

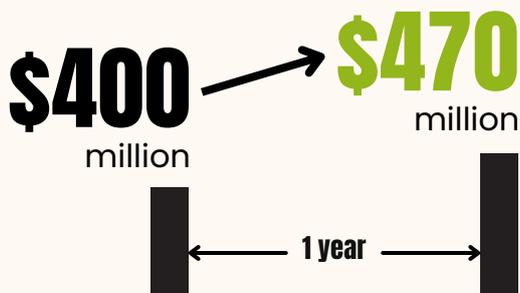
Millet Cultivation in India

INTRODUCTION

Millet is the most drought-tolerant & nutritious crop, which is mainly grown in arid and semi-arid regions. This crop is the main source of food for poor farmers, and it maintains the economic security of India. India consistently ranks among the top five millet-exporting countries globally. In the year 2020-2021, millet cultivation in India saw a growth in value, increasing from \$400 million to \$470 million.



Millet cultivation rate in India -
(2020-2021)



The millet cultivation rate increased from \$400 million to \$470 million from 2020 to 2021 in India (Apeda, a)



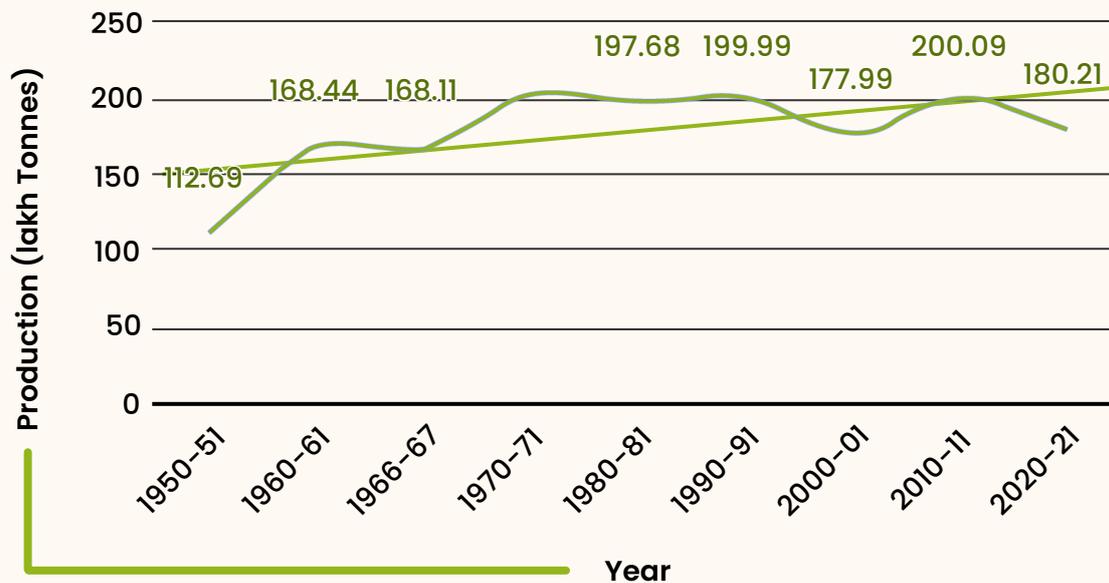


Figure 1: Millet Production trends

(Source: Apeda, a)

As shown in the fig (1), it is evident that millet cultivation rates in India are typically high. In India, Rajasthan, Maharashtra, and Madhya Pradesh are the three fastest-growing states (Apeda). Cultivation of millet varieties changes from state to state, Rajasthan has Bajra and Sorghum millet cultivations; Karnataka has Jowar and Ragi millets; while Maharashtra specialises in Ragi and Jowar cultivations. India produces 173 lakh tons of millet, which is considered 80% of Asia's production and 20% of global production, also the yield in India is 1239 kg/ha, global average yield of Millet is only 1229 kg/ha (MoAFW, 2022).

