



## Millet Cultivation in Context to Climate Change



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### **Introduction:**

The global climate change and extreme weather fluctuations have emerged as the most threatening challenge to agriculture and allied activities. Impact of climate change due to increase in average temperature, intensity and frequency of drought and flood, aberration of rainfall pattern and elevation in CO<sub>2</sub> concentration is posing serious challenge to entire food production system.

Millets are considered a climate resilient crop for their ability to withstand drought, heat and also resistant to flood. Besides that, millets have the ability to sequester carbon thereby reducing the release of atmospheric CO<sub>2</sub> thus contribute in mitigating climate change. The U.N. General assembly recently adopted a resolution, sponsored by India and supported by more than 70 countries, declaring 2023 as the International year of millets. The resolution is intended to increase public awareness on the health benefits of millets and their suitability for

cultivation under tough conditions marked by climate change

### **Why millet are considered a CRC:**

- ❖ The carbon footprints of millets are comparatively low as compared to other cereal crop. Thus, millet cultivation can play the role of an alleviator that could reduce carbon footprint in the world.
- ❖ Millets are drought resistant crop requires less water for its growth and development due to an efficient root system.
- ❖ It possesses higher nutritional value compared to other cereal crops such as rice, wheat.
- ❖ Millets can be grown in adverse conditions and thus will be able to save farmers and the agri-food industry from losses.
- ❖ It can be grown in dry soil.
- ❖ Varieties of millets with short growing duration can be incorporated in multiple cropping systems under irrigated and dry farming conditions.

### **Climate Smart Crop:**

There are several millets that are known for their drought tolerance and hardiness, including:

- ❖ Pearl millet: Pearl millet is a highly drought tolerant crop. It has a deep root system that allows it to access moisture from deeper soil layers, making it less dependent on external irrigation.
- ❖ Finger millet: Finger millet is also drought tolerant millet. It is able to withstand extreme heat and drought and is often grown as a staple food in areas with low rainfall.
- ❖ Proso millet: Proso millet is a hardy millet. It is able to withstand drought and extreme heat, and is often grown as a forage crop for livestock.
- ❖ Foxtail millet: Foxtail millet is a drought tolerant crop. It is able to withstand extreme heat and drought and is often grown as a staple food in areas with low rainfall.

### **Pest and disease resistance:**

Millets are generally less vulnerable to key insect pests such as army worm, shot fly and stem borer. This is due to the presence of their waxy leaves, thick foliage and chemical defense mechanisms. The crop withstands a number of fungal diseases such as blast, smut and mildews. For instance, pearl millet is naturally resistant to leaf blast, a serious rice disease. The high phenolic content of finger millet naturally guards against fungal diseases. They are an excellent choice for sustainable agriculture due to their innate resilience, especially in areas with scarce resources or harsh weather circumstances.

Challenge and Opportunities for millet cultivation:

The grain millets are temperature resilient crop and a promising weapon in the fight against climate change. For instance, millets have a relatively poor yield, therefore, high yielding cultivars must be introduced. Also, millets are sold at low prices, resulting in poor income and even the minimum support price is not disclosed

for millets, which consequently affects the production. The millet production has been hampered by problems associated with domestication, such as seed shattering, low yield, lodging and poor agronomic techniques and even though the crop is resilient to climatic change.

Conclusion:

Agriculture sector is the most sensitive sector to the climate changes because the climate of a region determines the nature and characteristics of vegetation and crops. In such alarming condition, millets can come up as a solution for ensuring food security of ever- burgeoning population.

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