Research Note
DoI: https://doi.org/10.58537/jorangrau.2025.53.1.14
J. Res. ANGRAU 53 (1) 133-140, 2025

REVIVAL OF MILLETS INTRODUCTION IN PUBLIC DISTRIBUTION SYSTEM- IMPROVING ACCESSIBILITY AND CONSUMPTION

N. SASIREKHA, S. KOWSALYA and B. DAYAKAR RAO

Department of Food Science and Nutrition, Avinashilingam
Institute for Home science and Higher Education for Women, Coimbatore, Tamilnadu

Date of Receipt : 25-12-2024 Date of Acceptance : 03-03-2025

ABSTRACT

The study was conducted in 2023 to investigate the integration of millets into India's Public Distribution System (PDS) and evaluate the feasibility and impact of incorporating millets into the PDS across South India, particularly in states like Telangana, Tamil Nadu, Karnataka, Kerala, and Andhra Pradesh. The distribution of millet grains under PDS has increased significantly in states having millet programs. The findings reveal that states implementing millet initiatives have witnessed a notable increase in consumption within the PDS framework. Karnataka emerged as a leader in millet distribution, with approximately 35% of total consumption, followed by Tamil Nadu (25%) and Andhra Pradesh (23%). Advancing millet cultivation and promoting nutrition education programs is vital to support millets acceptability and consumption to a greater population in the country. The successful implementation of millet inclusion in PDS could serve as a model for other nations aiming to address similar challenges in food security and nutrition.

Keywords:millets, mid-day meal, nutrition security, pubic distribution scheme.

INTRODUCTION

With 83% of Asia's millet production area and approximately 41% of the world's production in 2020, India is the world's largest producer of millet. A variety of small-grained, dryland cereals, such as foxtail, barnyard, and fonio, are grouped together as millets. Millets are a wonderful source of important nutrients because they are whole grains. Asia and Africa are the main growing regions for millet, with India leading the way in production, followed by Nigeria, Niger, and China. In many regions of Asia and Sub-Saharan Africa, they remain a traditional staple crop, having been among the earliest plants to be domesticated (Sheethal *et al*., 2022).

These crops, are rooted in ancient cultures and ancestral traditions, and also possess long survived harsh growing conditions. Their climate resilience and adaptability offer opportunities for strengthening food security and bolstering economic growth. India celebratedthe "international year of millets" in 2023, awareness on millets has grown among the consumers. Pesticides or fertility promoters are not required for millets to grow healthily and produce a decent crop. Additionally, millets have a number of morpho-physiological, molecular, and biochemical traits that give them a higher resilience to environmental stress

* Corresponding author: sasirekha.nelapudi@gmail.com

compared to other cereals (Bandyopadhyay *et al.,* 2017).

India's public distribution system is the largest food security programme in the world, which covers nearly 60% of the population and costs Rs 1.45 trillion— close to 1.4% of the national income(Kumar and Bathla, 2017).The Public Distribution System (PDS) in the country facilitates the supply of food grains to the poor at a subsidized price. However, doubts have been raised about the efficacy and cost-effectiveness of the PDS, especially in the light of the growing food subsidy and food stocks(Bommy and Maheswari, 2016).

Subsequently sorghum is highly valued in the areas where it is mostly cultivated and in urban areas it is referred to healthy food, integration of this millet into the public distribution system (PDS) as an alternative to grains such as wheat and rice provides numerous health benefits(Rao *et al*., 2007).The present study is to determine and evaluate for the possible advantages and challenges of millets inclusion in the Public Distribution System (PDS) as a means of ensuring food and nutrition security.

MATERIAL AND METHODS

As the study aims at inclusion of millets in the Public Distribution Systems (PDS)of South India. This study covered Telangana, Tamilnadu, Karnataka, Kerala and Andhra Pradesh states.

