

# Application of the Integrated Decision Support Systems to improve livestock systems and household nutrition in Rwanda for research and capacity development

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## Why this research project matters

- Rwanda aims to transform the agriculture sector from subsistence to a market-oriented agriculture including the livestock sub-sector, particularly through Rwanda's Vision 2050.
- Rwanda's agriculture sector contributes about 27% to the national gross domestic product (GDP), including 12% from the livestock sub-sector.
- Livestock are a secure source of income, nutrition and insurance that help households cope with shocks through wealth accumulation. However, household food insecurity and undernutrition remain a barrier to the overall development and well-being, partly due to an under-developed livestock sub-sector.
- In Rwanda, 33% of children under 5 years suffer from chronic malnutrition (stunting) and 37% suffer from anemia. The level of food insecurity is specifically high in western and northern areas.

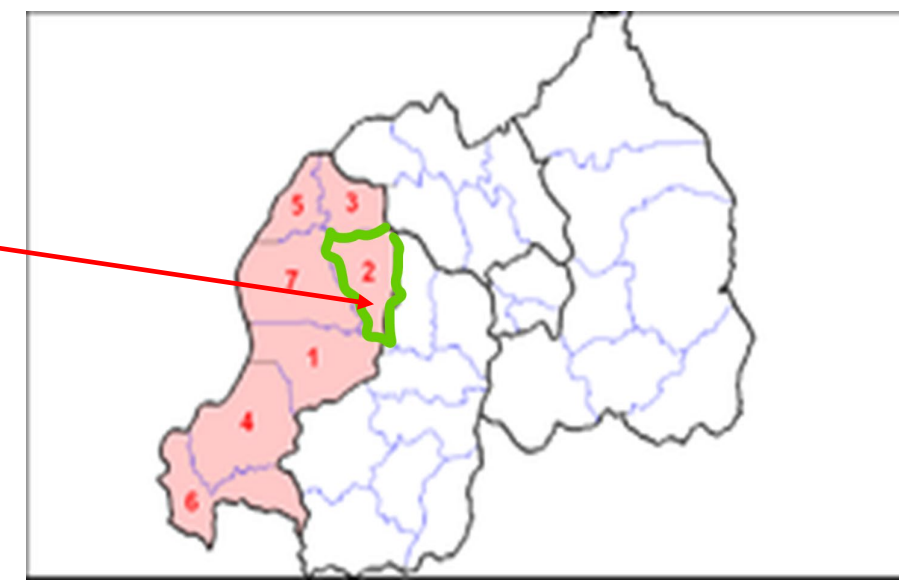


## Overarching goal

Contribute to the identification of the best combinations of feed production technologies within environmental boundaries and their potential impacts on livestock production and human nutrition in Rwanda, and to strengthen capacity for policy, programs, planning and monitoring.

