



## CLIMATE CHANGE & GREENHOUSE GAS REDUCTION

### Soil and climate benefits of improved forage grasses

#### Improved forage grasses

Improved forages include perennial grasses such as *Brachiaria* and *Panicum* which can increase feed quantity and quality and therefore livestock productivity

More soil carbon through high soil organic matter input from above and below ground biomass - 2 to 3 fold higher sequestration rates compared to annual cropping systems

x2  
x3

Mitigate greenhouse gas emissions through reducing CH<sub>4</sub> emissions from enteric fermentation per unit of livestock product by 25%

25%

Better soil structure through binding soil particles, improved aggregate stability and infiltration

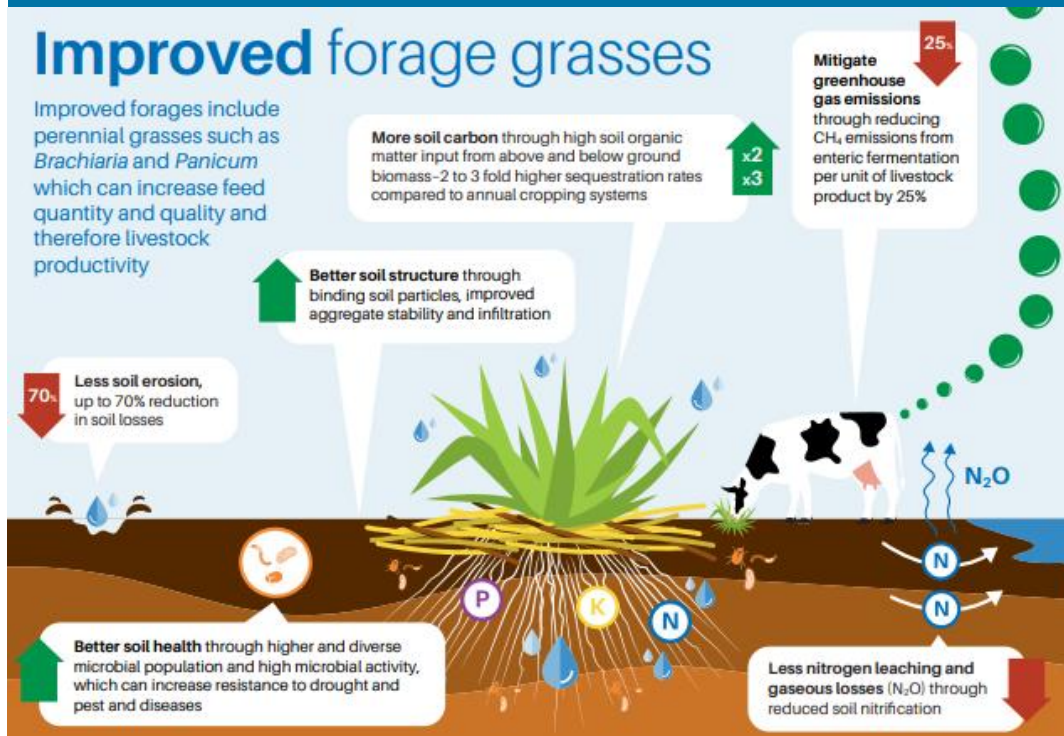
Less soil erosion, up to 70% reduction in soil losses

70%

Better soil health through higher and diverse microbial population and high microbial activity, which can increase resistance to drought and pest and diseases

Less nitrogen leaching and gaseous losses (N<sub>2</sub>O) through reduced soil nitrification

N<sub>2</sub>O



RESEARCH PROGRAM ON Livestock

LIVESTOCK & ENVIRONMENT

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## Outcomes

- Communication and outreach products produced and disseminated with partners including local governments, training material designed and to be mainstreamed and applied in e.g Tanzania priority country
- Increasing demand to capitalize on environmental co-benefits of forage grasses by local governments, international research (e.g. NIBIO, Aarhus University), local universities (e.g. University of Nairobi, Hawassa University), international development partners (e.g. TNC, GIZ country programs), and private sector (e.g. Carbon Tanzania), resulting in joint fundraising

## Future steps

- Scientific evidence on soil and climate benefits of improved forage grasses needs to be further disseminated to inform programs and strategies
- Use quantification of soil and climate co-benefits to inform potential contributions to policy targets e.g. under AFR100, NDCs

## Partners

TALIRI, RAB, Send a Cow, IFAD, GIZ, KALRO, CSIRO



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## Context

- The livestock sector contributes significantly to climate change with about 10-15% of all human-induced greenhouse gases (GHG)
- Soil erosion, the removal of the most fertile top layer of soil through wind, water and tillage, is the #1 threat to our planet's soils. Over 80% of land degradation in sub-Saharan Africa is due to soil erosion
- Sustainable livestock intensification through improved forage grasses can increase livestock productivity while reducing environmental trade-offs

## Our innovative approach

- Multidisciplinary scientific approach, from experimental trials and empirical soil measurements to bio-economic trade-off modeling in multiple sites including Rwanda, Tanzania, Kenya, and Ethiopia

Brachiaria grass in Lushoto, Tanzania (Photo: Georgina Smith)