

Los sistemas silvopastoriles constituyen una modalidad con potencial de expansión en Uruguay. El trabajo tuvo como objetivo evaluar la producción de madera, forraje y su resultado económico en dos marcos de plantación en *Eucalyptus globulus* en el Este del Uruguay: 3,5 x 2,7 m (SPC, 1.258 árb/ha) y (2 x 2) + 8 m (SSFC, 1.000 árb/ha). En cada sistema se relevaron: diámetro a la altura del pecho (DAP), Altura total (Ht) y sobrevivencia de los árboles a los 36, 41, 45, 51 y 68 meses de edad. Cada 60 días se midió producción de forraje; finalmente se estimó los indicadores de Valor Actual Neto (VAN) y Tasa interna de retorno (TIR). Los resultados indican que el marco de plantación no tuvo efecto significativo ($p > 0,05$) sobre los valores individuales para DAP y Ht. El sistema SPC resultó en 83,7 m³/ha ($\pm 3,60$) a los 68 meses mientras que el SSFC fue de 62,7 m³/ha ($\pm 3,60$). La producción media estacional de forraje fue 42% mayor para el sistema SSFC en relación al SPC (587,5 kg Ms/ha ($\pm 39,1$)). Considerando tanto la producción de madera como ganado bajo dosel, a los 12 años de edad de cosecha, el sistema SPC resultó en una VAN de 930 U\$S/ha y una TIR de 12,1%, mientras que el sistema SSFC fue de 955 U\$S/ha y 13,4% respectivamente, a los 13 años de edad de cosecha. Los resultados aportan información para la toma de decisiones y la elección del marco de plantación.

SisILPF: software for forest component management in integrated crop-livestock-forest (ICLF) systems

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The SisILPF software suite is built for *Pinus (caribaea, elliottii, taeda)*, *Eucalyptus (grandis, urograndis, dunnii, saligna)*, *Toona ciliata*, *Khaya ivorensis*, and *Tectona grandis*. The software supports management, economic analysis, and planning of the forest component of integrated crop-livestock-forest (ICLF) systems for decision-making related to when, how, and how much to thin, and when to conduct the final harvest. Users can: test for different climate and soil conditions; simulate all tree component management options of ICLFs; forecast present and future production; conduct economic analyses; and decide on the best alternatives to manage their plantation. Built using the Delphi programming language, each software generates prognosis charts and graphs for growth and yield of trees in the ICLF, based on inventory data. The software suite indicates how much wood will be produced at any age and tests any management regime that one wishes to apply. Users can also calculate the carbon (Methane and CO₂ equiv.) stored by the trees and generate tables of wood assortment by industrial use classes such as lamination, sawmill, and fuel, according to log diameters and lengths identified by the user. SisILPFs enables the simulation of several thinning regimes, generating an assortment table for each. The software is available for download on the Embrapa Florestas website (www.embrapa.br/florestas).

Improvement of caívas in Southern Brazil: “milk and meat of the forest” with sustainability

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The use of native forest remnants for animal production occurs in various parts of the world. These traditional silvopastoral systems contribute to the conservation of these remnants. Valuing them through productive techniques accepted by sustainable livestock is a way to build strategies that combine environmental conservation with the generation of sustainable animal products, such as “milk or meat from the forest.” In the South of Brazil, the caíva are traditional systems that have existed for more than a century, where the animals are raised loose in areas of remnants of the Araucarian Forest. The introduction of the *Axonopus catharinensis* grass, with the adoption of the rational grazing and split fertilization in coverage, was evaluated in caívas. One of the sustainability indicators evaluated was forest regeneration. After two years of use, there was no effect of pasture management on the regeneration component. A total of 49 tree species characteristic of the Araucarian Forest were found. In general, the increase in pasture productivity showed a low correlation with the species richness (-0.20) and the density (-0.24) of the forest regeneration, indicating that the intensification of pasture use did not negatively interfere in these variables. The richness and density of tree regeneration in the caívas confirmed the relevant contribution of this traditional silvopastoral system to the provision of ecosystem services such as the conservation of the vegetal biodiversity of the Araucarian Forest, despite the anthropic use and the presence of the animals for almost a century.

Reducing competition in crop-livestock-forest integrated system by thinning *Eucalyptus* trees

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This study aimed to evaluate the effects of *eucalyptus* trees thinning on yield and nutritive value of corn for silage and palisadegrass in a crop-livestock-forest integrated system. Assessments of plant variables, as well as of photosynthetically active radiation (PAR) incidence and soil moisture were performed between October 2016 and March 2018 in São Carlos, SP, in a crop-livestock-forest and, for comparison, in a crop-livestock system. In the crop-livestock-forest system, eucalyptus trees (*Eucalyptus urograndis* clone GG100) were planted in April 2011, in single rows, with a 15 x 2 m spacing. In 2016, trees were thinned and the spacing changed to 15 x 4 m. In this system, the assessments were performed in four equidistant positions in relation to the eucalyptus rows. Corn was sown first, and palisadegrass was sown after corn harvest. PAR transmission during the corn cycle and the pasture cycles was 65.3% and 60%, respectively. Soil moisture was lower at the 50 to 100 cm depth layer near the tree line than at the other positions, during the dry period. Corn yields were similar between systems with an average of 13.6 mg of dry matter ha⁻¹. Corn silage produced in the crop-livestock-forest system presented higher percentage of grain (41.4 and 42.1%) than that produced in the crop-livestock system (35.6%). No differences in forage yield were observed. Crude protein of corn for silage and palisadegrass was higher in the crop-livestock-forest than in the crop-livestock system. Such results indicate that tree thinning was favorable for production in the crop-livestock-forest system.

Establishment of sustainable agrosilvopastoral systems from degraded soils in the dry Colombian Caribbean

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The objective was to identify options for the sustainable use of natural resources and to enhance the productivity with agricultural and livestock systems. The research was developed with small-scale farmers in regions with arid and semi-arid conditions of La Guajira (2012) and Cesar (2014), which main activity is cattle raising. Clayey soils predominate with nearly level to gently slopes degraded by burning, monoculture, and overgrazing. The methodology approach