

## Microbial biomass carbon dynamics in soil under crop-livestock-forest in northern of Mato Grosso, Brazil

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### Introduction

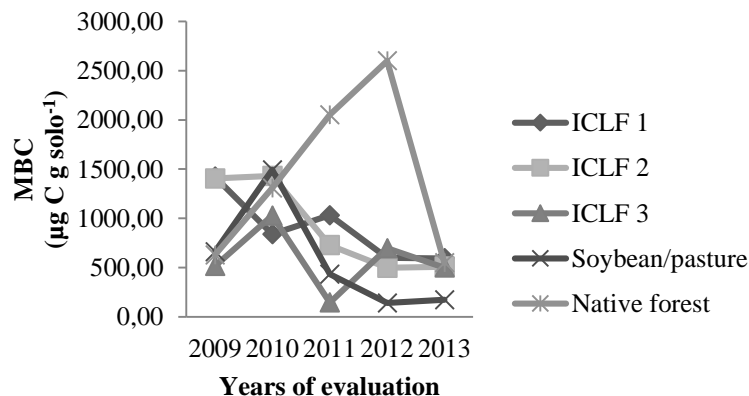
The agricultural systems constant change is directly associated with the search for managements to maintain productivity levels, but which are more sustainable as possible. The different managements adoption have become increasingly applied practices, which requires technical knowledge to confirm its viability. The objective was to evaluate the microbial biomass carbon (MBC) dynamics in different managements: Crop-Livestock-Forest integration systems, soybean/pasture rotation and native forest, in Brazilian Cerrado.

### Material and Methods

The study was conducted with soils from Embrapa Agrossilvipastoril Technology Reference Unit, located in Gamada farm (10°33'29"S 55°57'11"W). We evaluated three integration systems composed of simple (ICLF1), double (ICLF2) and triple (ICLF3) eucalyptus lines, allocated to 20m of each other and arranged in 5 ha. Between the plants lines/rows were conducted crop soybean-corn-pasture in rotation and, after three growing seasons was implanted pasture with grazing, these systems were compared with soybean/pasture rotation and native forest-Cerrado. The collection was held at 0-0.2m depth, in Mai 2009, 2010, 2011, 2012 and 2013. The MBC was quantified according to Jenkinson and Powlson (1976).

### Results and Conclusions

The MBC in integration soils were more stable compared to other management systems, with the exception of ICLF3 that started at levels far below the others but could achieve the same values in the 4<sup>th</sup> year of evaluation and maintained in the 5<sup>th</sup> year (Fig.1). Moreover, the soybeans/pasture rotation system decreased in value over the years. The native forest presented MBC crescent increase in the four years of assessment and returned to other media in the last one.



**Fig. 1.** Microbial biomass carbon (MBC) dynamics in soil under three different integration Crop-Livestock-Forest (ICLF) compared to soybean/pasture rotation and native forest.

### References cited

Jenkinson & Powlson. (1976) Soil Biol. Bio.

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