

Mechanical resistance to penetration of an Ultisol in livestock-forestry system at Northeast of Brazil

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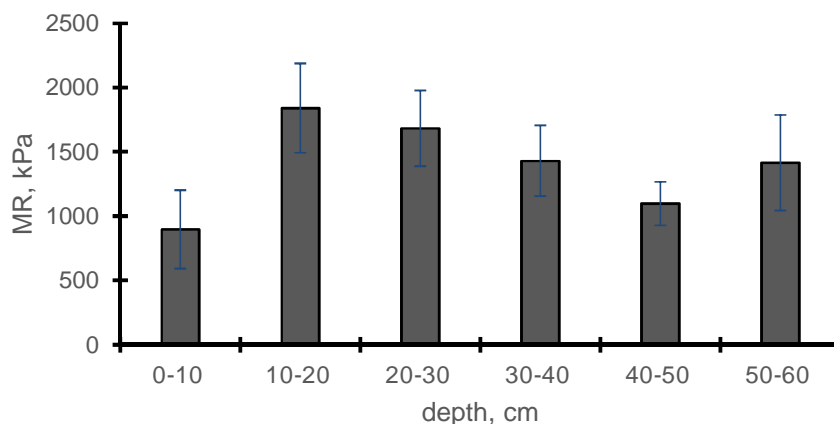
Introduction Soil mechanical resistance is a good soil physical indicator of its compaction. The animal component of the livestock-forestry system may make some pression on soil surface due to the trampling, which may lead the soil compaction and then negative impacts on its productive capacity. Identifying the occurrence of this process in livestock-forestry systems is crucial to their sustainability. In this presentation, we report the results of short-term livestock-forest systems on mechanical soil resistance in the Ultisol at Atlantic forest biome - Northeast of Brazil.

Material and Methods

The field experiment was installed in an area with some degree of degraded grass (07°24' S, 35°10' W, 180 m asl) at the Agronomic Institute of Pernambuco on Experimental Station of Itambé-PE in April 2011. The plots, with three replicates, had about 1 ha and were grazing along three years. Mechanical soil resistance to penetration was measured after three years, October 2014, at central line of the livestock-forest system with mixed grass/legume (*Brachiaria decumbens*/*Gliricidea sepium*) at 0.00-0.10; 0.10-0.20; 0.20-0.30; 0.30-0.40; 0.40-0.50 and 0.50-0.60 m soil depths using an electronic devices PenetroLOG® PLG1020 (Falker, 2013).

Results and Conclusions

Fig. 1. Mechanical soil resistance (MR) at different depths under livestock-forest system in Itambé-PE, Brazil. Data are means of 3 replicate/depth, bars represents confidence interval ($p < 0,05$).



After three years time, the livestock-forestry system kept the MR below 2000 kPa until 0.60 m soil depth, which is considered the limit to adequate plant roots development (Fig. 1). Mixing legume trees and grass pasture seems to be positive on MR, which could be included as an indicator about this system. The monitoring of soil attributes should be ongoing to evaluate the response of system at Atlantic Forest biome.

References cited

FALKER. PenetroLOG PLG1020, Available in <<http://www.falker.com.br/download.php>>. Acess: 2013. 14th feb.

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