

Germination of tropical forage species at different temperatures

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The establishment of plants under field conditions depends on good quality seeds and care. The standard for evaluation of the seeds is based on tetrazolium test, which indicates the viability of the seeds. The objective of this study was to evaluate the germination of seeds of forage species at different temperatures night and day. Temperatures were obtained from the average of the last 10 years, between February and June, obtained at the weather station of Embrapa, in Dourados, MS. This period corresponds to the growing season with a potential use of these forages under field conditions for soil protection or cattle feed. The study was conducted at the Seed Laboratory of the Faculty of Agrarian Sciences, University Federal of Grande Dourados. The design of the experiment was completely randomized in a factorial 4 x 6 in plots with 100 seeds in four replications. We evaluated the following species: *Brachiaria ruziziensis*, *B. decumbens* cv. Basilisk, *B. brizantha* cv. Xaraés and cv. Piatã, *Panicum maximum* cv. Aruana and cv. Mombaça. Temperatures were established night and day 10 and 20° C, 13 and 23° C, 17 and 27 and 20 and 35° C. The seeds were germinated on cameras B.O.D. whit 8 hours light and 16 hours dark. Seeding was performed in plastic boxes such as "incubator" containing two sheets of paper "germitest." The humidity was maintained by daily replacement of distilled water. The count of seedlings was carried out in the third, sixth, ninth and twelfth days after sowing, in order to assess the vigor and seed germination. The results were submitted to ANOVA and means compared by Tukey test at 5% probability. There was significant interaction between species and temperatures (Table 1). The lowest temperature Aruana stands with highest germination index speed (IVG) and ruziziensis and Piatã for germination percentage (PG). In general, the higher IVG and PG were observed at higher temperatures and PG was very similar between the temperatures of 13-23 ° C, 17-27 ° C and 20-35 °, with a reduction of PG in the temperature of 10-20 ° C. Aruana ruziziensis and did not differ among temperatures for both IVG and for PG. They can be used for planting at lower temperature, as occurs in Dourados during the period April-June, subject to the conditions of soil moisture.

Table 1. Index of germination speed and percentage of germination of tropical forage species at different temperatures, in Dourados, Brazil, 2012.

Espécies / temperaturas	10-20°C	13-23°C	17-27°C	20-35°C
Germination index speed (IVG)				
<i>B. ruzizienis</i> cv. Comum	11.1 bc A	12.5 bc A	12.4 bc A	12.0 b A
<i>B. decumbens</i> cv. Basilisk	8.7 bc B	16.7 bc A	16.7 bc A	16.7 b A
<i>B. brizantha</i> cv. Xaraés	0.4 c B	3.8 c AB	6.7 c AB	8.7 b AB
<i>B. brizantha</i> cv. Piatã	9.1 bc B	12.3 bc AB	18.8 bc AB	13.2 b AB
<i>P. maximum</i> cv. Aruana	28.0 a A	31.0 a A	31.0 a A	25.9 a A
<i>P. maximum</i> cv. Mombaça	12.5 bc C	36.4 a A	27.7 a B	26.7 a B
Germination percentage (PG)				
<i>B. ruzizienis</i> cv. Comum	41.3 a B	46.4 abc AB	55.1 bc AB	59.2 b AB
<i>B. decumbens</i> cv. Basilisk	20.2 b C	39.4 bc B	59.6 bc A	57.4 b A
<i>B. brizantha</i> cv. Xaraés	3.7 b D	26.8 c C	46.8 acb B	71.8 ab A
<i>B. brizantha</i> cv. Piatã	40.3 a C	58.2 ab B	89.6 a A	85.0 ab A
<i>P. maximum</i> cv. Aruana	20.6 b A	24.3 c A	25.9 d A	31.8 c A
<i>P. maximum</i> cv. Mombaça	8.8 b B	30.4 ab A	32.9 cd A	32.8 c A

Means followed by same letter, lowercase at line and uppercase at column not differ by Tukey test at 5%.

Key words: Brachiaria, Urochola, Panicum

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