For nutritional security and climate resilience in Jharkhand

MILLETS

A Game Changer

GREENPEACE
ग्रीनपीस

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Introduction

For the majority of Jharkhand's population, uncultivated foods and edible weeds have been a major source of food and an inexpensive source of micronutrients. Unfortunately, such foods are losing their demand among the population owing to the growing popularity of commercialised foods and crops. Moreover, according to the National Family Health Survey (NFHS-5), as of 2019-21, 56.8 percent of pregnant women and 67.5 percent children in Jharkhand under five years are anaemic. This dual crisis of biodiversity loss and nutritional security can be addressed through the traditional wisdom of local communities and indigenous crops.

It is crucial to promote the inclusion of millets and other landrace varieties of food crops in the food system to ensure a more holistic approach to nutrition in the face of climate change. Most importantly, Jharkhand has favourable conditions for millet cultivation. Millets have long been a part of the local cuisine and are well-suited to the region's geographical and agro-climatic conditions. The state's tropical climate and adequate monsoon provides good conditions for millet cultivation. Jharkhand can enhance its food security in the face of changing climate patterns and reduce greenhouse gas emissions associated with agriculture by encouraging millet cultivation.

Further, the nutritional qualities of indigenous crops (refer to nutritional profile of millets provided in the report) are much higher in comparison to processed food items and other cereals. Hence, the inclusion of millets and other locally grown foods in mid-day meals will help ensure the nutritional security of school-going children. By adopting millets and other indigenous food crops, the state can also reduce its agriculture-based emissions since these crops have a lower carbon footprint compared to other cereals. Finally, crop diversification will improve resilience and provide the ability to suppress pest outbreaks,dampen pathogen transmission (which may worsen under future climate scenarios), and buffer crop production from the effects of greater climate variability and extreme events.

As 2023 has been declared the International Year of Millets, it's high time to include millets and locally grown food in the mid-day meal menu chart.

Why millets and locally grown food?

Since iron deficiency anaemia is prevalent among children in Jharkhand and finger millets—which are local to the state—have high iron content (9.8 mg per 100 gm), they can help address the issue.

Millets have a low glycemic index and are gluten-free, making them suitable for children with specific dietary needs.

Millets such as Sama, Kodo and unpolished rice can be cooked as a healthier and more environment-friendly substitute for polished and fortified-rice.

Incorporating locally grown foods promotes the consumption of produce sourced from local farmers. This stimulates the local economy, boosts agricultural livelihoods, and strengthens community bonds.

Millets and locally grown foods are deeply rooted in local traditions and cuisine. Their inclusion celebrates the cultural heritage of Jharkhand and reinforces a sense of identity among children.

Millets: A Nutritional Powerhouse

Millets are highly nutritious grains, rich in dietary fibre, carbohydrates, protein, vitamins, and minerals like iron, magnesium, phosphorus, zinc, and B vitamins (niacin, thiamin, and riboflavin). The millet grain contains about 65 percent carbohydrates,and they are good sources of insoluble (IDF) and soluble (SDF) dietary fibre—have comparable or even higher total dietary fibre (TDF) than other cereals. The average protein content of millet is reported to be between 7.7 and 11.8 percent. Millets generally contain significant amounts of essential amino acids, particularly sulphur- containing amino acids (methionine and cysteine); it also contains high quantities of methionine, an amino acid that is deficient in most grains. Among cereals, finger millet is the richest source of calcium (300-400 mg/100 g) and other small millets are good sources of phosphorus and iron (Gowda et al., 2022).

The climate resiliency of millets can be the key factor to ensure nutritional security of the masses in the face of a climate crisis. Millets' ability to tolerate drought, heat, and limited water availability has potential to ensure a stable supply of nutritious grains, even in challenging climatic conditions.

Nutritional profile of millets in comparison with cereals (per 100 g).

Grains	Energy (kcal)	Protein (g)	Carbohydrate (g)	Starch (g)	Fat (g)	Dietary Fiber(g)	Minerals (g)	Ca (mg)	P (mg)
Sorghum	334	10.4	67.6	59	1.9	10.2	1.6	27	222
Pearl millet	363	11.6	61.7	55	5	11.4	2.3	27	296
Finger millet	320	7.3	66.8	62	1.3	11.1	2.7	364	283
Little millet	329	8.7	65.5	56	5.3	6.3	1.7	17	220
Maize	334	11.5	64.7	59	3.6	12.2	1.5	8.9	348
Wheat	321	11.8	64.7	56	1.5	11.2	1.5	39	306
Rice	353	6.8	74.8	71	0.5	4.4	0.6	10	160

Source: Indian Food Composition Tables and nutritive value of Indian foods

Potentials of millets production in Jharkhand

Currently, Ragi (Finger Millet) is grown in the state in a very scattered manner. The State Government is promoting millets under the State Livelihood Policy which is under the Department of Panchayat, and millets are sparingly served in mid-day meals for school children and hospitals because of its nutraceutical properties.

