

## Millets are “Crop of the Future”

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### Introduction

Millets belonging to family *Poaceae* are a group of “coarse cereal” food grain crops having tiny seeds. Millets can grow well in arid and semi-arid regions under marginal conditions of soil fertility and moisture. Globally, forty percent of the land surface is under dry land and to fulfil the Sustainable development goal 2 “Zero hunger” of the 17 sustainable development goal established by UN in 2015, millets are the suitable crop for dry land agriculture. Majority of them are indigenous to India and is essential part of Indian cuisine for centuries. They are also rebranded as “nutri-cereals” in Year 2018 (National year of millets) because they contain abundance of micronutrients including minerals and B-complex vitamins needed for the body to function healthily. Millets are highly nutritious, non-glutinous and non-acid forming foods. It can be consumed as functional foods owing to its richness in phytochemicals. The role of millets in designing the modern foods like multigrain and gluten-free cereal products is well known. Even in mixed cropping with vegetables and pulses, it could do well. Millets are known for their climate resilient traits such as drought tolerance, crop durability (short to medium duration), low labour demand, better growth and productivity under low nutrient supply, resistance to pests and diseases. They show minimum vulnerability to environmental stresses due to their hardy nature. They can fit themselves in a wide range of cropping pattern due to their short growing duration i.e., 2-4 months for example, little millet and proso millet cultivars can develop in 60 to 70 days while still producing reasonable and reliable harvests even in the most challenging circumstances.

### Type of millets based on size of grain:

- A) Major millets:** Sorghum (*Sorghum bicolor*), pearl millet (*Pennisetum glaucum* L.R. Br.) and finger millet (*Eleusine coracana*)
- B) Minor millets:** Barnyard millet (*Echinochloa utilis*), foxtail millet (*Setaria italica* L. Beauv.), kodo millet (*Paspalum setaceum*), proso millet (*Panicum miliaceum* L.) and little millet (*Panicum sumatrense*)

### Comparative nutrient content of different millet crops

Nutrients (per 100g)	Pearlmillet	Sorghum	Finger millet	Foxtailmillet	Barnyard millet	Kodomillet	Prosomillet	Little millet
Energy	361	349	328	331	341	302	309	314
Protein	11.6g	10.4g	7.3g	12.3g	7.7g	8.03g	8.3g	10.13g
Carbohydrate	65.5g	72.6g	72g	60.9g	67.0g	69.9g	65.9g	65.55g
Crude fibre	1.2g	1.2g	2.6g	14.0mg	7.6mg	8.5mg	9.0mg	7.72mg
Calcium	42mg	42mg	344mg	31mg	17mg	22.0mg	27mg	32.0mg
Iron	8.0mg	8.0mg	8.9mg	3.6mg	9.3mg	9.9mg	0.5mg	1.3mg

Source: Nutritive value of Indian food, NIN, ICMR 2018

There are galore of health benefit of consuming millets as food, some of them are mentioned below:

- Millets are suitable for people with celiac disease and diabetes as they are gluten-free and have a low glycemic index
- They are rich in fiber, which promotes digestive health and helps prevent constipation.
- Millets are a good source of protein, vitamins, and minerals, including iron, calcium, and magnesium.
- Some millets, such as finger millet and pearl millet, are high in antioxidants, which protect against chronic diseases.
- Millets are rich in polyphenols and other biological active compounds, thus, considered to impart role in lowering rate of fat absorption, slow release of sugars (low glycaemic index) and ultimately reduces the risk of heart disease, diabetes and high blood pressure
- They have a low carbon footprint and require less water and pesticides than other grains, making them environmentally sustainable.
- Millets are easy to digest, contain good amount of lecithin and can strengthen the nervous system



- In India, millet is generally consumed with legumes, which creates mutual supplementation of protein, increases the amino acid content, and enhances the overall digestibility of protein.

### **Millets in India**

India, is the largest producer, second largest exporter and consumer of millets that contributes more than 40% to the global millet consumption. With an aim to raise awareness and increase production and consumption of millets India is honoured to be at the forefront of popularising millets. Government of India proposed to United Nations for declaring 2023 as International year of millets (IYOM). The proposal of India was supported by 72 countries and UNGA resulted in declaration of 2023 as International Years of millets on 5<sup>th</sup> March, 2021. GOI focusing on strategies to enhance millet production, consumption, export, and branding to make this year a people's movement so that Indian millets, recipes, and value-added products popularise and accepted globally and sustainable production of millet with the involvement of the stakeholder. India's average yield in Millet farming (2021-22) is 1208 kgs per hectare. Despite the decreasing area under millet cultivation, there is 7% increase in production of millets have been reported during the same period (2021-22) due to the adoption of better farming practices by the local farmers. In 2021-22 pearl millet contributed 58% to the total millet production, followed by Sorghum (~29%) and Finger millet (~10%). India is a treasure mine of exceptionally valuable genetic diversity for millets. As the current Indian agriculture is suffering from unexpected change in monsoon conditions, millets obtained the status of "Famine reserves" due to their prolonged and easy storability under ordinary conditions. They are important source of food and fodder for the resource poor farmers in India. India's present agricultural strategy is centred on resurrecting millets.

### **Millets in Haryana**

Even though millets have a wide range of advantages still there is a very small area where they are grown as sole crop. In Haryana, millets such as bajra and jowar have been a staple food for many communities. However, with the increasing popularity of rice and wheat, the consumption of millets has declined over the years. Haryana ranks fourth in the country in terms of production of millets and has produced more than 11.77 lakh tonnes of millets in the last three years, between 2019-20 and 2021-22. District namely Karnal, Panipat, Jind, and Kaithal are actively growing millets. Millets, including bajra and jowar, are among the Kharif crops grown in dry and



semi-dry areas of Mahendragarh, Bhiwani, Gurgaon, Hisar, Rohtak, Jhajjar, and Rewari districts of Haryana. Jowar is sown mainly as fodder for cattle. They are suitable option for farmers in drought-prone areas like Haryana as they require less water and fertilizers compared to other crops and are environmentally sustainable. To promote the use of millets in Haryana, the government should take some needful initiatives such as educate people about the health benefits of millets and encourage farmers to cultivate them, include millet based dishes in the state's mid-day meal program and other government-run food schemes. Consumers can also play a role in promoting the use of millets by incorporating them into their daily diet. Millet-based dishes like khichdi, roti, and porridge are easy to prepare and delicious. Haryana's chief minister Manohar Lal Khatter presented the state budget 2023-24 and said that 27 crore rupees have been allocated to promote the cultivation of millets in Haryana through distribution of hybrid seeds, cluster demonstration and integrated nutrient and pest management. The state agriculture university Chaudhary Charan Singh Haryana Agricultural University also establishing Nutri-Cereal research station at Gokalpur in Bhiwani district in order to conduct research and promote the cultivation of millets in state.

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