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Millets: Must Include in Daily Diet

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Millets are a type of small-grained cereal food crops that are very nutritious and cultivated on soils with poor fertility or marginal soils with minimal inputs like pesticides and fertiliser. These crops make a significant contribution to the nation's food and nutritional security. Most millet crops are native to India and are known as "nutri-cereals" since they are rich in the majority of nutrients required for the body to function healthily. Millets are rain-fed crops that grow well in regions with low precipitation, which gives them a significant role in sustaining agriculture and ensuring global food security. Based on the area farmed and the size of their grains, the millets are separated into major millet and minor millets. The most important millets are pearl millet (bajra) and sorghum (jowar). Foxtail millet (kangni/Italian millet), finger millet (ragi/mandua), small millet (kutki), kodo millet, barnyard millet (sawan/jhangora), proso millet (cheena/common millet), and brown top millet (korale) are examples of minor millets. These millets all grow more quickly and complete their life cycles in two to four months. Additionally, they are able to adapt to changing environmental conditions, especially during the monsoon season, and they can be used in a range of cropping systems. Those who live in dry and arid places of the world rely heavily on millets as a source of food and energy. In addition to its industrial uses as bird feed, brewing, drinkable alcohol, etc., the stover left over after grain harvest provides a source of nutritional food for animals. For food and fodder, millets have been essential in dry regions of Asia and Africa (Anonymous, 2018).

Since millets are the only crops that ensure yields in famine situations, so they are sometimes referred to as famine crops. Until to now, these crops were also known as orphan crops because they were the last to be considered for cultivation because to their low demand in the millets. Nonetheless, these underutilised crops are crucial for the livelihood, food, and nutritional security of the underprivileged around the world, as well as for diversifying our food supply. Let's take a quick look at each of the popular millets grown now before learning more about their uses and domestication history. Millets were the first crops that humans consumed, but their importance and cultivation decreased as a result of industrialization and urbanisation, which opened the way for large-scale rice and wheat growing. Millets have re-emerged as a feasible option to live a healthy life and can lower the incidence of major lifestyle disorders as diabetes, hypertension, and cardiovascular disease become more common due to newly acquired life-styles and eating habits.

Beyond eating, millet crops have many other applications. Moreover, they serve as feed, fodder (dry and green), and raw materials for manufacturing (including bioethanol from sweet stalk sorghum). Millets fare better under moisture stress because of their C4 photo-respiratory physiology armour. Sorghum and pearl millet enhanced hybrids yield 30–50% more than types. Sorghum and pearl millet are effective high biomass producers. Millets are "Resource Smart and Climate Smart" crops as a result.

According to the USDA, a cup of millet flour provides 455 calories, about 5 grams of fat, 89.4 grams of carbohydrate, 4.2 grams of fiber, about 2 grams of naturally occurring sugar, and 12.8 grams of protein. (USDA)

Millets Production In India

The world's largest producer of millets is India. In 2020, the two millets grown in India, Pearl Millet (Bajra) and Sorghum (Jowar), would account for roughly 19% of global production. In terms of global millets output in 2020, India produces the most pearl millet (40.51%), followed by sorghum (8.09%). The top states in India for millets production are Rajasthan, Karnataka, Maharashtra, Uttar Pradesh, Haryana, Gujarat, Madhya Pradesh, Tamil Nadu, Andhra Pradesh, and Uttarakhand. Currently, these ten states will produce about 98% of all millets in India in 2020–21. More than 83% of the world's millet is produced in six states: Gujarat, Rajasthan, Karnataka, Maharashtra, Uttar Pradesh, and Haryana. Rajasthan is responsible for 28.61% of all millet output in India. Pearl millets, sorghum, finger millets, foxtail millets, kodo millets, barnyard millets, proso millets, small millets, and pseudo millets like buckwheat and amaranths are among the many varieties of millets produced in India. The three millets that make up the majority of India's overall millet production are Pearl millet (Bajra), Sorghum (Jowar), and Finger Millet (Ragi) (www.apeda.gov.in)



Why Promotion of Millets is Necessary?

Climate-resistant crops: Millets are a sustainable food supply for reducing hunger in the face of climate change since they are resistant to climatic stress, pests, and illnesses. Moreover, millets don't require a lot of water or other inputs, making them a sustainable method of combating climate change and creating robust agri-food systems.

Nutritional Security: Millets are packed with minerals like iron, folate, calcium, zinc, magnesium, phosphorus, copper, vitamins, and antioxidants. They are also high in dietary fibre. They are crucial for children's healthy growth and development, but studies have also shown that they lower adults' chances of developing diabetes and heart disease. Because they are gluten-free and have a low glycemic index, millets are healthy for diabetics and can fight off heart disease and nutritional deficiencies.

Having a secure economy: Millets can be cultivated in dry, infertile, mountainous, tribal, and rain-fed regions. Millets also have shorter cultivation cycles, less expensive cultivation requirements, and are healthy for the land. Due to these characteristics, millets will only require a small initial investment to produce, making them a viable source of revenue for farmers.