The data was collected from the official websites of Public Distribution System of each state*viz.,*https://www.tnpds.gov.in (Tamilnadu), https://www.civilsupplies.telangana.gov.in/ (Telangana), https://ahara.kar.nic.in/Home/EServices (Karnataka), https://aepos.ap.gov.in/ (Andhra Pradesh) and https://civil supplies kerala.gov.in/ (Kerala)

The data was collected in the year 2023 for a period of 6 months (January-July) by sending a questionnaire to the respective public distribution systems of the selected state governments to consider the International year of Millets and its promotion of Millets in India.

The study was carried out on the inclusion of millets in Public Distribution programs, by eliciting data/ information on the type of products distributed, type of meal provided, venue of product distribution etc., The collected data has been analysed by using frequencies, percentages and represented as Tables.

The study was developed by incorporating information from many stakeholders and secondary research (particularly the Civil Supplies Department) working on millets. These millets recommendations document comprehensively addresses an abundance of topics like the State missions and programs with the objective advancing millets; Table 1 reflects a growing recognition of millets as vital for nutritional security and agricultural sustainability in India. Through these initiatives, the government aims to revitalize millet production, enhance farmer incomes, and promote healthier dietary practices among its population.

1.1 Role of PDS in Ensuring Food security through millets:

Karnataka state pioneered in bringing millets under its public distribution system after the role out of the national food security act of 2013. Through the MSP system, the state started to procure millets from the farmers and started distributing it through the public distribution system. However, it is to be noted that the area and production of millets in the state was witnessing a continuous decline on par with the national trend of the same for the last few decades (Gowda *et al.,* 2022). Along with the fall in area under millets, it is to be noted that the profitability also witnessed a drastic decline in the last decade. A reflection

Table 1. Timeline of policy initiatives related to millets by Government of India. (Source: NITI Aayog)

Year	Policy Interventions
2012	* Launched under the **Rashtriya Krishi Vikas Yojana (RKVY)** with an outlay of ¹ 300 crore. * Aimed to enhance millet production, processing, and value addition across 16 states, targeting areas with low productivity compared to national averages
2013	The NFSA included provisions for coarse grains, which encompass millets, thereby recognizing their importance in food security.
2017	NITI Aayog released the National Nutrition Strategy, recommending the strengthening of cereal productivity, including millets, to improve nutritional outcomes in India
2018	* Millets were officially designated as Nutri-Cereals by the government, emphasizing their nutritional benefits. * The year was declared the National Year of Millets, promoting awareness and consumption
2018-2019	Launched under the National Food Security Mission (NFSM) with a budget of ₹ 300 crore to increase millet production and consumption
2021	* Government of India revises its Guidelines for procurement, allocation, distribution and disposal of coarse grains to enhance their availability in public distribution systems. * Organizations like the Food Corporation of India (FCI) works as the main storage unit in various states. * United Nations General Assembly approved India's proposal to observe **2023 as the International Year of Millets** (IYM), highlighting global efforts to promote these grains
2023	* Global Millets Conference: Prime Minister Narendra Modi inaugurated the **Global Millets Conference**, marking India's leadership in promoting millets globally * This event included the unveiling of a postal stamp and currency coin dedicated to IYM

Having spelt out the schemes of the various state governments to introduce millets, let us focus on the role of Public Distribution System

of this decline is also evidently visible in the consumption pattern of millets in among the poor sections of the society in both rural and urban areas. People think that if the increased supply of millets is at the expense of reduced quantities of rice it does not worth taking more millets. Another reason is that millets can grow in marginal lands and hence can be cultivated easily unlike rice.

The Cabinet Committee on Economic Affairs (CCEA) chaired by the Hon'ble Prime Minister Shri Narendra Modi has approved the increase in the Minimum Support Prices (MSP) for all mandated Kharif Crops which includes the major millets (Sorghum, Pearl millet and Finger Millet) for Marketing Season 2023-24.

