

The CGIAR Systemwide Livestock Programme

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Legume-based feeding systems for improved small scale dairy farming in Latin America and the Caribbean

*Using the shrub legume *Cratylia argentea* as cut-and-carry forage or as silage and sowing *Arachis pinto* in association with *Brachiaria* increased the productivity of small scale dairy farms located in areas with prolonged dry seasons as well as in forest margins with degraded pastures in tropical areas of Latin America and the Caribbean.*

THE PROBLEM

The dry hillside areas of Central America and the forest margins of the Amazon region of Peru and Colombia are characterised by their vulnerability, seasonal shortage of forage, and severe soil erosion. An important use given to land in these areas is livestock production, which is also a key economic activity for the well-being of small scale livestock producers. In hillside areas with a prolonged dry season, the seasonality of forage production hinders the improvement of animal production. In forest margins, production is limited by the degradation of pastures. In addition, the forage on offer is limited and of poor quality.



PURPOSE

The objective of this project was to develop improved forage based technologies that will increase the efficiency of milk and meat

production in small scale dual-purpose livestock systems of tropical Latin America.

STRATEGY

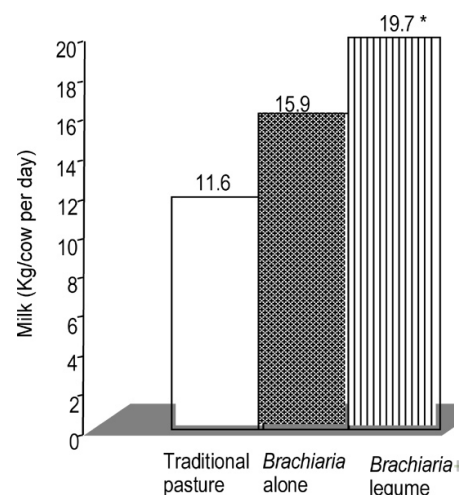
The project was executed by the Tropileche Consortium. The strategy involved on-farm evaluation of new legume-based forage resources to satisfy needs of small scale dairy producers and the nutrition of their livestock. Following results from economic analyses, the technologies with highest potential for impact were disseminated to a larger number of farmers through partnerships with official and private sector organisations. Studies on the adoption of these new technologies were conducted.

LOCATION

The project's target areas are the hillsides of Central America and the Caribbean, with prolonged dry seasons, and the forest margins of the Amazon region of Peru and Colombia that present a high percentage of severely degraded pastures. The livestock population in this region is estimated at 330 million heads, of which nearly 78% belongs to smallholders with dual-purpose livestock systems (producing both milk and meat) that account for 42% of the milk produced in the region.

RESULTS

In Costa Rica's Pacific region, associated pastures of *Brachiaria brizantha*-*Arachis pinto* were capable of maintaining a higher stocking rate and of increasing the daily milk production of cows, as compared with traditional pastures of *B.*



decumbens alone. In this same region, the shrub legume *Cratylia argentea* (*Cratylia*)—whether consumed fresh, as silage, or mixed with chopped cane — could replace commercial concentrates, being an excellent feeding alternative for cows on small dairy farms during the dry season.

In areas with a prolonged dry season in Costa Rica, Honduras, and Nicaragua, *B. decumbens* associated with *A. pinto*, plus a supplement of cane and *Cratylia* at milking, allowed livestock producers to completely eliminate the purchase of concentrates for cows during the dry season. Using this technology, the estimated additional annual net earning is of US\$11.9 million in Costa Rica, US\$12.6 in Honduras, and US\$9.9 million in Nicaragua.

In the Amazon region of Colombia and Peru, *Stylosanthes guianensis* (*Stylo*) is persistent, fixes up to 50 kg nitrogen per hectare, and is an excellent source of forage for feeding of preweaned calves.

With the collaboration of Nicaragua's Institute for Agricultural Development (IDR, its Spanish acronym) and Honduras' Directorate of Science and Technology (DICTA,

its Spanish acronym), more than 65 hectares of improved pastures were established on 20 farms at five sites. In Costa Rica, 230 kg of *Cratylia* seed were distributed among seed companies and 41 producers at four different sites. Commercial cultivars *B. brizantha* CIAT 26110 (cv. Grass Toledo) and *C. argentea* CIAT 18516/18668 (cv. Veraniega) were also released in this country and have been broadly disseminated through the project's target area.

The Tropileche Consortium promotes seed production and adoption of herbaceous and shrub legumes among producers through partnerships with national institutions in the region as well as with private organisations. New research priorities have been identified based on the problems faced by producers adopting new technologies.

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PARTNERS

The CIAT-led project "Improved Legume-Based Feeding Systems for Dual-Purpose Livestock on Smallholdings in Tropical Latin America" was executed by the Tropileche Consortium. It was supported by the CGIAR Systemwide Livestock Programme, convened by the International Livestock Research Institute (ILRI). The Consortium is formed by scientists from CIAT, ILRI and national research institutions in Peru (Fundam, Depaam), Costa Rica (MAG, ECAG, CATIE, UCR), Nicaragua (IDR), and Honduras (DICTA). To realise its objectives more efficiently, the Tropileche Consortium has established alliances with other CIAT and ILRI projects, national R&D institutions, and partners in the livestock and seed sectors.

FOR FURTHER INFORMATION CONTACT

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