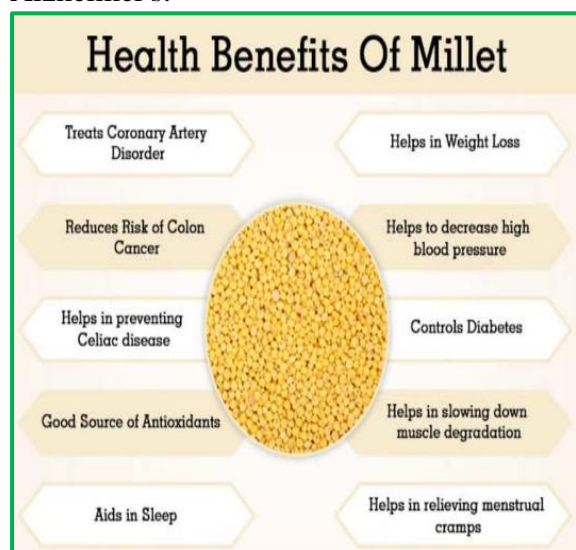
Millet's importance in nutrition

Gluten-free: A diet based on pearl millet is gluten-free, making it an option for people with celiac disease and gluten intolerance. Together with rice and corn, wheat is the most popular cereal in the world. Wheat also contains the protein gluten, which can lead to gastrointestinal issues like bloating, flatulence, and irritable bowel syndrome.

Rich in Essential Nutrients: It is abundant in various minerals, including iron, magnesium, calcium, phosphorus, manganese, potassium, copper, zinc, and chromium, and includes the majority of the vitamin B. Compared to other cereal crops, it also has higher concentrations of potassium, calcium, and iron. It is the cereal of choice for pregnant women because it has the highest folic acid content of all the cereals.

Source of protein: It is the best source of protein among typical millet kinds because it contains about 14% protein. Yet, the amount of the amino acid lysine is insufficient. As a result, a meal made of pearl millet flour and lysine-rich foods like beans, moong dal, chana dal, etc. is a complete protein supply.

Antioxidants abundant: It is a high source of antioxidants, and eating them can help prevent diseases caused by free radicals, like cancer, arthritis, cardiovascular disease, diabetes, and Alzheimer's.



Eliminates iron deficiency: Due to its high iron and folic acid content, this cuisine is a good choice for expectant moms and nursing mothers. The new types of pearl millet offer women a higher dose of dietary iron. In addition to iron, it contains a sizeable amount of zinc, which is necessary for healthy growth and the formation of a robust immune system. While children frequently eat rice and wheat, which are both relatively poor sources of iron, iron deficiency anaemia is highly common in youngsters.

Help in Bringing Down Blood Sugar Levels: Pearl millet has a high fibre content and a high carbohydrate content that are slowly digested

and maintain a stable glucose level for a considerable amount of time, making it particularly helpful in maintaining normal blood sugar levels. They are therefore a nutritious meal choice for diabetics.

Help in lowering cholesterol: Rich in dietary fibres and cholesterol lowering properties of these grains are good for heart patients. Phytic acid in pearl millet increases the cholesterol metabolism, thereby stabilizing the cholesterol level in the body. It also contains the vitamin niacin, which reduces the cholesterol.

Relieves Constipation: Pearl millet's high fibre content helps to relieve constipation and the digestive process. Children with persistent constipation may consume little amounts of pearl millet on a regular basis.

Other Benefits: For lactating women, pearl millet is beneficial. Pearl millet must be consumed by lactating women to boost milk output. The calcium content of pearl millet is also three times higher than that of milk. Consuming pearl millet is therefore advantageous for both mothers and their newborns. The foxtail millet plant has lipid-lowering and anti-hyperglycemic properties. Due to their high tocopherol content, millets are also a good source of carotenoids (78-366mg/100g) and have a better antioxidant activity. Although though pearl millet is one of the most popular foods in our nation, it has a lot of negative side effects. Because it contains goitrogens, which restrict the thyroid gland's activity and promote goitre

and contribute to thyroid problems, pearl millet is not advised for people who have thyroid gland malfunction.

Future thrust

Shifting the narrative: The popular impression of millets' consumption and commerce needs to shift, and coarse cereals/millets need to be rebranded as nutri-cereals. Also, civil society may start the jan andolan by making minor changes to eat healthier foods, which are excellent for the environment and support our farmers' livelihoods.

MSP on Lines of Wheat and Rice: Millets could receive MSP from the government as a test, same to how wheat and rice do (state guarantee of procurement at MSP).

Mission Mode Initiative: The government can encourage farmers to match their regional cropping practises to one of India's 127 distinct agro-climatic zones and encourage millet cultivation in accordance with the terrain and available resources in the area.

Inter-Ministerial Approach: A multi-ministerial policy framework that aims to create an Atma Nirbhar Bharat and echoes the appeal for sustainable development and self-sufficiency around the world is necessary.

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