ZOOTECNIA BRASIL
Centro de Convenções da PUC-GO | Goiânia-GO
27 a 30 de agosto de 2018

55ª REUNIÃO ANUAL DA SOCIEDADE BRASILEIRA DE ZOOTECNIA

ZOOTEC 28º CONGRESSO BRASILEIRO DE ZOOTECNIA

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

N_2O fluxes in *Brachiaria* grasland fertilized with different nitrogen sources and doses

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In the agricultural sector, grassland fertilization and animal excretion are the main sources of atmospheric nitrous oxide (N_2O) and being responsible for 42% of anthropogenic emissions of this gas. Nitrogen (N) deposition in the soil stimulate N_2O production, however the amount and the effect of N sources in the magnitude of N_2O emissions requires clarification in tropical grassland soil. The objective of this study was to quantify N_2O fluxes from different doses and source of nitrogen in *Brachiaria brizantha* cv. Marandu tropical grassland. A field experiment was conducted at São Paulo State University (Unesp), Jaboticabal-SP. Experimental design was completely randomized block, with two factor (dose and source of N) and 4 repetitions. Treatments were 3 doses of N top-dressed (90, 180 e 270 kg N ha^{-1}) and 3 sources of N (urea, ammonium nitrate and ammonium sulfate) and, a treatment without N application to measures N_2O background emissions. Methane emissions were measured using static closed chambers. Samples were taken at 9-10 am during 104 days in rainy season of 2018. Chamber incubation time was 30 min. Air samples were analyzed by gas chromatography. Fluxes were calculated for the standard temperature and pressure conditions. Data were analyzed for ANOVA by fisher test. When ANOVA was significant for N doses, orthogonal polynomial contrasts was tested and, when significant effect was found for N sources, Tukey test was performed. Nitrous oxides was affected by nitrogen doses (P = 0.0197), which averaged 29.75, 28.92, 64.64, 60.43 µg N-N_2O m^{-2} h^{-1} for the doses of 0, 90, 180 e 270 kg N ha^{-1}, respectively. N sources altered N_2O emissions (P = 0.002) that ranged 29,75; 61,78; 69,20; 23,02 µg N-N_2O m^{-2} h^{-1} for control, urea, ammonium nitrate and ammonium sulfate, respectively. There was no difference between treatment control and sulfate, which means that ammonium sulfate did not induced N_2O emissions. Urea and ammonium nitrate produced similar N_2O fluxes. Our data suggests that ammonium sulfate can be used as strategy to mitigate N_2O emissions for grassland fertilization.

Keywords: Denitrification, greenhouse gases, marandu-grass, nitrogen fertilization.

Acknowledgments:
We would like to thank Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP) for the scholarships and financial support for our researches and, Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES).

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