

# Magic of millets in Chhattisgarh:

## Status, opportunities and challenges

**Surendra Babu<sup>1\*</sup>, Suparna Tandon<sup>2</sup> and Shailendra Nath Pandey<sup>3</sup>**

<sup>1</sup>NABARD Regional Office, Raipur, Chhattisgarh 492 018

<sup>2</sup>NABARD Head Office, Mumbai, Maharashtra 400 051

<sup>3</sup>Grassland, Jhansi, Uttar Pradesh

*To meet the rising demand for millets like kodo, kutki, and ragi, the Chhattisgarh government initiated the Chhattisgarh Millet Mission in 2021. This mission has not only elevated the income of Vananchal and tribal area farmers, but also raised the state's prominence. Millet cultivation in Chhattisgarh has faced several challenges in recent years, including low demand, lack of knowledge and infrastructure, and competition from other crops. However, millets continue to be an important crop for the State's food security and cultural heritage. With the launch of government schemes and policies, including the Millet Mission, Chhattisgarh has taken significant steps towards promoting millet cultivation and improving the livelihoods of farmers. Encouraging the cultivation and consumption of millets in Chhattisgarh can not only provide nutritional benefits to the population but also contribute towards sustainable agriculture and food security.*

**Keywords:** High-yielding, North-west zone, Sugarcane, Varieties, Yield

MILLET cultivation is deeply ingrained in Chhattisgarh's agricultural history, providing a vital foundation for the State's food security. Known as 'Sawa' or 'Suan' in the local Chhattisgarhi dialect, millets are renowned for their nutritional value. Key millet-growing districts include Kanker, Kondagaon, Bastar, Dantewada, Bijapur, Sukma, Narayanpur, Rajnandgaon, Kawardha, Gaurela-Pendra-Marwahi, Balrampur, Koriya, Surajpur, and Jashpur.

To meet the rising demand for millets like kodo, kutki, and ragi, the Chhattisgarh government initiated the Chhattisgarh Millet Mission in 2021. This mission has not only elevated the income of Vananchal and tribal area farmers, but also raised the state's prominence. Furthermore, promoting millet processing and value addition is anticipated to boost incomes for farmers, women's groups, and rural youth. Kodo, kutki, and ragi are the primary millets grown in

Chhattisgarh, spanning 20 districts.

### Significance of millets production in India

Indian Millets, a family of nutritionally dense, drought-resistant, small-seeded grasses within the 'poaceae' botanical family, are primarily cultivated in India's arid and semi-arid regions. Their unique ability to withstand drought and adverse weather conditions makes them well-suited to these areas, where they serve as staple crops. This is particularly crucial as the low rainfall and poor soil fertility in such terrain render the cultivation of other food crops impractical. Millets offer a superior nutritional profile compared to major cereals, contributing to food and nutrition security by being rich in protein, vitamins, and minerals. Notably, they are gluten-free and possess a low glycemic index, making them an excellent choice for individuals with celiac disease or diabetes.

In response to concerns about lifestyle-related diseases and a shift

away from highly processed diets, both urban and rural consumers are increasingly adopting millets as an alternative to wheat and rice. The COVID-19 pandemic further accelerated this trend, with people embracing millets to bolster their nutrition and immunity.

Despite their nutritional advantages, millets encounter challenges in cultivation and marketing. This article delves into the current status, prospects and obstacles associated with millet cultivation in Chhattisgarh. It also explores the government's initiatives and policies aimed at promoting millets.

The global millet's market, valued at \$9.95 billion in 2020, is forecasted to reach \$14.14 billion by 2028, growing at a CAGR of 4.5% from 2021 to 2028. Despite this potential, the millet supply chain grapples with inconsistency in supply and demand, posing commercial viability challenges. A lack of awareness regarding millet's

**Table 1.** Trends in production of millets in India vis-à-vis Chhattisgarh during the last 5 years  
(Production in '000 tonnes)

| State/ UT    | 2018-19  | 2019-20  | 2020-21  | 2021-22  | 2022-23  |
|--------------|----------|----------|----------|----------|----------|
| Chhattisgarh | 33.71    | 24.56    | 26.24    | 28.18    | 23.39    |
| India        | 13711.21 | 17260.63 | 18020.55 | 15999.76 | 17151.75 |

Source: pib.nic.in, 11 August 2023

nutritional benefits limits their incorporation into food products. Additionally, limited distribution and market knowledge result in suboptimal reach, lower price realization and wastage.

