



## Sustainable Agriculture

**For Prelims:** [Sustainable Agriculture](#), Indigenous Seed Festival, Environmental stewardship, economic profitability, and social equity.

**For Mains:** Sustainable Agriculture, Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

[Source: TH](#)

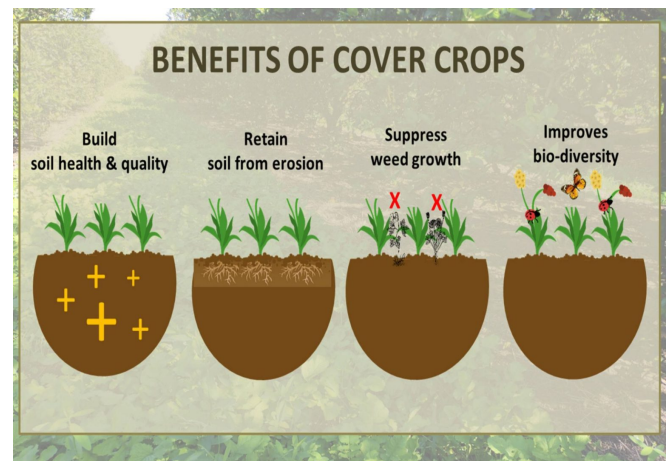
### Why in News?

Recently, the **Indigenous Seed Festival** in West Bengal showcased a **remarkable effort by farmers** to conserve native seed varieties and exchange traditional knowledge, exemplifying a significant shift towards **Sustainable Agriculture Practices**.

- The festival is a part of ActionAid's climate justice campaign, facilitating discourse between farmers on climate change, organic farming, and indigenous seed access.
- ActionAid's focus on climate resilience and sustainable farming across 22 Indian states. The NGOs aim to establish grassroots-level seed banks across West Bengal.

### What is Sustainable Agriculture?

- **About:**
  - Sustainable agriculture **refers to a holistic approach to farming and food production** that aims to meet the current needs for food and fiber while ensuring the long-term viability of agricultural systems and preserving natural resources for future generations.
  - It encompasses various practices and principles such as [Crop Switching](#), [Organic Farming](#), Community Supporting Agriculture etc, that focus on **environmental stewardship, economic profitability, and social equity**.
- **Benefits:**
  - **Environmental Conservation:** Practices that **minimize the impact on ecosystems**, soil, water, and biodiversity. This involves using methods that reduce soil erosion, conserve water, and avoid or minimize the use of synthetic fertilizers and pesticides.
    - Techniques like crop rotation, cover cropping, and [agroforestry](#) are employed to maintain soil fertility and health. [//](#)



- **Economic Viability:** Ensuring that **agricultural practices are economically feasible for farmers**, enabling them to earn a fair income while sustaining their livelihoods.
  - This involves strategies that enhance productivity, reduce production costs, and open up markets for sustainably produced goods.
- **Social Equity:** Fostering **fair and equitable relationships among farmers**, consumers, and other stakeholders in the food system.
  - This includes ensuring fair wages and working conditions for agricultural laborers, supporting rural communities, and promoting access to healthy and nutritious food for all.
- **Resilience to Climate Change:** Building agricultural **systems that are resilient to climate variability and change**. Sustainable agriculture practices aim to adapt to changing climatic conditions, mitigate greenhouse gas emissions, and contribute to overall climate resilience.
- **Biodiversity Preservation:** Supporting **diverse ecosystems and genetic diversity within crops and livestock**. Maintaining biodiversity is critical for resilience against pests, diseases, and environmental changes. This involves preserving heirloom and indigenous crop varieties, as well as promoting diverse landscapes that support wildlife and pollinators.

## What are the Limitations of Sustainable Agriculture in India?

- **High Labor Demand:** Sustainable agriculture often requires more manual labor than conventional agriculture, as it involves practices such as **Crop Rotation**, **Intercropping**, **Organic Fertilization**, and pest management.
  - This can increase the cost of production and reduce the profitability of farmers.
- **Time Consumption:** Sustainable agriculture also takes more time to implement and show results than conventional agriculture, as it relies on natural processes and gradual improvements.
  - This can discourage farmers who need immediate returns and face uncertainties such as weather, market, and policy changes.
- **Limited Production Potential:** Sustainable agriculture may not be able to meet the growing demand for food in India, as it tends to have lower yields than conventional agriculture, especially in the short term.
  - This can pose a challenge to **Food Security** and **Poverty Alleviation**, especially in a country with a large and increasing population.
  - The recent Sri Lankan crisis was triggered by the policy of shifting to Organic farming.
    - Rice, Sri Lanka's dietary staple, saw average yields slashed by some 30%.
- **High Capital Cost:** Sustainable agriculture may require high initial investment in infrastructure, equipment, and inputs, such as **Irrigation systems**, micro-irrigation devices, organic fertilizers, and seeds.
  - This can be a barrier for small and marginal farmers who lack access to credit and **Subsidies**.
- **Storage and Marketing Challenges:** Sustainable agriculture may face storage and marketing challenges in India, as it produces perishable and heterogeneous products that require proper handling and packaging.

- This can increase post-harvest losses and reduce the marketability of the produce, especially in the absence of adequate certification and labeling systems that ensure quality and traceability.

## What are the Recent Government Initiatives Related to Sustainable Agriculture?

- [National Mission on Sustainable Agriculture](#)
- [Paramparagat Krishi Vikas Yojana \(PKVY\)](#)
- [Sub-mission on AgroForestry \(SMAF\)](#)
- [Rashtriya Krishi Vikas Yojana](#)
- **Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)**

## Way Forward

- **Providing financial incentives for farmers** to adopt sustainable practices, such as direct payments, subsidies for organic inputs, and crop insurance.
- Investing in research and development of sustainable agricultural technologies and practices.
- **Strengthening agricultural extension** services to provide farmers with training and information on sustainable agriculture.
- **Improving market access** for sustainably produced food through better infrastructure, marketing support, and consumer awareness campaigns.
- **Addressing land fragmentation** through land consolidation programs and promoting joint farming initiatives.
- Strengthening environmental regulations and their enforcement.
- **Empowering women in agriculture** through land ownership rights, access to credit and resources, and participation in decision-making processes.

## UPSC Civil Services Examination Previous Year Question (PYQ)

### Prelims

**Q. With reference to 'Initiative for Nutritional Security through Intensive Millets Promotion', which of the following statements is/are correct? (2016)**

1. This initiative aims to demonstrate the improved production and post-harvest technologies, and to demonstrate value addition techniques, in an integrated manner, with a cluster approach.
2. Poor, small, marginal and tribal farmers have a larger stake in this scheme.
3. An important objective of the scheme is to encourage farmers of commercial crops to shift to millet cultivation by offering them free kits of critical inputs of nutrients and micro irrigation equipment.

**Select the correct answer using the code given below:**

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 2 only
- (d) 1, 2 and 3

**Ans: C**

### Mains:

**Q. How far is Integrated Farming System (IFS) helpful in sustaining agricultural production? (2019)**

