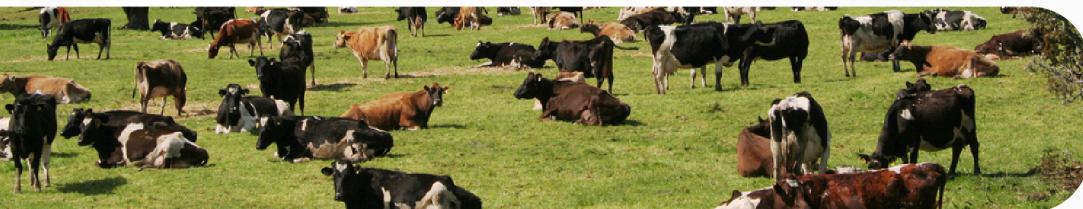


Sustainable livestock: a stronghold against climate change and in favor of the preservation of ecosystems in Latin America

Sustainable Agriculture Milestones in the Americas

Relevant experiences in the region to address climate change and care for the environment and natural resources





Sustainable livestock: a stronghold against climate change and in favor of the preservation of ecosystems in Latin America

Through strategic alliances and different sustainable livestock programs, the countries of the Americas promote practices that mitigate the emission of greenhouse gases (GHGs), promote animal welfare, favor the settlement of families, and strengthen the family economy.

Latin America is the largest exporter of beef in the world. This activity represents around 46% of the region's agricultural GDP. The region exports 40% of the total beef sold on the international market and is the largest exporter of poultry meat in the world and the third largest exporter of pork. Livestock also plays a social role in the region that cannot be ignored.

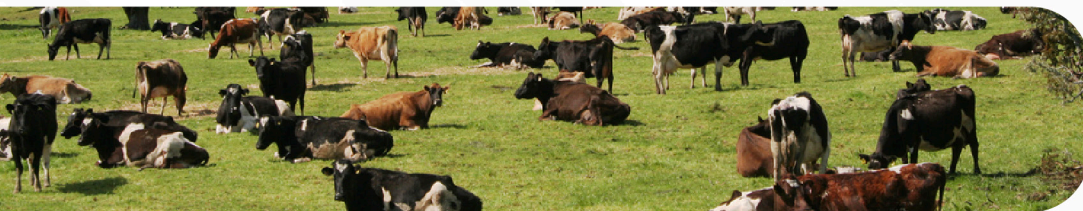
Small livestock producers generate more than 60% of total beef, poultry, and pork production. In Central America, for example, about 86% of livestock farms are small-scale farms of less than 18 hectares, which have between four and twenty animals and have an average stocking rate of 1.5 animals per hectare. The animals even serve as

collateral support for obtaining credits and constitute a source of food for small livestock producers to diversify their diet, traditionally based on basic grains.

In this context, sustainable livestock plays a fundamental role, both in terms of adaptation to and mitigation of climate change. Together with the conservation of ecosystems, it rationalizes the use of natural resources, in a region with an extraordinary environmental wealth: Latin America and the Caribbean concentrates 16% of agricultural land, 50% of biodiversity, 23% of the forest surface and 30% of the fresh water of the planet.

Thanks to significant public-private efforts, livestock farming in the Americas has made great strides in the 21st century to reduce its environmental impact and maintain or increase profitability. Today the hemisphere seeks to advance further along this path, in order to continue strengthening its competitiveness and consolidate its position in international trade.





Cooperation initiative

There is a huge difference between the cattle ranching practiced in the region and that of the rest of the world. In the Americas, the activity is primarily based on grazing systems that do not generate deforestation, do not compete with crops, do not burn grasslands, and do not put the biomes of the countries at risk. Overall, livestock farming takes place in marginal areas from a productive point of view, because they suffer from water scarcity, have poor soils, and do not have transportation infrastructure.

Regarding GHGs, although animals release methane into the atmosphere, this is offset in Latin America by capturing carbon from grasslands. In the case of Argentina particularly, pastoral farming sequesters 12 times more carbon than it emits, according to a study by renowned researcher Ernesto Viglizzo, who is part of the Intergovernmental Panel of Experts on Climate Change (IPCC).

