Sustainable intensification of legume-based livestock systems: Latin America and Caribbean cooperation platform

The use of legumes in the livestock can produce improvements in animal productivity, the biological fixation of N, the reduction of greenhouse gas emissions (GHG) and soil carbon sequestration.

The use of legumes can help us produce more meat emitting less greenhouse gases?

**The implemented initiative**

The project aims to contribute to the improvement of livestock systems in LAC through the adoption of forage legumes. This purpose led to the creation and current management of a cooperation platform whereby research on Nitrogen by BNF of legumes, animal production, sequestration and emission of N2O from the soil, and the emission of edaphic and enteric CH4 is being performed. The knowledge acquired is published in the mass media, scientific journals, congresses, conferences, and the training provided to undergraduate and postgraduate students, technicians, and farmers.

Partnering, cooperating and sharing knowledge: the key to making livestock production in the region more efficient

**The technological solution**

The member countries of the platform have in common that beef production activity is very important for their economies. All also can use legumes as a forage resource, very different but with common characteristics, such as the ability to fix N from the atmosphere. In this way, a saving of fertilizers is generated, and an important contribution of N for plant nutrition and to contribute to the sequestration of C from soils. From this balance between emissions and carbon sequestration is the possibility of mitigating the emission of gases from these livestock production systems. Saving in fertilizers also implies significant economic and energy savings, and an environmental benefit.

This program trains human resources within the framework of a collaborative and complementary capacity setting.

**Results**

So far, emissions of enteric and edaphic CH4 and BNF have been obtained. Moreover, Carbon Profiles have been studied in some countries. Some results highlighted the importance of the FBN reflected by the large proportion of N in the plant that came from the air. Higher emissions from grazed fields were observed in some situations. However, this should not lead to wrong interpretations about the role of agricultural production as a source of high emissions. For a better analysis, GHG emission and mitigation must be calculated, and this work is still in progress. Technical-scientific capacities are strengthened through theses, internships, workshops, and collaboration meetings between experts on each subject. In addition, the results and activities of the project are disseminated based on notes in the mass media and publications in scientific journals, congresses, and conferences. In October this year, we are holding the first general in-person meeting.