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660-4 Effect of Seed Size on Stylosanthes Guianensis Germination and Seedling Vigor.

Poster Number 448

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Abstract:

Stylosanthes guianensis (Aubl.) SW. is a perennial tropical legume native from Brazil. It is used in grass-legume mixed pastures, protein banks, ley cropping systems and ground cover in fruit orchards. Nowadays it is recognized as a legume suited for multiple uses. The Stylosanthes guianensis selection program in Embrapa was responsible for the commercial released of several cultivars, which the primary characteristic is the resistence to anthracnose (Collectotrichum sp.). Commercial cultivars present two important problems related to its more intense use and adoptinon: slow establishment and low seed productions. Some reports indicated that speed of establishment is related with seed size. The objective of this study was to evaluate the correlation between the seed weight and speed of establishment and seedling vigour of the species Stylosanthes guianensis. Seeds of 490 accessions belonging to the Germplasm bank of EMBRAPA Cerrados (Brasilia/DF), produced in the 2006/2007 season, were used to estimate the 100-seed weight of the accessions. The mean, standard deviation and variance were calculated and used to discriminate 6 different groups as following: Group 1: mean-2 SD (mean - 2 standard deviation); Group 2: mean-1 SD; Group 3: mean+1 SD; Group 4: mean+2 SD; Group 5: mean+3 SD and Group 6: mean+4 SD. Group 1 was formed by accessions weighing less than 0.20 g, group 2 with individuals weighing between 0.20 and 0.24 g, group 3 with accessions weighing between 0.24 and 0.28 g, group 4 ranged between 0.28 and 0.32 g, group 5 ranged between 0.32 and 0.36 g, and group 6 presented weights superior to 0.36 g. Four accessions of each group were chosen at random totaling 24 accessions. The seeds after physical scarification were sowed in polyethilene boxes with a mixture of soil and sand in the ratio of 7:3, respectively. The experimental design was completely randomized with five repetitions, consisting of ten seeds of each access. Germination and seedling height were evaluated 10, 20, 30 and 40 days after sowing. After 40 days, the plants were removed from the soil and then the length and dry weight of the roots and the aerial part, per plant, were measured. The different groups of 100-seed weight showed no differences concerning the five variables evaluated (IVG, ALT, TR, PR and PA). However, differences were observed for the accessions, which indicates that there is genetic variability for these traits in the Embrapa Cerrados germplasm collection. The results of this work did not indicate, with certainty, that there is a positive correlation between seed weight and speed of germination and seedling vigour in Stylosanthes guianensis. The variables of height and length of root seedlings were those that showed more positive correlation with the 100-seed weight.

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