

Table S 1 Pearson's correlation coefficient (r) of studied bermudagrasses that included 11 reference cultivars and 137 genotypes. Plant variables include stolon length (StL), first internode length (INL1), second internode length (INL2), first leaf width (LW1), first leaf length (LL1), second leaf width (LW2), second leaf length (LL2), aboveground dry weight (SDW), belowground dry weight (RDW), rhizome dry weight (RhiDW), root dry weight (RDW), total dry weight (DW), belowground to aboveground dry weight (BAR), root to shoot ratio (RSR), rhizome dry weight to belowground dry weight ratio (RhiBR) and rhizome dry weight tot total dry weight ratio (RhiDWR). Climatic variables include annual rainfall (AR), annual mean temperature (AT), Winter rainfall (WR), winter to summer rainfall ratio (WSRR), annual evapotranspiration (AET), aridity index (AI). Symbols indicate *, significant at $P < 0.05$, **, significant at $P < 0.01$, ***, significant at $P < 0.001$, and ns, not significant.

Plant variables	Bioclimatic variables					
	AR	Atemp	WR	WSR	AET	AI
Arid						
StL	0.17ns	-0.16ns	0.14ns	0.05ns	-0.16ns	0.21*
IntNL	-0.10ns	0.04ns	-0.14ns	-0.14ns	0.06ns	-0.09ns
LW	-0.29**	0.19ns	-0.17ns	0.05ns	0.22*	-0.30**
LL	-0.39***	0.15ns	-0.34***	-0.15ns	0.27**	-0.40***
ADW	0.12ns	0.02ns	0.09ns	-0.01ns	-0.01ns	0.1ns
BDW	0.09ns	0.05ns	0.19ns	0.27**	-0.17ns	0.13ns
RDW	-0.10ns	0.13ns	0.00ns	0.13ns	-0.06ns	-0.06ns
RhiDW	0.41***	-0.16ns	0.43***	0.31**	-0.25*	0.42***
DW	0.24*	0.01ns	0.29**	0.24*	-0.18ns	0.25*
BAR	0.06ns	0.04ns	0.18ns	0.30**	-0.17ns	0.11ns
RSR	-0.13ns	0.12ns	-0.02ns	0.15ns	-0.05ns	-0.10ns
RhiBR	0.41***	-0.23*	0.43***	0.30**	-0.24*	0.42***
RhiDWR	0.39***	-0.18ns	0.41***	0.31**	-0.24*	0.41***
Non-arid						
StL	0.11ns	-0.32*	-0.20ns	-0.44**	-0.28ns	0.21ns
IntNL	-0.15ns	-0.19ns	-0.22ns	-0.25ns	-0.09ns	-0.07ns
LW	-0.29ns	0.18ns	-0.11ns	0.24ns	0.02ns	-0.2ns
LL	-0.45**	0.05ns	-0.40**	-0.11ns	-0.01ns	-0.31*
ADW	-0.02ns	-0.41**	-0.46**	-0.69***	-0.2ns	0.08ns
BDW	-0.20ns	0.44**	0.20ns	0.50***	0.19ns	-0.24ns
RDW	-0.17ns	0.40**	0.15ns	0.36*	0.16ns	-0.21ns
RhiDW	-0.11ns	0.17ns	0.17ns	0.44**	0.11ns	-0.1ns
DW	-0.22ns	0.14ns	-0.10ns	0.07ns	0.05ns	-0.18ns
BAR	-0.18ns	0.52***	0.32*	0.68***	0.21ns	-0.24ns
RSR	-0.16ns	0.49***	0.26ns	0.55***	0.17ns	-0.22ns
RhiBR	0.06ns	-0.12ns	0.11ns	0.17ns	-0.07ns	0.10ns
RhiDWR	-0.07ns	0.13ns	0.17ns	0.40**	0.10ns	-0.07ns
Arid & non-arid						
StL	0.15ns	-0.25**	0.05ns	-0.14ns	-0.20*	0.19*
IntNL	-0.04ns	-0.11ns	-0.07ns	-0.14ns	-0.02ns	-0.02ns
LW	-0.13ns	0.09ns	-0.05ns	0.12ns	0.08ns	-0.11ns
LL	-0.33***	0.17*	-0.3***	-0.18*	0.27**	-0.29***
ADW	0.09ns	-0.18*	-0.01ns	-0.22**	-0.10ns	0.11ns
BDW	0.07ns	0.15ns	0.20*	0.37***	-0.12ns	0.04ns
RDW	-0.02ns	0.19*	0.09ns	0.23*	-0.03ns	-0.04ns
RhiDW	0.22**	-0.07ns	0.27**	0.35***	-0.21*	0.17*
DW	0.17*	-0.04ns	0.20*	0.20*	-0.20*	0.14ns
BAR	0.06ns	0.20*	0.21*	0.45***	-0.1ns	0.02ns
RSR	-0.04ns	0.24**	0.11ns	0.32***	-0.02ns	-0.06ns
RhiBR	0.26**	-0.22**	0.27**	0.25**	-0.24**	0.25**
RhiDWR	0.22*	-0.09ns	0.26**	0.33***	-0.20*	0.18*