

Eco-friendly: Millet Crops Cultivation in India

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ABSTRACT

India is an agricultural country, and agriculture is central to its culture and civilization. It contributed 18% to the country's GDP in 2025-26. Moreover, agriculture supports 46% of the country's population. The geographical circumstances here are perfect for growing coarse grains. As a result, coarse grains are grown in around 21 different states across the country. Given the importance of coarse grains for human health, the government of India has launched the Shri Anna Yojana to promote them. The year 2018 had been designated as the National Year of Millets. The United Nations had proclaimed 2023 the International Year of Millets, recognizing the significance of millets worldwide. Jowar, Bajra, Ragi, Kangni, China, Kodo, Sawana, Kutki, Amarnath and Brown top, sometimes known as Shri Anna, are examples of coarse grains. Coarse grains used to be the main component of our food and produce before the Green Revolution. The cultivation of wheat and rice increased dramatically, but the coarse grains vanished from our plates and fields over time. In the current world, we still have food security even if a lot of people lack nutritional security. Malnutrition claims the lives of lakhs of Indian youngsters each year. In India, malnutrition affects 194.4 million individuals, or 14.5% of the total population, according to a report by the Food and Agriculture Organization. In terms of hunger, India is placed 102 out of 123 countries in the Global Hunger Index (2025) which is concerning. Therefore, coarse grains are seen to be a very healthy choice in this scenario. Furthermore, millets also have high nutritional content. These small, seeded cereals are power packed with vitamins (Niacin, Thiamine, Riboflavin and others), minerals, antioxidants, polyphenols and dietary fiber. Thus, these grains are considered superfood due to their intrinsic nutritional value.

Keywords: Millet crop, Climate change, Indian agriculture, Gluten free food, Sustainable cultivation.

Highlights:

- Climate change impact on Indian agriculture.
- Millet crop and sustainable agriculture.
- Super nutrition food security.
- Life survival to business-oriented agriculture.
- Gluten-free millets food carbs.

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INTRODUCTION

India is an agriculturally dominant country, contributing 18% to the economy. Furthermore, 46% of the country's working population earns their livelihood from agriculture. This research paper highlights the importance of millet crops in the Indian agricultural system. Before the Green Revolution in 1964, millet crops were a priority in Indian agriculture. (Tiwari, 2020) However, after the Green Revolution, as crops like wheat, rice, and sugarcane spread across the country, the area under millet crops declined. Today, these crops are in short supply across the vast Great Plains of North India. At present, millets are grown mainly as a kharif crop in 21 Indian states, covering about 138 lakh hectares, largely on a small scale and in scattered areas. Among them, the most grown varieties include: Jowar, Kodo Millet, Little Millet (Samba), Foxtail Millet (Kagani), and Amaranth (Cholai). This situation is not favourable for the sustainable development of Indian agriculture. Modern agricultural practices are not climate-friendly. In such a situation, we need to prioritize millet crops. Millet crops contribute to the sustainable development of Indian agriculture and enhance agricultural biodiversity.

This research paper highlights the need, potential and current status of millet crops in Indian agriculture. India's climate

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and agricultural techniques provide ideal conditions for their cultivation. By making millet production accessible in the global market, we can ensure our participation. Today, civil society and the government need to work together to ensure that millet production reaches a respectful level. This will help us address problems and issues like malnutrition and sugar, and get their resolution, as well as provide the Indian population with an eco-friendly super food.

Fig. 1 depicts the various reasons behind the eco-friendly nature of millet crops, as it is nutrient-rich, ecologically sustainable in cultivation, conserves water, compatible with organic farming and helps in improving biodiversity, along with promoting smart Agriculture.

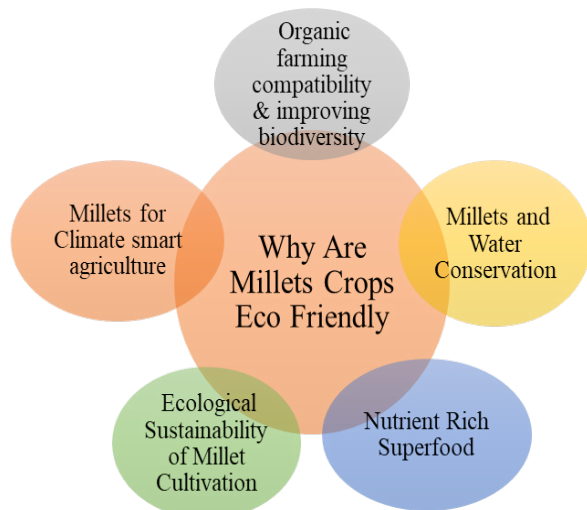


Fig. 1: Why are Millets Crops an Eco-Friendly Source of Food?

