

EFFECT OF NITROGEN LEVELS AND SEAZONAL VARIATION ON LITTER DECOMPOSITION IN MARANDU GRASS

Ariana Desie TONIELLO*¹, Abmael da Silva CARDOSO¹, Thaís Ribeiro BRITO¹, Darlena Caroline da Cruz CORRÊA¹, Ricardo Andrade REIS¹, Ana Cláudia RUGGIERI¹

*corresponding author: ariana.toniello@yahoo.com.br

¹ São Paulo State University, UNESP, Jaboticabal, SP, Brasil.

For being a country of great extension and favorable climatic conditions, Brazil presents notoriety in the meat market. Most of this production comes from grass-raised animals. Therefore, a high quality pasture and high efficiency of use by the animals is a challenge that requires adequate management to optimize the production. Nitrogen fertilization is a technique that has been shown effectiveness in the intensified systems. However, nitrogen cycling needs to be understood on tropical forages. The objective of this research was to evaluate the effect of the nitrogen doses and the seasonal variation on the rate of litter decomposition. The experiment was conducted in the Forage Sector of UNESP, Jaboticabal, where were used four different paddocks of approximately 10,000 m² each. Four nitrogen levels (0 kg N ha⁻¹, 90 kg N ha⁻¹, 180 kg N ha⁻¹ e 270 kg N ha⁻¹) were added as urea, which was split into three applications during the rainy season, and the evaluation months were, January, February, March and April. The pastures were managed according to the criteria of 95% light interception in continuous grazing system and put-and-take stocking, to maintain the 0.25 m sward height. A completely randomized design (DIC) with five replications was used. No significant differences were observed among the nitrogen doses on decomposition rates ($P = 0.27$). Decomposition rates were on average 0.0211, 0.0269, 0.0222 and 0.0258 g g⁻¹ Dry Matter for treatments 0, 90, 180 and 270 kg N ha⁻¹, respectively. There was a significant seasonal variation ($P < 0.05$) on litter decomposition rates, with the averages 0.0309, 0.0208, 0.0167 and 0.0278 for the months of January, February, March and April, respectively. The fact that there is a significant difference for the seasonal variation can be explained by the rainfall regime of on these months, since humidity favors the microorganisms activity (decomposition) and other climates variables like temperature and insolation. Thus, in a short time evaluation rainfall and temperature is likely to control litter decomposition in marandu grass instead nitrogen rates.

Key words: Forage, nitrogen fertilization, pasture, rate of decomposition