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Millets: India's Ancient Superfood

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Millets possess an extensive historical background that traces its origins to ancient eras. The earliest evidence of people cultivating millets were discovered in the Indus Civilization around 3000 BC. Millets have 6000 varieties found across the world. Among them around 2600BC, the cultivation of the little millet marked the beginning, followed by the cultivation of other varieties such as foxtail millet, sorghum, ragi, kodo millet and bajra. These grains are supposed to be among the first cereal crops used for domestic purposes. As time passed, the cultivation and utilization of millets spread all over the world. Millets adaptability to various climates and their ability to survive in harsh conditions popularize among the people. Today, millets are cultivated in 131 countries, marking their global prevalence. Across Asia and Africa, millets have remained a traditional food source for around 590 million people. So basically, millets are plants that belong to the Poaceae (Gramineae) family. Millets are the small seeded grasses that called as nutri-cereals due to their nutritional content. They also referred as the smart food because of their sustainability and environment-friendly nature.

For thousands of years, there has been a practice of growing coarse grains in India and including them in food, but for the last few years, these have been replaced by spicy foods in the market, due to which we and our health have to suffer. These coarse grains mainly include Bajra, Maize, Jowar, Ragi (Madua), Sawa, Kodo, Kangni, Kutki and Barley, which are beneficial for our health in every respect. In the name of Green Revolution in the 1960s, we replaced them with wheat and rice. But now the world is once again returning to these coarse grains and they have been given the status of super food in the market. Let us know how much these coarse grains benefit our health. All coarse grains contain calcium, fiber, vitamins, iron and protein, which make our food nutritious.

These Nutri cereals are annual, short-duration (75 to 120 days) rainfed crops that grow well on shallow and low fertile soils with a pH range from acidic to alkaline soil. It has a low water requirement and can be grown even under extremely high temperatures and less rainfall. These are resistant to drought, resistant to most diseases and pests, and need minimum care. These are C4 plants that can convert CO₂ into carbohydrates with higher photosynthetic efficiency than C3 plants. Millets are Nutri cereals and climate-resilient crops. It ensures food security, nutritional security, and economic security for people. Millets are superfoods that are rich in macro and micronutrients. They contain non-starchy polysaccharides, gluten-free proteins, high soluble fibre content, high antioxidants, low glycemic index, and are rich in bioactive compounds. It is a good source of beta-carotene and B vitamins.

The term 'Millet' originated from the Latin word 'Milum' means grain. Millet is a group of cereals that belong to the Poaceae family commonly known as the grass family. There are various types of millet, which differ in their colour, texture, appearance, grain size, and

species. On the basis of the size of the grain, these are classified into three types – Large or major millets, Small or minor millets and Psuedomillets.

Type of millets

A) Major millets: Sorghum (*Sorghum bicolor*), pearl millet (*Pennisetum glaucum*) and finger millet (*Eleusine coracana*)

B) Minor millets: Barnyard millet (*Echinochloa utilis*), foxtail millet (*Setaria italica*), kodo millet (*Paspalum setaceum*), proso millet (*Panicum miliaceum*) and little millet (*Panicum sumatrense*)

C) Psuedomillets : Amaranth (*Amaranthus hypochondriacus*) and Buckwheat (*Fagopyrum esculentum*)

The International Year of Millet 2023

The Centre announced a slew of events around the nation to encourage the growing and consumption of the "nutri-cereal" as it officially launched the International Year of Millets. Events will be held all throughout the year to promote and raise awareness of the advantages of millets for the "cultivator, consumer, and climate" by central ministries,



State governments, and Indian embassies. According to a government announcement, millets will play a very significant role at G-20 meetings. In December, India took over as host country of the G-20 conference.

Advantages of millets

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 as grain crop.
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 up to 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.

Constraints in millet cultivation

1. Lack of suitable varieties/ hybrids.
2. Post harvesting technology.
3. Farmer acceptability.
4. Lack of support.
5. Lack of market facilities.

Value added products

Millets exhibit remarkable culinary adaptability, as they can undergo various processing methods to yield diverse forms, including whole grains and flour, through the application of different processing technologies. Notably, millet grains can be finely ground to produce flour, a versatile ingredient employed in the preparation of an extensive array of dishes such as flatbreads, pancakes, and noodles. Furthermore, millet flour serves as a key component in the formulation of gluten-free bakery items, including bread, muffins, and cookies. Its functional attributes extend to acting as a proficient thickening agent in soups, stews, and gravies, contributing not only to flavor enhancement but also ensuring optimal consistency.

Millets are renowned for their culinary adaptability, finding common use in the preparation of porridge and fermented items such as idli and dosa, which stand as popular breakfast choices across various cultures. The versatility of millets extends to beverage production, encompassing millet-based beer and traditional drinks. For instance, finger millet takes center stage in the production of the South Indian beverage known as "ragi malt," while pearl millet contributes to the crafting of "bantu beer." Additionally, innovative processing techniques like extrusion can be employed to create popped millet, akin to the popular snack popcorn.

In summary, the culinary potential of millets is vast, owing to their adaptability and rich nutritional profile. Their application spans a broad spectrum, from traditional dishes to innovative food products, showcasing the diverse ways in which millets can be integrated into culinary practice

Government initiatives to promote millet production

1. 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."
2. In April 2018, the Union Agriculture Ministry designated millets as "Nutri-Cereals," citing their "high nutritive value" and "anti-diabetic properties."
3. The National Food Security Mission (NFSM), which was introduced in October 2007, includes the Government of India's Millet Mission.
4. 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.

Health benefits of millets

Millets are a whole grain loaded with protein, antioxidants, and nutrients. They have numerous health benefits, and gluten-free, which makes them an excellent choice for people who have celiac disease or want to follow a gluten-free diet. Their nutty taste and versatility make them well worth trying. Let's bring millets back to our plates for a healthy lifestyle and for the benefits of our coming generations. Millets have potential health benefits. It is evidenced that consumption of millets.

- * reduces risk of heart disease.
- * protects from diabetes.

- * improves digestive system.
- * lowers the risk of cancer.
- * detoxifies the body.
- * increases immunity in respiratory health.
- * increases energy levels.
- * improves muscular and neural systems and are protective against several degenerative diseases such as metabolic syndrome and Parkinson's disease.

Nutritional benefits of millets

Millets are full of nutrition and dietary fibre. They serve as good source of protein and micronutrients. The millets contain 7-12% protein, 2-5% fat, 65-75% carbohydrates and 15-20% dietary fibre. The essential amino acid profile of the millet protein is better than various cereals such as maize.

Millets are highly nutritious, non-glutinous and non-acid forming foods. Millets are gluten free and can be a substitute for wheat or gluten containing grains for celiac patients. By hydrating the colon, millets help us in staying away from being constipated. Millets have Niacin which help in lowering cholesterol. Millets are more nutritious than fine cereals. Small millets are good source of phosphorous and iron. All millets have high antioxidant properties.

Conclusion

Millets were once labelled as 'poor man's food,' but in recent times, awareness has increased, and millets are emerging as the smart food of the 21st century. The reasons behind the popularity of millets are their nutritional benefits and their environmentally and far friendly nature. Government support is needed in various forms, including subsidies, schemes, and other incentives, to incorporate millets into the diet of individuals. Furthermore, awareness campaigns and educational programs play a crucial role. Millets are not just grains; they are seeds of healthier and more environmentally conscious behaviour.

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