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Soil chemical attributes for different land-use systems in semi arid region

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IntroductionThe evaluation of soil fertility in already placed agroforestry systems allows inferences of greater managements practices and nutrient cycling. In the semi arid region the use of integrated systems provides optimization of land and the efficient use of resources, thus becomes preponderant know soil chemical properties to assist in soil management. It aimed to evaluate soil chemical properties of agroforestry systems already placed.

Material and Methods

The experimental site was established in 1997 in the Caatinga Biome, at Luvisol area. We evaluated four different land-use (i) agrosilvopastoral system (agricultural crops: corn, sorghum with subsequent entry of goats and sheep in the area and native trees making light incidence of 80%); (ii) silvipastoral system (native pasture and native trees making light incidence of 60%); (iii) traditional (area under maize and bean intercropping without use of inputs and currently fallow for seven years); (iv) native forest (reference area - Caatinga vegetation), full descriptions can be checked in Araújo Filho and Silva (2008). Soil samples were collected in the first semester of 2013 (rainy season), at the 0-0.1 m layer. It was analysed pH; OM; P; K; Ca and; Mg as soil chemical properties.

Results and Conclusions

Fig. 1. Soil chemical properties at different land-use systems.

Land-use	OM	pH	P	K	Ca	Mg
	g dm^{-3}		--- mg dm^{-3} ---		--- mmol$_c$ dm^{-3} ---	
Agrosilvopastoral	17,1 b[1]	6,9 a	24 a	162 b	54 b	17 b
Silvipastoral	21,2 b	6,7 b	7 b	169 b	55 b	16 b
Traditional	16,5 b	5,9 c	5 b	62 c	37 c	9 b
Native Forest	26,9 a	6,8 ab	8 b	213 a	90 a	40 a

[1]Lowercase letters indicate differences (at the 0.05 probability) among land-use systems.

It was observed that native forest presented superiority to other land-use systems to the properties: soil organic matter, potassium, calcium and magnesium. Silvopasture shown greater pH values than any other land-use system. For phosphorus, the greater concentration was found at agrosilvopastoral. In general, the lower values for pH, P, K, Ca and Mg were observed for traditional land-use. The agrosilvopastoral and silvopastoral systems had better values for pH; Ca and; K when compared to traditional land-use.

References

AraújoFilho, J. et al.(2008): EmbrapaCaprinos. (Comunicado Técnico, 89).

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