Advances in Silvopastoral Systems in Latin America

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Due to the **increase in animal protein demand** and consumption, livestock will continue as one of the fastest growing sub-sectors in agriculture.

The UN Population Division predicts that population in Latin America and the Caribbean could **rise to 784 million by 2050**. Therefore, the forests in the region will very likely continue to be cleared for agriculture and ranching.

In Latin America, more than **90 million ha of land is under pasture**, mostly as a result of forest conversion to cattle ranching.

Meat and milk consumption assume greater **political and economic importance** than in any other region of the world.
In this context, sustainable silvopastoral systems are suggested as a key solution to the conflict between expanding agricultural production and conserving natural ecosystems.

Silvopastoral advantages can be described as the provision of: **multiple products** (e.g., food, wood, fodder, medicinal plants) or **services** (e.g., maintenance of soil fertility, control of erosion, microclimate improvement, biodiversity enhancement, watershed protection, carbon sequestration) by the trees.
Silvopastoral systems assist to reach Sustainable Development Goals (SDGs)
Cattle have grazed in forests since the domestication of *Bos Taurus* and *Bos indicus* (Ramírez-Ávila, 2007), feeding on tree forages which, like mulberry *Morus alba*, have been known for millennia (Mosquera-Losada 2005)

“conucos” carried out for centuries by native people in Central America (Esquivel and Hammer 1988)
Valle del Cauca, Colombia (950 m.a.s.l.). *Leucaena leucocephala* (9,000 plants/ha) with *Prosopis juliflora*. At the end a dry tropical native forest.
Populus deltoides “Stoneville 67” (6x6 m), pasture of Bromus catharticus and Lolium multiflorum, Riparian Delta, ARGENTINA
Eucalyptus grandis + tropical grass (*Brachairia brizantha*), and beef cattle at a smallholder property in Paraná State, Brazil

Cold zone of Brazil

Black wattle and *Digitaria diversinervis* grass, Rio Grande do Sul
Valle del río Cesar, Dry Caribe, north Colombia. Leucaena in strips (30 m wide) with eucalipto and some native tres (Albizia saman), after 5 yr
Tamarugo (Prosopis tamarugo) plantation, Tarapacá Region, Chile

Algarrobo tree (Prosopis chilensis) for shelter from the sun, Province of Chacabuco, Chile

Arid and semiarid zones of Chile

Acacia saligna in plantations in the Region of Coquimbo
Crotalaria-Teca en Venezuela. Foto. Eduardo Escalante
Radiata pine-based silvopastoral system established in two lines of planting with densities of 500 and 1000 trees/ha
SSPi in deciduous low forest
El Cerro, Farm Apatzingán, Michoacán, México
Double rows >427 trees/ha

Corrientes *Brachiaria* with pine
SSP in native *Nothofagus* forest in Patagonia, Argentina

Silvopastoral system based on natural grassland and ponderosa pine with 350 trees ha$^{-1}$ at 21 years old.
The implementation of the SSP has increased in the last 18 years in different regions of Latin America.
Research in different regions of Latin America

**Funding**
- Own country
- U.S.
- Europe
- No reported

**Land**
- State
- Private
- Other
Study focus
- Undestroyed
- Trees
- Animal
- Social

Objective
- Productivity
- Conservation
- Restoration
- Social

Charts showing distribution of study focus and objective across different categories.
Can we increase the surface of the SSP?

Valuation of ecosystem services SSP

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Added value and industry

Bioenergy
Gracias!

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