Table 2 depicts the MSP of the millets by the Government of India, for Marketing Season 2023-24, to ensure remunerative prices to the growers for their produce and to encourage crop diversification, as provided in the table below:

Statistical analysis

From the secondary data collected on the inclusion of millets in Public Distribution Systems (PDS) of various states,Analysis of variance (ANOVA) was carried out to determine the results, which were expressed as mean ± standard deviation with a 95% confidence level. Software from the commercial statistical package SPSS (IBM statistics 22) was used to analyze the data.

RESULTS AND DISCUSSION

2.1 Millets in the Public Distribution System (PDS)

The millets initiative of the Indian states from farm to plates is laudable. Millets are the focus of a larger discussion that addresses food security, nutritional adequacy, and food systems sustainability in the world. India, being the largest producer of the nutri-cereals, has the potential to become the global leader in promoting millets. In India there should be a two-prolonged approach that can address demand side and supply side of the millet economy parallelly. On the supply side, increasing productivity, reducing production costs, promoting value addition, and strengthening PDS will help gradually. Considering the local diversity of millet markets and the layers of its associated challenges, state specific and regionally organized interventions will be more fruitful in fostering a strong Millet Economy in the long run(Rahman, 2014).

Table 2. Increase in MSP of Millets from 2017-18 to 2023-24 (Rs. per quintal)

S.No	Year/Crops	Ragi	Bajra	Jowar (Hybrid)	Jowar (Maldandi)
1.	2017-18	1900	1425	1700	1725
2.	2018-19	2897	1950	2430	2450
3.	2019-20	3150	2000	2550	2570
4.	2020-21	3295	2150	2620	2640
5.	2021-22	3377	2250	2738	2758
6.	2022-23	3578	2350	2970	2990
7.	2023-24	3846	2500	3180	3225

Source: Researcher's calculations based on the secondary data

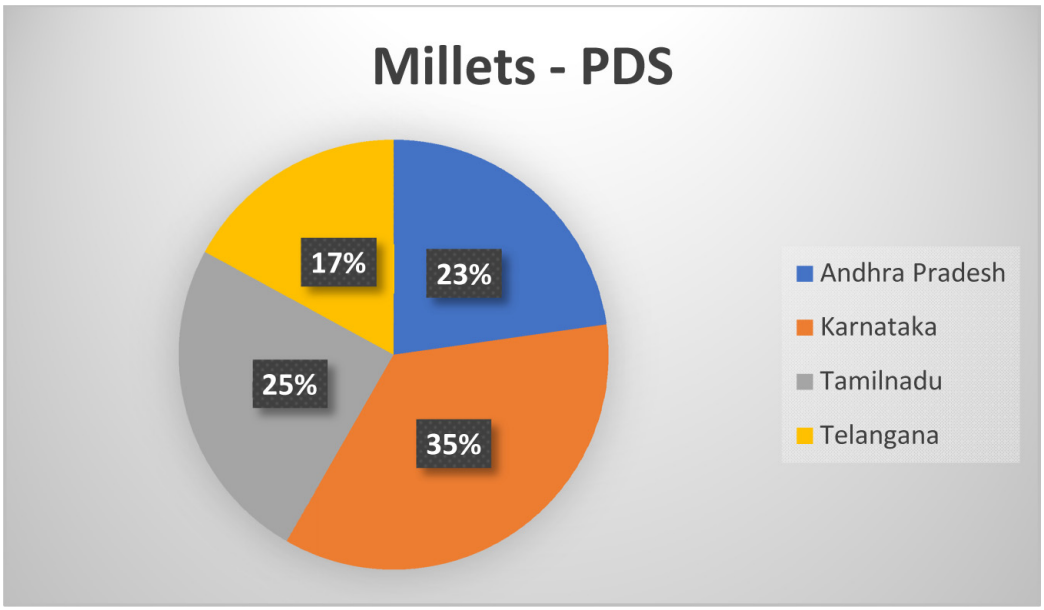

Figure 1. Distribution of millets in inclusion of the states

Through regulating the cost of necessities like grains and pulses, the Public Distribution System manage to include people's dietary habits and selections. The Indian government has started to encourage millet production and distribution through public systems, realizing the nutritional benefits of millets and the need to help millet growers (Samal and Mishra, 2020). Figure 1 elicits the distribution of millets in the Southern states of India. Highest consumption is observed in the Karnataka state (35%) followed by Tamilnadu (25%), Andhra Pradesh (23%) and Telangana (17%).

