

The Regional Universities Forum for Capacity Building in Agriculture with support from the Global Research Alliance on Agricultural Greenhouse Gases have funded eight Graduate Research Grants (GRG) aimed at building the capability of graduate and post-graduate level students in Africa to conduct applied research on agricultural greenhouse gases. Each GRA-GRG supports a Principal Investigator (an individual senior lecturer of a RUFORUM member university) and two Masters Students to undertake research and training on topics related to the measurement and management of greenhouse gas emissions and removals in ruminant farming systems in Sub-Saharan Africa over a two-year period.

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Republic of Congo

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GRG/08

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RUFORUM

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Project title

Improvement of animal productivity through the valorization of local feed resources in South Kivu, Democratic Republic of Congo

Summary

Livestock plays an important role in the economic and socio-cultural sector in developing countries. However, in spite of its importance, its productivity remains insignificant due to the derisory breeding system, the low genetic potential of the animals, diseases and food resources often not listed and with a nutritional value that is not or poorly known. In the DRC, ruminant breeding is mostly of the traditional type. The diet is dominated by fodder with or without feed supplements. The feeding of herbivores contributes more than 10% to the destruction of the environment through the production of greenhouse gases, deforestation, and overgrazing of arable and grazing land. Thus, good management, improvement in feed quality, and valorization of non-methanogenic food resources is of paramount importance for improvement of production and reduction of greenhouse gas emissions.

Objectives

Overall: To contribute to the evaluation of local feed resources utilization (feed balances) for a better accounting of greenhouse gases and increased productivity in ruminants (cattle, goats and sheep) in South Kivu.

Specific objectives

1. Undertake inventory of the ruminants feed resources, their uses, characteristics, and spatial and temporal distribution in Walungu , Kabare and Ruzizi plains
2. Evaluate the nutritional value of identified feed resources.
3. Monitoring of animal feeding in the natural environment and in the station
4. Estimate of the nutritional needs of beef , goats and sheeps according to their mobility in the breeding environment
5. Propose a scheme for improving the use of ruminant's feed resources

General planned activities

1. Review, compilation and synthesis of available knowledge on the feeding of poly-gastric animals (cattle, goats and sheep)
2. Mapping and documentation of ruminant feed resources in the study area
3. Characterization of livestock feed resources

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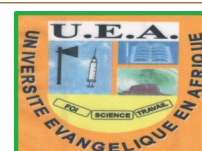
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4. Mapping the distribution and spatio-temporal variability of identified food resources
5. Vegetation analysis and estimation of food resource usability coefficient
6. Assessment of the nutritional value of the food resources available in the study setting
7. Estimation of the nutritional needs of livestock according to their mobility in the livestock environment
8. Monitoring of animal feeding in the natural environment and in the station
9. Development of a scheme to improve the use of food resources

Students activities

Student 1: Characterization of pastures in South Kivu: typology, fodder value and physicochemical properties of the soil

Student 2: Nutritional value of feed resources and estimation of nutritional needs of ruminants in the high and low altitude of South Kivu, DR Congo.

Student 3: Spatio-temporal modeling of vegetation cover dynamics of pastures in South Kivu.

Student 4: is the one that is enrolled in another project that contributes to eradication program of small ruminants pest (PPR) by understanding its dynamics as well as developing a control model in DRC.

Expected outcomes

1. The different feed sources for livestock available in the region are identified and valorized.
2. Availability and variability of feed resources in time and space determined
3. The nutritional value of these feeds is estimated according to the environment and the seasons.
4. Improved nutrition and feeding of ruminants through the valorization of all resources
5. Livestock farmers are able to formulate rations based on forages and other feeds in their localities;
6. Two master trained;
7. Emissions of animal greenhouse gases are reduced in the study area by use of nutrient-riched and less fermentable feeds

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