On the other hand, the methane emitted by cows has the shortest life among GHGs. While carbon dioxide has the potential to exist in the atmosphere for hundreds or even thousands of years, methane only remains for only a decade before becoming part of the carbon cycle. It transforms into carbon dioxide and is absorbed by plants through photosynthesis. The cattle then eat the plants, releasing methane that stays in the atmosphere for a short time before turning into carbon dioxide, at which point the cycle restarts.

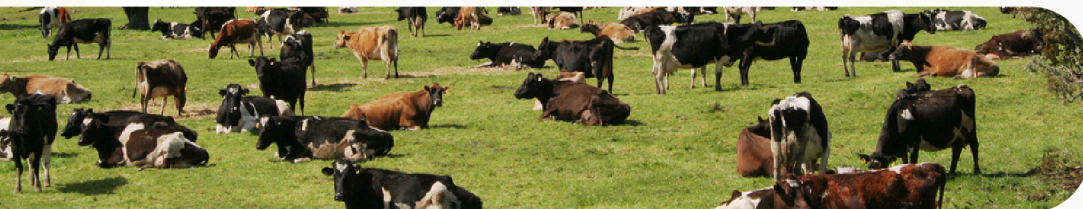
The Global Roundtable for Sustainable Beef (GRSB) and the Inter-American Institute for Cooperation on Agriculture (IICA) have been developing joint projects on the subject. Specifically, Josefina Eisele, Regional Director of the GRSB for Latin America, explains that both organizations share the vision of the importance of producing beef in a sustainable, environmentally friendly, socially responsible, and economically viable manner.



In order to strengthen sustainable livestock in Latin America, spaces have been created where producers can share experiences that improve social, economic, and environmental aspects of the beef value chain.

For his part, Abel Argüelles, Executive Director of the Argentine Roundtable for Sustainable Beef, explains that their organization works together with various institutions to develop sustainability indicators, which help improve production protocols.





In this sense, Sergio Schuler, from the Brazilian Roundtable, points out that there are three main lines of work: increasing traceability throughout the chain, achieving carbon neutrality, and improving the use of soil resources. The organization also seeks to communicate its achievements to society, with a view to changing consumers' perception of the livestock chain.

"We are disseminating the concept of sustainable meat and social recognition among national and international actors; in addition, we have developed software to identify areas for improvement in sustainable production", said Hugo Sánchez, representative from Paraguay.

From Mexico, Eduardo Rendon explains that the roundtable in his country includes beef, goat, and pork production: "We work on traceability, by developing sustainability standards for pigs. We hope that this will be the spearhead for other productions".

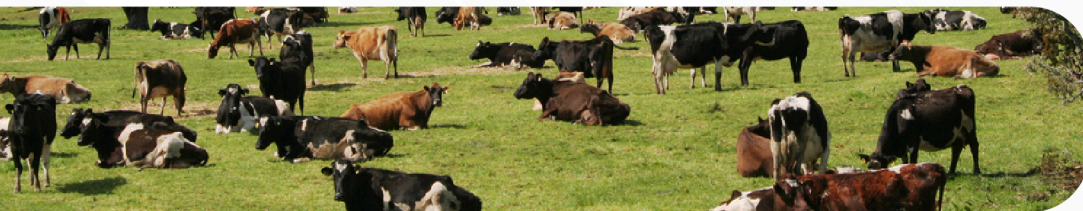
Germán Serrano, from Colombia, explained that his country has established a national framework for sustainable livestock production that has been included in the national policy.

In the case of dairy cattle farmers, the Net Zero Initiative in the United States supports dairy producers in reducing the environmental impact of the industry. This initiative is coordinated through the Innovation Center for U.S. Dairy, a voluntary organization that collaborates with leaders from across the dairy value chain.

For its part, the Alianza del Pastizal, an initiative for sustainable livestock led by the environmental organization BirdLife International, brings together Argentina, Brazil, Paraguay and Uruguay, and awards a seal to meat whose production process contributes to the conservation of natural grasslands and biodiversity. In order to obtain this certificate, ranchers must implement practices that mitigate GHG emissions, promote animal welfare, strengthen adaptation, and improve the economy of rural families.

