

Carbon Stocks in Compartments of Soil Organic Matter 31 Years after Substitution of Native *Cerrado* Vegetation by Agroecosystems

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ABSTRACT: Changes in carbon stocks in different compartments of soil organic matter of a clayey *Latossolo Vermelho Distrófico* (Typic Haplustox), caused by the substitution of native savanna vegetation (*cerrado sensu stricto*) by agroecosystems, were assessed after 31 years of cultivation. Under native vegetation, a stock of 164.5 Mg ha⁻¹ C was estimated in the 0.00-1.00 m layer. After 31 years of cultivation, these changes in soil C stocks were detected to a depth of 0.60 m. In the case of substitution of *cerrado sensu stricto* by no-tillage soybean-corn rotation, a reduction of at least 11 % of the soil C pools was observed. However, the adoption of no-tillage as an alternative to tillage with a moldboard plow (conventional system) reduced CO₂ emissions by up to 12 %.

Keywords: conventional tillage, no-tillage, microbial biomass, particulate organic matter.

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