

COMMENTARY

WHY MILLETS?



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A large segment of the population, particularly in developing countries, is experiencing food insecurity and malnutrition. Recent COVID-19 pandemics, economic slowdown, climate change and population growth have severely obstructed the human food system in different ways. Realizing the gravity of the global crisis, the United Nations, in one of the Sustainable Development Goals, has set a global target to end hunger by 2030. Undoubtedly, maximizing the production of existing agricultural produce appears to be one of the straightway solutions to the problem. However, the overproduction of existing staple foods has various limitations. Therefore, this is a challenge for humanity to transform the food system to provide an adaptable, affordable, healthy, and nutritious diet to the needy, irrespective of socioeconomic status.

The unprecedented use of fertilizers, pesticides, and weedicides to maximize agricultural production, resulted in the deterioration of soil productivity. The introduction of high-yielding varieties is a time taking process and cannot be achieved in a time-defined manner. The current agricultural system mainly depends on the production of rice, wheat, maize, potato, and significant scientific interventions have been implemented to maximize their production. However, they require a voluminous investment that limits their affordability, particularly among the vulnerable population. At this juncture, the world is looking forward to formulating a comprehensive food system that should be realistic, affordable, adaptable, healthy, nutritious, and available to all. The quest for a sustainable food system necessitates the propagation of crops which should be climate resilient and less requiring of water, pest control, and chemical fertilizers.

Apart from the conventional staple cereals, the voice to incorporate millets into the human food system is gaining new momentum. The initiative of the government of India to popularise millets production and consumption was globally recognized when the General Assembly of the United Nations declared the year 2023 as the International Year of Millets. While looking at the nutritional and biochemical composition of millet grains reveals that these cereals possess a balanced source of carbohydrates, protein, dietary fibers, lipids, phytochemicals, and essential macro- and micronutrients. These magic grains have the potential to play a crucial role in providing affordable quality nutrition and help in fighting against food insecurity and malnutrition.

Global campaign for Millets

So, why are the cultivation and consumption of millets gaining momentum? Here are some vital facts that reposition millets to be the sustainable crop of the future:

A. Climatic resilience

- Millets are ecologically adapted to grow in almost all climatic conditions, even in arid and semi-arid regions. They possess the ability to withstand drought and other harsh climatic factors.
- Often, millets do not require chemical fertilizers and can grow profusely, even on nutrient-depleted soils.
- They are resistant to pests and diseases.

B. Nutritional fitness

- Millets are rich in essential macro- and micronutrients, carbohydrates, protein, dietary fibers, lipids, and phytochemicals.
- Their well-balanced nutritional biochemistry makes them more nutritious than most commonly used cereals (such as rice, wheat, and maize) in terms of vitamins, fiber, proteins, and minerals (calcium and iron).
- Millet flours are gluten-free.
- Millets are a good source of energy, dietary fibers, slowly digestible starch, and resistant starch, and thus provide sustained release of glucose and become an ideal food for people with diabetes.
- Compared to cereals, millets are a good source of protein- and sulfur-containing amino acids (methionine and cysteine) and have a better fatty acid profile.

Recent studies endorse multiple health benefits associated with the consumption of millets. For example, daily intake of millets in diets has been helpful in reducing the incidence of cancer, obesity and diabetes, cardiovascular diseases, gastrointestinal problems, migraine, and asthma. Consumption of millets leads to an increased intake of dietary fibers and carbohydrates with a low glycemic index. Therefore, millets play a vital role in the modern diet as a potential source of essential nutrients, especially in underdeveloped and developing countries.

Challenges and future perspectives

Worldwide, millets are progressively being recognized as nutritionally significant grains. However, they are the least exploited. The presence of antinutrient factors such as phytic acid, polyphenols, and tannins limit their biofortification. The presence of phytic acid limits the bioavailability of monovalent cationic minerals such as potassium, calcium, iron, zinc, and magnesium, leading to a deficit in their absorption. On the other hand, their social acceptability of millet-derived foods is the real challenge. At the same time, the innovation and renovation of the organoleptic characteristic of millets will pave the way to integrate millets as

integral components of human diets. These challenges will also open new windows of opportunity for the food industries.

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