

**3 ACCA**

THIRD AFRICA CONGRESS ON  
CONSERVATION AGRICULTURE  
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# Improving The Adoption Of Conservation Agriculture (CA)

Performance of CA practices in maize production in the semi-arid  
region of Eastern Rwanda

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Theme:

Building a Resilient Future in Africa  
through Conservation Agriculture and Sustainable  
Mechanization



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# Overview of Rwanda's agriculture sector

- Rwanda's economy relies heavily on the agricultural sector

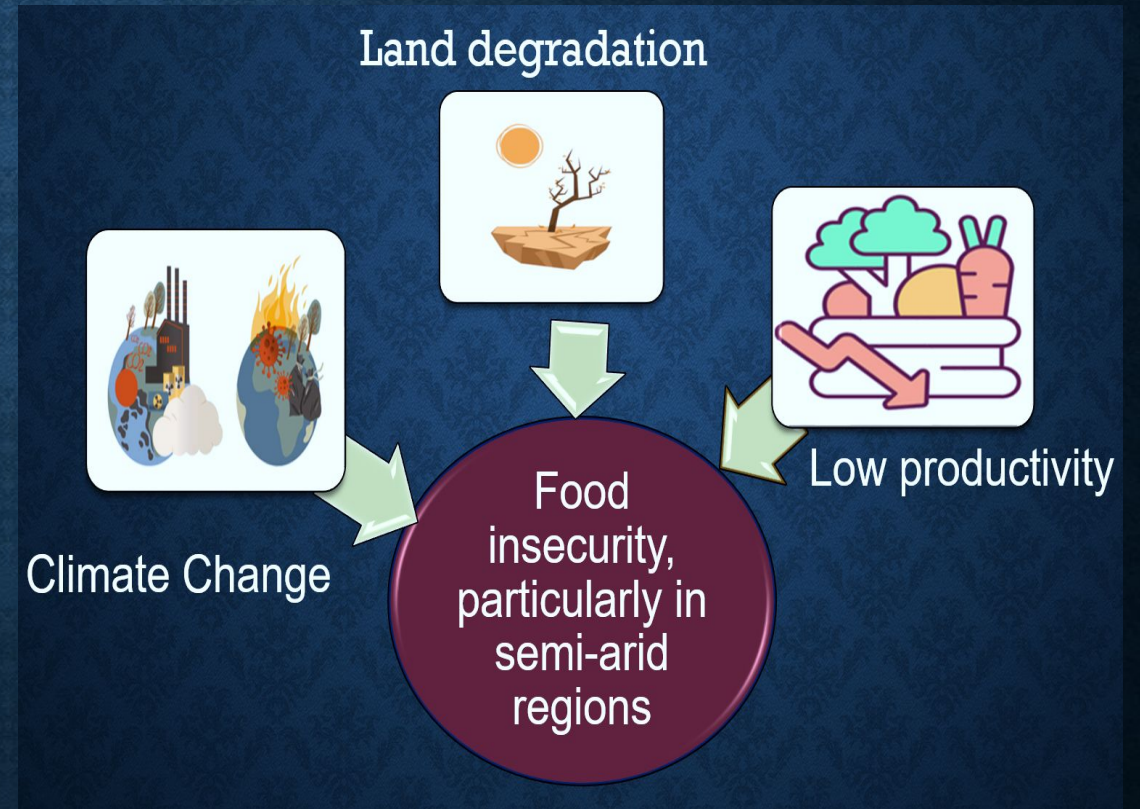


