



Dry matter production of pastures under different fertilizer levels and annual fractionation

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Rondônia is an important State for Brazil's livestock production, with over 2.1 million liters per day of milk produced and 400 thousand tons of cattle slaughtered (6 % of the Brazil's production). Nevertheless, further research on fertilization technology are needed to improve pasture productivity and, consequently, to increase the efficiency of livestock production, thus avoiding deforestation of new areas in Amazonia. The aim of this study was to determine the effects of fertilization practices and season on the forage dry matter available of different forage species. The experiment was conducted at the Experimental Station of Embrapa in Porto Velho, Rondônia State, Brazil, during 2013. The soil was classified as Latossolo Vermelho-Amarelo distrófico, and the climate was classified as Am, tropical monsoon climate, according to the Köppen Climate Classification System. The grasses establishment was carried out in November, 2012. The fertilizer rates were determined according to soil analysis (0-20 cm depth). Basal fertilizer was applied at the rate of 101 kg ha⁻¹ of P₂O₅, 33 kg ha⁻¹ of FTE, 30 kg ha⁻¹ of N and 30 kg ha⁻¹ of K₂O. To evaluate the available dry matter, two forage samples were taken by replication each 28 days at sward height, as follows: at 20 cm to Piatã, 40 cm to Mombaça and 15 cm to Tifton, according to the Embrapa ruler technology, and then oven-dried at 65°C to constant weight to obtain percent dry matter. The treatments consisted of three forage species (SP), *Brachiaria brizantha* cv. Piatã, *Panicum maximum* cv. Mombaça, and *Cynodon* spp. cv. Tifton 85; two fertilization fractioning (FRA), being four or six times a year (March, April, October and December; and March, April, June, August, October and December); three N-K₂O annual levels (NKL) (low: 200 kg ha⁻¹ of N with 160 kg ha⁻¹ of K₂O; medium: 400 kg ha⁻¹ of N with 320 kg ha⁻¹ of K₂O; and high: 600 kg ha⁻¹ of N with 480 kg ha⁻¹ of K₂O); and eleven periods (PER), from March to December of 2013. Therefore, the experiment consisted of a 3x2x3x11 factorial, which was arranged in split-split-split plots laid out in three randomized blocks. The ANOVA and the Tukey's test were used to evaluate the effects of the treatments on the available dry matter production (DMP), with the aid of the SISVAR software. The effects of species, level of fertilization, period, and PER*SP, PER*NKL and PER*FRA were significant to DMP. The average DMP of Mombaça (1374.10 kg DM ha⁻¹) and Piatã (1529.72 kg DM ha⁻¹) grasses were higher than the Tifton 85's (1057.94 kg DM ha⁻¹), with P = 0.0106, specially during the wet season (P<0.00001 for PER*SP). The MDP of Tifton 85 grass probably it was lower due to the high presence of weeds. The application of 400-320 and 600-480 kg ha⁻¹ N-K₂O levels resulted in higher DMP than with the application of 200-160 kg ha⁻¹ of N-K₂O. The Tifton 85 grass was less affected by drought than the other grasses studied, considering the local conditions. It is recommended the application of 400-320 kg ha⁻¹ N-K₂O for the establishment of Mombaça, Piatã and Tifton 85 grasses, fractioning the fertilization four or six times a year in Porto Velho. Further studies could refine fertilizer recommendations for grasses and different management of cutting height between the species, in Amazonia to improve dry matter production.

Keywords: fertilization, forage, fractionation, Piatã, Mombaça, Tifton,

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