

## Nitrous oxide fluxes in an integrated crop-livestock-forest system in Sinop-MT

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**Introduction** The objective of this study was to evaluate the mitigation potential of crop-livestock-forest integration system (ICLF) or monoculture forest, farming and grazing, check the seasonal differences in emissions between them and the effect of management operations of cultures on N<sub>2</sub>O fluxes.

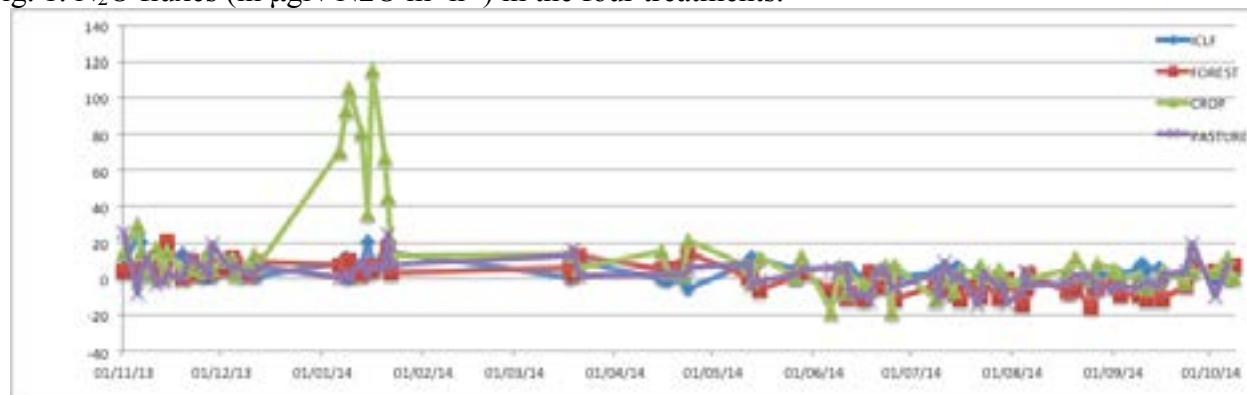
### Material and Methods

The study was conducted at Sinop-MT (Embrapa Agrosilvopastoral) and consisted of monoculture forest (F) with the hybrid Eucalyptus urograndis (H13), farming (L) with soy crop in and corn with *Brachiaria brizantha* cv. Marandu in the second crop, pasture (P) with *Brachiaria brizantha* cv. Marandu the system of ICLF with triple rows of Eucalyptus hybrid urograndis (H13) and soy in yield and corn with *Brachiaria brizantha* cv. Marandu in the off-season. Nitrous oxide samples were taken from November 2013 to October 2014 by the closed static chamber technique and the fluxes were calculated.

### Results and Conclusions

The N<sub>2</sub>O fluxes are higher in the rainy season than in the dry season. It is recommended to perform daily collections to assess the fluxes in crop management operations. The fluxes of the areas F, L, ICLF have smaller values than L, thus, by integrating the three components in the same area and the influence of the reduction of forest component flows, ICLF system has great potential for mitigating N<sub>2</sub>O emissions.

Fig. 1. N<sub>2</sub>O fluxes (in  $\mu\text{gN-N}_2\text{O m}^{-2}\text{h}^{-1}$ ) in the four treatments.




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# Impacts of integration on N<sub>2</sub>O and CH<sub>4</sub> emissions and changes at landscape scales of hidrological cycles and nutrient fluxes




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