

CLIMATE-SMART AGRICULTURE

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Climate-smart agriculture (CSA) is an integrated approach for developing technical, policy and investment conditions to achieve sustainable agricultural development for food security under climate change. It integrates the three dimensions of sustainable development (economic, social and environmental) by jointly addressing food security and climate challenges. Climate change can disrupt food availability, reduce access to food, and affect food quality. For example, projected increases in temperatures, changes in precipitation patterns, changes in extreme weather events, and reductions in water availability may all result in reduced agricultural productivity

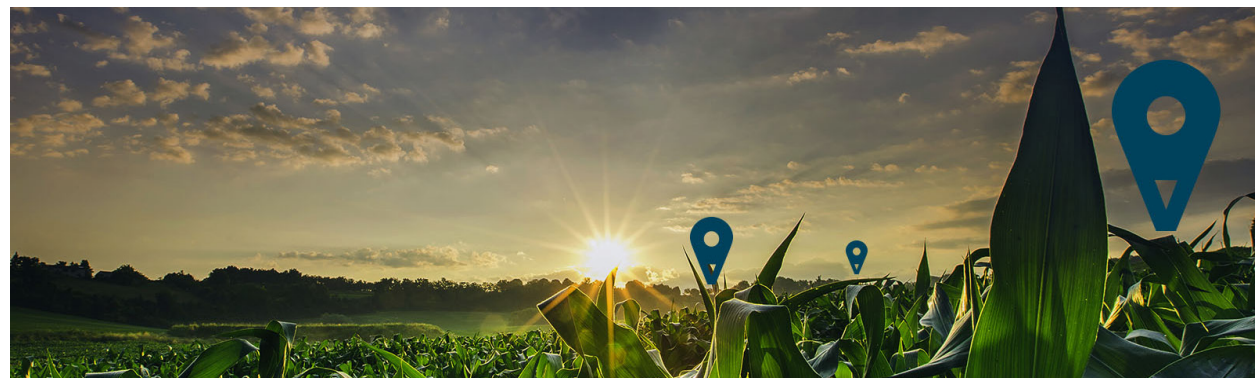
What is climate-smart agriculture?

Sustainably increased agricultural productivity and incomes Resilience (adaptation) and building resilience to climate change. It reduces/removes greenhouse gases (mitigation).

Why is climate smart agriculture needed?

Developing climate resilient agriculture is thus crucial for achieving future food security and climate change goals. It helps the agricultural system to resist damage and recover quickly by adaptation and mitigation strategies.

The concept was put forth in 2010 by the FAO. This is also known as Climate Resilient Agriculture (CRA). It is a relatively new approach to develop the technical, political and financial conditions for the achievement of sustainable development goals.



CLIMATE SMART AGRICULTURE PRACTICES AND TECHNOLOGIES ADOPTED INCLUDE

1. CROP MANAGEMENT

- Intercropping for proper utilization of space, pest control & cash crop production
- Crop rotations should include legumes
- New crop varieties (e.g. drought, wind & flood tolerant)
- Improved storage and processing techniques
- Greater crop diversity
- Underground crops (e.g. yams, dasheen)
- Stake plants to reduce wind damage
- Compost and organic fertilizer
- Mulching crops
- Shade house



2. LIVESTOCK MANAGEMENT

- Improved feeding strategies (e.g. cut 'n carry)
- Rotational grazing
- Growing suitable crops (with proper management) to feed animals eg. *Leucaena* & *Gliricidia*
- Manure treatment (well-rotted/ decomposed)
- Improved livestock health
- Animal husbandry improvements

3. SOIL AND WATER MANAGEMENT

- Conservation agriculture (e.g. minimum tillage)
- Contour planting
- Use mounds to plant on slopes
- Grass barriers (e.g. kush grass)
- Stone barriers
- Check dams
- Use bench/eyebrow terraces to plant on slopes
- Encase beds (pallets, bamboo)
- Water storage (e.g. rainwater harvesting)
- Improved irrigation (e.g. drip irrigation)

4. AGROFORESTRY

- Use of boundary trees and wind breaks
- Nitrogen-fixing trees on farms (e.g. legumes)
- Multipurpose trees (e.g. fruit trees used as windbreaker)
- Fruit orchards

5. INTEGRATED FOOD ENERGY SYSTEM

- Biogas
- Improved stoves
- Solar power
- Ram pumps for irrigation
- Gravity-fed irrigation system

WAY FORWARD

Developing countries must undergo a significant transformation in order to meet the challenges related to food security and climate change. Effective climate-smart practices already exist and could be implemented in the agricultural systems of developing countries. Farmers need to be supported both technically and financially as they adapt CSA practices relevant to their geography.

Adopting an ecosystem approach, working at landscape scale and ensuring intersectional

coordination and cooperation is crucial for effective climate change responses. Synergistically combining financing from public and private sources. Extension functionaries are having medium level awareness about the impact of climate change on agriculture. They used electronic media, training and conferences and seminars as major sources of information for climate change. They need training on climate smart agriculture aspects. Zero Budget Natural Farming helps in developing resilience and mitigating the influence of climate change. Global partnerships and knowledge sharing are critical pillars of the mitigation strategy. The Global Alliance for Climate Smart Agriculture (GA-CSA) will be a key player in propagating policies and action plans for CSA adaptation.