MATERIAL AND METHODS

In the presented research paper, primary and secondary data has been used. Primary data has been acquired from field observation of millet farms of Mirzapur and Banda, districts of Uttar Pradesh. Moreover, group discussions and questionnaire-based interviews were conducted to gather deeper insights from farmers, ensuring a comprehensive understanding of their experiences, challenges, and perspectives. Secondary data has been acquired from government research institutes, published reports, textbooks, press releases from the Government of India, newspapers and magazines. For data analysis and interpretation, cartographic techniques (map, Fig. 2) and sampling have been used. For data representation, pie charts, flowcharts and tabulation have been used. The percentage of production of millet crops and India's share in world export of millet crop has been depicted using pie charts (Fig. 3 and Fig. 4).

RESULTS AND DISCUSSION

India's 21 states grow a variety of coarse grains, the most common of which are millet, Jowar, Kodo, Samba, Kagani, and Cholai. Today, coarse grains are grown on 138 lakh hectares of land across the country.

Jowar

In terms of acreage and output in India, Jowar, an African plant, ranks third after rice and wheat. It may grow even under harsh conditions. It is produced for both human consumption and animal feed. It is a tropical crop that is prone to heavy rains and protracted drought. It thrives well in the dark soil of peninsular India. It may be cultivated throughout the Rabi and Kharif seasons. The primary producing states are Maharashtra, Karnataka, Rajasthan, Andhra Pradesh, and Madhya Pradesh. It contains an abundance of carbohydrates, protein, vitamins, and calcium.

Millet

Millet is the most common coarse grain and is grown in India as a Kharif crop during the monsoon season. Its grains are

used as food for humans, while its stems are utilized as animal fodder and to build shelters. It is used to make roti and bhaat (rice), and 40 to 50 cm of rainfall is sufficient. Rainfall above 100 centimeters is detrimental to it. It thrives well in sandy loamy or black soil and is grown mostly in Rajasthan, Uttar Pradesh, Haryana, Gujarat, Bihar, and Jharkhand states of India. Aside from being a nutritious grain, it is also a grain that keeps the body warm (Swaminathan, 2015). Therefore, demand for it grows throughout the winter.

Ragi

Ragi is a coarse grain that is tiny in size and is grown all around India. Nutrition-wise, it has an abundance of carbohydrates, protein, and iron. The primary producing states are Uttarakhand, Tamil Nadu, and Karnataka. Moreover, this food grain is cultivated in both tropical and temperate climates in South and North India. It is used in a variety of meals in India, including Roti, Dosa, Idlis, Sambar, Dhokla, and Tikki.

Kodo

It is a plant native to paddy family, although it can be cultivated readily even in regions with 40 to 60 cm of rainfall and doesn't require much irrigation. It is cultivated in various regions of India, having a low agricultural production cost, and is consumed similarly to rice (Millets 2019). Kodo is also a medicinal grain used to heal ailments. It is high in calcium, protein, fiber, carbs, iron, and other nutrients.

Sawa

This food grain is a product of the monsoon season and is mostly grown in the Ganga region. Cooking it in water allows it to be eaten similarly to rice. Its main processed products include Kheer, Laddus, Sattu, Biscuits, Snacks, and Papad. The stems are utilized as livestock feed. This food grain is widely consumed in Madhya Pradesh and Chhattisgarh's tribal communities. Aside from this, it is largely grown in Bihar and Orissa.

Nutrient-rich Super Food

India today has a significant burden in terms of nutritional security. Many publications and indexes have highlighted the issue of undernourishment, protein-energy malnutrition (PEM), and even micronutrient deficiencies. Millets, on the other hand, are nutrient-rich foods (Jagran, 2023). As a result, it might be an excellent answer to India's nutritional deficit. This crop has an abundance of micronutrients such as iron, zinc, and calcium. Furthermore, it has more bioactive components and a superior amino acid profile than any other staple grain used in India. It is also noteworthy that, being gluten-free and having a low glycemic index, millets adorn the plates of celiac disease and diabetic patients.