employs 70% of the population



contributes 31% to the GDP

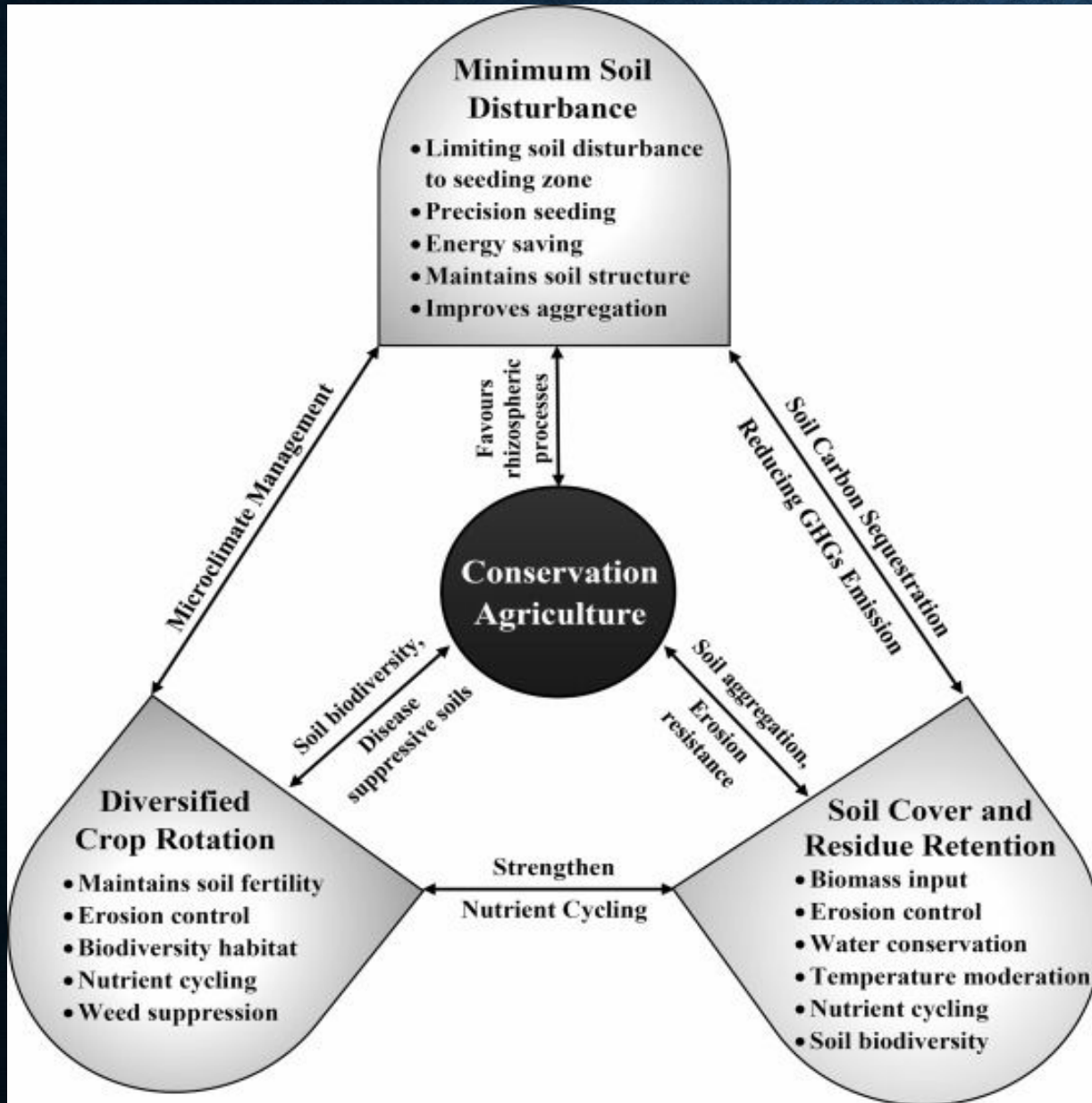
- Conventional farming practices have led to soil degradation and low crop yields



# Maize In Rwanda

- Maize is among the primary staple crops in Rwanda and serves for direct human consumption, seed business, animal feeds, and food security stock.
- Despite significant investments in the agriculture sector, there is a significant yield gap between actual and potential maize yields
- Low input use, poor agronomic practices, inadequate access to extension services and climate change are the major causes of low crop productivity.