To address these concerns, the Government of India has embraced a multi-stakeholder approach to celebrate the International Year of Millets (IYM) in 2023. The IYM-2023 action plan focuses on elevating millet production, consumption, exports, strengthening the value chain, branding and fostering awareness of millets' health benefits. To promote 'Shree Anna,' a year-long action plan of monthly activities have been devised in collaboration with Central Ministries, State Governments and Indian Embassies, aiming to fortify millets' position in the global market.

Table 1 illustrates significant variations in millet production, both at the state and national levels. Despite their nutritional benefits, drought resistance and lower input requirements compared to wheat and rice, the cultivation and consumption of millets have experienced a continuous decline over the years. The post-green revolution period witnessed a shift in agricultural practices, with a predominant emphasis on high-yield varieties of rice and wheat. Government policies, particularly the procurement of rice and wheat at Minimum Support Prices (MSP), further accelerated the decline of millet cultivation. Additionally, the underdeveloped millet value chains and limited market demand discouraged farmers from growing millets. Consequently, millets gradually lost their significance within the Indian agricultural landscape.

However, there is an expectation that a renewed focus on millet production and value addition,

both at the national and state levels, could reverse these trends in favour of millet cultivation.

**Table 2.** Millets (crops) wise production in India

| Name of millet       | Production (million tonnes) 2020-21 | % contribution to total millets produced |
|----------------------|-------------------------------------|------------------------------------------|
| Bajra (Pearl millet) | 10.86                               | 60                                       |
| Jowar (Sorghum)      | 4.78                                | 27                                       |
| Ragi (Finger millet) | 1.96                                | 11                                       |
| Small millets        | 0.35                                | 2                                        |

Source: Directorate of Economics and Statistics, DA&FW, Govt of India

### Millets cultivation in Chhattisgarh

The geographical area of Chhattisgarh is 135,194 sq. km. (52,199 sq. m.) and location of Chhattisgarh is 17°46' to 24°5' North Latitude and from 80°15' to 84°20' East Longitude, with an average rainfall of around 1207 mm. Net sown area of the state is 46.51 lakh ha, which is 34% of its total geographical area (Source: website of Press Information Bureau). About 57% of the area has medium to light soil. Chhattisgarh has one of the richest bio diverse areas in the country with around 63.4 lakh ha area under forest cover, which is 46% of its total geographical area. The climate and topography in

the northern and southern part of Chhattisgarh is conducive for millets cultivation.

According to the Department of Agriculture, Government of Chhattisgarh, millets are grown across 1.41 lakh hectares of land (Table 3), accounting for 6% of the total cultivated area in the State. The major millet crops grown in Chhattisgarh are sorghum, pearl millet, finger millet and foxtail millet. Chhattisgarh ranks third in the country in sorghum and fourth in pearl millet cultivation. Despite being an important crop for the state, millet cultivation has been declining in recent years due to various challenges.

However, recognizing the importance of millets for addressing malnutrition and climate change challenges, India has embarked on initiatives to revive their cultivation and consumption. The declaration of 2023 as the International Year of Millets by the United Nations has further propelled efforts to promote millets globally and within India.

### Challenges in millets cultivation in Chhattisgarh

- **Low productivity:** Millet productivity in Chhattisgarh is notably lower when compared to staple crops like wheat and paddy. The primary reasons behind this disparity are the marginal lands with low fertility where millets are cultivated and their reliance on rain-fed conditions. Traditional farming practices, such as broadcasting seeds at the beginning of the monsoon and harvesting after 75-90 days, contribute to this

