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AGRI JOURNAL WORLD
VOLUME 3 ISSUE 4 APRIL, 2023

# MILLETS: A SUSTAINABLE SOURCE OF NUTRITION

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## ABSTRACT

*Food and nutritional security are under significant stress from the rising population and climate change. Millets, which have various benefits like early maturing, drought resistance, demanding little inputs, and being largely free from biotic and abiotic stresses, can alleviate all these issues. Again, it may help mitigate climate change's effects because they leave a smaller carbon footprint. Grains of millet are rich in protein, minerals and vitamin B-complex, have a balanced amino acid profile, high levels of macro and micronutrients, and insoluble dietary fibre. Thus, millets are known as"wonder grains". This article will give a glimpse into millets, their types and their importance.*

## INTRODUCTION

The farming system is strongly affected by climate change, such as rising temperatures, changing rainfall regimes and variations in the frequency and intensity of extreme climatic events like floods & drought. The agriculture sector is not only among the most susceptible sectors to the impacts of climate change but also directly contributing to 14% of global greenhouse gas emissions. Climate change is a major threat to global food security, agricultural production, and the income of rural livelihoods. The recent report of FAO's estimated that global food production must increase by 70% to meet the projected food demand of the estimated 9.1 billion global population by 2050. Hence, providing sufficient nutritious food while minimising GHG emissions is a global challenge.Due to the global crisis and increasing environmental stresses, there is an increased need for agricultural diversification through encouraging crops suited for cultivation in harsh climates. Recognising the nutritional importance of millets and their ability to overcome climate challenges, the United Nations General Assembly, at its 75th session in March 2021, declared 2023 the International Year of Millets (IYM).

Millets can contribute to more diversified, balanced, and nutrient-dense food while also boosting sustainable production and consumption, which can help to promote public awareness. According to the Directorate of Economics and Statistics' Fourth Advance Estimate for 2020-21, the total area covered by Nutri-coarse cereals (millets) is 23.83 mha, and its total production is 51.15 Mt, with a productivity of 2146 kg $ha^{-1}$. Furthermore, millets assist in mitigating the effects of climate change as they have a lower carbon

footprint than wheat and rice, which have carbon dioxide equivalents of 3,968 and 3,401 kg per hectare, respectively.

## WHAT ARE MILLETS?

The Small-seeded grasses that are frequently referred to as dry-land cereals are commonly referred to as "millet." Millets support the health of both people and animals, especially that of pregnant women and child. Several different types of cereals fall under the category of millets, including sorghum (or big millet), pearl, proso, foxtail, barnyard, little, Kodo, finger and barnyard millets. In Sub-Saharan Africa and Asia, they are a traditional staple crop for millions of farmers because they were among the first domesticated plants.

## TYPES OF MILLETS:

Millets are broadly classified into two categories Major millets and Minor millets.

- Sorghum *(Jowar)*

  Sorghum is traditional and staple crop in both India and Africa. Sorghum grain is entirely gluten-free and much preferred by those who can't tolerate wheat-based products. It is rich source of protein, fibre, thiamine, riboflavin, beta-carotene, and folic acid.

- Pearl Millet *(Bajra)*

  Pearl millet has a high protein content (10–12 %) and fat (4-6%). In addition, magnesium, present in pearl millet, aids in alleviating asthmatic patients' respiratory problems and decreases the effect of migraines.

- Finger Millet *(Ragi)*

  Finger Millet is among the most nutritious cereals and is the richest source of natural calcium, which helps with bone strengthening and iron, helping in anaemia, malnutrition and degenerative diseases. In addition, grains have excellent malting properties and are widely used as a weaning food.

- Kodo Millet *(Kodon)*

  Kodo millet is a traditional food that resembles rice, helps in weight loss, reduces joint pain and regularises menstruation in women. It is rich in Vitamin B, particularly niacin, pyridoxine and folic acid.

- Foxtail Millet *(Kakum)*

  It is an easily digestible and nutritious food rich in protein, fibre, and magnesium, all of which assist in lowering the risk of diabetes and heart disease.

