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## Selection of *Panicum maximum* genotypes under different shade levels

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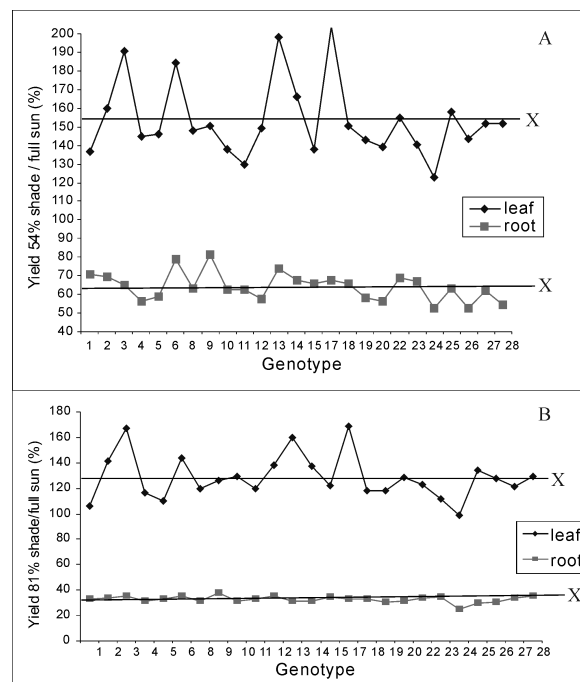
**Key words:** forage breeding guineagrass selection shade tolerance

**Introduction** *Panicum maximum* is the most productive seed propagated forage grass extensively used in Brazil and many Latin American countries. It is suitable for use under the shade of trees and shrubs. The shade tolerance of 28 genotypes has been evaluated under two artificial shade levels.

**Material and methods** 25 *P. maximum* genotypes, previously selected for agronomic characteristics (Jank et al., 2005) were grown in 13L pots (three plants each) under three artificial shade levels (full sun, 54 and 81% shade) with four replications and four harvests at 35-day intervals. The design was a split-plot randomized block design, plots being shade levels (6mX6m) and split-plots the genotypes. The characteristics evaluated were total and leaf dry matter yields, root yield in the last harvest, plant height and tiller number. Data were analyzed by SAS (SAS, 1999).

**Table 1** Agronomic characteristics for 25 genotypes of *Panicum maximum* under three shade levels.

	Shade level (%)		
	0	54	81
Plant height (cm)	54 c	74.5 b	91.5 a
Number of tillers	16.5 a	13.6 b	9.2 c
Total dry matter yield (g)	28.2 c	40.6 a	34.6 b
Leaf dry matter yield (g)	21.4 c	32.6 a	27.9 b
Root yield (g)	20.2 a	11.8 b	6.0 c



**Figure 1** Percentage of yield under A-54% and B-81% shade level / yield under full sun for 25 genotypes of *Panicum maximum*.

**Results** Growth of 25 of *P. maximum* genotypes under shade resulted in an increase in plant height and decrease in tiller number at increasing shade levels (Table 1). Shade also increased total and leaf dry matter yields until 54% shade, and decreased at 81% level. Root yield, however, decreased at increasing shade levels showing that plant persistence may be affected. Variability was found among genotypes for their response under shade levels (Figure 1 A and B). Mean leaf dry matter yield increased 154% and 128% at 54% and 81%, respectively, than under full sun. Root yield was 64% and 33% (under 54% and 81%, respectively) of the yield under full sun. Genotypes were found that presented both increased above ground growth yield and a lesser decrease in root yield under shade. Genotypes numbers 2, 3 (cv. Massai), 13, 14 and 17 were selected for growth under less than 54% shade. Genotypes 2, 3 (cv. Massai), 12 and 28 were selected for use under high shade level. Thus, genotypes 2 and cv. Massai responded well to both shade levels.

**Conclusions** Genotypes responded differently to shade levels. Genotype 2 and cv. Massai were found to be the most promising for any shade level. These need to be further evaluated under the natural shade of trees and shrubs.

### References

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