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Soil P, K, and Al contents in a Crop-Livestock-Forest integration system in Mato Grosso State

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Introduction

The implementation and development of the crop-livestock-forest integration system (CLFi) may change the distribution of the levels of nutrients in the physical and biological parameters of the soil. The objective of this study was to evaluate the soil P, K, and Al contents in a CLFi system established in Nova Canaã do Norte-MT, Brazil.

Material and Methods

The experimental area of CLFi was established in 2009, consisting of nine 5-ha paddocks. For the evaluations in this study, the species Teca (*Tectona grandis* L. f.) and Pau-de-balsa (*Ochroma pyramidale* (Cav. ex Lam.) Urb.) were used in a triple spacing (3 × 3 × 20 m) arrangement with four replicates, and the P, K, and Al contents were determined in May 2013. The samples for the chemical analyses were collected from the top 0-20 cm layer of the soil at points located 10, 6, and 3 m from the forest from both sides, plus one point in the understory in between the forests, totaling seven samples, whose analyses were conducted at the Soil Laboratory of Universidade Federal de Mato Grosso, Sinop, according to the methodology of Silva (2009).

Results and Conclusions

Table 1. Mean values of soil P, K, and Al contents in a CLFi system.

Species	**P**	**K**	**Al**
	mg dm^{-3}		$cmol_c$ dm^{-3}
Teca	3.06	41.1	0.1
Pau-de-balsa	3.17	30.9	0.2
CV %	108.25	81.50	167.19
Distance			
10 L	2.31	38.2	0.1
6 L	3.53	36.2	0.1
3 L	4.50	46.3	0.1
0	0.96	41.5	0.2
3 R	4.36	17.5	0.1
6 R	3.64	37.3	0.1
10 R	2.49	34.9	0.1
CV %	120.30	54.82	90.16
Mean	3.11	36	0.13

In conclusion, for P, K, and Al, no difference was found between Teca and Pau-de-balsa species with the distance treatments.

References cited

SILVA F. C. Manual de análises químicas de solos, plantas e fertilizantes. 2009.