

## Marvelous Millets: The Superfood need of the World

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### Abstract

Millets are a group of small-seeded grass of the Poaceae family. They are popularly known as Nutri-cereals, Smart foods, Super foods or Food of the 21<sup>st</sup> century because of their ability to grow and adapt in adverse soil and climatic conditions. However, these crops were long lost and neglected in order to develop popular cereals crops like rice and wheat. Rice and wheat were consumed by people on a regular basis which led to an increase in various types of health issues. But, recently due to the challenges of the 21<sup>st</sup> century like climate change, over-exploitation of agricultural lands, shortage of water and increased food cost the world is facing nutritional insecurity and there is an urgent need to switch towards dryland farming as the best crops suited under such condition are millets. The reasons why the demand for millet has surpassed the major cereals are because of their nutritive value, gluten free nature and many health benefits. In order to increase the production of nutrient-rich millets and create awareness among people the year 2023 is declared the “International Year of Millets”. Because of the unique characteristics of millets, their advantageous applications and customer concern for their health, food scientists and researchers have created a variety of value-added products which have high market value as people believe that millet-based products are of great benefit to their health.

**Keywords:** Health, Millet, Nutrition, Super food, Value added products

### Introduction

Over the last decade, the food revolution has rediscovered many long lost traditional healthy food options. Especially with the increase in consciousness about health, the demand for these healthy foods have been increasing day by day. Once a forgotten staple of



our nation, millets are again in the limelight. Millet is a common umbrella term which is used to designate all the Nutri-cereals of small seeded grass crops, also called as dryland cereals. These include the crops like Sorghum (*Sorghum bicolor*), Finger Millet (*Eleusine coracana*), Little Millet (*Panicum sumatrense*), Foxtail Millet (*Setaria italica*), Proso Millet (*Panicum miliaceum*), Barnyard Millet (*Echinochloa esculentum*), Kodo Millet (*Paspalum scrobiculatum*) etc. These can also be termed as “Super foods” as they have a plethora of health benefits owing to their richness in vitamins, minerals, fibres and protein. Millets are also well known for their gluten free nature which can eliminate toxicity by the action of components like catechins, and also help in reducing various diseases like diabetes, obesity, heart attack and celiac disease. Due to their richness in potassium, it is a well-established fact that they are good vasodilators as well. No wonder why millets have grown to be such a huge cynosure among the millennials. Millets are well adaptive in some of the specific niches due to their survival capacity in stressful periods, when other crops substantially fail to perform well.

They are well suited for various agro climatic regions are probably that is why they are found to grow from near sea levels in south India upto 2000 m above sea level at the state of Uttarakhand. Each and every millet has their own specialty in terms of survival in difficult environment conditions, like draught, high altitude and soil with lower fertility. The different types of millets and some of their special characters are shown in table number 1.

**Table 1- Millets and their special characters**

Sl.No.	Millets	Special Characters
1	Barnyard Millet	Fastest growing, voluminous feeder (Gupta <i>et al.</i> ,)
2	Proso Millet	Tolerant to heat and draught, also fast growing (Sahib, 1997)
3	Finger Millet	Wider Adaptability (Seetharam, 1998)
4	Foxtail Millet	Tolerant to heat and draught, also fast growing (Jijau, 1989)
5	Kodo Millet	Can be well grown in shallow and deep soil (Hegde and Gowda, 1989)
6	Little Millet	Can withstand both draught and waterlogging (Doggett, 1989)

**Changing the narrative of eating food**



Dating back to some of the earliest known civilizations around the world, like Dadiwan in China which settled about 8000 years ago, contained some fossilized fragments of millet. Signatures of C4 plants were found in the bones of dogs suggest that, these dogs were probably domesticated and fed with millets by the community. Another millet influenced civilization of north-central China is Yangshao culture. These findings highly suggest that early Chinese may have eaten millets before they got used to eating the very common rice.

