**Title:** Population density of bacteria on soil under forest restoration at biomes Savanna and Amazon

**Authors:** Pereira, T.C.D.[1]; Carmo, K.B.[2]; Kavasaki, K.F.L.[1]; Bourscheidt, M.L.B.[1]; Mioranza, M.[1]; Zini, V.V.[1]; Isernhagen, I.[3]; Ferreira, A[3]

**Institution:** [1]UFMT- Universidade Federal de Mato Grosso/ Campus Sinop (rodovia BR-163), [2] UFMT – Universidade Federal de Mato Grosso (Av. Fernando Corrêa da Costa, nº 2367 - Bairro Boa Esperança. Cuiabá - MT - 78060-900), [3]Embrapa Agrosilvopastoral (Rodovia MT 222, Km 2,5 Sinop, MT - 78550-970).

## ABSTRACT

Techniques which minimize the impact resulting from use and handling of the soil have been studied and applied to minimize these effects. An instrument to revert the environmental degradation is forest restoration. This study was carried out in an area previously used to agricultural practices, now submitted to different strategies of forest restoration arranged with native regional species, an exotic and green manure. The experiment is located in the region of transition between Cerrado and Amazon Rainforest, in the experimental field at Embrapa Agrosilvopastoral – Sinop/MT. The aim was to quantify bacteria cultivated in soil submitted to 10 different treatments of restoration and in areas of native forest like reference. The collections were made in 2013 and 2014, during rain station. The soil was collected in deep of 0-10 cm. There was no significant difference ($p > 0.05$) among the treatments when assessed in its respective collection year. When comparing the same treatments among years, there were differences between treatments established with seedlings, which may have been benefited with the rhizosphere effect between treatment established with seed association and green manure, which can influence the plant residue inputs and raw organic and natural regeneration area, where there was intense coverage vegetal. There was no difference when comparing the treatments with the results of native area. The results may change over the years, with the establishment of trees and evaluation of density also in the dry season to comparisons, since the abundance and activity of microorganisms are very susceptible to seasonal variations, especially temperature and humidity. The UFC values found in the treatments near of founds in reference area, could be a result of the increasing population of one or more species in treatments possibly associated with the collection period. In visual observations of the morphotypes of the colonies it was found that there was difference in the dominant groups isolated from the forest, when compared with the treatments. This is the first study of bacteria in the experimental area of forest restoration and will serve as a basis for future studies to evaluate the microbial community in the area. It will be possible to evaluate the long-term efficiency of the implemented treatments, abundance and microbial diversity.

**Key words:** environmental degradation, microbial diversity, CFU