

20 YEARS PROMOTING SUSTAINABLE LIVESTOCK FARMING BASED ON SILVOPASTORAL SYSTEMS: CATIE EXPERIENCE IN THE LATIN AMERICA AND CARIBBEAN.



Introduction

The Tropical Agricultural Research and Higher Education center (CATIE) is a regional center with strong international ties, dedicated to tropical food systems in synergy with nature. It operates based on comprehensive knowledge management through its three pillars: education, research, and outreach and in alliance with multiple partners and countries through a regional scientific platform with global influence. The transfer of technology and knowledge, as well as the impact on policies at different scales, are fundamental elements of its continuous contribution to poverty reduction and economic, social, and environmental development in the region. GAMMA is the technical unit in charge of implementing CATIE's mission in the livestock sector of Latin America and the Caribbean.

Livestock activity in the Latin America and Caribbean region contributes to the livelihoods of more than a million families, primarily in rural areas. The region has more than 20 million hectares dedicated to pasture, of which more than 50% is degraded, contributing to low animal productivity, low income, environmental degradation, climate vulnerability, and greenhouse gas emissions. CATIE has evolved its programs of research and outreach to contribute solving the environmental issues caused by livestock.

Research And Extension Trajectory

Trends & Issues in the Livestock Sector

In the decades of the 80s and 90s, the concern of environmental degradation caused by extensive cattle ranching

In the 2000s, the contribution of livestock to climate change and the loss of biodiversity was highlighted

In the 2010s the livestock sector became a priority in the decarbonization and adaptation strategies of most countries in the region

CATIE: Research and Extension focus

Rotational pasture management

Use of Fodder Banks (Energy & Protein)

Development and promotion of Silvopastoral systems (SPS)

SPS and best practices are promoted to recover degraded pastures, protect biodiversity and ecosystem services

Alignment of policies, extension, financing and technologies to decarbonize and adapt the livestock sector

Results

- The difference in productivity and income between livestock systems with and without degraded pastures can be up to 50%. Silvopastoral systems and good practices are attractive options to recover degraded pastures and intensify traditional livestock systems in the tropics.
- Silvopastoral systems have been identified and evaluated in livestock landscapes of the Mesoamerican region in terms of productivity, income, contribution to biodiversity conservation and ecosystem services.
- Quantification of the emissions, mitigation, carbon sequestration, water footprint, and economic performance of livestock systems in Mesoamerica.
- Evaluation of the impact of silvopastoral systems on livestock systems and at the landscape level regarding emissions, biodiversity, water production, and carbon sequestration.
- Design and evaluation of payments for environmental services generated by silvopastoral systems and other land uses in terms of productivity, income, biodiversity and carbon sequestration.
- Design and implementation of climate financing instrument mechanisms adapted to the livestock sector.
- Implementation of Farm Field Schools for training and establishment of Silvopastoral Systems and good practices in cattle farms.
- Support to national authorities in the design and implementation of National Appropriate Mitigation Actions (NAMA) in the Livestock sector (i.e., Honduras, Costa Rica, Guatemala and Colombia).

Future Challenges

- Development of digital tools (drones, Apps, others) for better decisions making of farmers, credit officers, and policy-makers.
- Development digital tools for monitoring, reporting and verification, traceability, and climate vulnerability.
- Improve the water harvesting current technologies and how to improve water usage efficiencies in sustainable livestock farms
- Development and communicate early warning systems indicators for livestock farmers regarding drought and flooding.
- Develop a strategy to generate evidence, to establish the effect of sustainable cattle ranching on biodiversity at different levels and derived functions (ecosystem services).
- Develop a regional strategy for the sustainable intensification of livestock farming linked to markets with environmental seals, demonstrating zero deforestation, low-carbon or carbon-neutral livestock.
- Regional PLATFORM for knowledge management to share knowledge, methodologies and tools for the sustainable intensification of livestock.