

Climate change and Climate Smart Agriculture



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14th December, 2022

Introduction

- Agriculture has significant environmental footprints
- The ever increasing population had necessitated intensified food production
- Food demand expected to increase with increase in pop
- Global trend of increasing popn. urbanization, techn and innov further aggravate the situation
- **Agriculture and land use changes are sig contributors to GHG; 15% global GHG**
- Intrinsically connected to climate change and reliant on ; R/f, drought, flooding, dispersal of pests and diseases

Climate change

- Temp increase; 0.85 and further 1.5°C by 2050
- Has -ve/+ve effects on regions in the world
- Africa most at risk of climate change;
 - high dependancecy on natural resources, rainfed agriculture
 - Climate change is an impediment to sustainable Devt

Climate change

✓ **Variation in climatic quantitative parameters;** persistent for a period; Temps, Rainfall, RH,

✓ **Causes**

- Internal/External forces
- **Anthropogenic/human changes in atmosphere or land use;**
 - ✓ **Livestock production**
 - ✓ **Intensified Agricultural activities**
 - ✓ **Mechanization, Chemical use**
 - ✓ **construction**
 - ✓ **wetland destruction**

Consequences of climate change



Exteremes of weather



Land degradation



pests and diseases



social and physical infrastructure

Climate Smart Agriculture (Triple win)

Sustainably

Increases agrl
prdn, increase
income

- Regenerative Agriculture,
- Agroecological farming
- Biodynamic agriculture
- nature inclusive farming

Builds **resilience**
of agricultural
production

Sustainable Agriculture,
Alternative Agriculture
Carbon farming
conservative agriculture

Minimizes **GHG**

Undesirable consequences of unsustainable human activities



Climate Smart Agriculture

Working with nature for;

- improvement practice
- **Soil fertility**, Integrated pest management
- Integrated crop systems

Form of agriculture that;

- **Improves food pdn with less-ve/ net +ve effects**
- Restores soil fertility and biodiversity
- Reduce tillage; cover crops, mulch, compost, agroforestry and native sps restoration
- **improves soil health, sequester carbon and increases biodiversity**

CSA, continues;

- emphasizes low external input:
 - ✓ on [farm inputs,
 - ✓ reduced pesticides,
 - ✓ reduced tillage, cover crops
- Uses technology and improved agronomic practices
 - improved tolerant varieties (heat, salinity, floods, drought)
 - crop diversification
- Allows science-based tech; precision agriculture and policies inst, financing mechanisms

Comparison

CSA and Conventional Agriculture

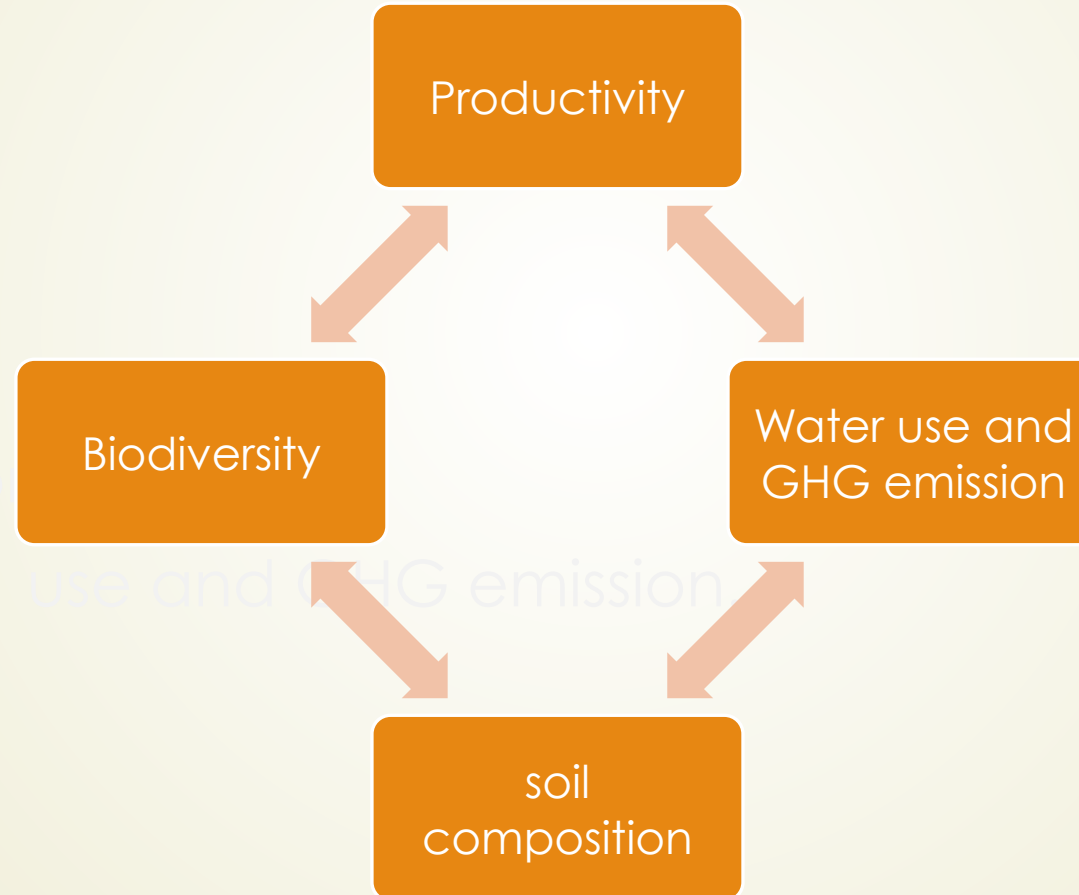
Comparison based on;

❖ production

❖ biodiversity

❖ soil composition

❖ water use and GHG emission



Climate Smart Agriculture

- Pdn **sustains soil health**, ecosystem and popn: **4RC**
- **Organic pdn** system that yields with less/no synthetic inputs, enhances soil health and promotes diversity
- Relies **on ecosystems** rather than adverse input use
- Is a natural way to produce, with socio-environmental benefits
- Combines tradition, innovation and science
- May be more labour intensive

Conventional agriculture

- Uses synthetics to max yld; fertilizers, GMOs and other industrial pdts
- Has production efficiency, maximizes on the potential yield, meets needs, but compromises environmental integrity
- Pdn beneficial to food security but requires constant maintenance
- Involves monocropping, uniformity, chemical use, with unintended effects

Why adopt CSA

- Agriculture is a major contributor to climate change, 19-29% GHG. This may be higher
- It is significantly affected by climate change and also a cause
- Climate change effects real; increasing frequencies of extreme weather
- Ever increasing population demand food and sustainable production

The simple principle; R4iCSA

Reduce



G
H
G

cover
crop

AWD

Reuse



Recycle

- Husk- Biochar-Manure**
- Straw - compost-Manure**
- Husk-Utility stove**

Rice Initiative for CSA





Thank You very much