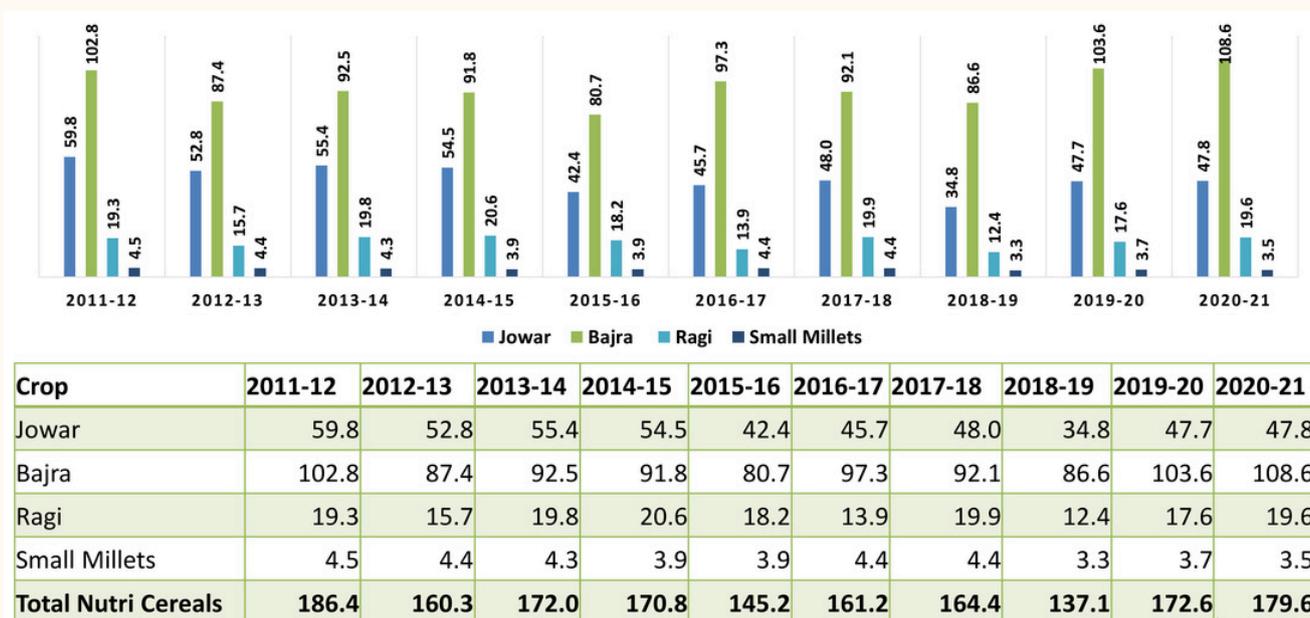


Fig.2. In India Production of millets over the years

(Source: MoAFW, 2022)

INDIA'S MILLET PRODUCTIONS SCENARIO

In the 1980s, millet production in India reached its peak. However, in the subsequent years, millet production has gradually declined, primarily due to a reduction in cultivated land. According to the Ministry of Agricultural and Family Welfare's report, millets such as Jowar, Bajra, Ragi, and others were regularly grown in India between 2011 and 2021 (MoAFW, 2022). The Bajra appears to be the most extensively grown of these grains (Fig.2). A number of elements, including dietary preferences, changes in farming techniques, governmental laws, and market demand, could have an impact on the causes for the decrease in millet output and the rise in bajra cultivation. Bajra (pearl millet), a drought-resistant crop that is frequently grown in arid and semi-arid areas, is an ideal crop for some of India's water-scarce regions. Noting that agricultural trends might alter over time due to a variety of causes, including government.

Table 1. Area Production and Productivity of Millet in India

Time	Finger Millet			Pearl Millet			Sorghum		
	Area (M ha)	Production (M t)	Productivity (kg/ha)	Area (M ha)	Production (M t)	Productivity (kg/ha)	Area (M ha)	Production (M t)	Productivity (kg/ha)
1991-2000	1.9	2.4	1319.5	10.3	7.3	64.6	11.8	9.80	831
2001-2010	1.5	2.1	1395	9.4	7.9	829.5	8.8	7.27	836.9
2011-2020	1.2	1.8	1591.4	8.1	9.0	1130.1	6.1	5.07	883.2

(Source: Meena et al., 2021) *ha- hectare, ** M ha = million hectares *** m t= million (106) tonnes,



As per this table, it can be understood that pearl millet production has increased from 1991 to 2020. India is experiencing an overall increase in production rates for three major millet varieties. However, it's worth noting that across the entire Asian region, sorghum production rates have seen a significant decline (Meena *et al.*, 2021).

