across Asia and Africa, particularly in dryland and rainfed environments. In India, finger millet, pearl millet, sorghum, kodo millet, little millet and foxtail millet were embedded in traditional diets and farming cultures. Their ability to produce food under relatively difficult growing conditions made them particularly important to rural communities.

This position changed substantially after the Green Revolution of the 1960s. Agricultural policies appropriately prioritized food security through increased rice and wheat production, supported by improved varieties, irrigation, fertilizer subsidies, procurement and public distribution systems. These interventions, however, reduced the relative importance of millets in both production and consumption. Rice and wheat increasingly became associated with economic advancement, while millets acquired the social image of "poor man's food." Urbanization and the availability of convenient refined cereal products further accelerated this transition.

The decline was considerable. Mohanan *et al.* (2025) reported that global millet cultivation area decreased by approximately 25.7% between 1961 and 2018, although global productivity increased by about 36%, indicating simultaneous technological improvement in millet production.

Today, this narrative is changing. The designation of 2023 as the *International Year of Millets* brought international attention to their nutritional, environmental and economic potential (FAO, 2023). The modern millet movement therefore represents not merely a change in consumer preference but a reassessment of the value of traditional crops in contemporary food systems.

The Evolution of Millets: From Staple to Superfood

The transformation of millets can be understood as a

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sequence of agricultural, social and technological changes. Figure 1 summarizes this transition from traditional staple crops through their decline during the *Green Revolution* to their present repositioning as nutritious and value-added foods.

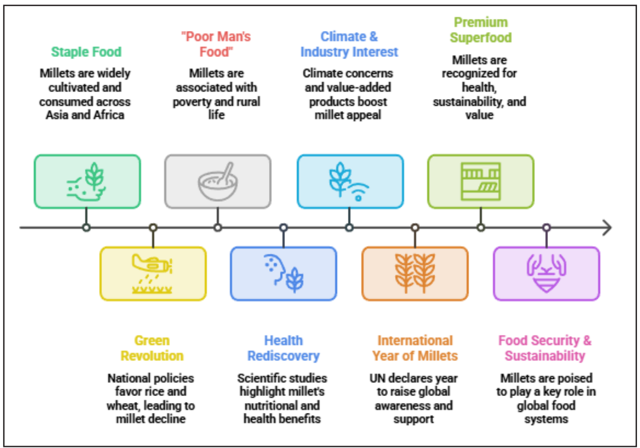

Figure 1: The evolution of millets: From staple to super food

The current resurgence is supported by growing evidence that millets are nutritionally diverse rather than a uniform group. Krishnan (2024) emphasized substantial variation among millet species and genotypes: some finger millet varieties are particularly rich in calcium and iron, pearl millet is notable for protein and essential amino acids, while foxtail millet can provide substantial dietary fibre and B vitamins.

Nutritional Value: Small Grains with Big Potential

The nutritional characteristics of millets are a major driver of their renewed popularity. They provide carbohydrates, dietary fibre, proteins, minerals, vitamins and bioactive compounds, although their composition varies according to species, genotype, growing environment and processing.

Millets are important sources of minerals such as calcium, iron, magnesium, phosphorus and zinc, and several species contain appreciable quantities of B-complex vitamins. Their dietary fibre content and bioactive compounds have also contributed to their reputation as nutrient-rich grains. The systematic review and meta-analysis of Anitha *et al.* (2021) specifically examined evidence concerning millet consumption, iron status, haemoglobin and iron-deficiency anaemia.

Millets are also naturally gluten-free and can provide useful cereal alternatives for people requiring gluten avoidance. Their fibre content may contribute to digestive health and satiety, while phenolic compounds and other antioxidants have attracted interest because of their potential biological effects (Saleh *et al.*, 2013).

The potential metabolic benefits of millets should nevertheless be expressed cautiously. Their glycaemic response can vary according to species, milling, cooking, processing and food formulation. Krishnan (2024) noted the evidence concerning glycaemic control and metabolic health but also emphasizes the need for further research before making broad therapeutic claims.

