

INTERNATIONAL YEAR OF MILLETS 2023

Millets For Your Health Understand and Adopt

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If you have never tried millets, you are losing something very important — taste, variety and the building blocks of good health.



THE celebrations for the International Year of Millets 2023 (IYM 2023) have begun worldwide. The proposal for an International Year of Millets was put forth by the Indian Government and endorsed by the members of the Food and Agriculture Organisation (FAO) Governing bodies at the 75th session of the UN General Assembly (UNGA). The resolution adopting the International Year was supported wholeheartedly by over 70 countries in March 2021.

It is expected that the IYM 2023 will witness increased demand for millets and this will have some takeaway for everyone. A win-win situation for all. The farmers, most of them small and marginal, will benefit due to a surge in demand for millets and thus a better price. Consumers all over the world will benefit with overall improved health. The Small-Scale industries and Startups dealing in millets, millet products and by-products will benefit due to increased National and International demand for these products.

Last but not the least, the environment and the earth will benefit due to the eco-friendly nature of millet farming. The little grains have the ability to restore the health of people,

economy, land and climate. A rare opportunity to tackle many problems with a single solution.

The Rise, Fall & Rise of Millets

India had already celebrated the National Year of Millets in 2018 and had therefore floated the proposal for an International Year of Millets. Millets, earlier known as coarse grains have now been dubbed as “Nutri-cereals” to highlight their nutritive value.

The term millets includes a collective group of about 20 small grain cereals, some as small as Teff having just 1mm diameter. Of these, some are used widely such as the major millets Jowar, Bajra, Ragi and the minor millets Kangani, Cheena, Kodo, Sanwa, Kutki and many more. Region-wise they have different names. We also have pseudo millets with similar nutritive value. But they are not grass e.g., Buckwheat and Amaranth (Rajgeera). There are several other millets grown worldwide. Fonio and Teff belong chiefly to Africa. Quinoa a pseudo-millet, similar to Rajgeera is grown in South America and is the current superfood.

Millet was the first grain to be domesticated at least 7000 years ago. They were considered a boon in arid and semi-arid areas. Proso millet was the first to be domesticated. Different regions had their own millets. Migrations and trade led to their spread. Domestication of millet led to better diets, food security and stability for mankind.

Millets mature early and are ready for harvest. For instance, Proso millet matures as early as 65-80 days as compared to 100-140 days for cereals like wheat and rice. This was another advantage. Millets were used whole, as flour, in making flat breads, porridges and cooked like rice (millet-rice) and also brewed. The earliest archaeological plant finds in Africa and Eurasia include millets.

New evidences are being unearthed every day. A 4000-year-old bowl containing well-preserved noodles made from foxtail millet and Proso millet was found at the Lajia archaeological site in China. Millet-meal cakes were also discovered in China. In traditional Chinese medicine, millets were used as medicine. The Chinese believed that millets help nourish Yin, strengthen the spleen, stimulate the appetite, nurture the liver and increase blood production.

The earliest written records of millets are also from China. Fan Shen Chi Shu around 2800BC mentions detailed instructions for growing and storing millets. Millets were one of the five sacred Chinese crops. The Shi Jing Book of Songs has a beautiful poem mentioning the abundance of millet crops like Broomcorn, Foxtail and Spiked Millet. Strabo too praised Millets. *"Millet is the greatest preventive of famine since it withstands unfavourable weather and can never fail, even though there be a scarcity of every other grain,"* he wrote.

In India, millets became popular during the Pre-Harappan and Harappan period. Many proofs have been unearthed in several parts of India, right from North to South, East to

West. Indian literature since ancient times is replete with references to millets. Yajurveda has couplets (Rucha) about Foxtail millet (priyangava), Proso (aanava) and Barnyard millet (shyamaka). Sushrut Samhita too mentions Kodo (kodrusa) and Barnyard millet. Millets are also mentioned in Vishnu purana and in the writings of Chanakya, Kalidas, Kanakadasa and many others.

Portuguese traveller Nunez who visited during the Vijayanagar Empire mentioned that sorghum was the chief grain consumed. Millets reigned till the 20th century. For various reasons they were reduced to cattle-feed and bird-feed in developed countries and later the developing countries. In India, millets were forced to take a back seat after the Green Revolution. In those years food security for the population was important.

But today, it is time to focus on the health of humans as well as the land. The negative impact of intensive agriculture has become evident after all these years and has to be corrected. In those days, millets were cheaper than wheat and rice and were labelled as "poor man's food". This too decreased their consumption amongst the elite.

So now, why the urgency to revive millets? Why the sudden praise for millets? What has attracted the world back to the millets? Why are millets thought to be one of the solutions for the many problems faced by mankind? The reasons are many. Let's unfold the magic and science of millets.