# Agriculture (CA) Practices As a Solution



- CA practices can improve agricultural productivity.
- CA aligns with the goals of climate-smart agriculture.

# Study Conducted In Rwanda

## Survey

- Two type of farmers: CA and CT maize farmers questioned on
- socio-economic
- soil management practices and their adoption
- climate change impacts
- maize production cost-benefit indicators
- Climate change impact and adaptation

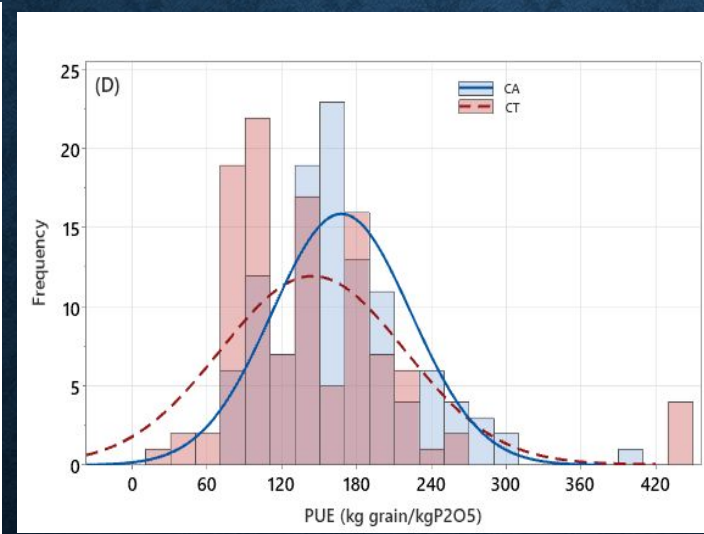
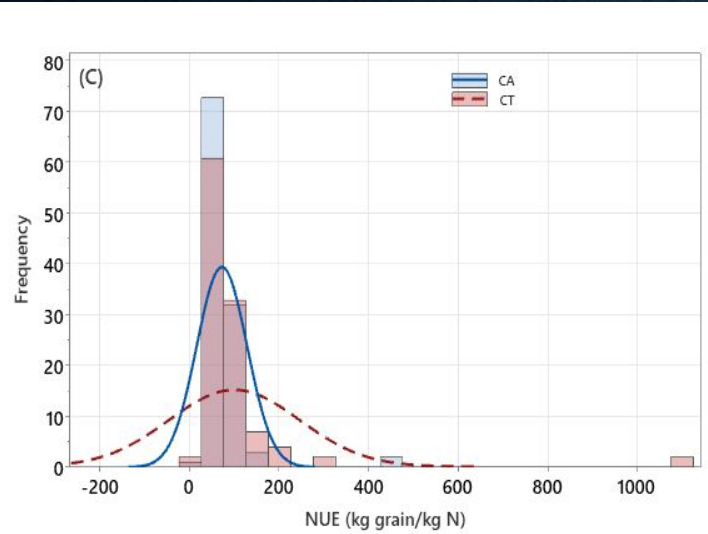
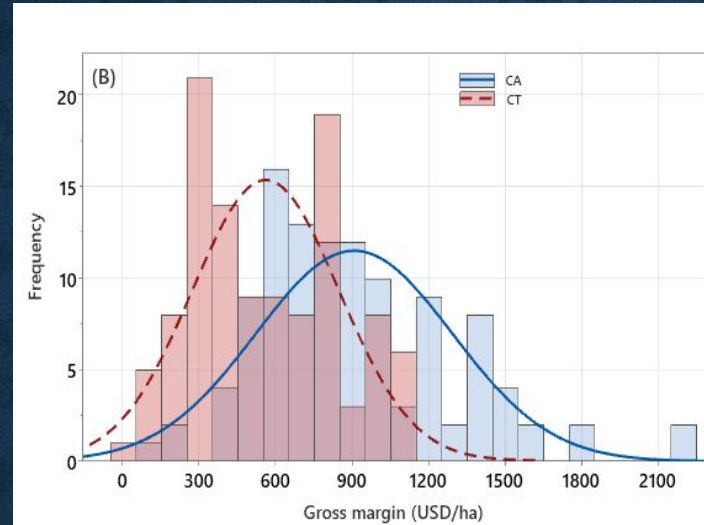
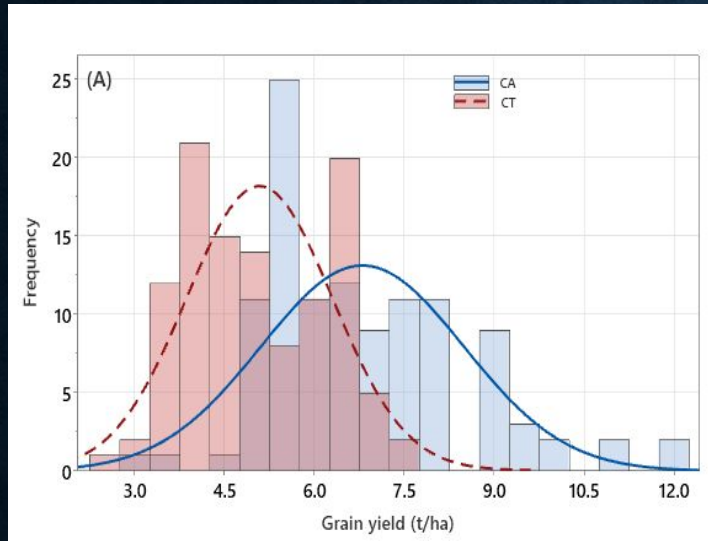
## Analysis



