

Sylvopastoral system as a replacement of nitrogen fertilization of *Brachiaria brizantha* on Brazilian Northeast coastal tablelands

José Henrique A. RANGEL^{1*}, José Carlos M. PIMENTEL², Evandro N. MUNIZ¹, Elizabeth N. FERNANDES¹, Salete A. MORAES³, André Júlio AMARAL⁴, Samuel F. SOUZA¹.

¹ Embrapa Tabuleiros Costeiros, C.P. 44, 49025-040, Aracaju/SE, Brasil., ² Embrapa Agroindústria Tropical, CEP 60511-110, Fortaleza, CE. ³ Embrapa Semiárido, CEP. 56302-970, Petrolina/PE, Brasil, ⁴ Embrapa Solos, CEP 51020-240, Recife, PE, Brasil.

E-mail address of presenting author*: jose.rangel@embrapa.br

Introduction

In coastal tablelands (CT) of the Brazilian Northeast fertilization of pastures is a major factor for expression of their productive potential. Nitrogen is the highest responsive nutrient of such pastures. However, the use of fertilizer in the Northeast is still weak. An economical way to provide nitrogen to pasture and improving animal diet quality is the consortium of grass with tree forage legumes (RANGEL et al, 2014).

Material and methods

The study evaluated the productivity of Nellore steers in a silvopastoral system of *B. brizantha* with *Gliricidia sepium*, compared to monoculture systems of *B. brizantha* with increasing levels of N (0, 80, 160 and 240 kg N / ha year) in the period July / 2013 to December / 2014 in an Oxisol of TC. The pastures were managed in a "put and take" system with seven days of use and 35 rest in the rainy season and 49 in the dry season. Data were analyzed by ANOVA procedure of the statistical package SISVAR.

Results and Conclusions

The silvopastoral system resulted in an individual weight gain (IWG) higher than the highest level of nitrogen (Table 1). There was a significant linear response to nitrogen in the weight gain per area (WGPA) (TAB 1. Similar as IWG, WGPA in silvopastoral system was also higher than in the highest levels of N. It was concluded that the silvopastoral system was more efficient in improving live weight gain than the application of mineral nitrogen in conditions of the TC.

Table 1 – Individual Weight Gain (IWG) and Per Area Weight Gain (PAWG) of steers in isolated pasture of *B. brizantha* fertilized with different levels of N or in a silvopastoral system of *B. brizantha* and *G. sepium*.

Parameter	N levels (kg/ha)					Pr>Fc	R ² / Linear Regression (N levels)	
	0	80	160	240	SP			
IWG (g/anim/day)	300.2b	302.0b	344.3b	373.2b	59.,1a	0.67	ns	-
PAWG (g/ha/day)	1287c	1513c	2115bc	2499b	3129a	0,002	0,9743	y=5,2982x+1217,8

Pr>Fc Probability of significance.

Reference cited

RANGEL, J. H. de A. Avanço nas pesquisas com produção animal em sistema agrosilvipatoril. In: Reunião da SBZ, 51, Aracaju, 29 julho a 01 agosto, 2014. Palestra.CDRoom.

