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Fertility of a Oxisol yellow under cultivation of cultures in Crop-Livestock-Forest integration system in northeastern Pará

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Introduction

Cattle ranching in the Amazon generated an environmental liability of millions of hectares of degraded pastures. The inclusion of agriculture and forestry in these degraded areas is a form of economically viable recovery and reduce the pressure on natural areas. The system integration Crop-Livestock-Forest (iLPF) allows recovery of these areas in a sustainable manner and with a production per area (Balbino et al., 2011). In this paper, aimed to evaluate the Fertility of a Oxisol yellow under cultivation of cultures in Crop-Livestock-Forest integration system in northeastern Pará.

Material and Methods

The experiment was carried out on the farm Victoria (02 ° 57'29,47 "S, 47 ° 23'10,37" W, 89 meters of altitude), located in the municipality of Paragominas-PA. Treatment consisted of the cultivation of maize (BRS 1030) in consortium with Brachiaria ruziziensis and intercalary with paricá in area of 4.05 há. The evaluation of the soil was carried out before system deployment (zero reference) and after five through years by physical and chemical analysis, the depths 0-10, 10-20, 20-30 and 30-40 cm, using the methodology proposed by Embrapa (1997) except the organic matter (OM), which was determined by the method of Walkley & Black, described in Black (1965).

Results and Conclusions

In the soil after the five years of the system iLPF pH the values (4.0) and organic matter (2.05%) were suitable for cultivation. Phosphorus levels were suboptimal (6 mg / dm³). The potassium and magnesium in the 0-10 cm depth submitt showed acceptable values during treatment (61 mg.dm3). Calcium values were comfortable (1,3 cmolc.dm^3). Soil fertility indicated by the base saturation (V%) was adequate (16.83%). Carbon showed a significant difference according in the depth 0-10 cm (18 g.dm3) compared to the depths 10-20, 20-30 and 30- 40 cm (13; 10; g.dm3 7, respectively). Physical characteristics (sand, silt and clay) showed no significant difference (55; 284; 660 g.kg-1, respectively). There recovery and maintenance of soil production capacity, reduce carbon, organic matter, content of phosphorus, saturation for bases and the aluminum content increases with increasing soil depth.

References cited

Balbino et al. (2011) systems iLPF, p.10; Black (1965) Methods of Soil Analisys. 1159p.

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