Currently, there are several successful examples of sustainable livestock throughout the entire American continent.





Canada

Recovering native grasslands to increase biodiversity

For many people, Canadian prairies are a vast ocean of grass; however, this reality has changed. Today, in some areas of Canada, less than 20% of native grasslands remain. This situation is worrying, due to the cultural importance of these grasslands for the indigenous peoples and for all the inhabitants of rural areas.

For this reason, Ducks Unlimited Canada, the Nature Conservancy, and the United States Roundtable for Sustainable Beef (USRSB), in cooperation with the Waldron Ranch, implemented a project in 2013 for sustainable practices to preserve native grasslands.

Waldron Ranch has 65,000 acres and currently sequesters around two million tons of carbon, equivalent to the emissions of more than 100,000 Canadians for a year. These levels remain stable in the long term and stay in the soil as long as the ecosystem and livestock grazing on the land are maintained, explained Ben Campbell of the Black Diamond Ranch in Alberta.

United States

Sustainable beef from start to finish

Since its founding in 2015, the USRSB has brought together individuals and businesses to reflect on how they raise, buy and distribute beef, and to find opportunities to help consumers understand the history of sustainability in the beef community.

More than 100 USRSB diverse stakeholders, from ranchers to restaurants and others in between, have come together to address environmental, social, and economic concerns and identify ways to continually improve the sustainability of the meat value chain. In most developed countries, more than 80% of all GHG

emissions come from fossil fuels, while less than 3% comes from livestock production.

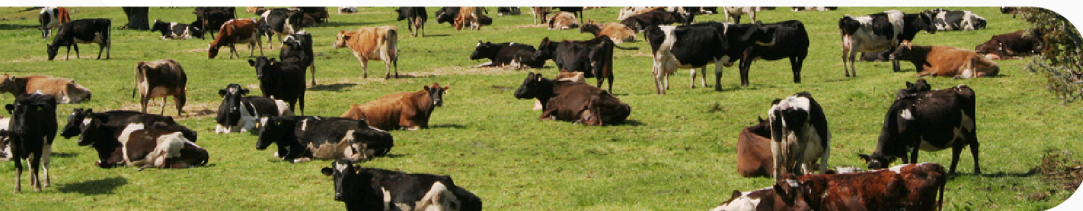
To approve standards, guidelines, and methods to measure sustainability, the USRSB developed a two-year meat sustainability pilot project, which brought together participants from each phase of production to share data and best practices in the value chain. The objectives were multiple: increasing efficiency, improving management practices, self-assessing and documenting sustainability efforts, exploring third-party verification of sustainability, and evaluating a chain-wide track-and-trace program.



Uruguay

Livestock and Climate Project, more sustainable meat per hectare

Uruguay is a livestock, and especially cattle, country, with great wealth in terms of natural grasslands. Of the country's 17 million hectares, more than 10 million are dedicated to livestock with direct grazing.



Extensive pastoralism is carried out with little use of external inputs and capital; rather, it is based on what the ecosystem offers and the growth of native biodiverse grasslands with very high forage production potential, explained Walter Oyhantcabal, an expert on Sustainable Livestock at IICA.

Between 2010 and 2019, the Uruguayan Ministry of Livestock promoted a strategy aimed at improving efficiency and productivity, increasing the net income of producers, obtaining greater resilience, contributing to mitigation, and adopting management practices that generate conditions to recover organic matter in the soil and capture carbon, added Mr. Oyhantcabal.

One of the initiatives of the Livestock and Climate project was the creation of the Adaptation Fund of the Climate Change Commission, aimed at some 1,500 producers with very shallow soils who, as a result, are highly vulnerable to droughts. The initiative focused on the vulnerability of livestock, given that the grasslands of the Uruguayan pampas usually produce a lot of grass, but problems arise when there are droughts.

Currently, a training program is being developed for farmers on how to produce more with fewer resources. Around 10% of the Uruguayan livestock area is managed based on criteria of high environmental ecological efficiency. Despite these initiatives, there is still much room for improvement.