2.4 State Millet Missions Framework-Mechanisms to Revamp Public Distribution System (PDS)

The replication of millet farming practices in India can be explored through the successful framework set concisely according to the state prevalence rate of the millets production. Many Indian states have implemented millet promotion programs or missions,The data is compiled from the policy documents, and research articles related to these state-level initiatives which includes information on the objectives, outcomes, and challenges faced by the missions.Table 3 illustrate about the production of millets in tonnes, and its marginal effect in the distribution in the public distribution system (PDS). The Karnataka state (34.8) having the highest overall production of all the major millet crops and Andhra Pradesh state (14.9) the lowest in the overall production of the millet crops.

2.2 Distribution of Millets- Processing

Awareness of cultivation and consumption of millets to the farmer organizations and to the self-help groups has resulted in bringing millets back for larger production area. Given below are the reasons to improve the affordability and accessibility:

· Emphasis on local production, location-specificity, decentralization, and giving Farmer Producer Organizations play a prominent role. Because it was dispersed, less storage space is needed.

· Emphasised jobs and industrialization in rural areas Overall, the project region has

Table 3. Production (tons) of millets and sorghum per state in 2021–2022 and their marginal effect of distribution in the Public Distribution System schemes of the state.

S.No.	Selected State	Production of finger millet per state	Production pearl millet of per state	Production of sorghum per state	Production of the three crops per state	Marginal for the PDS distribution in the state	p-value
		('000 tons)	('000tons)	('000 tons)	('000 tons)		
1.	Karnataka	18.07	2.21	14.52	34.8	(0.0187)	0.000
2.	Tamil Nadu	3.49	1.82	6.02	23.13	0.0068	0.100
3.	Telangana	0.01	5.06	18.85	23.92	(0.0041)	0.200
4.	Andhra Pradesh	0.77	2.75	11.17	14.94	(0.0166)	0.000

seen the following effects: A rise in farmers' interest in growing millet, with more of them requesting supplies of the seed during the Rabi season so they can plant millet for their own use as well as to sell to nearby millet processing companies.

· Figure 2 depicts the millet flour milling at a Primary Processing centre in Telangana state, from where the ragi flour is processed, packed and distributed to the government schools and supply to the ration shops

Figure 2. Primary Processing (Milling) of Ragi, in Telangana State

2.3 Millet consumption during different meals of the day

In the context of the Mid Day Meal programs, the importance of diversifying the food items provided to schoolchildren. Traditional grains like rice and wheat, while staple components, may lack certain essential nutrients found abundantly in millets. Incorporating millets into the MDM menu can lead to improved nutritional outcomes, addressing prevalent deficiencies in iron, zinc, and other micronutrients. Moreover, the processing of millets into palatable and easily consumable forms can play a crucial role in increasing their acceptability among children. The food meals with inclusion of millets in their daily diet provided in the form of Breakfast, Lunch and Evening snacks this enhances the integration of millets into the Mid-Day Meal programs for enhanced nutritional impact and improved overall health outcomes for school children.

Central Government requested all the Indian state governments to explore the introduction of millets under PM POSHAN Scheme preferably in the districts where eating millets is a culturally accepted food habit. It is suggested to introduce millets-based menu weekly once and emphasize on millet-based recipes by conducting cooking competitions (ICRISAT, 2016).

