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Silvopastoral systems enhance soil organic matter quality

September 20, 2020



Pure signalgrass pasture at Itambé Experimental Station in Brazil. Photo by J.S. Ferreira.

Tropical grass-based pastures are not typically fertilized with nitrogen, leading to pasture degradation and loss of organic matter over time. This can lead land managers to convert more acres into pasture to maintain overall pastureland, resulting in increased greenhouse gas emissions. Incorporation of legume forages, such as in silvopastoral systems, is one of the most interesting options to reduce pasture degradation and carbon loss.

In an article recently published in *Soil Science Society of America Journal*, researchers report on a multi-year experiment, testing shrub-tree legumes in a signalgrass pasture under tropical subhumid conditions. The team evaluated organic matter quality, microbial populations, and respiration at different distances from the legumes. After five years, indicators of soil organic matter quality and soil microbial activity were higher and more sustainable closer to the legume rows, and microbial biomass was up to 75% higher than in the signalgrass-only pastures.

The adoption of legume-based silvopastoral systems is a viable approach to reduce pasture degradation and consequent emission of greenhouse gases, both on the pasture and as a result of further land conversion into pastures.

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Lira Junior, M.A., Fracetto, F.J.C., Ferreira, J.d.S., Silva, M.B., & Fracetto, G.G.M. (2020). Legume silvopastoral systems enhance soil organic matter quality in a subhumid tropical environment. *Soil Science Society of America Journal*, *84*, 1209–1218. **https://doi.org/10.1002/saj2.20106**

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