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Soil organic carbon stocks under forest and pasture in the atlantic forest biome of Southeast Brazil

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The replacement of forest for other uses causes important changes in the soil C stock and also in the global cycling of this element. The objective of this work was to evaluate the stored C in soils under pasture of *Brachiaria decumbens* and compare it to a remnant of Tropical Forest of approximately 20 years. Contiguous and physiographical representative areas under forest and pasture from Atlantic Forest biomes, on the Rio de Janeiro State, southeast of Brazil, were selected. Besides the criterion of the landscape representativeness, the study area is part of a larger project that aims to establish parameters for the valuation of environmental service of carbon in the RIO-RURAL Program areas, developed by the Sustainable Department from Agriculture and Livestock Department of the Rio de Janeiro state. For this study in each area a number of three transects with 50 m each one were demarcated, situated at shoulder, middle slope and footslope. In each transect were opened three small trenches around 1.0 m depth, 15 m distant from each other, with a total of the nine small trenches in each area to quantify the C stock. At small trench samples at depths of 0-10, 10-20, 20-30, 30-50 and 50-100 cm were collected, and carried out chemical analysis, particle size and density. With these data, we observed a significant difference in C stocks among the remaining forest and pasture, with the highest values for pasture. The data analysis also showed the importance of topossequence studies, since the soil attributes usually vary depending on position on the slope, and the C stock is no exception, reducing their value in the direction of shoulder to footslope.

Keywords: Atlantic forest, Carbon stock, Land use change, Topossequence