The consumption form of millets in the Public Distribution Systems (PDS) are given

Table 4. Recipes given in the public distribution system (PDS) schemes

S.No.	Item	Qty/ day	Energy (kcal)	Protein (g)	Fat (g)	Carboh ydrate (g)
Breakfast						
1	Millet Khichdi	50 g	142.60	5.98	1.55	52.09
2	Ragi Dosa	35 g	207.87	4.3	5.2	36
Lunch						
3	Millet Pulao	70 g	199.05	6.21	6.81	62.45
Snacks						
4	Ragi Laddu	25 g	294.00	7.95	7.50	69.32
5	Millet Chikki	25 g	185.02	6.4	5.5	60.54
	Mean ± SD		**205.7 ±55.35**	**6.16±1.29**	**5.31±2.3**	**56.08±12.7**

in the form of various recipes as discussed in Table 5, On the whole the millet meal distribution provides a nutrition for an individual with an average of Energy (205 kcal), Protein (6.1g), Fat (5.3g), Carbohydrate (56g) meeting the average daily requirements of my plate balanced diet recommended by National Institute of Nutrition (Hemalatha, 2023)

CONCLUSIONS

Notable inferences from the given findings that the country's focus on improving millet production through state-specific missions has been critical, with Karnataka leading the way in millet production (34.8 thousand tons), while states like Andhra Pradesh lag behind with lower production (14.94 thousand tons). However, the marginal effect of millet distribution in PDS schemes, as shown in the data, demonstrates that states like Karnataka and Andhra Pradesh have significant room for improvement in making millets more widely available through public systems.The average energy content of meals in the PDS scheme stands at 205 kcal, with a balanced amount of protein (6.16g), fat (5.31g), and carbohydrates (56.08g), meeting the daily dietary requirements.The incorporation of millets into the Mid-Day Meal (MDM) programs has also shown promise in improving the nutritional outcomes for school children. As millets are being introduced into school programs and other PDS schemes, it is clear that ongoing efforts to increase awareness, improve processing, and expand distribution systems will be key to the long-term success of the millet economy.

REFERENCES

Bandyopadhyay, T, Muthamilarasan, M and Prasad, M. 2017. Millets for next generation climate-smart agriculture. Frontiers in plant science, 8, 1266.

Bommy, D and Maheswari, S. K. 2016. Promotion of Millets Cultivation through Consumption. International Journal of Current Research and Academic Review, Special Issue 3:74-80.

Gowda, N. N., Siliveru, K., Prasad, P. V., Bhatt, Y., Netravati, B. P and Gurikar, C. 2022. Modern processing of Indian millets: a perspective on changes in nutritional properties. Foods, 11(4), 499.

ICRISAT. 2016. Smart Food Millet Recipes: International Crops Research Institute for the Semi-Arid Tropics, Patancheru, Telangana, India 32 pp.

Kumar, A., and Bathla, S. 2017. How PDS can be made effective through better governance.

Rahman, A. 2014. "Revival of Rural Public Distribution System: Expansion and Outreach." Indira Gandhi Institute of Development Research, Mumbai Working Papers (2014-012).

Rao, B. D., Reddy C. S and Seetharama, N. 2007. Reorientation of Investment in R and D of Millets for Food Security—The Case of Sorghum in India. Agricultural Situation in India, *64*, 303-305.

Hemalatha, R. 2023. Promotion of 'My Plate for the Day' and physical activity among the population to prevent all forms of malnutrition and NCDs in the country, ICMR-NIN, Hyderabad.

Samal, R. R and Mishra, S. 2020. Nutrient deficiencies in a tribal community. Odisha Economy Discussion Series, 8.

Sheethal, H. V., Baruah, C., Subhash, K., Ananthan, R and Longvah, T. 2022. Insights of nutritional and anti-nutritional retention in traditionally processed millets. Frontiers in Sustainable Food Systems, 5, 735356.

Sasirekha, N.,Kowsalya, S and Dayakar Rao, B. 2025. Revival of millets introduction in public distribution system -improving accessibility and consumption.
The Journal of Research, ANGRAU. Vol. 53 (1): 133-140