

N₂O emission by urine and feces of beef cattle in grasslands of Marandu grass during the rainy season

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INTRODUCTION

Animal excretion in grassland is a big source of nitrous oxide (N₂O) in Brazil emissions of greenhouse. Brazil is an important producer of cattle in the world with 220 million cattle and 200 million hectares under pasture (Ferraz and Felício, 2010). This study aimed to quantify the N₂O emissions due excretions of beef cattle on Brachiaria pasture.

MATERIAL E METHODOLOGY

Experiment was conducted at Campus of Jaboticabal of UNESP. The soil is Typic Eutrutox and local tropical climate with dry winter and rainy summer. The evaluation of the fluxes of N₂O was performed using the static chambers where treatments were 1.5 l urine 1.5 kg fresh feces, urine 0.75 l + 0.75 kg of fresh feces, 80 g of N in the form of urea per m² and control. Samplings of gases made in the morning and were followed by gas chromatographic determination. Evaluation period totaled 110 days and the total emission of the period was obtained by weighted average. Proceeded to calculate uncertainty through standard error of the mean.

RESULTS and DISCUSSION

All treatments allowed emissions of N₂O and we observed a few samples of N₂O consumptions. The total feces output represented by issuing N-N₂O adding 5.54% of the total N added and de urine e feces mixed 2.23%. Under of N₂O emission factor default proposed by IPCC. The treatments feces, urine and feces mixed and urine emitted of 249.3 (± 18.8), 126.5 (± 45.1), 167.9 (± 17.1) mg N-N₂O m⁻² respectively, among parentheses the standard error of the mean.

ACKNOWLEDGMENTS



Table - Total N₂O emissions (mg N-N₂O m⁻²)

Treatment	Median	Standard error
Urine	167.9	±17.1
Feces	249.3	±18.8
Urine + feces	126.5	±45.1

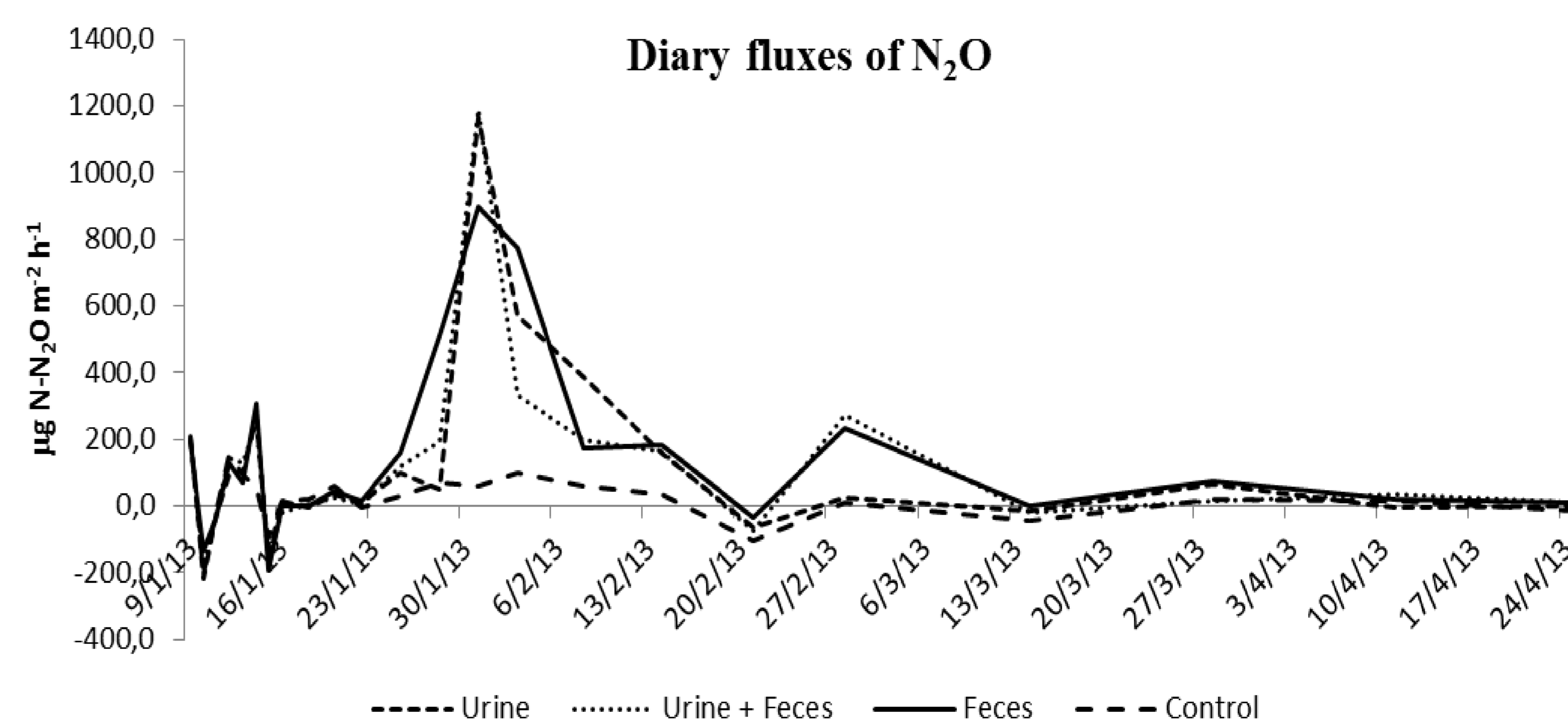


Figure - Daily emission of N₂O due bovine excretas in marandu Palisadegrass.

CONCLUSION

Emissions was very high because the rainy events and the fraction lost as N-N₂O found in this study were high than the default emission factor of direct N₂O by cattle excretion on pasture proposed by the IPCC for the tropics.

REFERENCES

Ferraz, J. B. S and Felício, P. E. 2010. Meat Science. 84, 238-248.