The effects of economic and environmental strategies on typical dairy farms performance in Western Kenya

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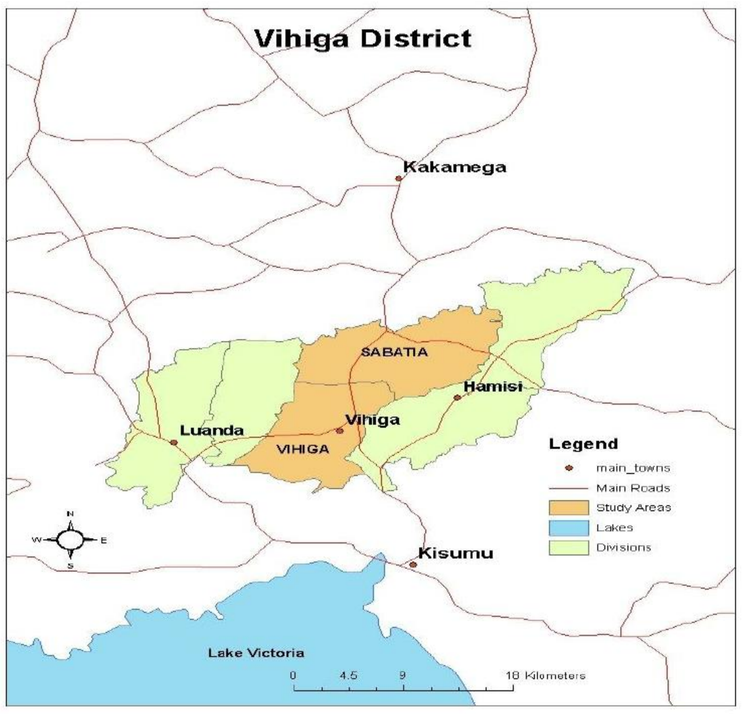
Introduction

- The dairy industry, predominantly smallholder in East Africa, is the most developed of the livestock sub-sectors
- Increased demand for animal-source food might support smallholder crop-livestock farmers
- Kenyan agriculture contributes to about 30% of the greenhouse gas emissions
- By 2030 Kenya is committing to reduce the GHG emission to 32%

Study site and Methodology



- Data was collected through surveys, experts as well as the relevent literatures
- Production and accounting model (TIP-CAL) tool for *agri benchmark* was used for economic analysis.
- IPCC methodology tier 1/2 following 2019 IPCC guidelines was used for greenhouse gas emissions estimation for the dairy enterprise and related crop and forage production.

Characteristics of the dairy production system in Western Kenya

Characteristics	Intensive system
Location	Vihiga
Breeds	Exotic/cross
No. of cows	11
Milk yield (kg/cow/year)	2,529
Feeding type	Sugarcane residue, concentrates, forages
Crops	Maize, Beans, Banana
Manure management	Solid storage – covered

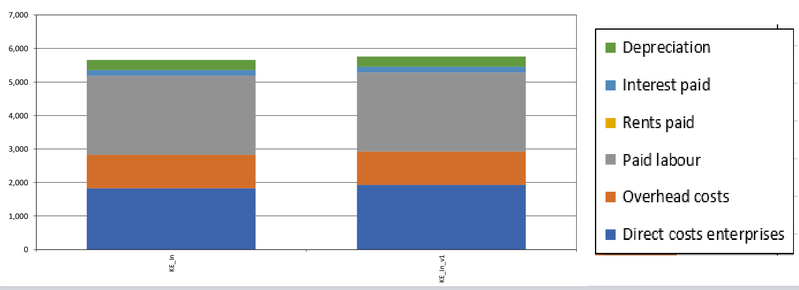
Results

Economic and environmental strategies

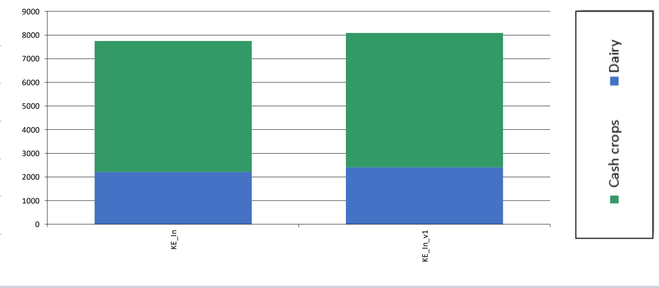
Economic strategies	Environmental strategies
Increase the cost of bought in-forages	Reduce sugarcane residues and increase bought in-forages
Manure plastic cover maintenance cost	Manure plastic cover

Farm economic analysis

Farm Cost

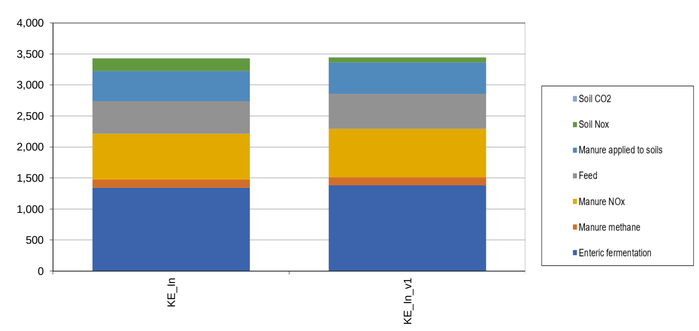


Farm Return

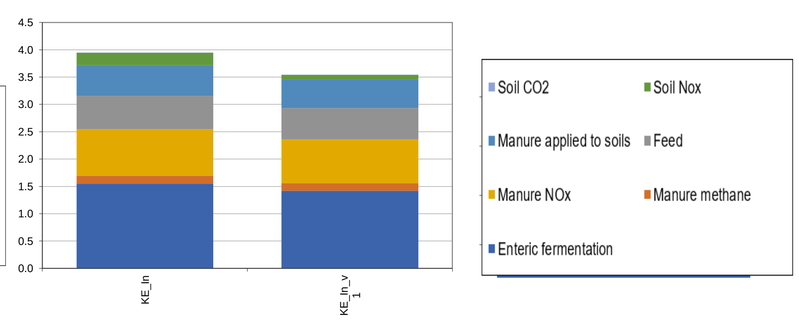


Greenhouse gas (GHG) analysis:

Co2 equivelents
Kg/cow



CO“ equivelants
kg per FCPM



Conclusion

- Shifting from low quality feed (surgarcane residue) to bought in-forage does not only reduce metahne emission, but also increases farm profit as well as animal performance.
- Farmers are unaware about the costs that GHG mitigation strategies can incur.

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