Ecological Sustainability of Millet Cultivation

India has committed to having a sustainable future, and millet farming is a terrific way to achieve that. Millet, for example, has high drought resilience. This means that millet not only uses little water, but it also puts less water stress on the ecosystem. Furthermore, millets are C4 crops that are very good at sequestering carbon from the atmosphere. Thus, millets have significant potential in alleviating the continuing climate

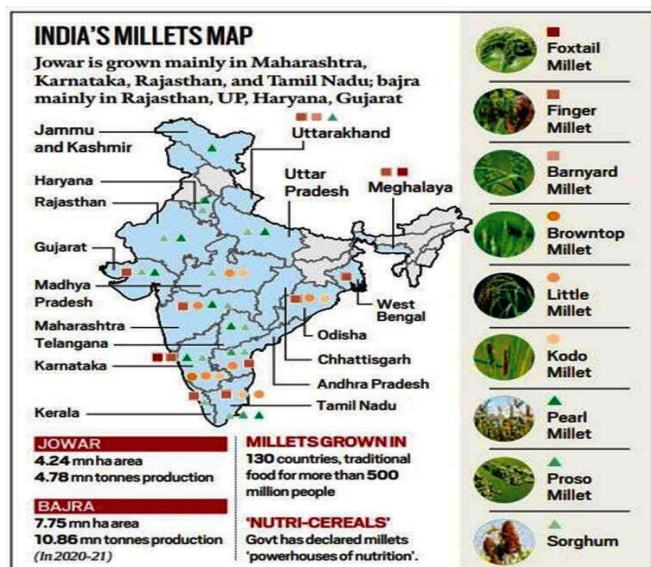
change and global warming catastrophe (Swaminathan, 2015). Millets, when introduced into cropping systems, increase agro-biodiversity. This decreases pest and insect attacks on crops. This also assures that no chemical insecticides or pesticides are used on the soil, which increases overall ecosystem resilience. As a result, cultivating millets is consistent with India's goal of achieving sustainable and environmentally balanced agriculture.

Millets and water conservation

Millets are a sustainable solution for a hungry future due to their lower water requirement for generation and high nutritional values. Unlike the other food crops, which were promoted during the Green Revolution and which required high amount of water (3000L – 4000L), for their cultivation, the millet crops need only 10% of the same amount for their growth, with better nutrition (Hussain, 2006). Also, they are the crops of arid and semi-arid regions, thus suitable for production in most parts of the Indian subcontinent, especially in the Bundelkhand region, Rajasthan-Gujarat dry region and Central India.

Organic farming compatibility and improving biodiversity

Millets can be grown using organic farming practices and promote agro-biodiversity by diversifying the cropping system. Due to overemphasis on rice/wheat culture in the wake of the green revolution, there was ignorance of crop diversity and millet production (Kaushik, 2008). Millets also help to preserve indigenous crop diversity and support ecosystem resilience, contributing to overall soil health and promoting sustainable agricultural production. Its dense canopy helps to suppress weed growth. Some varieties of millets, like finger millet, have the ability to fix atmospheric nitrogen through a symbiotic relationship with nitrogen-fixing bacterial mycorrhizal fungi. Millets are good preservatives of soil; like most grasses, they have a fibrous root network that helps maintain soil integrity due to its extensively branched nature (Rao et al., 2023a).



(Source: Indian Express, 26 November 2022, New Delhi)

Fig. 2: Millets grown in different states of India

Millets for climate smart agriculture

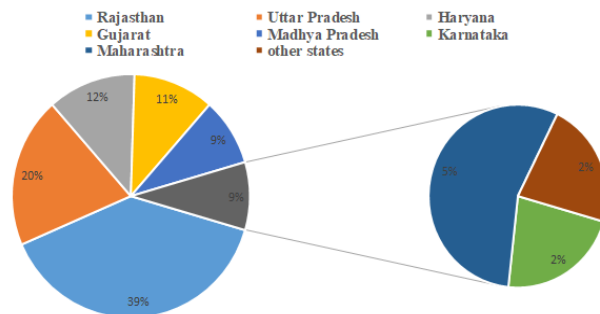
In the 21st century, the global climate change phenomenon has created a profound impact on food production, creating widespread fluctuations in crop yield. India is a tropical country; thus, climate change has contributed to the increasing frequency of extreme weather events. This has led to crop failure, increased cost of farming and food insecurity scenarios. Millets suit the conditions of the Indian subcontinent because they have huge resilience to biotic and abiotic stress, high level of climatic adaptation, a short life cycle, drought-tolerant nature and high-water use efficiency (Upadhyay, 2023). Foxtail Millets contain antioxidant properties and also need low fertilizer requirements, reducing the use of synthetic fertilizers. Hence, Millets as a climate-smart crop promote sustainable agriculture and food security.

