

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

## EFFECT OF SEASON ON AMMONIA VOLATILIZATION FROM BOVINE EXCRETA AND UREA IN TROPICAL PASTURE

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In grazing systems, too much nitrogen can be returned to the soil from animal excreta that leads to ammonia (NH<sub>3</sub>) production. However, there is a lack of information on what is the real amount, if NH<sub>3</sub> losses differ between excreta type and, the effect of forage seasonality on NH<sub>3</sub> losses to the environment. The objective of this study was to quantify the amount of NH<sub>3</sub> losses from bovine excreta and urea fertilizer and investigate the effect of seasonality on NH<sub>3</sub> production. Treatments included N source: (1) urine, (2) dung, (3) dung + urine, (4) urea fertilizer and (5) control to quantify background emissions and, two season: rainy and dry. Treatments were applied on four occasions, 2 times in each season, to a tropical grassland site (*Brachiaria brizantha* cv. Marandu). There was a significant difference in NH<sub>3</sub> emission factors for excreta type ( $p < 0.001$ ) and season ( $p < 0.001$ ). On rainy season NH<sub>3</sub> volatilization was 6.2, 7.2 and 6.4% for urine, dung and dung+urine, respectively. On dry season N losses were 14.2, 6.0 and 11.5% for urine, dung and dung+urine, respectively. With regards, urea fertilizer N volatilization did not differed between seasons being approximately 16.9%. The amount of NH<sub>3</sub> in tropical grassland was lower than temperate and the Intergovernmental Panel on Climate Change (IPCC) emission factor of 20%. Emissions from urine is much higher than dung, and dung+urine is similar to urine. However, NH<sub>3</sub> production from urea fertilizer were much higher than IPCC emission factor of 10% and that observed in temperate grasslands. To better estimate NH<sub>3</sub> emission for inventories different emissions factors should be adopted for tropical grasslands.

**Keywords:** climate change, grazing management, nitrogen pollution

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