

## Forage dry mass and crude protein of *Brachiaria brizantha* cv. BRS Piatã under an integrated crop-livestock-forest system

Valéria A. C. dos SANTOS<sup>1\*</sup>, Roberto Giolo de ALMEIDA<sup>2</sup>, Érick L. GAMARRA<sup>3</sup>

<sup>1</sup> College of Agriculture “Luiz de Queiroz”, ESALQ/USP, 13418-900, Piracicaba, SP, Brazil; <sup>2</sup> Embrapa Beef Cattle, 79106-550, Campo Grande, MS, Brazil; <sup>3</sup> Universidade Federal de Mato Grosso do Sul, 79090-900, Campo Grande, MS, Brazil.

E-mail address of presenting author\*: [valeria.corvala@usp.br](mailto:valeria.corvala@usp.br)

### Introduction

Reduction of light incidence in arboreal systems can affect mass accumulation of fodder under the canopy. However, under moderate shading, grasses might be able to increase nitrogen content in the leaves, improving forage quality (Souza et al., 2010). Goal of this study was to investigate the influence of photosynthetically active radiation (PAR) on forage dry mass and crude protein content of *Brachiaria brizantha* cv. BRS Piatã under integrated crop-livestock-forest system (ICLF) compared to the same pasture in full sun.

### Material and Methods

The trial was carried out at Embrapa Beef Cattle (20°24'90"S, 54°42'72"W, 530m altitude), in Campo Grande, MS, Brazil. There were five equidistant sampling points (A, B, C, D, and E) between the Eucalyptus trees single rows (22 m between rows) with 227 trees ha<sup>-1</sup> planted in 2009. Point F was set in neighboring reference pasture (*Brachiaria brizantha* cv. BRS Piatã) in full sun and under the same forage allowance. Evaluations were carried out in January, April and August 2014. Forage was harvested and weighted. PAR was measured with a portable ceptometer (Accupar, PAR-80 model). Crude protein content was determined by near infrared reflectance spectroscopy (NIRS). Data were processed by analysis of variance and Scott-Knott test of means at 5% level of significance. Regression analysis was made using forage dry mass as the dependent variable and PAR as the independent variable.

### Results and Conclusions

Forage dry mass was lower in points under trees than in the point under full sun (Table 1). Forage dry mass of Piatã grass shows linear behavior with respect to PAR, showed regression equation  $y = 1.407x + 1,160$  ( $R^2 = 0.87$ ). Points A, B, C, D, and E showed higher crude protein content than point F. Therefore, under integrated crop-livestock-forest system there is a reduction in the forage dry mass of Piatã grass but there is an increase in crude protein content.

Table 1. Forage dry mass (kg ha<sup>-1</sup>) and crude protein (%) of Piatã grass, among sampling points in ICLF (average of three cuts).

Sampling point	Forage dry mass (kg ha <sup>-1</sup> )	Crude protein (%)	PAR reduction (%)
F	2,797 a	9.7 b	0
A	1,442 c	11.4 a	72
B	1,930 b	11.1 a	55
C	1,903 b	11.3 a	72
D	1,661 c	11.2 a	59
E	1,624 c	10.7 a	71

Means followed by the same letter do not differ by Scott-Knott test ( $p > .05$ ).

### References cited

SOUZA, W. et al. (2010) Revista Brasileira de Zootecnia, 39 (3): 685-694.

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