

Supplementary Materials

Multi environmental evaluation of persistence and drought tolerance in smooth brome grass (*Bromus inermis*): genetic analysis for stability in combining ability

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Table S1. Information on test environments used to evaluate 25 half-sib (HS) families of smooth bromegrass

Environment No.	Location- Irrigation level- Year
E1	Full irrigation (normal environment)- 2010
E2	Full irrigation (normal environment)- 2011
E3	Full irrigation (normal environment)- 2012
E4	Full irrigation (normal environment)- 2013
E5	Full irrigation (normal environment)- 2014
E6	Deficit irrigation (drought stress environment)- 2010
E7	Deficit irrigation (drought stress environment)- 2011
E8	Deficit irrigation (drought stress environment)- 2012
E9	Deficit irrigation (drought stress environment)- 2013
E10	Deficit irrigation (drought stress environment)- 2014

Table S2. Split-plot in time ANOVA for measured traits in 25 half-sib families of smooth brome grass under two moisture environments (normal and drought stress) during 5 years (2010- 2014).

Source of variation	df	Mean squares								
		DPE	DA	PH	NS	DMY1	PDMY1	DMY2	PDMY2	CD
Environment (E)	1	1140.92*	1018.28*	3326.61*	9089.02**	77772.51**	3375.03*	16569.80*	7653.75*	1079.83*
Replication / E	2	152.32**	698.85**	81.64 ^{n.s}	3.01 ^{n.s}	38.84 ^{n.s}	56.67 ^{n.s}	1216.58**	293.32*	0.68 ^{n.s}
Genotype (G)	24	292.00**	253.80**	405.80**	665.98**	986.33**	152.53*	982.69**	58.76 ^{n.s}	18.44*
Iranian (I)	15	347.18**	264.73**	473.48**	546.19**	1213.79**	198.70**	1392.13**	78.97*	14.70*
Foreign (F)	8	221.00**	260.22**	319.38**	892.85**	597.36**	76.58*	321.90**	22.46*	26.36*
I × F	1	32.17**	38.63**	82.11**	647.90**	686.33**	67.68*	127.35**	45.98*	11.23*
G × E	24	32.39*	30.51*	353.01*	550.96*	576.55 ^{n.s}	71.95 ^{n.s}	288.67*	39.94 ^{n.s}	6.60*
G × Rep / E	48	51.46**	45.95**	188.03**	321.85 ^{n.s}	471.23 ^{n.s}	71.60 ^{n.s}	193.18 ^{n.s}	56.56 ^{n.s}	8.64**
Year (Y)	4	28149.65**	24734.92**	2193.83**	29784.22**	57932.26**	1907.24**	68217.39**	596.25**	4563.84**
E × Y	4	65.38**	37.73*	23.67 ^{n.s}	1510.24**	1671.23**	116.25 ^{n.s}	2121.30**	361.75**	38.44**
G × Y	96	23.17 ^{n.s}	22.78*	96.36 ^{n.s}	392.02*	619.41*	52.15 ^{n.s}	453.42**	44.90 ^{n.s}	3.61 ^{n.s}
E × G × Y	96	17.02 ^{n.s}	14.91 ^{n.s}	133.36**	567.15**	587.43 ^{n.s}	71.46 ^{n.s}	258.27**	36.53 ^{n.s}	3.27 ^{n.s}
Error	192	17.42	15.18	74.64	245.98	451.11	62.58	156.19	48.02	3.22

DPE, days to panicle emergence; DA, days to anthesis; PHT, plant height; NS, number of stems per plant; DMY1, dry matter yield of cut 1; PDMY1, percentage dry matter yield of cut 1; DMY2, dry matter yield of cut 2; PDMY2, percentage dry matter yield of cut 2; CD, crown diameter.

* and ** show significance at the 0.05 and 0.01 probability levels, respectively.

n.s: not significant