**Table 3.** Area and production of millets in Chhattisgarh

| Name of millet | Year 2021-22 |               |               | Year 2022-23  |                |               | Year 2023-24        |                         |
|----------------|--------------|---------------|---------------|---------------|----------------|---------------|---------------------|-------------------------|
|                | Area (ha.)   | Prod. (q)     | Yield (kg/ha) | Area (ha.)    | Prod. (q)      | Yield (kg/ha) | Targeted Area (ha.) | Actually sown area (ha) |
| Kodo           | 30113        | 196383        | 652           | 48180         | 345451         | 717           | 60000               | 52140                   |
| Kutki          | 42894        | 254392        | 593           | 30570         | 181586         | 594           | 50000               | 38810                   |
| Ragi           | 20570        | 141220        | 686           | 43640         | 394069         | 903           | 50000               | 38590                   |
| Other millets  | 0            | 0             | 0             | 18620         | 100548         | 54            | 1000                | 580                     |
|                | <b>93577</b> | <b>591995</b> |               | <b>141010</b> | <b>1021654</b> |               | <b>161000</b>       | <b>130120</b>           |

Source: Millet Mission, Document of Agriculture Department, Government of Chhattisgarh

low yield. The implementation of innovative techniques, like the System of Millet Intensification (SMI) for finger millet, has resulted in doubled yields compared to traditional methods.

- **Pests and diseases:** Millets, known for their resilience, are susceptible to a range of pests and diseases, including shoot flies, stem borers and various caterpillars. Diseases like downy mildew and smut also pose a significant threat to crop yield. In addition, stored millet grains are vulnerable to damage from insects, fungi, and rodents, especially during the rainy season. Effective pest and disease management strategies are crucial for improving millet production.
- **Lack of markets:** Despite their exceptional nutritional value, millets face limited demand in urban areas, which, in turn, hampers the ability of farmers to find buyers and secure fair prices. This lack of urban interest can discourage farmers from continuing millet cultivation. Initiatives aimed at creating awareness about the nutritional benefits of millets and marketing strategies emphasizing their culinary versatility could help boost demand in urban markets.
- **Lack of technical knowledge:** Successful millet cultivation requires a certain level of expertise and knowledge, which many Chhattisgarh farmers lack. Inadequate training in millet farming techniques leads to reduced yields and profits. It is essential to implement training programs and workshops to equip farmers with the skills and knowledge necessary for successful millet cultivation.
- **Lack of infrastructure:** The lack of necessary infrastructure for millet cultivation in Chhattisgarh includes storage facilities, processing units and transportation networks. The State's landlocked nature and underdeveloped railways and road networks make it

challenging for farmers to access markets, both domestically and overseas, leading to post-harvest losses.

- **Competition from other crops:** The shift of Chhattisgarh farmers towards cash crops like paddy and soybean, which offer higher profits, has led to a decline in millet cultivation. Initiatives promoting the economic benefits of millet farming and potentially offering incentives to millet cultivators could help reverse this trend.
- **Processing efficiency:** Processing millets is essential to make them edible and enhance their quality. Some millets require multiple processing steps to optimize grain recovery and polish them without compromising their nutritional value. Improving the efficiency of millet processing, including dehulling, separation and polishing, is necessary.
- **Decentralized processing:** Processing millets is challenging due to variations in millet types and their short shelf-life once processed. Several Krishi Vigyan Kendras (KVKs) in Chhattisgarh have developed machinery and infrastructure for small-scale decentralized processing, making it more affordable and accessible for farmers and Farmer Producer Organizations (FPOs).
- **Shelf-life augmentation:** Millets have a short shelf-life due to factors like intrinsic enzyme activity and susceptibility to moisture. State-supported enterprises and Agri-startups are working on solutions to enhance the shelf-life of millet grains, processed millets and flours, making them more competitive with other crops.
- **Marketing and market linkages:** The millet supply chain faces issues of inconsistent supply and demand, limited distribution and a lack of public awareness regarding the nutritional benefits of millets. Expanding the adoption of millets as a 'ready-to-cook'

cereal and establishing better market linkages are crucial to improving their commercial viability.

