



Physical and biological soil attributes due to soil management on sugarcane

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The use of different crops can improve the physical and biological soil attributes, reducing soil and environmental degradation. The objective of this study was to evaluate the effect of different land uses on the glomalin fractions, total external mycelium and soil aggregation. The experiment was carried out in Brazil (21°14'05" S and 48°17'09" W) in eutroferric Red Oxisol (clay content = 700 g kg⁻¹) and acric Oxisol (clay content = 450 g kg⁻¹). The soil was submitted to two soybean growing seasons, with different crops (millet and sunnhemp) between them, during two sugarcane growth interval periods. The experimental design was a randomized block with five replications and four treatments, characterized by different land uses during the interval between two sugarcane growth periods. The land uses were the crops of: soybean, soybean/millet/soybean, soybean/sunnehemp/soybean and soybean/fallow/soybean. Soil samples were taken at the 0 - 0.10 m depth after the first sugarcane harvest. On both soils the glomalin fractions were not influenced by the different land uses. On the eutroferric Red Oxisol, the use soybean/millet/soybean promoted the higher amount of total external mycelium and on the acric Oxisol soybean/fallow/soybean promoted the lower amount. The aggregate stability indexes on both soils types were not affected by the land uses. On the eutroferric Red Oxisol, the aggregate mean weight diameter was not influenced by the different land uses, but on the acric Oxisol, the uses soybean and soybean/millet/soybean promoted the higher values. The results indicated that the effects of plants on amount of total external mycelium and aggregate mean weight diameter of Oxisol are different depend upon the soil texture and soil fertility.