The Fig. 2 represents the different types of millet grain found in India, as millets are grown in 130 countries and become traditional food for over 500 million people, but due to the widely diverse climatic and other geographical conditions of India, a huge variety of millet crops grown in India are mainly found in South India. The various millets found in India are Foxtail Millet, Finger Millet, Barnyard Millet, Brown top Millet, Little Millet, Kodo Millet, Pearl Millet, Proso Millet and Sorghum. It is clearly seen from the map that the states Maharashtra, Karnataka, Tamil Nadu, Kerala, Odisha, Andhra Pradesh, Telangana, Gujarat, Madhya Pradesh, Punjab, Uttar Pradesh grows a wide variety of millet crops (Indian Express 2022).

Production

India is the world's largest producer of coarse grains, accounting for 41% of worldwide production. According to the Food and Agriculture Organization of the United Nations, 30.464 million metric tonnes of coarse grains were produced globally in 2020. Of these 12.49 million metric tons is produced in India, which is the highest. India raised its coarse grain production by 27% in 2021-22 (Fig. 3). According to APEDA Report, millet accounted for 60% of total coarse grain production in the country in 2021-22, followed by Sorghum (27%), Ragi (11%), and other coarse grains (2%).

There is diversity in the production of millet grains in Indian States. Rajasthan stood first in the crop year 2021-22, producing



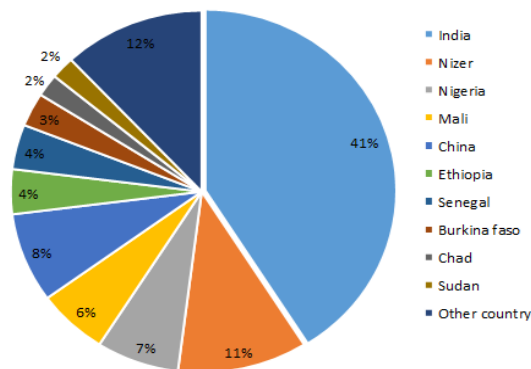
Source: Agricultural and Processed Food Products Consumer Development Authority New Delhi, Indian Meats Report Year- 2021-2022

Fig. 3: Participation of states in the production of grains in the country in the year 2021-2022

Millet Farming in India

CHART 03 INDIA'S PARTICIPATION IN GLOBAL GRAIN PRODUCTION IN THE YEAR 2021-2022

SOURCE: Agricultural And Processed Food Products Consumer Development Authority New Delhi, Indian Meats Report-2022



(Source: Agricultural and Processed Food Products Consumer Development Authority New Delhi Indian Meats Report- 2021-2022)

Fig. 4: India's Participation in Global Grain Production (Year 2021-2022)

39 percent of the country's coarse grains. The geographical conditions and climate here are very suitable for the production of coarse grains. (<https://www.millet.res.in>), followed by Uttar Pradesh with 20 percent production and Haryana at third position. The South Indian states of Maharashtra, Andhra Pradesh, Telangana, and Karnataka have favourable geographical conditions and climate for the production of millets grains, taking advantage of which there is a great need to encourage millets grain (Shri Anna) production in modern times.

Globally, India ranks first in the production of coarse grains with 41 percent. The African country Niger is at second place and Nigeria is at third place. The dry tropical climate of the African country is suitable for the cultivation and production of millet. The problem of hunger and malnutrition here can be solved by ensuring the production and distribution of millet (Fig. 4).

On a global level, Africa, as a continent, has the largest net agricultural area of coarse millets grains Table 1. The dry and tropical climate and agricultural circumstances lead to higher growth. Australia continent comes at the last and the descending index of millet crop agriculture, even though India has more net agricultural area in compared to Australia and Europe.

