

AMMONIA VOLATILIZATION FROM DIFFERENT BEEF CATTLE PRODUCTION SYSTEMS WITH TROPICAL PASTURES DURING THE SEASONS

Patricia Perondi Anchoa Oliveira¹, Mariana Vieira Azenha², Teresa Cristina Alves¹, Amanda Prudencio Lemes¹, Waldomiro Barioni¹, Carlos Tadeu Santos Dias², Patrícia Menezes Santos²

1 Embrapa Pecuaria Sudeste

2 Esalq -Usp

The Brazilian beef production is based on tropical pastures production systems. The direct recovery and adoption of intensive management of pastures have shown potential for mitigation of greenhouse gases (GHG) due to high biomass production of tropical grasses. Urea is the most common nitrogen fertilizer in Brazil due to its low cost per unit of nutrient. However, the efficiency of these N sources is highly affected by the process of ammonia volatilization. The amount of N loss by volatilization from fertilized surface soil with urea can reach up to 90% of the total N provided by urea fertilizer. The aim of this study was to evaluate the impact of pasture management on the ammonia volatilization. The study was performed at an experimental station of the Brazilian Agricultural Research Corporation (EMBRAPA), located in São Carlos, state of São Paulo, Southeast of Brazil, in two years. The grazing areas covers 4 livestock systems: Intensive irrigated with high stocking rate (IHS) and Intensive dryland with high stocking (DHS), have been covered by *Panicum maximum* since 2002; Dryland with moderate stocking rate (DMS) and Degraded pasture (DP), have been covered by *Brachiaria decumbens* since 1996. Also, the native forest (Atlantic forest), near the experimental area, was sampled as representing the original conditions of this site. Foam absorbers, developed by ALVES et al. (2011), were used to measure the ammonia volatilization in the pots. The analyses were conducted in a completely randomized experimental design, using the SAS MIXED procedure. There was significant interaction between systems x seasons x year ($P < 0.05$). In the first year, high volatilization occurred in summer (13.75 kg N-Urea/ha) and autumn (14.43 kg N-Urea/ha) ($P < 0.05$). The systems DMS and DHS showed higher volatilization (16.37 and 13.06 kg N-Urea/ha, respectively) compared to other systems production ($P < 0.05$).