## Our work is based in

Western Province;  
Ngororero District



## What we have done so far

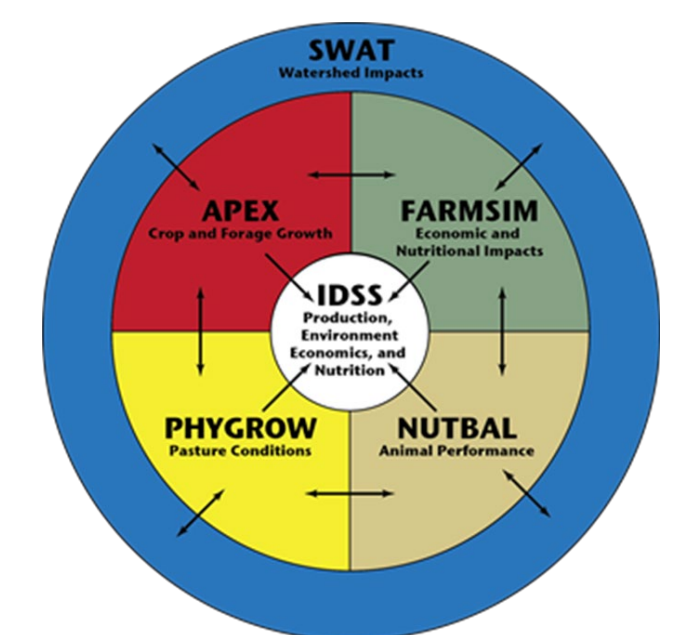
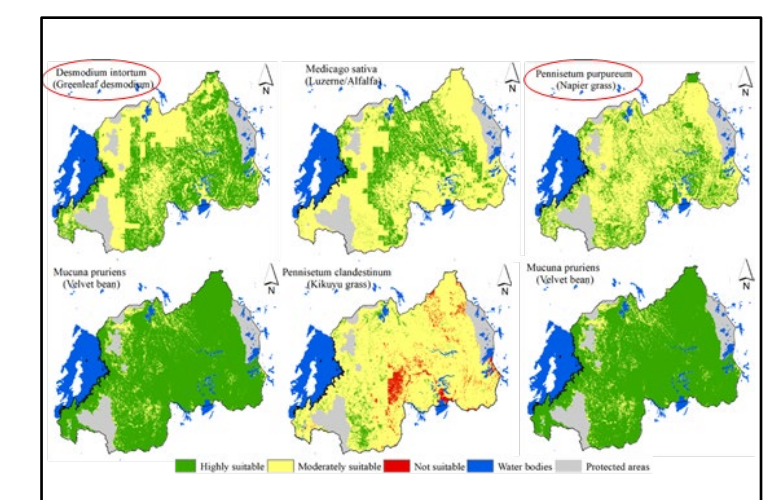
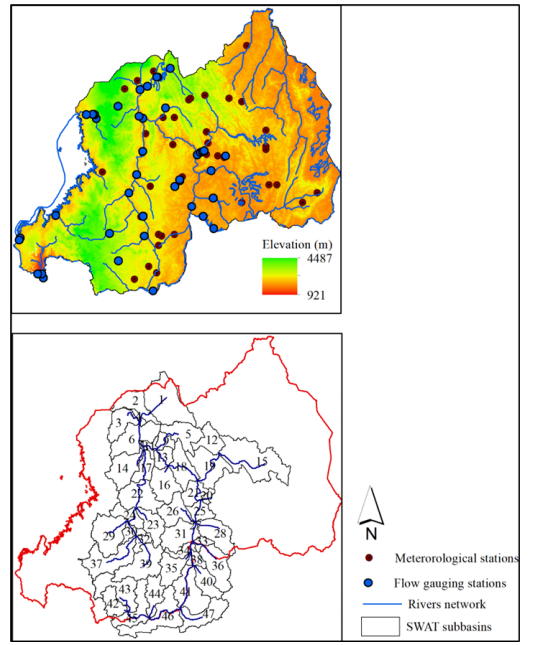
- ✓ Selected candidate forage species for suitability mapping using stakeholder engagement; ranking methods
- ✓ Generated forage production suitability maps for Rwanda and specifically for Western province
- ✓ Evaluated water resources potential in Rwanda using hydrological modeling
- ✓ Conducted preliminary socio-economic analysis using household surveys collected by the National Institute for Statistics Rwanda and the International Food Policy Research Institute

## Training and outreach

- Training workshop on IDSS modeling approach
  - 52 participants (13 females & 39 males) from research, teaching institutions; government and private sector
- Seminars on IDSS & LSIL-RWA Research
  - Presentation on different LSIL projects in Rwanda to initiate collaboration
  - Presentation of preliminary research results and discussion with participants of potential and appropriate scenarios to study
- Lecture for faculty and researchers describing IDSS models and their use
  - 29 participants mainly from UR and RAB

## Early insights

- Subbasin avg. surface runoff: b/n 70-480 mm
- Relatively low groundwater storage: majority of subbasins (0-100 mm)
- Sediment yield greater than 15 t/ha: majority of subbasins
- Two forage species (Napier grass, *Desmodium*) selected for further simulation of best feed technologies in Western province
- Scenario setup to evaluate impacts of best feeds packages on income & nutrition



Lecture session on IDSS at UR/CAVM, Busogo Campus on October 13, 2023