Table 1: Global scenario of millets cultivation

Country	Area (Lakh hectares)	Production (Lakh ton)
Africa	489	423
Asia	162	215
America	53	193
Europe	8	20
Australia and New Zealand	6	12
India	138	173
World	718	863

(Source: FAO Stat 2021)

Why millets are considered a super food and good for human health

Millets are considered a super food due to their great nutritional value. These nutrient-dense grains are an easy way to get the numerous types of minerals, vitamins, and carbohydrates needed for the integrated, sustained growth of human health. When it comes to nutrition, millet is three times more beneficial than rice and five times more beneficial than wheat. It specializes in Vitamin B, Calcium, Iron, Potassium, Magnesium, and Zinc, and is gluten-free. Millet's low glycaemic index (GI) allows for a steady release of glucose over time, thus lowering the risk of diabetes. It is an ideal diet for diabetic individuals and those looking to shed weight. Its high energy content keeps the body warm during the cold. In terms of nutrition, Ragi is also a highly significant grain. This cereal grain is high in protein and amino acids and devoid of gluten. Ragi consumption is crucial for children's brain development as they grow. It has significant concentrations of minerals, iron, and calcium, all of which are beneficial for overall physical development (IMRI 2022). As an antioxidant, Ragi gives the body the vital amino acids it needs. Since Sorghum contains polyphenols, it lowers cholesterol levels and facilitates heart disease management. Heart attack risk is decreased. Sorghum consumption also fortifies the digestive system. Khichdi, a traditional dish in North India, is cooked with Sorghum.

Kangni is high in carbohydrates, which helps to balance blood sugar levels in the body. It has an abundance of iron, which helps to boost the immune system, regulate anaemia in women, and enhance haemoglobin production. Sanwa promotes gastrointestinal health and weight management (PIB, 2023) Kodo contains calcium, iron, potassium, zinc, magnesium, and other nutrients, and regular consumption aids in the management of high blood pressure and cholesterol. Consuming Kuttu, a coarse grain, can also help prevent breast cancer in women, asthma in children, and gallstones. Chalai is high in protein and fiber, which helps to prevent greying and hair loss. Kangni contains 37-38% fiber. It is highly advantageous to those with type 2 diabetes. It is also very beneficial for blood sugar regulation. Thus, it is evident that millet is not only a very nutritious food grain but also possesses a wealth of therapeutic qualities. It is a good nutritional food for human health, and its use could help erase hunger and malnutrition in India and around the world.

Table 2 shows the nutritional content, including calories, found in various millet crops. The highest calorie content is found in millets, while the details of other crops are also presented in the table. According to Agricultural Engineering Mirror, Bhopal and Vats Chandrakant Agricultural Extension Science, Kullu (2022), Table 2 depicts the nutrient details of various grains such as Jowar, millets, Finger Millet (Ragi), Kutki, Sawaa, Kodo Millet, China, and Cornice. The energy content in the form of calories varies from 300 in Sawaa to 361 in millets. Protein ranges from 8.3 in Kodo to 12.5 in China, fats vary from 1 in millets to 5.2 in Kutki, and carbohydrates range from 55 in Sawaa to 80 in Ragi. Fibre content ranges from 1.2 in millets to 13.6 in Sawaa. Iron content is highest in Sawaa (18.6), while calcium is highest in Ragi (344).

Table 2: Nutrient details in Millets (Per 100 grams)

S. No.	Grain	Energy (calories)	Protein	Fats	Carbohydrates	Fiber	Iron mg	Calcium mg	Magnesium mg	Phosphorus mg	Glycaemic index
1.	Jawar	349	10.4	1.9	72.6	9.7	4.1	25	-	-	62
2.	Millet	361	11.6	1	65.5	1.2	8.0	42	-	-	54
3.	Ragi	354	13	3.4	80	2.7	8.9	344	-	-	54-68
4.	Kutki	329	9.7	5.2	60.9	7.6	9.3	1.7	1.4	220	52.11
5.	Sawaa	300	11	3.6	55	13.6	18.6	22	-	-	41.7
6.	Kodo	353	8.3	1.4	65.9	5.2	-	35	-	-	54-54
7.	China	341	12.5	1.1	70.4	2.2	1.9	-	-	-	50-64
8.	Cornice	331	12.3	4.30	-	6.5	-	31.00	-	188	54-68

Source: Agricultural Engineering Mirror Bhopal, Vats Chandrakant Agricultural Extension Science Kullu 2022

According to the source (millets.res.in/pub/2019/Millets_Indian_Himalaya), Kutki is the only grain reported to contain magnesium with a value of 1.4. Phosphorus is found only in Kutki and Cornice, with values of 220 and 188, respectively. The final Glycemic Index varies from 41.7 in Sawaa to a higher value of 68 in Ragi and Cornice.