### **Institutional support for millets cultivation in Chhattisgarh**

#### **Chhattisgarh Millets Mission**

The Government of Chhattisgarh launched Millets Mission during September 2021 for a period of five years. This mission was launched with a vision to make Chhattisgarh as a Millets Hub of India. Its primary objective is to promote cultivation of kodo millet, little millet and finger millet in the State, with a focus on 85 Blocks in 20 Districts with the total budgetary allocation of ₹170 crores. Chhattisgarh Minor Forest Produce Co-operative Federation was appointed as the implementing agency for procurement and processing of millets in the State. Other salient features of the mission are as under:

- A promotion incentive of ₹9,000 per hectare will be given to farmers under the *Nyuntam Aay Yojana* (NYAY) to promote cultivation.
- Creation of Centre of Excellence in a 20 hectare area for better seeds, training, modern equipment, capacity building technology demonstrations etc. ICAR-IIMR as technical partner for cultivation, procurement, processing and value addition inputs. According to the MoU signed, IIMR will provide support and guidance for increasing the productivity of Kodo, Kutki, and Ragi including technical skills, availability of high quality seeds and establishment of a seed bank in Chhattisgarh.
- Establishment of approximately 50 cleaning and grading units, and 10 dehulling units across the State by Chhattisgarh Minor Forest Produce Cooperative Federation (CGMFP) in 2021-22. CGMFP Federation, working with 1.2 million tribal population of the State and having more than 18,000 procurement centers for Minor Forest Produce, will be utilized for procurement of

millet across the State at MSP.

- **Promotion of regional processing units under private investment:** An MoU has already been signed for a 10,000 MTPA millet processing unit to be established at Kanker district.
- Increasing consumption of millets by distribution of millets under the Public Distribution System (PDS) programme. Provide value added millet products under Mid-Day Meal and ICDS.

Some of the other initiatives aimed at supporting millets production in the State are as under:

- **Chhattisgarh State Food and Nutrition Security Act:** This act includes millets in the list of food grains distributed through the PDS, assuring a market for millet farmers.
- **National Food Security Mission:** Millets are incorporated into this central government program, offering financial assistance to Chhattisgarh farmers to promote their cultivation.
- **Paramparagat Krishi Vikas Yojana (PKVY):** This central scheme encourages organic farming, including millet cultivation, through financial aid.
- **Rashtriya Krishi Vikas Yojana (RKVY):** RKVY aids millet

production in Chhattisgarh by providing financial support for seed distribution, mechanization, and marketing.

- **Value-addition of millets:** Taking advantage of immense opportunities of millets processed products, corporates are playing important role in India. These corporates such as ITC, Nestle India, Tata Soufflé, etc. are producing slew of new value added processed products of millets. The products such as oats with millets, ragi bite chocolates and millets granola have hit the market.

The Chhattisgarh government has also planned to introduce millet-based nutrition in school meals, aanganwadi centers, and millet cafes across the State. Startups, like Immuno Millets, and have raised awareness and popularized processed millet products. Some of these products are exported to different states and other countries. The millers, specialized in millets, in Raigarh district, of the State have partnered with NABARD to sell processed millet products in railway stations counters.

#### Digital marketing opportunities through ONDC

Marketing opportunities of millets and millet based value added

products, backed by e-commerce platform established by the Govt. of India, such as Open Network for Digital Commerce (ONDC) could be a game changer for ensuring online marketing to individuals and farmer's collectives. In the Chhattisgarh State, Kodo, Kutki and Raagi growers and processors could be in advantageous position for their enhanced income and sustainability by using ONDC framework for marketing of millet products.

#### NABARD: Catalyzing the promotion of the millets value chain

NABARD (National Bank for Agriculture and Rural Development), the apex bank for agriculture and rural development has undertaken several initiatives to promote millet cultivation and enhance the millet agri-value chain in India. These are discussed below.

- **Financial support:** NABARD offers loans and subsidies to farmers and agri-businesses involved in millet cultivation. This financial aid helps them improve farming practices, purchase quality seeds, invest in infrastructure and manage post-harvest activities.
- **Capacity building:** NABARD conducts training programs to enhance the skills and knowledge of millet stakeholders. These programs

## 7 SUTRAS TO MAINSTREAM MILLETS



cover farming techniques, post-harvest management, processing, marketing and value addition, ultimately boosting productivity and efficiency.