In earlier times, millets were seen as the food of rural and tribal population only. Some very famous dishes among them are like *ragi muddle* (steamed balls of finger millet), *bajra roti* (chapati made with sorghum), and *bajra raab* (porridge). These delicacies kept the farmers fulfilled for the entire day and were also nutritionally secure. As the wheel of time revolved, population dynamics of the world drastically changed. Food habits among the individuals of the community took turns. People adopted sources of food which could be fed to a larger mass, like cereals which would substantially give more yield per unit of crop sown. Crops like rice and wheat were found to be more promising in feeding a larger number of people when compared to millets. This trend of eating cereals somehow hampered the growth of coarse grains in the process. The new generation forgot the old ways and got depended completely on a single source of diet. Further, with the success of green revolution eliminated the pre-existing food diversity and thus rice and wheat became a household staple around the entire country. This led to increment of various health issues like increase in glutamic index of the consumer, increase in insulin resistance, excess body fat development which leads to problems like blood pressure. According to Krittanawong *et al.*, (2017) continuous consumption of white rice leads to an increase in metabolic syndrome by 30%.

All these drawbacks of consuming cereals on a regular basis have led us to go back again to our roots. Millets are now seen as a potential saviour crop which will be responsible for increasing our nutritional security. Internationally, 2023 is being celebrated as international year of millets which aims at consolidating and pushing for global cooperation to promote millets in several ways. Back in 2018, Indian government celebrated national year of millets where it was rebranded as nutri-cereals. India is the largest producers of millets, followed by Niger and China. States like Rajasthan, Maharashtra and Karnataka are the top producing states in India.

Advantages of growing millets over other crops are:

1. They can be grown in harsh environmental situations
2. They need very less inputs, hence the initial cost of growing them is less
3. Millets can be grown as a fodder crop as well
4. They are a store house of nutrients and proteins
5. They do not emit carbon-di-oxide like rice crop
6. Water requirement in case of millet is very less
7. They are good source of iron, zinc and calcium
8. They are dual source crops, can be used as feed as well as fodder when required
9. Very less maintenance is required for these crops. The farmer can focus on other avenues as well side by side while he grows millets
10. After harvesting, millets can be well stored for upto two years without any harm
11. Millets are rewarding crop. They have a potential to give a generous amount of return when sold at the proper time
12. Millets have deep root system compared to other field crops. They can extract water from the deepest layers of the soil profile effectively
13. Cultivation of millets also reduces the carbon footprint on the earth
14. Millets when consumed with cereals or pulses, creates mutual supplementation of proteins hence, increasing its total digestibility
15. Millet based products are easy and quick to prepare. These products are getting popularity at the local markets now a days



#### **Government initiatives to promote millet production**

- The government has made a number of actions to promote millets. To increase demand both domestically and internationally and to supply people with wholesome sustenance, the "National Year of Millets" was celebrated in 2018, and the UN General Assembly approved a motion sponsored by India designating 2023 as the "International Year of Millets."
- In April 2018, the Union Agriculture Ministry designated millets as "Nutri-Cereals," citing their "high nutritive value" and "anti-diabetic properties."



- The National Food Security Mission (NFSM), which was introduced in October 2007, includes the Government of India's Millet Mission.
- The Millet Mission of the Centre will concentrate on increasing farm-gate processing and enabling farmers through collectives while emphasising value-addition and aggregate production.

### Conclusion

Millet, a coarse cereal seed and side crop cultivated by farmers, is still neglected. Its greatest application in the human diet has been a subject of study for decades, but it has yet to reach communities or industry. Undoubtedly, the green revolution favoured a boon for the country and gave much-needed agricultural, financial, and research attention to wheat and rice, but production of other minor crops including millets was declined. Millets are mostly used as animal feed or as a side cereal in the absence of wheat and rice, therefore the medicinal potential of seed components like protein has largely gone untapped. The majority of the customers were unaware of the nutritional, environmental, and economic benefits of millets. Millet protein could be a low-cost alternative plant-based protein source to presently available animal protein supplements. Several studies have shown prominent health effects of consuming millet protein suggesting potential applications in medicinal products and therapeutic diet. Millets are easy to grow, can tolerate adverse climatic conditions, have different health benefits and therefore can be a good alternative of rice-wheat."

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