Efforts of the Government of India for the promotion of coarse grains

The Indian government recognized 2018 as National Millet Grain Year. Various strategies and programmes aimed to stimulate the production and promotion of millet grains were introduced. The world learned about millet grains' appeal and nutritional value. (Rao, 2023b). The United Nations recognized 2023 as the International Year of Millets, with the backing of India and 72 other nations. In his budget statement on February 1, 2023, the Finance Minister acknowledged coarse grains and addressed them as Shri Anna. A Rs 2200 crore budget was set out for the Shri Anna Yojana, which was launched in order to promote it. The funds will be spent on promoting, researching, and developing coarse grains.

India exported coarse grains and items manufactured from them worth \$34.32 million during 2021 and 2022, including 16 key coarse grains. (Rajesh, et al., 2023) The government is working with entrepreneurs to encourage the export of value-added products manufactured from coarse grains, including as noodles, pasta, breakfast material, mixed namkeen, biscuits, sweets, healthy meals, snacks, energy boosters, etc. (IMRI, 2022). Major multinational retail stores such as Lulu Group, Carrefour, Al Jazeera, Almayra, and Walmart are being tapped to build Millet Corners for millet branding and promotion on a national and worldwide scale. A systematic plan for the expansion of millet farming and product marketing in the country is being developed by institutions such as the ICAR-Indian Institute of Millet Research (2022) Hyderabad, CSIR-Central Food Technological Research Institute, Mysore, and Agricultural and Processed Food Products Export Development Authority (APEDA). State governments are also putting together a number of initiatives to promote millet and encourage its usage in everyday life, including those in Uttar Pradesh, Madhya Pradesh, Rajasthan, Gujarat, Bihar, and Assam.

Indian millets and their products are in high demand in the global market. Indonesia, Brazil, Britain, America, the Netherlands, Italy, Armenia, and Japan are India's top importers of coarse grains. These countries now have the potential to export coarse grains, according to Directorate General of Commercial Intelligence and Statistics (DGCI), India. exported 147501.8 MT of coarse grains in 2020-2021, up 8.02% to 15933 2.16 MT in 2021-2022.

The government has also designated millets as "One Nation, One Product" and "One District, One Product" in 21 districts to harness the potential of millet production and integrate it into high-value domestic and international markets (Rao, 2023a). Under the National Food Security Mission (NFSM) program, the NFSM-Nutri Cereals component for millets is being implemented in 212 districts across 14 states. Today, more than 500 startups are operating within the millet value chain.

States like Karnataka, Odisha, Tamil Nadu, Telangana, Madhya Pradesh, Chhattisgarh, Rajasthan, Gujarat, and Assam, along with the northeastern states, have made significant efforts to promote millets. Millet missions have been launched in several states in India. The Ministry of Agriculture and Farmers Welfare and other related ministries, along with the Indian Council of Agricultural Research, IIMR, International Crops Research Institute for the Semi-Arid Tropics, state agricultural universities, and other institutions, are seizing this golden opportunity to ensure food and nutritional security in the country.

Over time, it becomes necessary to change our dietary habits. More attention needs to be focused on protein, minerals, vitamins, and fiber than carbohydrates. With changing lifestyles, including millets in the diet has become essential and indispensable for a healthy body.

Challenges of Millet Crop Cultivation in India

Impact of drought and flood disaster

India is a country with diverse climatic conditions, which provides variability to agriculture. However, the major concern is that droughts and floods occur frequently, which has a negative impact on millet cultivation. (Tiwari, 2016). The highest millet cultivation in India is observed in central Rajasthan, central Maharashtra, and Andhra Pradesh. However, these regions often suffer from recurrent drought disasters. Irrigation in these

areas is largely dependent on rainfall, and insufficient rainfall adversely affects millet cultivation. The monsoon season is the cropping period for Kharif crops, during which major millet crops such as jowar, bajra, ragi, and kodo millet are cultivated. But in years when the monsoon becomes overactive, severe flood situations arise in northern India (Singh, 2022). As a result, thousands of hectares of millet crops get destroyed. In 2025, due to excessive monsoonal rainfall, rivers in Punjab and other northern Indian states experienced severe flooding, which destroyed thousands of hectares of millet crops and caused heavy losses to the farmers.