- **Market linkages:** NABARD connects millet farmers with potential buyers and market intermediaries. These connections provide a reliable and profitable market for millet produce, encouraging continued cultivation.
- **Infrastructure development:** NABARD supports the creation of millet-related infrastructure, including processing units, storage facilities, and market yards. This infrastructure helps in efficient processing and storage, reducing post-harvest losses.
- **FPO promotion:** NABARD supports millet-focused Farmer Producer Organizations (FPOs), aiding collective action among farmers for resource pooling, knowledge sharing and better pricing. They receive NABARD's financial and technical assistance for millet production and value addition. In Chhattisgarh, as such, there are 87 FPO promoted by

NABARD, which covers two exclusive millet FPOs where about 300 farmers and 15 SHG members are cultivating finger millet and foxtail millet. Focus of NABARD in Chhattisgarh now is to promote millet focused FPOs and value addition. Table 4 indicates the millet based FPOs supported by NABARD in various states of India.

- **Millet village promotion in Chhattisgarh:** Chhattisgarh has actively promoted millets cultivation by procuring 52,730 quintals at the minimum support price over the past three years. For 2023-24, the MSP for kodo is set at ₹ 3,000 per quintal, kutki at ₹3,100 per quintal and ragi at ₹3,577 per quintal, respectively. To further support millets farming, the government plans to designate around 5,000 villages as millets' villages, offering financial support of ₹9,000 per acre for crop diversification and facilitating input supply and institutional credit support.
- **Support of IGKV / KVKs and collaboration with NABARD:** Indira Gandhi

Krishi Vishwavidyalaya (IGKV) located in Raipur, offers and organizes wide range of extension activities and research programme for farmers, agriculture department, NGOs and sectorial programs in various agricultural disciplines focusing millets. The IGKV also operates various research stations and KVKs across different agro-climatic zones within the State. These stations and KVKs conduct region-specific research to address the unique agricultural needs and challenges of each area. These services help bridge the gap between research and practical application for farmers for cultivation of millets in the State. The KVKs, particularly in Kanker District, has piloted millet processing unit for ensuring value addition. NABARD also showcased millet products' commercial potential to farmers, FPOs, and SHG members at the IGKV Agri Export Summit in 2022, promoting their significance in the market.

## SUMMARY

Millet cultivation in Chhattisgarh has faced several challenges in recent years, including low demand, lack of knowledge and infrastructure and competition from other crops. However, millets continue to be an important crop for the State's food security and cultural heritage. With the launch of government schemes and policies, including the Millet Mission, Chhattisgarh has taken significant steps towards promoting millet cultivation and improving the livelihoods of farmers. Encouraging the cultivation and consumption of millets in Chhattisgarh will not only provide nutritional benefits to the population but also contribute towards sustainable agriculture and food security.

\*Corresponding author e-mail: surendra.babu@nabard.org

**Table 4.** NABARD – supported millet-based FPOs in various states

| State          | No of FPOs | Total members | Major millets                               |
|----------------|------------|---------------|---------------------------------------------|
| Andhra Pradesh | 22         | 9970          | Finger millet, Pearl millet, Foxtail millet |
| Chhattisgarh   | 2          | 381           | Finger millet                               |
| Gujarat        | 3          | 1762          | Finger millet                               |
| Haryana        | 5          | 3215          | Pearl millet                                |
| Jharkhand      | 1          | 360           | Pearl millet                                |
| Karnataka      | 50         | 23195         | Finger millet, Pearl millet, Foxtail millet |
| Madhya Pradesh | 9          | 2812          | Finger millet                               |
| Maharashtra    | 1          | 333           | Minor millets, Sorghum                      |
| Odisha         | 6          | 2756          | Finger millet                               |
| Rajasthan      | 1          | 235           | Finger millet, Pearl millet                 |
| Tamil Nadu     | 21         | 15695         | Finger millet, Minor millets                |
| Telangana      | 6          | 2258          | Finger millet, Pearl millet, Foxtail millet |
| Uttar Pradesh  | 1          | 302           | Finger millet, Pearl millet                 |
| Uttarakhand    | 4          | 679           | Finger millet                               |
|                | 132        | 64673         |                                             |

Source: NABARD Annual Report 2022-23.