Promoting Millets

The chief reasons for promoting millets can be grouped under three heads: A) Health and Diet; B) Socio-economic and C) Eco-Agri.

The sudden rise in lifestyle diseases and nutrient-deficiency diseases in the 21st century and the need to have a strong immunity level to combat various viral diseases have forced us to find tangible solutions and millets are among these. Now renamed as Nutri-cereals, millets are powerhouses of nutrients. Each millet has some nutrient in more quantity, but as a group, they are higher qualitatively and quantitatively in most macro and micro nutrients as compared to popular staples wheat, rice and maize. They fare better in fibre content, protein profile, and mineral profile. For instance, ragi tops in iron and calcium content while sanwais rich in fibre. Researchers have unearthed several nutritional benefits of millets over the present-day staples:

- 1) **Millets improve gut health:** Millets are high in fibre content with Proso millet having about 12.5% fibre. Moreover, millets are generally eaten in an unrefined state. This retains the fibre and other nutrients better. The fibre with its higher water-holding capacity boosts intestinal movement and this is a great boon for those suffering from constipation. Regular bowel movement helps in flushing out toxins from the body. Fibre content also lends satiety and prevents frequent snacking. This also helps in weight reduction. Millets are also gluten-free and are thus suitable for those with gluten allergies.



Source: agricoop.nic.in

HEALTH BENEFITS OF MILLETS



CELIAC DISEASE :

Millets are gluten free grains hence, used for celiac disease patients.

ANTI-DIABETIC PROPERTIES :

Millets consumption lower blood glucose response and glycosylated hemoglobin thus, rendering glycemic index, helps in reducing the risk of diabetes mellitus.



REDUCTION OF OXIDATIVE STRESS:

Free radicals, are removed by the phenolic compounds present in millet grains which reduces oxidative stress.

ANTI-CANCER PROPERTIES:

Millet extracts have anti-proliferic effects on cancer cell line. inhibit DNA damage and induce the production of phase-2 detoxifying enzymes.



ANTI-HYPERTENSIVE:

Millets prevent the oxidation of low density lipoproteins reducing lipase activity which reduces the occurrence of hypertension.

www.millets.res.in



Eat Millets - Stay Healthy

Source: www.eoibrazzaville.gov.in

- 2) **Better nutrient profile:** Millets as a group fare better in terms of macro and micro-nutrients. They are one-up in terms of fibre. According to Kumar *et al.* 2016: “From nutritional perspective, millets are considerably rich in minerals like calcium, magnesium, phosphorus and vitamin B complex and their micronutrient density is higher than that of the world’s major cereal grains – rice and wheat.” In an age where mineral deficiency is a common problem, millets are a boon.
- 3) **Millets can help overcome PCM:** Protein-Calorie Malnutrition found in the Indian population of various age groups and countries faced with famine and wars has a solution in millets. The essential amino acid profile of millets is superior to other staple cereals. Finger millet is especially suited for all age groups from infants to the aged. It is one of the first cereals to be safely introduced into an infant’s diet. Like all cereals, millets however are deficient in Lysine. This can be compensated by including food like pulses, curds, etc.
- 4) **Millets and weight loss:** Millets with their high fibre content and protein have more satiety value than wheat and rice. This reduces between-the-meal cravings and prevents snacking. This is how millets help in weight reduction. Millets also act as prebiotics. This maintains the health of gut microflora. A healthy gut to a large extent means a strong body.
- 5) **Millets and disease management:** Millets are beneficial in managing many lifestyle diseases like diabetes, obesity, high blood pressure, high cholesterol levels, etc. The high level of tryptophan in millets helps in calming our mood. Diabetes is a lifestyle disease. Millets with their low Glycaemic Index (GI) are useful in this case. Rice, sugar and refined foods have high GI and are best avoided or restricted by diabetics in general. Millets with their coarse and complex structure require more time to be broken down; the sugar gets released slowly and does not cause a spike in blood sugar.
- 6) **Millets are good for heart health:** A four-month study conducted by ICRISAT (International Crop Research Institute for the Semi-Arid Tropics) concluded that ‘regular consumption of 50-200 gm millets per day reduced the LDL levels by 10% and lessened the level of tri-glycerides.’ Sorghum has policosanols which help decrease cholesterol.
- 7) **Millets have good antioxidant properties:** Sorghum has more antioxidants than blueberries and pomegranates. Foxtail millet bran has polyphenols which scavenge free radicals. In general, all millets possess high antioxidant activity *in vitro* as compared to other cereals and many fruits. A recent study by Jiangying Shi, Shuhua Shan and others indicated that ‘Bound Polyphenols of Inner Shell (BPIS) from foxtail millet bran displays anti-inflammatory effect in mice.’ Further research is underway.