State wise Millet Production: 2021-22 (4th Adv. Estimate)

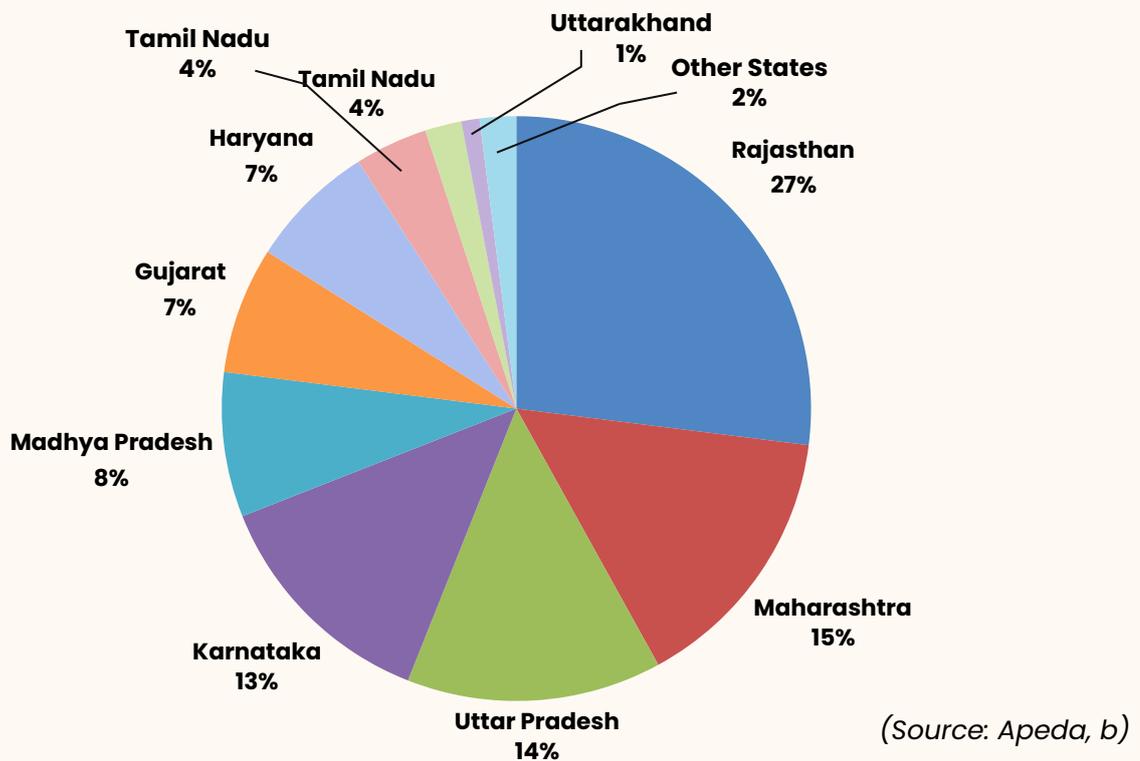
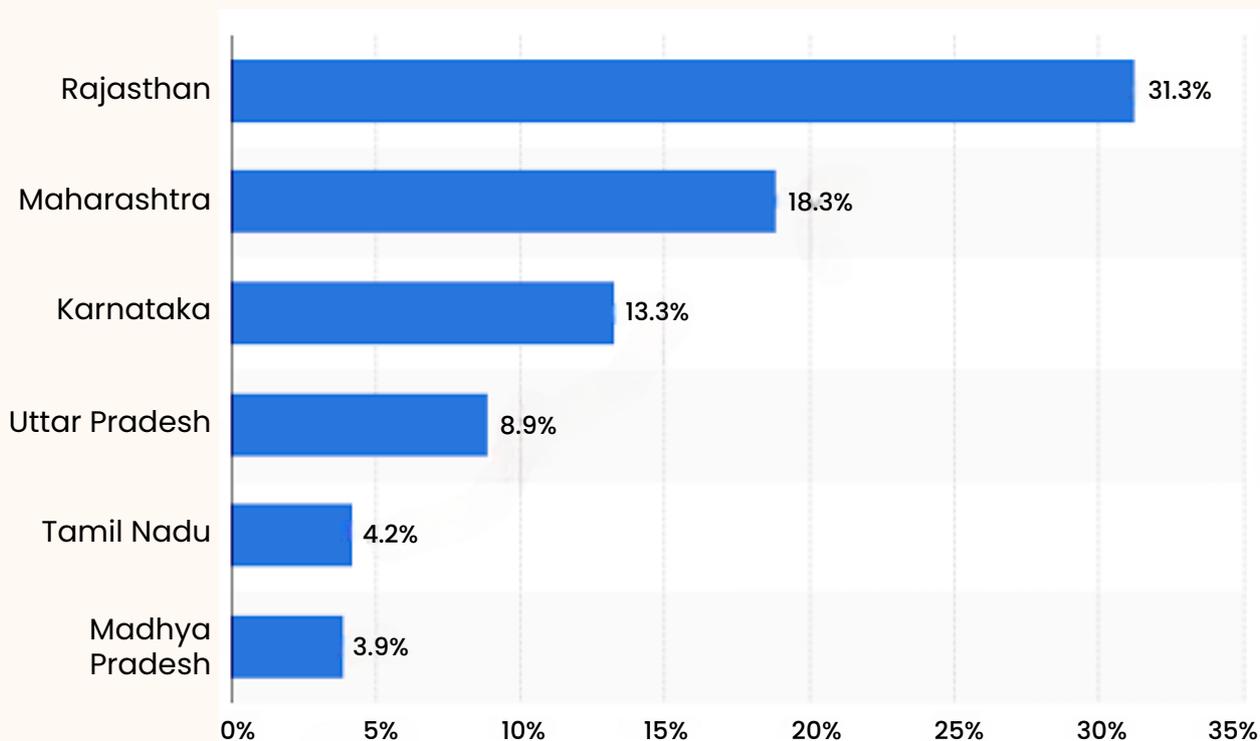