Colombia

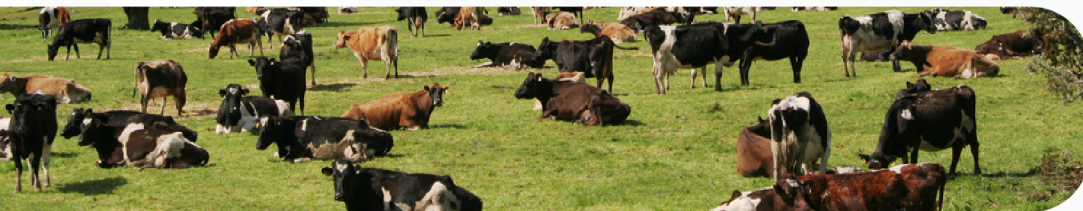
Recovering natural grasslands to improve economic, social, and environmental sustainability

In the province of Atlántico, on the north coast of Colombia, is the farm of Ana Hernández, which is part of 270 hectares that were bought from a landowner and distributed among 43 displaced families. It is also part of a national initiative to improve the economic, environmental, and social sustainability of cattle ranching in Colombia.

The *Mainstreaming Sustainable Cattle Ranching* project has helped 4,100 family farms in five different areas of Colombia to adopt silvopastoral techniques that mix trees with grass, in a beneficial combination for farmers, their cows, and the environment. Shade cows are more productive and sustainable than those raised in open fields. Shade reduces heat stress for animals; as a result, they emit less methane, while diversified vegetation improves their diet and productivity.

To date, around 32,000 hectares have been converted to the silvopastoral system, which has increased incomes by up to USD 523 per hectare/per year and has boosted milk productivity by an average of 36.2%. By rewarding farmers through payments for environmental services and encouraging natural regeneration, the project has also contributed to the conservation and enrichment of an additional 21,000 hectares of ecosystems, key to global biodiversity. The project has helped farmers plant more than 2.6 million trees of 80 different species and has sequestered more than 1.2 million tons of carbon.





The project, which is supported by the World Bank, is implemented by the Federation of Livestock Farmers of Colombia (FEDEGAN) in association with The Nature Conservancy, CIPAV and Fondo Acción, with financial support from the Global Environment Facility and the Government of the United Kingdom. Participating ranchers also contributed a significant amount of physical labor, time, fencing, and composting material successfully change the landscape.

For Ana Hernández, planting edible trees and shrubs in an area threatened by extreme weather has been difficult but worth it: her cows' milk production has increased from about 2 liters of milk per cow per day to 4.5 liters today. "My cows would produce much less milk if it weren't for the trees," she explained with conviction.

Raising the same number of animals on a smaller surface is essential to increase the sustainability of livestock farming and make room for forest restoration, said Hernández, who, along with the 43 displaced families, found a new life full of hope and opportunities on the north coast of Colombia.

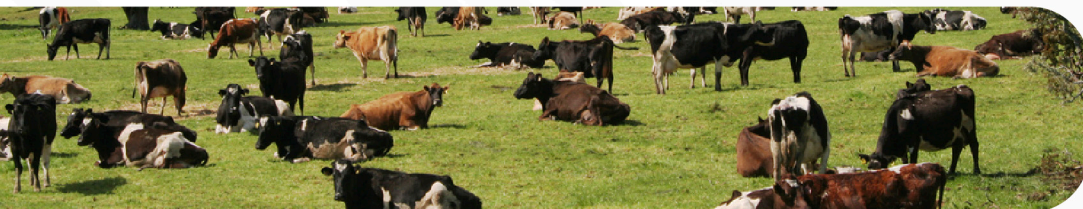
Brazil

Sustainable pasture-based farming for sustainability

Currently, there are more than 200 million head of cattle in Brazil and the industry is in all the municipalities of the country. An opportunity to intensify the use of the land are the integration systems between livestock production, agriculture, and forests. An example of this integration is that of a farmer who first uses the land to produce soybeans, followed by a corn crop. The same land is then planted with a grass that the cattle use as pasture. Although this type of integration system is complex to manage, the benefits are numerous when successfully implemented and producers see increased productivity and a positive financial impact.

