Local perceptions on species selection for silvopastoral systems in highland landscapes of Cundinamarca and Bogotá regions of Colombia

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The adoption of woody perennial species within livestock production in the highland landscapes of Cundinamarca and Bogotá (Colombia) remains low. This research aims to characterize the species diversity in silvopastoral systems, identify relevant woody perennial species based on local perceptions, and determine the ideal features. The study was conducted in Bogotá (Mochuelo Alto village), Hato Grande village (Cundinamarca), and the municipalities of Chipaque and Ubaque (Cundinamarca). Surveys were administered to 23 livestock producers. A total of 29 species features were established. Producers rated each feature from zero (not relevant) to three (very relevant). The scores were weighted, averaged, and multiplied by the relative frequency of each feature to calculate the Feature Index (FI). The FI values ranged from zero to three and were grouped into nine clusters: canopy, leaves, forage, disservices for livestock, agrarian function, animal welfare, regulating ecosystem services, pruning, and environmental adaptation. The Cluster Index (CI) was then determined. Suitable species for silvopastoral systems were identified through surveys and a literature review. The suitable woody species to adopt were obtained considering the CI, which was multiplied by the number of times the species were mentioned during the survey. The results indicated 28 woody species, 14 pastures and forage, and three livestock races in Chipaque and Ubaque; 21 woody species, eight pastures and forage, and two livestock races in Hato Grande; and 23 woody species, nine pastures and herbaceous species, and two livestock races in Mochuelo Alto. Seven species were identified as most appropriate. Key desired features included umbrella canopy, permanent leaves, forage and continuous production, low toxicity for livestock, high biomass productivity, multipurpose use, resistance to fire, illness, and pests, high protein content, soil improvement, pruning tolerance, and pasture compatibility. Protecting and adopting the woody perennial component within silvopastoral systems supports wildlife habitats through biological corridors that provide food and resources.

Biography

Vandreé Palacios has dedicated over 15 years to agroecological production. His journey began with the Camëntsá and Inga indigenous communities, where he researched home gardens and learned friendly soil management techniques rooted in ancestral knowledge. He also developed expertise in vermicompost production at the farm level. Vandreé has actively promoted agroforestry adoption across various regions of Colombia, combining academic research with outreach efforts that benefit both university students and peasant communities. Currently, he leads a project focused on stablishing bio-factories that produce inputs for agroecological farming. This initiative supports peasant communities in Cundinamarca transitioning from conventional agriculture to agroecology, fostering environmentally friendly production approaches. His work bridges traditional wisdom and scientific innovation, empowering rural communities and shaping the future of ecological farming in Latin America.

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