

# Interaction between forage mass and dose of glyphosate herbicide on the desiccation of *Urochloa ruziziensis*



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## Introduction

Direct planting is one of the recommended practices in the implementation and management of crop-livestock integrated systems (Kluthcouski & Stone, 2023). However, one of the basic principles is the use of cover plants, with high biomass for straw production (Angelleti *et al.*, 2018).

The *Urochloa ruziziensis* species has stood out as a cover plant due to its good straw production and sensitivity to herbicide for desiccation (Sobrinho *et al.*, 2022). Reducing herbicide doses in the desiccation of cover crops for straw production has economic and environmental impact.

However, the recommendations for herbicide doses contained in the product leaflets do not take into account the mass of forage to be desiccated.

The objective of this study was to evaluate the effect of different doses of glyphosate on the desiccation of *U. ruziziensis* cv. BRS Integra with different forage masses.

## Material and Methods

- Plots of 4 x 3 m;
- Randomized blocks with four replications, in a split-plot scheme;
- Four doses of acid equivalent of glyphosate (Roundup Original® Plus 480 g a.e./L): 240, 480, 960 and 1,920 g a.e./ha = 0.5, 1.0, 1.5 and 2.0 L/ha
- Three residual height: 10, 30 and 50 cm and 28 days of regrowth;
- Three forage masses (1,700, 5,000 and 7,000 kg DM/ha);
- The masses were obtained by cutting the plots at 10, 30 and 50 cm, followed by 28 days of regrowth;
- The evaluations of the desiccation were carried out at 10 and 15 days after application (DAA) of the treatments based on the SPAD indices;
- The data were subjected to regression analysis and quadratic equations were adjusted for each assessment moment, considering 80% control as the minimum limit.



Cutting the plots with a backpack brush cutter to establish heights (10, 30 and 50 cm)



Desiccated area 21 days after application (DAA) of doses of 240 and 480 g a.e./ha at 5,000 kg DM/ha (30 cm cutting height)



## Results

Table 1 - Adjusted equations for 80% desiccation efficiency in each forage mass (MF – Kg DM/ha) at 10 and 15 days after application (DAA) of glyphosate.

		Glyphosate Dose (L/ha)				
		0.5	1.0	2.0	4.0	
FM	DAA	% of control*				Adjustment
1,700	10	84.9	84.5	88.6	90.3	ns ( $\bar{Y} = \bar{X} = 87\%$ )
1,700	15	78.6	90.1	90.0	91.7	ns ( $\bar{Y} = \bar{X} = 88\%$ )
5,000	10	55.8	77.5	82.9	86.0	$Y = 45.5 + 30.6X - 5.1X^2$ $R^2 = 0.88$
5,000	15	63.6	77.6	87.7	98.7	$Y = 52.7 + 27.1X - 4.46X^2$ $R^2 = 0.97$
7,000	10	53.6	68.7	84.0	84.9	$Y = 38.5 + 34.6X - 5.8X^2$ $R^2 = 0.99$
7,000	15	60.3	74.9	86.9	87.2	$Y = 47.5 + 30.6X - 5.2X^2$ $R^2 = 0.98$