- Barnyard Millet *(Sanwa)*

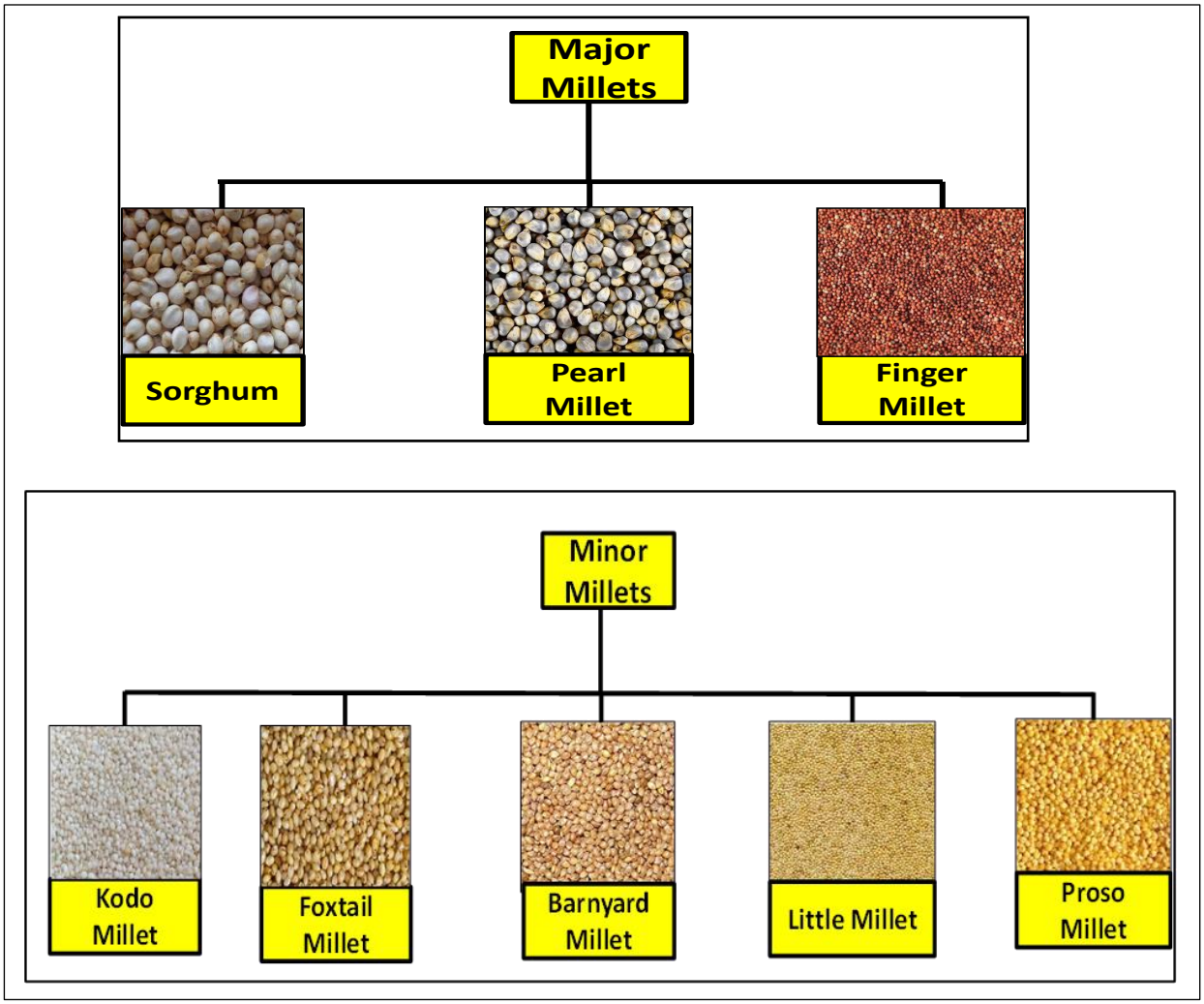
  It is a rich source of crude fibre and iron. In addition, its grain contains constituents of gamma amino butyric acid and beta-glucan as antioxidants which help reduce blood lipid levels.

- Little Millet *(Kutki)*

  Little millet is smaller, but it is highly nutritious than other millets. It provides essential fats to the body. It is a good source of vitamin B and minerals like calcium, iron, zinc and potassium.

- Proso Millet *(Chenna/ Barri)*

  Proso millet has a high content of niacin and protein (12.5%) and is also beneficial in preventing Pellagra condition. In addition, it is used as a therapeutic dish, particularly after childbirth or illness.




## IMPORTANCE OF MILLETS

- Millets are rich in heritage and good food for human and animal health.
- Millets are the least cost-intensive crops and thus help in sustainable production.

- Millets are called climate-smart crops, grown on poor soils and resistant to climatic stress, pest and diseases.
- It has a low carbon footprint hence helping to maintain the ecological balance.
- A source of income for marginal production areas in the rural, urban region.
- They are a rich source of antioxidants, protein, and macro and micronutrients.
- Gluten-free with a low glycaemic index to address intolerances and diabetes.
- They are a storehouse of nutrients that can reduce malnutrition and provide food security and nutrition.

## CONCLUSION

Food and nutritional security are under significant stress from the rising population and climate change. Millets, which have various benefits like early maturing, drought resistance, demanding little inputs, and being largely free from biotic and abiotic stresses, can alleviate all these issues. Again, it may help mitigate climate change's effects because they leave a smaller carbon footprint. Grains of millet are rich in protein, minerals and vitamin B-complex, have a balanced amino acid profile, high levels of macro and micronutrients, and insoluble dietary fibre. Looking at the importance of millets, daily consumption of the millets may be recommended to improve the nutritional security of the family.

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