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GENETIC VARIABILITY OF INBRED LINES F4 FOR FORAGE SORGHUM

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INTRODUCTION

To recommend a forage sorghum cultivar for forage production it isn't only necessary for this cultivar to have high dry biomass production but also important for the forage to have high nutritional value.

Among the factors that can affect forage quality, digestibility is the one of most importance. The breeding programs to obtain sorghum hybrids in Brazil should emphasis to the direct development of cultivars with greater dry matter yields and better digestibility of forage.

The aimed to evaluate the genetic variability among lines F4 for forage sorghum.

MATERIAL AND METHODS

49 recombinant inbred F4 lines of sorghum of a same population were planted in a 7 x 7 simple lattice design, with two replications in the county of Uberlândia, Brazil, during the 2013 crop year

Plants were harvested during the late-dough stage of kernel development and weighed to determine fresh and dry matter (DM) forage yields.

Forage quality was evaluated by neutral detergent fiber (NDF) and crude protein percentage (PB).

RESULTS

Table 1 - Average results for plant height in meters (AP), dry matter yield in t ha^{-1} (DM), neutral detergent fiber in% (NDF) and crude protein percentage (CP).

Lines	AP		DM		NDF		CP	
1	1,16	c	7,25	e	55,44	a	8,35	b
2	1,21	c	9,36	d	52,89	a	11,61	a
3	1,59	b	8,52	d	42,50	b	9,09	b
4	1,62	b	8,66	d	47,58	b	7,71	b
1038	1,08	c	4,26	e	60,53	a	10,51	b
1041	1,42	c	12,12	c	59,32	a	8,14	b
1048	1,23	c	5,35	e	58,91	a	8,17	b
1049	1,11	c	7,56	d	64,07	a	8,38	b
1051	1,27	c	11,89	c	62,31	a	7,18	b
1054	1,24	c	8,23	d	60,20	a	7,60	b
1055	1,32	c	8,62	d	50,00	b	8,57	b
1056	1,30	c	9,65	d	55,73	a	7,82	b
1061	1,20	c	6,11	e	58,38	a	9,63	b
1065	1,37	c	6,40	e	59,50	a	8,24	b
1073	1,17	c	8,59	d	49,70	b	8,22	b
1077	1,10	c	5,70	e	59,12	a	7,76	b
1080	1,97	a	8,07	d	45,96	b	8,98	b
1081	1,91	a	13,90	b	46,42	b	7,87	b
1088	1,32	c	6,31	e	56,95	a	10,40	b
1096	1,34	c	8,95	d	42,11	b	6,98	b
1097	0,99	c	7,75	d	32,63	c	6,54	c
1098	1,65	b	8,79	d	59,82	a	8,41	b
1101	1,46	c	11,11	c	44,80	b	8,32	b
1103	1,51	b	10,63	c	58,91	a	7,32	b
1105	1,26	c	9,35	d	34,28	c	7,31	b
1107	0,87	c	6,46	e	33,00	c	9,49	b
1111	1,29	c	9,20	d	58,36	a	8,92	b
1117	1,07	c	10,11	c	65,71	a	7,70	b
1118	1,67	b	13,50	b	64,03	a	7,14	b
1121	1,43	c	10,47	c	57,33	a	8,66	b
1122	0,87	c	6,46	e	60,98	a	8,99	b
1123	1,28	c	8,08	d	43,26	b	10,17	b
1128	2,00	a	8,50	d	34,00	c	7,35	b
1130	1,16	c	8,92	d	61,71	a	6,64	c
1131	1,55	b	12,87	b	62,26	a	6,57	c
1132	1,29	c	7,16	e	56,62	a	9,21	b
1135	1,40	c	9,29	d	50,91	a	10,25	b
1140	1,13	c	11,50	c	56,71	a	9,55	b
1142	1,53	b	11,05	c	72,19	a	7,76	b
1148	1,88	a	13,45	b	56,75	a	8,69	b
1149	1,87	a	10,50	c	63,30	a	7,52	b
1151	0,96	c	8,93	d	46,50	b	8,40	b
1152	1,25	c	7,76	d	38,48	c	9,50	b
1153	0,96	c	7,32	e	59,01	a	8,81	b
1154	1,08	c	6,78	e	30,54	c	8,77	b
1156	2,14	a	18,14	a	58,83	a	6,30	c
1161	1,85	a	13,28	b	54,26	a	9,01	b
1162	1,12	c	9,24	d	61,27	a	7,85	b
1163	1,21	c	11,13	c	60,68	a	8,50	b
Média Geral	1,36		9,25		53,56		8,38	

Means with the same letter in the column do not differ by Scott-Knott test, at 0.05 significance

CONCLUSIONS

Evidence of genetic variability in inbred lines F4 were observed for forage quality and forage production. An inbreed line with greater performance for DM yield and thirty three with best NDF were also observed. The best inbreed lines will be used in future diallel crossings to find new hybrids and evaluate their combining ability.

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