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Eucalyptus development in degraded soil fertilized with sewage sludge and mineral fertilizer

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The aim of this study was to compare the development of eucalyptus in a degraded Oxisol with mineral fertilizer and sewage sludge. The study was conducted in Selviria, Mato Grosso do Sul, Brasil. The culture of eucalyptus was planted in 2003 at 2.0 m x 1.5 m spacing, with application of 60 Mg ha-1 of sewage sludge (dry basis) and mineral fertilizer. After five years (2008) the area received biosolids and mineral fertilizer, and after five months, were evaluated for height and diameter at breast height of Eucalyptus. The experimental design was randomized blocks with four treatments: T1 - control (without addition of inputs), T2 - Mineral fertilization (30 kg ha-1 N, 90 kg ha-1 of P2O5 and 60 kg ha-1 K2O), T3 - Reapplication of 4.64 Mg ha-1 of sewage sludge, dry basis, T4 - Reapplication of 9.28 Mg ha-1 of sewage sludge, dry basis. Before reapplication the biosolids plant height was higher in the eucalyptus with treatment 9.28 Mg ha-1 of sewage sludge (8.03 m) compared to control (5.75 m) and mineral fertilizer (5.91 m) and that treatment 4.64 Mg ha-1 of sewage sludge (6.34 m) did not differ from the previous three. For the diameter at breast height was the highest value for treatment with 9.28 Mg ha-1 (7.78 cm) compared to control (5.23 cm) and 4.64 Mg ha-1 (5.03 cm), and that of mineral fertilizer (5.96 cm) did not differ from all treatments. After reapplication of sludge plant height was higher in the eucalyptus treatment with 9.28 Mg ha-1 of sewage sludge (11.21 m) compared with control (7.51 m), mineral fertilizer (7.77 m) and 4 64 Mg ha-1 (8.07 m), which did not differ. The diameter at breast height had the same behavior before the application of biosolids in the highest value observed being 9.28 Mg ha-1 (8.46 cm) compared with control (5.75 cm) and 4.64 Mg ha-1 (5.03 cm) and that of mineral fertilizer (6.34 cm) did not differ from the others. Reapplication of the dose of 9.28 Mg ha-1 of sewage sludge in degraded Oxisol provided greater height and diameter at breast height from eucalyptus trees.