

## Agro-morphological characterization of diverse sorghum lines for pre-and post-flowering drought tolerance.

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**Supplementary Table 1.** Two-year data of agro-morphological characteristics of diverse sorghum lines grown under ideal conditions on Amarillo fine sandy loam soil of Lubbock, Texas.

Lines	<sup>†</sup> HGT (cm)	DTF (days)	TBM (g)	PNA (cm <sup>2</sup> )	PWT (g)
BTx642	109	73	158	112	61
JB14	132	51	151	124	69
JB15	159	53	143	112	70
JB16	157	58	145	82	63
JB17	123	57	172	137	85
JB18	105	57	194	139	90
JB19	98	52	108	112	59
JB20	113	58	159	103	71
JB21	203	52	144	94	51
JB22	137	51	125	142	69
JB23	143	58	202	118	69
JB24	200	56	234	97	89
JB25	186	57	200	103	90
JB26	127	52	99	90	42
JB27	196	75	336	161	134
JB28	89	52	98	77	49
JB29	78	58	94	71	46
JB30	150	56	208	126	118
JB31	165	57	236	182	133
JB32	77	57	154	132	80
JB33	134	68	245	156	94
JB34	99	58	196	107	101
JB35	183	56	272	157	96
JB37	190	58	206	115	100
JB38	117	53	111	78	61
JB39	123	57	152	116	77
JB41	137	58	139	109	60
JB42	210	57	202	133	96
JB43	100	52	108	93	56
JB44	192	58	238	137	120
S54	118	59	142	91	74
SC56	102	54	112	100	53
SC110	97	63	197	120	94
SC191	118	57	161	124	98
SC270	126	47	103	98	61
SC335	88	51	106	103	66
SC599	111	68	144	90	49
SC702	163	77	237	130	98
SC728	80	58	96	78	57
SC774	113	67	153	110	80
SC847	122	53	160	122	92
SC1154-14E	86	54	112	107	63

SC1506	117	57	98	94	52
1790E	92	54	131	116	69
B4R	95	66	136	107	67
B1778	120	66	208	160	100
BTx378	112	60	158	130	83
BTx623	123	61	207	177	110
BTx3042	106	49	120	116	70
R9188	97	60	111	117	54
R.11259	120	66	173	142	82
R.11269	97	60	152	135	81
RTx430	113	67	150	130	80
Tx7000	101	54	162	141	95
Mean	127	58	162	118	78
SE	7.2	3.1	9.1	6.7	4.5