Figure 3: State-wise Millet Productions

According to Figure 3, Rajasthan contributed 27% of the millet production, while Maharashtra accounted for 15% (Apeda, b). In 2020, Rajasthan and Maharashtra had the highest areas dedicated to millet cultivation in India.





Share of millet cultivation area →

(Source: Statista, 2022)

Figure 4: State-wise info on millet cultivations

As indicated in Figure 4, Rajasthan allocates 31.3% of its land to millet cultivation, followed by **Maharashtra at 18.9%** and **Karnataka ranks third, utilizing 13.3%** of its land for millet cultivation.

The International Year of Millets has been officially declared for 2023 by the Food and Agriculture Organization of the United Nations (FAO). Currently, India is recognized as the largest producer of millets in the world. In 2019-20, the Public Distribution System (PDS) and the Integrated Child Development Scheme (ICDS) introduced these millet crops under school meals in India (India's Millet Revolution, 2023). In 2007, the National Millets Mission was launched, which majorly promoted millet production and consumption in India. This mission also encompasses initiatives related to organic farming.

CURRENT CHALLENGES IN MILLET CULTIVATION

- Due to highly laborious tasks and time-consuming attributes, millet production rates are decreasing. Currently, only 15 million hectares of millet are cultivated throughout India (India's Millet Revolution, 2023).
- Many farmers are unaware of the health benefits of millet, and the market price for millets is often high. This pricing creates trouble for both low-income consumers and farmers. Millets also face stiff competition in the market from rice and wheat. The lack of government initiatives and support is a hindrance to millet cultivation.



FUTURE SCOPE REGARDING MILLETS CULTIVATION



Historically, in India, Kutki millets were cultivated 5000 years ago, and Kodo millets were cultivated 3700 years ago. As a drought-resistant crop, millet has major advantages in all weather conditions. Jowar millet grows within 45 to 100 cm of rainfall, Ragi millet grows within 70–120 cm of rainfall, and Bajra millet grows within 40 to 50 cm of rainfall. Apart from these three millets, most of the other millets are grown in dry climates. They are low-maintenance crops with economic potential for all farmers.



Millets are also a good source of protein and fiber and are gluten-free. It has major mineral sources such as iron, calcium, zinc, magnesium, phosphorus, and potassium.



Millets fall under the category of C4 cereals, which help reduce carbon dioxide levels and increase oxygen, mitigating climate change effects in India.

SUMMARY

Despite wheat and rice being the dominant cereals in India, millets offer superior nutritional value and sustainable cultivation methods. They are resilient to climate stress, pests, and diseases, making them an essential food source in the face of climate change. Additionally, millets don't require a lot of water or other inputs, making them a sustainable method of combating climate change and creating robust agricultural systems. The challenge lies in raising awareness among local farmers about the nutritional benefits of millets.



Moreover, these crops can be extensively cultivated in regions prone to drought, making millet cultivation a suitable choice in such climatic conditions. Across India, the states of Rajasthan, Maharashtra, and Karnataka consistently rank as the top three producers of millets. However, during the green revolution, many states, including Odisha and Jharkhand, which had previously grown millets, switched to growing rice and wheat instead. In 2018, the government took steps to promote millet, starting POSHAN Mission Abhiyan, which includes 500 startups that were directly attached to the Millet value chain. Recently, the government of India launched (2021) the Production Linked Incentive (PLI) scheme to aim to promote millet cultivation and spread awareness about these "superfoods" due to their nutritional content and health advantages. These initiatives are crucial for the revival and expansion of millet cultivation in India.

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