Lack of Awareness/Society Attachment

Modern Indian society is highly attracted to junk food and fast food. Even among urban youth, interest in millet crops appears to be very low. Farmers are also becoming business-oriented. The popularity of millet crops among people is low, which has become a major obstacle in its production and promotion. There is also a lack of the food processing industry for these crops, which reduces their value. In the domestic and global market, the demand for millet crops is very low compared to crops like wheat, rice, pulses, and oilseeds (mustard, etc.). Demand in Europe, America, and Arab countries is mostly for wheat and rice. This situation discourages millet-producing farmers. Farmers of Punjab and the Ganges plain mostly prioritize the production of wheat and rice because their demand in the domestic and global market is very high.

Lack of Basic Facilities

India is an agricultural country and its economy is also affected by a lack of basic facilities. However, in the context of millet crops and their production, a lack of basic infrastructure is observed. The maximum millet crop in the country is found in the semi-arid regions of Rajasthan, Bundelkhand, and central Maharashtra. (Rao 2023a). Here there is an extreme lack of millet marketing centers, irrigation facilities, storage houses, and modern agricultural machinery. Farmers are also very backward in the context of social and economic development. Their approach towards millet cultivation is business-oriented, due to which millet cultivation is not developing. The other reason is the lack of crop protection facilities. In Rajasthan, 1000 hectares of millet crops are affected by the grasshopper coming from Pakistan. Similarly, stray animals, known as nilgai are a cause for concern in Uttar Pradesh and Madhya Pradesh. They are also destroying crops.

Farmers losing interest in Agriculture

This situation is a matter of grave concern in Indian agriculture, especially in Uttar Pradesh, Bihar, Madhya Pradesh, Karnataka and Maharashtra. The situation is very pathetic. People are leaving agriculture as a profession and migrating to cities for a livelihood. Farmer families themselves do not want their sons to be farmers (Kumar, 2022). In such a situation, the future of the farm is worrisome. Due to population growth in the villages, the land holdings are getting smaller. There is grave concern about millet cultivation here. The main issue is that when farmers are leaving farming, how to promote millet cultivation.

Impact of climate change

The country's climate is changing, causing temperatures to reach 45°C in May and June. Rainfall is also erratic. Floods and other disasters are becoming more frequent. These effects negatively affect millet cultivation. South India is 50% covered by the igneous rocks, which lack groundwater (Chapke, 2023). In such a situation, irrigation through tube wells is not possible. Here, ponds are the primary source of millet crop's irrigation. However, due to low rainfall and high temperatures, the water in the ponds and the moisture of the soil evaporate. As a result, the millet crops deteriorate due to a lack of moisture and irrigation. The above conditions are posing a challenge in the propagation of Millet crop cultivation and its diagnosis is essential.

CONCLUSION

The encouragement of millet production and its reintroduction to dietary use is a desirable move. While this would help farmers double their income, it will also improve agricultural biodiversity and ecosystems. Millets' nutrient profile will contribute to a balanced nutritional diet for Indian and global civilizations, ensuring both food and nutritional security. Consequently, the issue of malnutrition and hunger in society will be resolved. Furthermore, the production of coarse grains is both environmentally beneficial and capable of responding to the difficulties of climate change, which will promote the stability and long-term development of Indian agriculture. Thus, millets are Environmentally, Ecologically, Economically Friendly source of food and nutrition.

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AUTHORS' CONTRIBUTION

All the authors have contributions in conceiving the objectivity of the article while growing the perception assimilated from the literature available and reality-driven experiences of the methodology involved for deriving prerogatives pertaining to planting of the tree saplings.

Sandip Kumar Dutta: Conceptualization, writing of manuscript. Subhra Bandopadhyay: Conceptualization, monitoring, and editing of manuscript. Debnath Palit: Overall supervision and guidance during manuscript writing and the necessary correction of errors in the manuscript.

CONFLICT OF INTEREST

There is no conflict of interest while conceiving the present article in any manner whatsoever.

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