

Agriculture and Mitigation Strategies

Abstract

Agriculture is both a victim and contributor to climate change. It is heavily impacted by extreme weather events like droughts and floods, especially smallholder farmers. It also contributes 14% of global GHG emissions, with 80% in developing countries.

Objectives

- Help farmers, especially in the African Landcare Network, increase agricultural productivity and resilience.
- Reduce greenhouse gas (GHG) emissions through climate-smart and conservation agriculture.

Methodology

- Study conducted in the Democratic Republic of Congo (North Kivu, South Kivu, North Katanga).
- Field observations, farmer interviews, and comparative analysis with Kenya, Brazil, Ethiopia.

Key Results, Outcomes & Learning



Figure 1.
Illustration of Climate-Smart Crop Production

Climate-Smart Crop Production

Description: Increases productivity, resilience, carbon sequestration, reduces emissions. Learnings: Farmers adopting mixed cropping systems show stronger food security and income stability

Outcomes: + 15–30% yield improvement; reduced vulnerability to droughts; improved soil fertility



Figure 2.
Illustration of Conservation Agriculture

Conservation Agriculture

Description: Minimal soil disturbance, soil cover, crop rotation.

Outcomes: Soil organic matter increased by 20%; reduced input costs; long-term yield stability.

Learnings: Requires strong extension services and farmer training for adoption



Figure 3.
Illustration of Soil & Water Conservation

Soil & Water Conservation

Description: Soil bunds, terraces, grass strips to conserve water, reduce erosion, increase sequestration.

Outcomes: 40% reduction in soil erosion; improved water availability during dry spells.

Learnings: Farmer-led land management increases sustainability compared to top-down approaches.



Figure 4.
Illustration of Crop Residue Management

Crop Residue Management

Description: Residues left on fields improve soil organic matter, reduce erosion, enhance water retention.

Outcomes: Improved soil moisture by 25%; reduced need for chemical fertilizers.

Learnings: Competing uses of residues (fuel, livestock feed) need to be balanced with soil needs

Conclusion

Agriculture must balance food security, adaptation, and mitigation. Climate-smart and conservation agriculture offer a 'triple win' — higher yields, greater resilience, and reduced emissions.