



Environmental  
Leadership &  
Training Initiative

## COURSE REPORT

### Silvopastoral Systems

June 7 - July 11, 2021

#### An online course organized by:

The Environmental Leadership & Training Initiative (ELTI)

Center for Research on Sustainable Agricultural Production Systems (CIPAV)

**Background:** During the last five centuries, conventional cattle ranching has transformed ecosystems throughout Latin America, with negative impacts on biodiversity, forests and climate stability. However, the ecological processes that sustain productivity can be enhanced by integrating trees and shrubs into grazing systems, which helps address the conflict between livestock and the environment. Silvopastoral systems use water, soil and local biodiversity efficiently to produce high-quality food. At the same time, they conserve forests and other natural ecosystems, facilitate the ecological restoration of degraded land, enhance rural people's quality of life, promote animal welfare and generate ecosystem services.



*Silvopastoral system at the El Hatiko Nature Reserve in El Cerrito, Colombia. © Zoraida Calle*

ELTI is an initiative of:

**Yale** SCHOOL OF THE ENVIRONMENT



This five-week online course explored the principles and practices of silvopastoral systems and their contributions to forest & landscape restoration. With a holistic view of livestock production that applies the principles of agroecology and integrates trees and shrubs, this course was an invitation to open the mind to grazing systems that simultaneously address the needs of society and nature.

A series of lectures and case studies explored the technical, productive, environmental and cultural aspects of the transition from conventional to tree-based livestock farming systems. Through the interaction with Latin American experts, participants understood the role of silvopastoral systems in climate change adaptation and mitigation and opened their imagination to animal production in harmony with nature.

### Objectives:

- Present the basic principles of silvopastoral systems and their variations in different Latin American countries
- Explore the interrelations between agroecological livestock production and forest & landscape restoration in Latin America
- Illustrate some integrated applications of silvopastoral systems and ecological restoration with case studies at the scale of rural properties, communities and landscapes
- Offer methodological tools to plan the productive transformation and restoration of livestock farms and landscapes to enhance their conservation value and sustainability

*A group discussion between participants, ELTI instructors and guest experts  
Jorge Esquivel (Argentina), Luz Mercedes Botero (Colombia) and Adolfo Cardozo (Venezuela) © Saskia Santamaria*







Course participant Calixto Saguier works with the World Wildlife Fund (WWF) to enhance the conservation value of his cattle ranches in Paraguay © Calixto Saguier

**Course Structure:** This online course combined a series of pre-recorded lectures, case studies, videos, discussion forums and live sessions with expert lecturers. Nineteen new recorded presentations and case studies explored aspects such as knowledge generation, implementation, productivity, ecosystem services, climate resiliency and restoration benefits of livestock farming practices that integrate trees and shrubs. The first module introduced agroecology and sustainable livestock production. The following three modules focused on the technical aspects and planning of silvopastoral systems. The final module explored the cultural change that must take place to mainstream tree-based livestock production in Latin America.

Participants who chose to apply the concepts learned in the course to a real situation developed personal projects and received comments from the instructors.

The thematic modules were:

**Module 1.** Introduction to sustainable livestock production

**Module 2.** Technical, productive & economic aspects of silvopastoral systems (1)

**Module 3.** Technical, productive & economic aspects of silvopastoral systems (2)

**Module 4.** Planning of tree-based livestock production

**Module 5.** Cultural change toward sustainable ranching



Course participant Carmen Julia Botero started implementing her optional project immediately after finishing the course. This mixed plot of fruit trees was established to provide food security and habitat on her farm, located in Magdalena, Colombia. © Carmen Julia Botero

Participants who completed the course requirements received a certificate of participation.





Course participant Juan Diego Vanegas implemented these fodder hedges to enhance habitat and productivity in cattle farms in Boyacá and Risaralda, Colombia. © Juan Diego Vanegas

**Participants:** The course was offered in Spanish to 47 participants from 12 countries. Participants represented a range of disciplines including agronomy, animal science, veterinary medicine, forestry, business administration, natural resource management, biology, ecology and civil engineering. Most participants were cattle ranchers, extension workers or conservation specialists.

**Instructors and Coordinators:** Zoraida Calle (Colombia Coordinator, ELTI Neotropics Training Program) and Enrique Murgueitio (Executive Director, CIPAV), were the lead instructors for the course. Saskia Santamaría (Associate, ELTI Neotropics Training Program) facilitated the course delivery, with assistance from Gillian Bloomfield (Coordinator, ELTI Online Training Program).

Dr. Julián Chará (CIPAV), Carlos Hernando Molina (CIPAV), Dr. Pablo Peri (INTA Argentina), Dr. Julián Esteban Rivera (CIPAV), Fernando Uribe (CIPAV), Enrique Murgueitio (CIPAV), Julián Andrés Giraldo (CIPAV), Adolfo Cardozo (Nueva Cendigranja Project), Jorge Esquivel (CREA Tierra Colorada), Dr. Alicia Calle (ELTI) and Luz Mercedes Botero (Colombian Association of Dual Purpose Cattle Breeders) presented pre-recorded lectures or case studies and were invited as guest experts to the live sessions.

Other pre-recorded lectures and case studies were presented by Zoraida Calle, Jacob Slusser (ELTI) & Odielca Solís (APASPE ranchers association), Saskia Santamaría, Manuel Gómez (Colombian Ranchers' Federation - FEDEGAN) and Héctor Fabio Messa (CIPAV).

**Outcomes and Follow-up:** This online short course promoted a dynamic exchange across backgrounds, disciplines and geographies, with lively discussions in forums and break-out groups during live sessions.

Ten participants (21%) presented original projects to enhance agricultural landscapes and rural properties from the Chaco region of Paraguay and Argentina, to the moist lowlands of Mexico and Colombia, the temperate island of Chiloé in Chile and the natural grasslands of Uruguay. Some cattle ranchers from Paraguay and conservation specialists from the World Wildlife Fund worked together to develop integrated silvopastoral and restoration projects, bringing in different perspectives to rethink land use in large rural properties.

*This event was possible thanks to Arcadia Fund, whose Environmental Conservation grants support programmes that protect and enhance biodiversity and provide field training and academic research.*