

SUSTAINABLE INTENSIFICATION USING IRRIGATION AND N FERTILIZATION FOR PASTURE PRODUCTION IN TOCANTINS, BRAZIL

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Cattle raising is among the main Brazilian economic activities. Currently, there are 169 million hectares covered by tropical grasslands and 30% of this area is degraded. In the last 40 years, the area occupied by grasslands in Brazil increased only 17% while the meat production increased 114% and that fact was only possible due to national effort and investments on agricultural research, development and innovation. To verify the influence of irrigation in a pasture of *Panicum maximum* cv. Massai was carried out a field research testing rainfed and two irrigation depths (50 and 100% of evapotranspiration) and 300 kg ha⁻¹ year⁻¹ of N-urea, during one year at the periods Jun-Sep, Oct-Nov, Dec-Mar and Apr-May, in Tocantins state, Brazil. The parameters are one animal unit (AU) corresponding to 450 kg of liveweight, a daily dry matter intake of 11.25 kg. The accumulated dry matter (kg ha⁻¹ day⁻¹) obtained by the 100% depth was significantly higher than the others in almost all periods analyzed, and during Jun-Sep the treatment 50% depth showed no significant difference when compared to 100% depth suggesting seasonality probably related to low temperatures. The results revealed the potential to achieve a stocking rate of 6.44, 4.20 and 3.51 AU ha⁻¹ year⁻¹ with 100%, 50% depths and rainfed treatment, respectively. Despite promising results, further studies on physiology, phenology and economy must be done to confirm the feasibility of using irrigation for pasture production in Tocantins.

Keywords: intensive forage production, tropical forages, *Panicum*, Guinea grass, sprinkler.

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