According to the Ministry of Commerce and Industry's; Agricultural and Processed Food Products Export Development Authority In 2020-21, Jharkhand produced 16400 tonnes of Finger Millets which increased to 16700 tonnes in 2021-22 and was estimated to produce 9790 tonnes in 2022-23.

Recommendations for Jharkhand:

Policy reforms

Develop guidelines that mandate the inclusion of millets and local foods in mid-day meals and provide incentives to encourage their adoption.

Initiate procurement of indigenous varieties of millets, unpolished rice and pulses under the Minimum Support Price (MSP) programme. This will encourage farmers to increase acreage under millet cultivation.

Create an enabling ecosystem for farmers

Facilitate access to credit, technical assistance, and market linkages for farmers to promote increased production of millets and local foods.

Pre- and post-harvest support should be provided at the Panchayat level. This should include availability of quality seeds of indigenous varieties of millets, pulses and rice and millet processing units.

Rejuvenation of local knowledge systems for production and post-production handling of millets is required since, over the last 60 to 70 years of rice and wheat domination, farmers have lost most of their technical and practical skills related to millet production and processing.

Women play a significant role in production and processing of millets and pulses. Women-led Farmer-Producer Organisations (FPOs) should be created and supported so that their contributions to the food and nutritional security of communities and the state is duly appreciated and remunerated.

Infrastructure development:

Strengthening the supply chain and storage facilities for millets and locally grown foods requires infrastructural investment. Collaborations between government agencies, NGOs, and private sector actors can help improve logistics and distribution.

Culinary interventions

Introducing millets and local ingredients into mid-day meals requires culinary creativity.

Within indigenous cuisine, millets are consumed in interesting and cost-effective ways. Traditional recipes should be rejuvenated and, at the same time indigenous food experts, chefs and nutritionists can work together to develop recipes that are nutritious and appealing to children.

Expert takes

"Millets rich in micronutrients should be restored in our diets as it adds to the diversity of our food system. I strongly recommend its inclusion in PDS for improving nutritional security of our people."

Dr. Rekha Sinha,
Department of Home Science, Birsa Agriculture University, Ranchi.

"The government must include millets as it is a natural source of micronutrient rather than artificially produced fortified rice to improve the nutritional and dietary diversity among masses."

Dr. Shambhu Prasad,
Indian Medical Association (IMA), President Jharkhand Chapter

"Not so long ago, the hills and forests of eastern India were teeming with animal life and luxurious vegetation. In this abundant environment, Adivasi communities developed a sound food system as an integral part of their admirable way of life. This food system, with its strong element of mutual aid, was not just a source of good nutrition but also an inspiring example of economic democracy"

Jean Dreze,
Economist and Scientist.

"The indigenous communities have been historically dependent on uncultivated greens as their major source of food and micronutrients, like calcium, iron, folate, vitamin A and C. Despite the huge benefits, these forest foods are reportedly under-utilised in the community. It is important to revive and bring back lost and disappearing food through 'farm to plate' approach."

Aruna Tirkey,
Founder Ajam Emba

Inclusion of millets and uncultivated greens in mid-day meals would be a great step in addressing iron deficiency anaemia. Nutritional security should be approached holistically by promoting nutrition and climate sensitive agriculture and diversification of crop systems instead of relying solely on silver bullet solutions like rice fortification, which may have potential risks.

Rohin Kumar, Senior Agriculture Campaigner, Greenpeace India

Conclusion

The inclusion of millets and locally grown foods in the mid-day meal programme in Jharkhand represents a significant stride towards ensuring nutritious meals for school-going children. By leveraging the nutritional benefits of millets, promoting sustainable farming practices, and supporting local farmers, Jharkhand is nurturing the health, environment, and cultural heritage of its communities. This initiative serves as a beacon of hope for achieving inclusive and sustainable food systems across the country, creating a brighter, secure and healthier future for all. However, successful implementation requires the development of appealing menus for children, ensuring the availability of high-quality millet grains, and establishing reliable procurement and distribution channels. Overall, incorporating millets into the mid-day meal programme for Jharkhand's schoolchildren can enhance their nutritional status, and overall health, promote sustainable agriculture, and preserve its cultural heritage. It is a positive step toward fostering a diverse and healthy diet, essential for children's growth.

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