



Chemical, green and organic manure effects on chemical properties on a savannah oxisol and on corn under conventional tillage and no-tillage

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Modern agriculture, in general, has always been based on the concept that natural resources are endless; however, this concept is changing. Concern for the environment is increasingly becoming part of farming practices, either by the awareness of society, or because the high cost of fertilizers or even the exhaustion of soils. The objective of this research was to evaluate the effects of the green manure and mineral fertilizer and/or organic manure and, on the chemical properties of an Oxisol, on “Savannah” (cerrado) area in Mato Grosso do Sul-Brazil, cultivated with corn (*Zea mays* L.) on the following management conditions: no-tillage and conventional tillage, on area previously under pasture (*Brachiaria decumbens*). The experimental design was a randomized blocks and the tested treatments were: control (without organic manure or chemical fertilizer); chemical fertilizer, as recommended for the culture and based on the chemical soil analysis; organic manure (cow manure); organic manure + half of the mineral fertilizer recommended rate; and the green manure *Crotalaria juncea* and *Pennisetum americanum*. The chemical analyses were the soil chemical analysis to the intent of soil fertility. Corn yield was evaluated. The collect of soil samples were realized in depths of 0.00-0.05 m and 0.05-0.10 m and 0.10-0.20 m. The organic manure and the organic manure + half of the mineral recommended rate increased P, Ca, Mg, K and Organic Matter in the first depth (0.00 – 0.05 m). These treatments also increased K and Mg at the second depth analyzed (0.05 – 0.10 m) and K in the depth from 0.10 – 0.20 m. Under conventional tillage management presents better crop results with an average grain yield of 3649 kg ha⁻¹ versus 2374 kg ha⁻¹ obtained under no-tillage. The use of chemical fertilizer, organic manure + half of the mineral recommended rate, *Crotalaria juncea*, organic manure and *Pennisetum americanum* increased corn yield by 84, 79, 58, 44 and 41 %, respectively.