- Grain yield and production estimated
- cost of production was calculated
- Nitrogen and phosphorus use efficiencies (NUE, PUE) were determined
- The gross margin computed
- performance indicators as affected by CA and CT

## Results

# Results



## CA

Higher Production costs

Higher fertilizer

Higher seed

Higher wedding

Higher irrigation costs

Higher Net profitability (+40%)

Higher grain yield (+20%)

Higher PUE (+10%)

## CT

Higher Costs for land preparation.

Normality distribution of grain yield, gross margin, NUE, and PUE as affected by CA and CT practices in maize production in Rwanda

# Results,.....

- Minimum tillage and the duration of its implementation were the top 3 determinants of maize yield under CA practices.
- Increased temperature and decreased rain were the top 1 and 2 highest–scoring climate change effects in the Kirehe district,
- Early seeding and supplement irrigation were found to be the most prevalent in response to the climate change challenges farmers face.
- Climate change impact awareness and affiliation with the cooperative influenced farmers' adoption of adaptation practices.



# Discussion

- CA practices enhance soil fertility, water and nutrient use efficiency, and crop yields.
- CA increased the benefits over CT lays in reduced land preparation labor and increased yield.
- CA is not a single formula to adapt to close the yield gap; input optimization is also crucial.
- Familiarity with the thresholds of various factors affecting maize production can help optimize agriculture inputs.

# Discussion,.....

- Information is critical for increasing CA adoption.
- The long-term nature of the benefits of CA in restoring soil fertility hinders its adoption.
- Contextualizing CA practices according to the farming system can increase the adoption of its practices.

# Conclusion

- Conservation agriculture practices have economic and climate adaptation potential.
- Closing the maize yield gap could reduce Rwanda's import dependence and promote self-sufficiency in maize production.
- Effectively disseminating information about CA benefits through appropriate channels can accelerate its adoption.
- Education and capacity building can provide farmers with the necessary knowledge to adopt climate change adaptation practices such as CA

**THANK YOU**

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