The Brazilian government created a low-carbon agriculture plan that finances technologies to reduce carbon emissions. This plan includes the integration and restoration of pastures, no-till farming, forest plantation, nitrogen fixation and the use of animal by-products.





Other initiatives exist to combine the efforts of government, the private sector and civil society. Produce Conserve Include (PCI) in Mato Grosso, Brazil, works to achieve sustainable production in all industries in this territory, managing future agricultural growth within the existing productive areas, while restoring forests and involving all farmers, regardless of the scale of their production.

Mexico

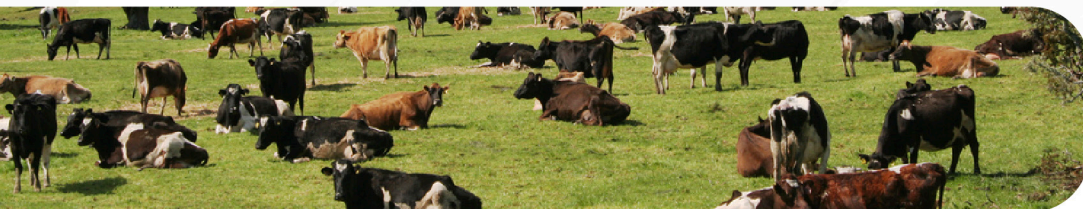
Sustainability of holistic and conventional livestock in the tropic of Chiapas

Conventional cattle ranching in the lowlands of Chiapas, Mexico, typically employs extensive grazing, annual burning of grass, and frequent applications of agrochemicals, thus threatening biodiversity and long-term productivity.

To remedy this situation, a small group of innovative ranchers in the Central Valleys region have shifted towards a more holistic management through careful land-use planning, rotational grazing, diversified forage, and reduced use of purchased inputs. To do so, they compared the sustainability of 18 conventional ranches and seven dual-purpose holistic ranches, using three sets of sustainability metrics.

As part of the project, vegetation and soil samples were taken at seven holistic ranches and seven conventional ones. Holistic ranches had greater soil respiration, a deeper topsoil, higher presence of earthworms in the soil, and canopies that were closer together when compared to conventional ranches. This suggests that holistic management strategies lead to greater ecological and economic sustainability.





Argentina

Forest management with integrated livestock to tackle climate change

The Forest Management with Integrated Livestock (MBGI) Plan promotes the conservation of the native forest and its biodiversity based on the adoption of low environmental impact technologies. This initiative by the Argentine government seeks to mitigate GHG emissions and strengthen sustainable livestock farming.

The MBGI, created in 2015 by the National Institute of Agricultural Technology (INTA), applies a comprehensive vision of the environment that seeks to strike a balance between productive capacity, environmental integrity, and ecosystem services to maintain and improve the well-being of farmers and the associated communities.

The plan, endorsed by the Ministry of Environment and Sustainable Development, responds to clear strategic objectives, which contribute to the sustainable use of native forests as a development tool in the face of land use change.

Estancia Puma, in the town of Quimilí, Santiago del Estero, produces soybeans, corn and sorghum, together with a full cycle of livestock. Although they carry out rearing and fattening of animals, their workload is moderate. This helps overcome the challenges of dry years by increasing supplementation instead of eliminating categories altogether.



The large scale of this farm has demonstrated that it is possible to apply the MBGI technology in small, medium, and large production units. Farmers can adopt this system on a voluntary basis, which provides an opportunity for sustainable production. Thus, it has become an alternative to production models that involve replacing forests with pastures that generate land use changes and have major environmental consequences.

As Ernesto Viglizzo has pointed out, grazing lands have great carbon sequestration potential, especially in the Southern Common Market (MERCOSUR) countries. However, there is still a lack of scientific research on carbon sequestration in livestock in the Americas, particularly because the modality is very different from other practices in other parts of the world.

Although the contribution to climate change mitigation through carbon sequestration has yet to be recognized as a significant option to offset methane release, it is certain that livestock, when properly managed, is part of the solution, which currently constitutes a global challenge.





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