



## CLIMATE SMART AGRICULTURE - GS III MAINS

**Q.** Climate change is increasing the dangers faced by farmers, prompting them to re-evaluate their practices. Discuss the prospects of climate in this aspect. (15 marks, 250 words)

**News:** *Need for climate-smart agriculture in India*

### What's in the news?

- The two most important issues facing humanity in the 21st century are climate change and food insecurity.

### Key takeaways:

- Some of the ongoing effects of climate change, such as heat waves, flash floods, droughts, and cyclones, are negatively influencing lives and livelihoods.
- The world's southern continents are reportedly experiencing severe drought due to climate change, which negatively impacts agricultural production and farmers' livelihoods.
- Both population expansion and dietary changes are contributing to an increase in the demand for food.
- **The effects of the environment on farm output only add to the difficulty. As a result of climate change, traditional farming practices are becoming less productive.**
- **Climate change is increasing the dangers faced by farmers, prompting them to re-evaluate their practices.**
- Farmers are taking a variety of adaptation measures to reduce the negative effects of climate change.
- **The need for a holistic strategy is driven by climate change's dual challenges of adaptation and mitigation, and the pressing need for agricultural production to rise by 60% by 2050 in order to fulfill food demand.**

### Climate Smart Agriculture:

- According to the Food and Agriculture Organization (FAO), CSA is an approach designed to transform and reorient agricultural systems to support sustainable development and secure food security in the face of climate change.

### Need for Climate-Smart Agriculture in India

- **Challenge of climate change:**
  - Some of the ongoing effects of climate change, such as heat waves, flash floods, droughts and cyclones, are negatively influencing lives and livelihoods.



- The world's southern continents are reportedly experiencing severe drought due to climate change, which negatively impacts agricultural production and farmers' livelihoods.
- **Threats of Climate change for agriculture:**
  - As a result of climate change, traditional farming practices are becoming less productive.
  - Farmers are taking a variety of adaptation measures to reduce the negative effects of climate change.
  - The future impacts of climate change on agricultural productivity could be substantial.
- **Concerns of food insecurity:**
  - Both population expansion and dietary changes are contributing to an increase in the demand for food.
  - The need for a holistic strategy is driven by climate change's dual challenges of adaptation and mitigation and the pressing need for agricultural production to rise by 60% by 2050 in order to fulfil food demand.

## Significance:

- **Increased Agricultural Productivity:**
  - CSA sustainably boosts farm productivity; crucial as global food demand is projected to increase by 60% by 2050.
- **Enhanced Adaptation to Climate Change:**
  - CSA promotes crop diversification and integrates drought-resistant crops, increasing water efficiency.
- **Greenhouse Gas Reduction:**
  - CSA plays a crucial role in reducing greenhouse gases, which is vital considering agriculture contributed 17% to global emissions in 2018.
- **Sustainable Food Security:**
  - CSA contributes to long-term food security, which is essential in a world with a growing population and changing diets.
- **Environmental Protection:**
  - CSA ecosystem-based approach helps in coexisting croplands with wild areas, protecting native species and pollinators.
- **Flexibility and Broad Application:**
  - CSA is not a rigid set of rules but a flexible approach with a wide range of applications.
  - This adaptability allows it to be effectively implemented in various agricultural contexts and regions.
- **Socio-Economic Transformation:**
  - CSA provides access to climate-resilient methods and information, greatly benefiting farmers, especially those in disadvantaged positions.



## Challenges:

- **Novelty and Limited Scope:**
  - CSA is relatively new, particularly in countries like India. For example, the scope of initiatives like precision farming is still limited.
- **Localizing Responses:**
  - Each region has unique climatic and agricultural conditions that require tailored approaches.
- **Balancing Economic and Environmental Goals:**
  - Balancing the economic needs of farmers with environmental sustainability is complex and requires careful planning and support.

## Global Initiatives:

- **Sustainable Development Goals:**
  - CSA aligns with the United Nations' Sustainable Development Goals, particularly in ending hunger and enhancing environmental management through sustainable agriculture.
- **Paris Agreement:**
  - CSA practices like agroforestry and carbon sequestration support the Paris Agreement's objective to reduce greenhouse gas emissions.

## Initiatives in India:

- **National Action Plan on Climate Change:**
  - Emphasizes the role of climate-resilient agriculture in India's adaptation strategies.
- **Government Programs:**
  - Includes National Adaptation Fund for Climate Change, National Innovation on Climate Resilient Agriculture, and Soil Health Mission, focusing on sustainable farming practices.
- **Private Sector Involvement:**
  - Private companies and farmer-producer organizations are actively working towards CSA adoption in India.

## WAY FORWARD:

- Increase efforts to educate farmers about CSA practices, especially in areas like India where these methods are still emerging.
- Strengthen capacity-building programs to support the widespread adoption of CSA, including training and resource allocation.
- Strengthen the collaboration between government initiatives and private sector efforts to ensure a cohesive approach towards CSA adoption and practice.