

Carbohydrases enzymes improve the productive performance of grazing Nellore bulls fed different nutritional plans during the dry season



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INTRODUCTION

- Low forage digestibility may limit supply of nutrients and animal performance in ruminants. Nevertheless, use of carbohydrases can enhance ruminal fermentation and forage degradability (Tirado-González et al., 2017).
- Thus, objective was evaluate two nutritional plans with inclusion of carbohydrases on performance of grazing bulls in dry season raised in tropical conditions.

MATERIAL & METHODS

- Completely randomized design in a 2x3 factorial arrangement;
- **2 nutritional plans (SUP):** PS: Mineral-protein supplement (Fosbovi® Proteico 35, DSM, 0.1% BW) or PES: Mineral-protein-energy supplement (Fosbovi® Proteio-Energetico 25, DSM, 0.3% BW); and **3 dosages of carbohydrases blend (xylanase + beta-glucanase; ENZ): 0.00, 4.75 and 9.50 g/head/day;**
- 102 Nellore bulls distributed in six *Brachiaria brizantha cv Xaraés* paddocks to receive treatments for 119 days;
- Individual weights and intakes accessed from automatic scales and feeders (Intergado®);
- Data analyzed with PROC MIXED of SAS, carbohydrases dosage means compared by polynomial regression.

RESULTS

	PS			PES			SUP	ENZ		SUP*ENZ
	0.00	4.75	9.50	0.00	4.75	9.50		Linear	Quad	
IBW (kg)	294.92 ±3.99	294.10 ±3.35	294.66 ±3.35	294.19 ±3.20	294.51 ±3.02	294.62 ±3.10	-	-	-	-
FBW (kg)	317.29 ±3.96	327.77 ±5.15	319.65 ±6.01	340.72 ±4.06	345.51 ±5.68	338.61 ±6.02	<.0001	0.91	0.02	0.04
ADG (kg/day)	0.188 ±0.03	0.283 ±0.06	0.210 ±0.05	0.391 ±0.03	0.429 ±0.03	0.357 ±0.03	0.004	0.31	0.01	0.02
SUP intake (kg/day)	0.242 ±0.04	0.317 ±0.04	0.331 ±0.03	0.872 ±0.01	0.810 ±0.02	0.934 ±0.01	<.0001	0.02	0.18	0.04
SUP intake (%BW)	0.083 ±0.01	0.110 ±0.01	0.113 ±0.01	0.281 ±0.01	0.265 ±0.01	0.291 ±0.01	<.0001	0.03	0.28	0.04

- Quadratic effects for FBW and ADG observed in enzyme level, with 4.75 dosage presenting higher results for both PS and PES.
- Linear effects also observed in SUP intake, with highest intake presented in 9.50 dosage for both PS and PES.
- It is recommended 4.67 and 3.77 g/head/day for PS and PSE, respectively.
- PES presented higher FBW, ADG and SUP intake compared to PS.

CONCLUSIONS

- The carbohydrases blend is a viable technology to optimize performance on grazing cattle.
- Moreover, PES supplementation can optimize Nellore steers performance during dry season.

Reference: Tirado-González et al., 2017. Meta-analysis: effects of exogenous fibrolytic enzymes in ruminant diets. J. Appl. Anim. Res. 46:771-783.