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Valdinei T. Paulino
Instituto de Zootecnia, Brazil

M. A. C. de Lucena
Instituto de Zootecnia, Brazil

M. S. Bueno
Instituto de Zootecnia, Brazil

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Germination of seeds of *Pennisetum hybridum* cv. Paraiso affected by different harvest dates, storage periods and sowing depths

V. T. Paulino¹, M. A. C. de Lucena¹, M. S. Bueno¹
 Instituto de Zootecnia, E-mail: paulind@iz.sp.gov.br 13.160-000, Nova Odessa, Sao Paulo, Brazil.

Key words: germination, *Pennisetum hybridum*, harvest, storage, seeds

Introduction Seeds are important agricultural material, and determine the productive potentials of a plant. Paradise elephant grass, result of the cross of millet (*Pennisetum glaucum* (L.) R.Br) with elephant grass (*Pennisetum purpureum* Schum), produces large amounts of high quality forage. This hybrid is established from seeds, that is also one of the limitations of common elephant grass. The objective of this study was to evaluate the effect of seed harvest dates, storage methods and the sowing depth on the germination behavior of *Pennisetum hybridum* cv. Paraiso.

Material and methods The treatments studied were: different harvest dates (30, 45, 60 and 90 days after the early flowering), storage periods (50, 70, 85 and 100 days) and sowing depths 1, 2 and 4 cm. In experiment 1, the experimental design was entirely randomized, in a factorial scheme 4 x 2 (times of harvest x storage). In experiment 2, the design was randomized blocks, in a factorial arrangement 4 x 3 (harvest times x sowing depth).

Results The germination of the seeds without storage was highest for the later harvest dates. With storage, the germination percentages were lower when harvested at the end of March or middle of May, however the differences between storing or not storing, were not statistically significant (Table 1). The Paraiso seeds appeared to have no type of dormancy or necessity to store seeds to reach the physiological maturation. However, the cultural values (Germination (%) x Purity (%) / 100) differed significantly among the harvest dates with higher values for seeds harvested later and lower for seeds harvested earlier (30 days after early flowering) due to lower germination percentages. The seedling emergence, in the soil, was higher for later harvest dates (26th April and 16th May) approximately 60 and 90 days after the early bloom, compared to seeds harvested earlier. Sowing at 1 cm deep was superior to deeper sowings of 2 or 4 cm.

Table 1 Germination, pureness and cultural value (in box), and emergency (%) of Paraiso grass (*Pennisetum hybridum*) cultivated in sandy soil, due to harvest times and different sowing depths.

Harvest date/ storage days	Germination %		Pureness %	Cultural values		Sowing Depths (cm)			
	Initial	After Storage		Before Storage	After Storage	1	2	4	Average
March 28 th / 100 days	33,8 dA	26,2 cA	63 a	21 dA	16 cA	27	17	15	19,7C
April 12 th / 85 days	48,9 cA	48,3 bA	66 a	32 cA	32 bA	42	30	28	33 B
April 26 th / 70 days	67,0 bA	67,7 aA	67 a	45 bA	45 aA	44	42	38	41 A
May 16 th / 50 days	75,2 aA	65,2 aA	68 a	52 aA	44 aA	54	44	43	47 A

Means followed by lower case letters in the column or same upper case letters in the row do not differ based on Tukey's Test (5%).

Conclusions The Paraiso grass seeds germinated well after harvest and do not show any type of dormancy; the highest germination values and cultural values were obtained for seeds harvested between 75 and 90 days after the initial flowering stage. Seed storage in a cold chamber (about 17°C) for a period up to 100 days does not result in significant reduction in germination. The sowing depth of 1 cm resulted in higher values of seedlings emergence than 2 or 4 cm.

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