Mitigation actions for the livestock sector in Eswatini and recommendations on next steps

Aimable UWIZEYE, PhD
Livestock Policy Officer (Livestock and Environment)
FAO – Animal Production and Health Division (NSA)
E-mail: aimable.uwizeye@fao.org
Objective and outline

Understand how to design and implement mitigation options in national programmes and policies

- Background
- What is mitigation?
- Designing and implementing mitigation options
- Mitigation Options: Short and medium-term
- Take-home messages
CLIMATE CHANGE AFFECTS AGRICULTURAL PRODUCTION IN MANY REGIONS

The greatest vulnerabilities to climate change impacts are in sub-Saharan Africa and South and South-east Asia.

Food insecurity and climate change vulnerability present day

Productivity declines would have serious implications for food security.

Millions of low-income people that are already highly food insecure, would be affected. Smallholder producers in developing countries are amongst the most vulnerable.

All these effects have negative impacts on the productivity of crops, livestock, fisheries and forestry.

CLIMATE CHANGE POSES A SERIOUS THREAT TO FOOD SECURITY

Climate change affects agriculture...

...and agriculture contributes to climate change

The Challenge

- Produce more food for the growing population
- Reduce greenhouse gas emissions

How Agriculture Contributes to Climate Change

- Energy: 47%
- Agriculture, Forestry and Other Land Use: 21%
- Transport: 11%
- Residential, commercial and institutional: 7%
- Industrial processes and solvent use: 6%
- All other sources: 8%

Shares of greenhouse gas emissions from economic sectors 2010

Taken together, agriculture, forestry and land-use change account for at least 1/5 of total emissions, mainly from the conversion of forests to farmland as well as from livestock and crop production.

What is mitigation?

- Direct relation between global average temperatures and the concentration of greenhouse gases in the atmosphere.

- “Mitigation” refers to efforts to reduce emissions and enhance sinks are referred to as “mitigation.”
What is mitigation?

Tier 1

1. Reduce animal population

2. Increase the sinks

3. Reduce EF

\[ \text{GHG emissions} = \text{Emission Factor} \times \text{Reduce EF} \]
What is mitigation?

1. Feed intake
2. Grassland management
3. Feed digestibility
4. Use of feed additives
5. Fertility of animals
6. Genetics
7. Live-weight
8. Net energy
   - Activity
   - Growth
   - Production
   - Lactation
9. Emission factor

Tier 2
Mitigation options can be formulated and implemented through:

- National programmes containing **technical measures** to mitigate climate change;
- **Policies, incentives** schemes and **investment** programmes
Aligning mitigation options with development objectives

- Past trends of cattle population
- Development and investment strategies
  - Improvement of productivity and production (meat and milk)
  - Increasing farm incomes
  - Increase meat export
  - Reduction of poverty
  - Improvement of nutrition
Enteric methane is the main source of GHG emission from ruminant systems in Eswatini.
Methane (CH$_4$)

- Short-Lived Climate Pollutant (life span, 12 years)
- Major greenhouse gas from the livestock in Eswatini
What options would you consider to reduce enteric methane while increasing the productivity and profitability (farm incomes)?
Mitigation options

Improvement of efficiency

- Animal genetics (Artificial insemination)
- Reduced calving interval
Improvement of grasslands and paddocking
Use of high-starch forage (maize silage)
Feed digestibility (quality of feed)
Mitigation options

Offsets

- Production of biogas from manure
- Carbon sequestration in the soils
Mitigation options

Restructuring the cattle population

- Reduce draught animal population (Oxen)
- Reduce the longevity of non-producing animals (adult cows)
- Use of sexed semen

- Socio-economic role of cattle systems
Some strategies identified for Eswatini:

- Use of Artificial insemination
- Reduce draught animal population (Oxen)
- Fattening beef cattle in feedlots
- Improve the digestibility and quality of pasture
- Improvement of manure management
Take-home messages

- Ruminants play a significant role in food security and livelihoods of farmers
- Enteric methane is the main source of GHG emissions in livestock sector
- Great opportunities to align mitigation options and development objectives
  - Reducing methane emissions: short and medium-term strategy
  - Soil carbon sequestration: long-term strategy
- Need to analyze the costs and benefits of the interventions
- Future of the sector under a holistic approach