

Underutilized Fruit Crops: A Boon for Climate Resilient Agriculture

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The impacts of climate change on different sectors of society are interrelated. It is one of the major challenges of our time. From shifting weather patterns, that threaten food production and human health. Most countries have been facing crises due to disasters and conflicts; food security, however, is adversely affected by inadequate food stocks, basic food price fluctuations, high demand for agro-fuels, and abrupt weather changes.

Climate change can reduce agricultural income by 15-25 per cent; it is high time that rationale of climate-resilient agriculture (CRA) is valued and implemented more rigorously. Climate-resilient agriculture (CRA) is an approach that includes sustainably using existing natural resources through crop and livestock production systems to achieve long-term higher productivity and farm incomes under climate variabilities.

There are crucial to address the climate change and achieve sustainable development goals (SDG) in India. Among those the intervention of underutilized fruit crops will fit more effectively. The details of crucial steps to be parted with underutilized fruit crops are as follows according to the problem to be mitigated.

Strategies and technologies for climate change adaptation with underutilized fruit crops

- **Conservation of soil structure and nutrients:** Different farm management practices can increase soil carbon stocks and stimulate soil functional stability. Conservation agriculture technologies (reduced tillage, crop rotations,

and cover crops), soil conservation practices (contour farming) and nutrient recharge strategies can refill soil organic matter by giving a protective soil cover.

In that way, underutilized fruit crops are hardy in nature and they are deep rooted which plays major role in conservation of soil organic carbon and microbial functioning by shedding their own leaves during stress period or off period. This helps to conserve soil moisture led to build soil organic carbon and to build congenial environment for microbial function, soil carbon and manure management. Example: Jamun, Custard apple, Sapota, Karonda, Ber, Aonla, etc

- **Adaptation to overcome the climate stress:** Patterns of drought may need various sets of adaptive forms. To reach deficient downpour conditions, these underutilized fruit crops are well adopted to local climatic condition and have tolerant breeds for mitigation of biotic and abiotic stresses. Example: Custard apple, Jamun, Bael fruit, Aonla, etc.
- **Water management:** At present condition, there is huge fluctuation among the rainfall during the season. Sometimes, it may be neither drought condition nor flood situations this will affect the crop growth greatly. To mitigate this, locally adopted underutilized fruit crops like Karonda, Guava, Aonla, Fig, Ber, Tamarind, etc impart for efficient productivity, resource utilization and returns.
- **Agro-advisories for timely crop monitoring:** Response farming is an integrative approach; it could be called farming with advisories taken from the technocrats depending on local weather information. The success of response farming, viz., decreased danger and enhanced productivity.

This will be achieved easily and more effectively in underutilized fruit crops. Because, these crops will come up well under

minimal agronomic practices and with less management compare to commercial crops. This may help farmers to reach satisfactory crop yields, even in deficit rainfall and warmer years.

- **Nutritional security:** Nowadays human beings are suffering from many illnesses due to poor nutrition. Neglected and underutilized fruit crops are domesticated plant species used for food, medicine, trading, or cultural practices. They are significant within their local communities. These will definitely helps to overcome nutritional deficiencies among the society leads to wellness.

In this way, Underutilized fruit crops have the potential to contribute to climate-resilient agriculture by diversifying crop options, enhancing food security, reducing vulnerability to climate change induced stresses. These crops often have inherent resilience to local environmental conditions, requiring fewer inputs such as water and pesticides. Additionally, they can offer nutritional benefits and economic opportunities for farmers, while also preserving biodiversity. Promoting the cultivation and consumption of underutilized fruit crops can play a crucial role in building more resilient agricultural systems in the face of climate variability and change.

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