Thus, the strongest nutritional argument for millets is that they can contribute to diverse and nutrient-rich diets, rather than that they constitute a universal treatment for lifestyle diseases.

Processing and Value Addition

The transformation of millets into modern foods has been critical to their renewed acceptance. Traditional millet preparation can involve considerable processing effort, whereas modern technologies can improve convenience, sensory quality and product diversity.

Mohanan *et al.* (2025) described dehulling, soaking, germination, roasting, drying, milling, fermentation, parboiling, malting, extrusion, baking, puffing, popping and flaking as important processing approaches. These operations can modify flavour, texture, cooking characteristics and nutrient availability.

Contemporary millet products now include breakfast cereals, noodles, pasta, biscuits, bakery products, energy bars, ready-to-cook mixes and beverages. Krishnan (2024) further emphasized the importance of sensory quality and consumer acceptance in the mainstream adoption of millet foods.

Consequently, the future market for millets will depend not only on their nutritional composition but also on their taste, convenience, affordability, shelf life and cultural acceptability.

Millets and Climate-Resilient Agriculture

Millets have attracted renewed agricultural interest because many species are adapted to rainfed environments and can tolerate drought, high temperatures and relatively poor soils. Their comparatively short growth duration can provide flexibility in cropping systems and may help farmers manage climatic risks.

Mohanan *et al.* (2025) described millets as crops with potential relevance to food security, climate resilience and sustainable agriculture, while the original manuscript highlights their suitability for challenging production environments.

However, resilience should not be equated with minimal nutrient requirements under all conditions. Appropriate agronomic management remains important for achieving profitable yields.

A useful example is provided by Surya *et al.* (2022). In a randomized block experiment conducted during summer 2021-22 at Tamil Nadu Agricultural University, Coimbatore, eight nutrient treatments were evaluated under irrigated conditions. The treatment comprising recommended fertilizer dose plus 33 kg K ha^{-1} and foliar application of 1% $FeSO_4$ and 0.5% $ZnSO_4$ produced the highest grain yield (2,028 kg ha^{-1}), straw yield (6,822 kg ha^{-1}), net return (Rs. 52,559 ha^{-1}) and benefit:cost ratio (2.43).

These results demonstrate the importance of balanced nutrient management for improving millet productivity. They should, however, be interpreted as evidence from a specific irrigated experiment rather than as a universal fertilizer recommendation.

The production and trade statistics in table 1 demonstrate that the millet revival is increasingly connected with international markets. Mohanan *et al.* (2025) reported that global millet production reached 90.5 million tonnes in 2023, with India contributing 19%, followed by Nigeria (10%) and the United States (9%) (Figure 2). Global millet exports increased from US$ 220 million in 2022 to US$258 million in 2023, with India leading exporters at US$41 million, followed by Uzbekistan at US$40.5 million and the United States at US$33.8 million.

Table 1: Selected facts and figures illustrating the contemporary millet resurgence

Indicator	Reported value	References
Change in global millet cultivation area, 1961-2018	−25.7%	Mohanan *et al.* (2025)
Change in global millet productivity, 1961-2018	+36%	Mohanan *et al.* (2025)
Global millet production, 2023	90.5 Mt	Mohanan *et al.* (2025)
India's share of global production, 2023	19%	Mohanan *et al.* (2025)
Nigeria's share	10%	Mohanan *et al.* (2025)
United States' share	9%	Mohanan *et al.* (2025)
Global millet exports, 2022	US$ 220 million	Mohanan *et al.* (2025)
Global millet exports, 2023	US$ 258 million	Mohanan *et al.* (2025)
India's millet exports, 2023	US$ 41 million	Mohanan *et al.* (2025)
Kodo millet grain yield under the best treatment	2,028 kg ha^{-1}	Surya *et al.* (2022)
Kodo millet straw yield	6,822 kg ha^{-1}	Surya *et al.* (2022)
Net return	Rs. 52,559 ha^{-1}	Surya *et al.* (2022)
Benefit:cost ratio	2.43	Surya *et al.* (2022)

From Village Farms to Global Markets

The economic resurgence of millets extends beyond grain production. Growing consumer interest in healthy and functional foods has encouraged entrepreneurs and food processors to develop products with greater convenience and market value.