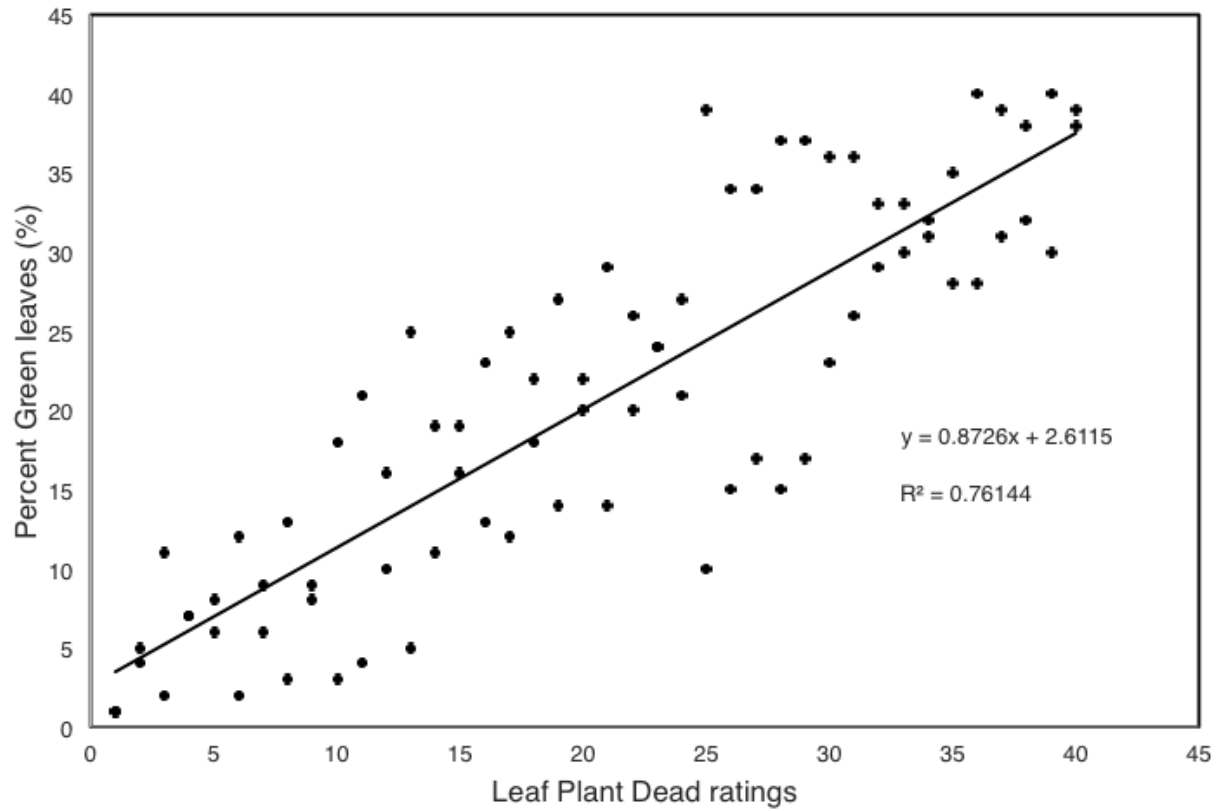
<sup>†</sup>HGT, plant height; DTF, days to flowering; TBM, total above ground dry biomass; PNA, panicle area; PWT, panicle weight. *SE* indicates standard error of the means.

Supplementary Table 2. Varimax rotated component matrix for positive and negative affect scale from PCA analysis of agromorphological characteristics data set of diverse grain sorghum lines subjected to three (control, pre-flowering drought, and postflowering drought) irrigation treatments.