\* estimated based on SPAD index reading in relation to non-desiccated areas

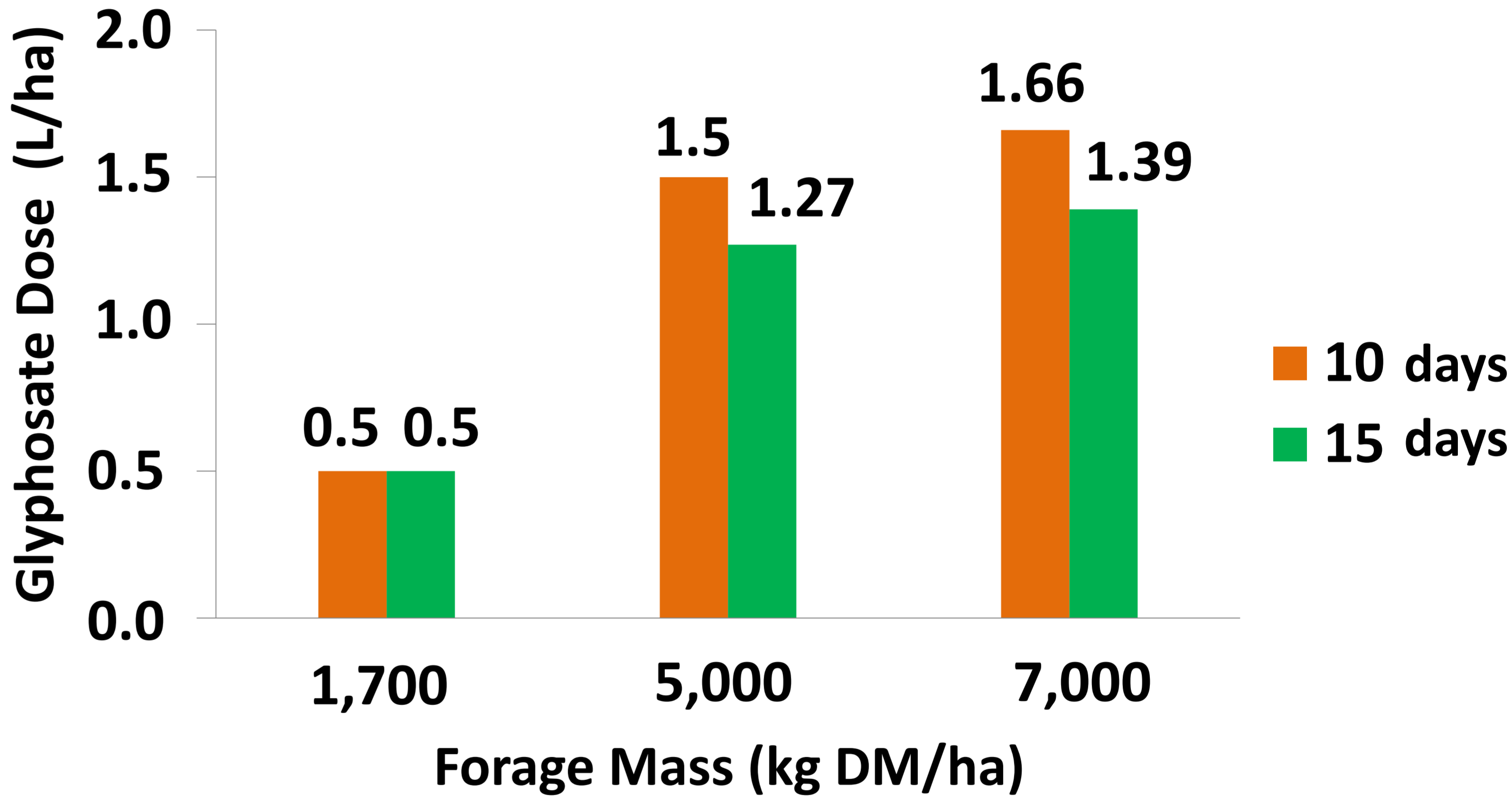


Figure 1 - Glyphosate dose required to achieve 80%(\*) desiccation efficiency of BRS Integra with different forage masses at 10 and 15 days after application (based on the equations of table 1).

## Conclusions

- For the lowest forage mass (1,700 kg DM/ha) there was no effect of the doses in any of the evaluation periods, with the average control of 87.4%.
- For the intermediate forage mass (5,000 kg DM/ha) the 80% control occurred at 10 DAA for the dose of 720 g ae/ha and, at 15 DAA, with the dose of 610 g ae/ha.
- In the highest forage mass (7,000 kg DM/ha) the control occurred at 10 and 15 DAA with doses of 797 g ae/ha and 667 g ae/ha, respectively.
- The dose of glyphosate to provide satisfactory desiccation of BRS Integra must be adjusted depending on the forage mass and the interval between desiccation and planting.