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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