The *International Year of Millets* in 2023 further stimulated government, research and private-sector initiatives. In India, millet promotion has increasingly involved food processing, start-ups, nutrition programmes and international trade.

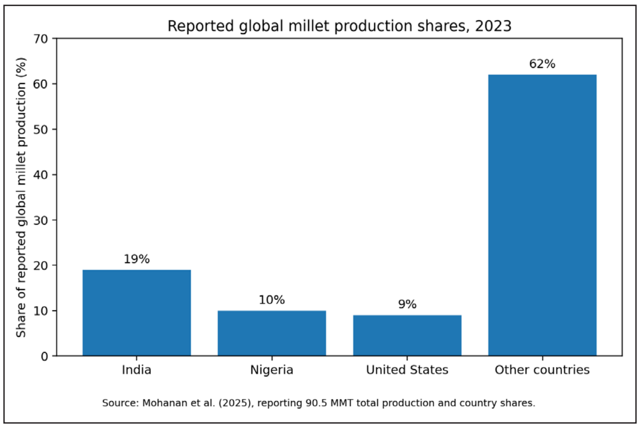

Figure 2: Reported shares of global millet production in 2023 (Source: Mohanan *et al.*, 2025)

This commercialization creates opportunities for farmers, processors, retailers and exporters, but higher retail prices alone should not be regarded as evidence of improved farmer welfare. A sustainable millet economy requires efficient value chains, remunerative producer prices, affordable consumer products and investment in local processing.

Future Prospects

The next phase of millet development should combine genetic improvement, agronomic innovation, processing technology, consumer education and market development.

Breeding programmes should target high and stable yields, climate resilience, nutritional quality and consumer-preferred characteristics. Krishnan (2024) particularly highlighted the importance of recognizing nutritional variation among genotypes and selecting nutrient-dense varieties for food and nutritional security.

Agronomic research should similarly emphasize site-specific nutrient management, soil health and efficient water use. The findings of Surya *et al.* (2022) illustrated how potassium and micronutrient management can improve kodo millet productivity and economic returns under particular irrigated conditions.

Processing innovation will remain essential for mainstream adoption. Convenient ready-to-cook foods, bakery products, snacks, beverages and other value-added products can bridge the gap between traditional grains and contemporary lifestyles. At the same time, health claims should remain evidence-based and should distinguish nutritional composition from clinically demonstrated therapeutic effects.

Most importantly, the revival should not turn millets into expensive niche foods accessible only to affluent consumers. Their long-term contribution to food security will be greatest when they remain nutritious, affordable and accessible, while farmers receive stable and remunerative returns.

Conclusion

The journey of millets from traditional staples to premium foods reflects a major transformation in agricultural and consumer priorities. Their decline was associated with the expansion of rice- and wheat-centred food systems, while their present revival is being driven by interest in nutrition, climate resilience, food diversification and value addition.

The evidence indicates that millets possess substantial nutritional and agronomic potential, but their benefits should not be overstated. Nutritional composition varies among species and genotypes; health effects depend on dietary context and processing; and crop performance depends on appropriate agronomic management. The evidence of Surya *et al.* (2022), for example, demonstrates significant yield and economic responses to nutrient management in kodo millet under irrigated conditions, while Krishnan (2024) emphasized varietal nutritional diversity and the importance of consumer acceptance. Mohanan *et al.* (2025) provided broader evidence of the historical, nutritional, agricultural and commercial resurgence of millets.

The true measure of the millet revival should therefore not be the price of a premium product alone. Its success should be judged by whether these traditional grains can contribute simultaneously to better nutrition, resilient agriculture, viable farmer livelihoods, sustainable food systems and affordable food choices. In that sense, the movement from "poor man's food" to "premium superfood" is ultimately a movement toward recognizing the contemporary value of an ancient crop resource.

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