



Medium term impact of no tillage on some physical properties of a Brazilian oxisol in Cerrados

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In order to avoid or limit soil erosion in semi-humid environments, annually increasing number of Brazilian farmers have adopted no tillage techniques for about twenty years. These techniques are less aggressive than conventional tillage, and have a lot of effects on physical, chemical and biological properties of soil. Moreover, these techniques seem to have positive effects on yield, working time, carbon sequestration, and economic balances at farm level. They seem to be an interesting alternative to conventional tillage in terms of feasibility and sustainability. This paper presents the first results in farmers environment of the physical impact of no-tillage practice. Observations and sampling were realized in a farm (Fazenda Santa Fe), in which historical data were available. A sample of plots which have been cultivated in no-tillage for 10, 8, 6, 4 and two years, have been identified, and a listing of technical operations (sewing, fertilization, pesticide applications, harvesting, crop residue management etc.) has been constituted. These plots constitute a chronosequence. With comparative intentions, other plots cultivated with conventional tillage were also sampled, so as soils which had never been cultivated. Soil profile characterisation, bulk density, soil structure, and macrofauna activity, were studied. Results showed significant differences for some of these parameters, and non significant for others. Significant while unexplained differences in bulk density were observed. Soil macrofauna activity seemed to present high contrast between plots. In this situation, genuine good physical and chemical properties of this soil (latosols on basalt) probably did not allow the expression of the expected effects of no tillage.

Mots-clés : ferralsol; non-travail du sol; structure du sol; densité du sol; faune du sol; brésil; cerrado

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