8) Healthy fasting food: Indians fast on various occasions. Sago, Potatoes are popular fasting foods. The methods of preparation add more calories to the recipe. They are high-GI foods. Barnyard millet or Bhagar or Varai or Vari as it is known locally is the only cereal used during fasting. It is a healthy alternative to potatoes and sago.

A note of caution though. Millets are known to contain some anti-nutrients like phytates. These decrease the bio availability of minerals. However, their ill effect can be easily neutralised by common steps in cooking like soaking, germination, malting, fermentation, cooking etc.

Millets also offer several socio-economic benefits. If millets become popular, they will benefit marginal farmers worldwide. They will get a better price and this will be an incentive for them to grow millets. Millets are yet an untapped source of healthy snack alternatives. Introduction of millet-based snacks, and ready to eat foods paired with their aggressive and intelligent marketing can popularise millet products. This will encourage start-ups, home-based industries and related food industries globally and boost the economy. Millets, after harvesting, lend themselves to other important uses also. Animal feed and fodder are one such use. Bio-ethanol production from green waste can be blended with petrol.

The present-day agriculture methods yield a bumper crop but deteriorate the health of soils. Artificial fertilisers, synthetic pesticides and intensive irrigation have damaged the soil and the environment. Rice is a great water-guzzler. Millets on the other hand are sort of 'plant and forget' crops. That's why they are also known as lazy man's crops. They require minimal attention. They are mostly rain-fed; grow on marginal soils, don't demand fertilisers and are resistant to pests. They are adapted to low rainfall, can withstand dry spells. They give yields even in adverse conditions and save the farmer from total crop failure.

Millets are low-input, high-output plants. If tended properly, the improved varieties give a 30-50% higher yield. Millets with their early maturing period are a boon for farmers. Most are ready within 80-100 days, some even earlier; way early than wheat and rice. If necessary, it is possible to reap three millet crops per year.

Millets are a positive way to increase agricultural diversity so essential during this climate and water crisis. Millets are also C4 crops. In simple language, the dependable, soil-friendly millets can help the earth recuperate from the ill effects of farming. With climate change and climate crisis turning into a frightening reality, millets are the cereals which can be banked upon as dependable, eco-friendly crops.

India's Efforts

India had observed the National Millet Year in 2018 and had witnessed the benefits. Millet production rose and so did the exports. Sadly, the Covid years were a dampener to India's millet production and promotion attempts.

Still, according to FAO, India is the world's single largest producer of millets growing about 40% of the world's millets.

There is a huge scope to increase this production. However, before that, we have to find solutions for some problems related to millets like lack of ready-to-eat and ready-to-cook millet products and snacks, lesser shelf life of millets, lack of machinery for primary and secondary processing of millets, absence of market linkages, lack of uniform standards and grades at the international level, etc. R&D for millets right from new varieties to processing machinery is in full swing and is beginning to give encouraging results.

India is taking several steps to promote millets locally, nationally and globally with multipronged efforts. Millets are a part of the Smart Food Campaign. The tagline is: 'Good for you, Good for the planet, and Good for the small hold farmers.'

Efforts are being made by the Government to promote millets at every level — from labs to schools, hotels to homes, and from the public to the private sector. Youth are being roped in for various competitions, Hackathons and Start-up challenges. Food influencers are being motivated to focus on millets. Millets are being promoted through novel concepts like hosting millet lunches and dinners, serving millet snacks during meetings, serving millet dishes in hotels, airlines and Government canteens. The Union Food Ministry has directed its official canteens to serve millets in various forms like snacks and meals including biscuits, laddus, millet-mix dosa, poori, idli, etc.

International Year of Millets was one of the three specified themes for the Republic Day tableaux of 2023. All governmental and private agencies like ICAR, IIMR, NIN, FSSAI, Ministry of Agriculture and Farmers Welfare (MoAFW), etc. are working in coordination to promote millets. The Rashtriya Krishi Vikas Yojana — Remunerative Approaches for Agriculture and Allied Sectors Rejuvenation (RKVY-RAFTAAR) is a flagship scheme of the Ministry of Agriculture and Farmers' Welfare (MoA & FW), Government of India, which is working hard to inspire, facilitate and mentor and support young Indian agri-pruners by providing support. IIMR has already incubated more than 250 start-ups under this scheme.

If you have never tried millets, you are really losing something very important — taste, variety and the building blocks of good health. The early you incorporate millets the better. Scores of websites, Government and private, have recipe booklets and recipes for millets with step-by-step guidelines for making the product. Millet bhakri, millet rice, millet dosa and idli, upama, porridge are traditional dishes. Millet flakes and puffs, millet noodles, laddus and hundreds of recipes are available. Choose what you like. Create your own variations. Incorporate millets slowly but regularly. Let us be slow and steady and reap the millet benefits for our lifetime.

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