

Title: SHADE EFFECT ON THE POPULATION DENSITY OF BACTERIAS IN SOIL UNDER INTEGRATED CROP-LIVESTOCK-FOREST SYSTEMS

Autors: ZINI, V.V.¹, RODRIGUES, R.A.R.¹, FERREIRA, A.¹

Institution: UFMT – Universidade Federal de Mato Grosso (Avenida Fernando Ferronato s/n – bairro Cidade Jardim – Sinop – MT), Embrapa Agrossilvipastoril (Rodovia dos Pioneiros MT 222 Km 2 .5 sn – Sinop - MT).

Abstract: The increase on the global demand of grains, cattle, and wood has focused studies to identify sustainable cultivation systems aiming to maximize the production and use of the soil. Among these systems, the ICLF (Integrated Crop-Livestock-Forest Systems), allows the production of grains, meat, and wood industry and also not wood industry products, in the same area. Some studies have showed that the use of the ICLF can increase the soil organic matter, chemical, physical and biological property. This increase of organic matter along with the shade provided by the trees can create a more favorable microclimate to the development of the soil bacteria. Therefore, this work aimed to evaluate the shade effect on the bacteria community from the soil under the integrated systems. It was measured the population density of the soil bacteria in five shade spots in an ICLF experiment and compared with crop, grazing and planted forest areas. The experiment took place at Embrapa Agrossilvipastoril experimental field, in the city of Sinop, Mato Grosso state, in a transition zone between two ecosystems, (Cerrado and Amazon). Soil was collected in April 2014, 0-10cm deep in all the systems. The bacteria isolation was performed by the dilution line in order to determine the quantity of CFU (colony forming units) in 10% TSA. It was not noticed difference in number of CFU in the different systems. Further, the spots with higher and lower shade intensity don't differ amongst themselves regarding the population density either. It is known that, the actual number of bacteria may not reflect on the microbial biodiversity. Therefore, community structure analysis, as the ones made by DGGE in a sequence of this work may provide important information about the effect of the integrated systems on the soil bacterial community.

Keywords: microbial ecology, CFU, ecotone Cerrado/Amazon.

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