

**AMMONIA VOLATILIZATION LOSSES, DRY BIOMASS YIELD AND LEVELS OF FOLIAR NITROGEN ON MARANDU PALISADE GRASS AFTER SURFACE-APPLIED UREA WITH UREASE INHIBITOR**

*PERDAS POR VOLATILIZAÇÃO DA AMÔNIA, PRODUÇÃO DE BIOMASSA SECA E TEORES DE N FOLIAR DE CAPIM MARANDU APÓS A APLICAÇÃO SUPERFICIAL DE URÉIA COM INIBIDOR*

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Urea is the N source most widely used in pastures in Brazil. A significant amount of N is lost to the atmosphere by ammonia and nitrous oxide emissions and leached surface or ground water as nitrate contributing to environmental degradation such as the global warming or eutrophication. The loss of nitrogen by ammonia volatilization is a major factor for low efficiency of urea applied in soil surface. An alternative to reducing these losses is the use of urease inhibitors. The aim of this study was to investigate the effects of treating urea with urease inhibitor (NBPT - N-(n-butyl) thiophosphoric acid triamide) on the dry biomass yield in pasture of *Urochloa* (syn. *Brachiaria*) *brizantha* Marandu to minimize NH<sub>3</sub> volatilization. The study was performed at the Instituto de Zootecnia (IZ) at Nova Odessa, SP, Brazil, in a typic acruox soil composed of sand (49.5%), clay (20.9%) and loam (29.6%). A randomized experimental design with three treatments and four replications was used. The treatments were: i) No N; ii) Urea; iii) Urea treated with urease inhibitor NBPT. The rate of N was 50 kg/ha applied to the surface of the soil. Measurements of NH<sub>3</sub> volatilized were done by semiopen PVC chambers. Controls chambers were added to allow NH<sub>3</sub> volatilized from unfertilised soil or contained in the air that swept over the soil surface. We evaluated the yield and plant height, SPAD value and N uptake. It was calculated the agronomic efficiency (AE) defined as the product of N recovery from sources of N. The recovery efficiency (RE) is the degree of congruence between plant N demand and the N available for fertilizer applied. The physiological efficiency (PE) is the efficiency with which the plant uses in biomass production, each unit N obtained from the N applied. The results showed that the application of urease inhibitor NBPT reduced NH<sub>3</sub> volatilization 50% when in comparison to untreated urea. This reduction provides an increase of total N in the forage, major recovery of N applied and increased in the dry biomass yield. The values for AE, RE and PE, expressed in kg/kg were significantly (P<0.05) increased from 20 to 30, 0.40 to 0.54 and from 50 to 67% by average of urea and urea + NBPT, respectively. The coated urea with urease inhibitor is a suitable alternative to nitrogen fertilizer that reduces the NH<sub>3</sub> volatilization losses.

Keywords: N-recovery, nitrogen volatilization, urease inhibitor.

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