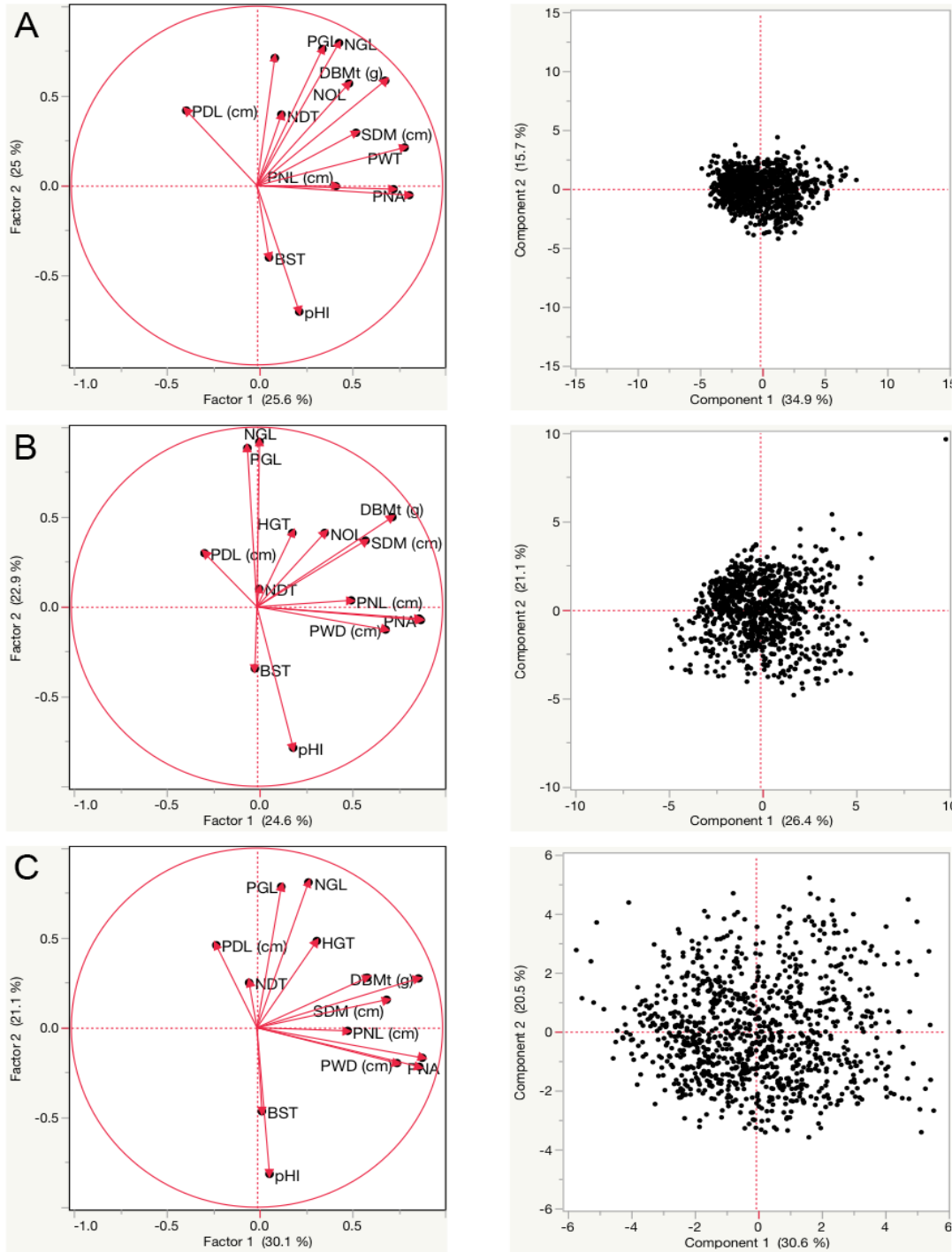
Characteristics	Control		Pre-flowering		Postflowering	
	Factor 1	Factor 2	Factor 1	Factor 2	Factor 1	Factor 2
<sup>‡</sup> PNA	<b>0.820</b>	-0.054	<b>0.882</b>	-0.075	<b>0.890</b>	-0.168
PWT	<b>0.795</b>	0.212	<b>0.873</b>	-0.066	<b>0.874</b>	-0.217
PWD	<b>0.736</b>	-0.020	<b>0.700</b>	-0.127	<b>0.754</b>	-0.197
TBM	<b>0.710</b>	0.385	<b>0.729</b>	0.399	<b>0.870</b>	0.274
SDM	0.534	0.295	0.585	0.368	0.670	0.156
NOL	0.496	0.569	0.364	0.411	0.593	0.279
PNL	0.425	-0.003	0.507	0.036	0.489	-0.018
PGL	0.353	0.761	-0.051	0.883	0.131	0.785
NGL	0.342	0.795	0.013	0.918	0.277	0.809
pHI	0.233	-0.695	0.195	-0.786	0.068	-0.815
NDT	0.132	0.396	0.011	0.100	-0.042	0.250
HGT	0.096	0.711	0.190	0.411	0.322	0.483
BST	0.065	-0.401	-0.011	-0.344	0.026	-0.466
PDL	-0.380	0.418	-0.283	0.298	-0.219	0.459
% Variance explained	25.601	25.051	24.455	22.681	30.432	21.012

<sup>‡</sup>PNA; panicle area, PWT; panicle weight, PWD; panicle width, TBM; total biomass, SDM; stem diameter NOL; number of fully developed leaves, PNL; panicle length, PGL; percent green leaves, NGL; number of green leaves, pHI; panicle harvest index, NDT; number of nodal tillers, HGT; height, BST; number of basal tillers; and PDL; peduncle length. Bold numbers are characteristics showing strong loading consistently on factor 1 across irrigation treatment.

### Supplementary figures



Supplementary Fig 1. Relationship between plant leaf dead ratings and percent green leaves at physiological maturity for diverse sorghum lines subjected to post-anthesis drought stress.



Supplementary Fig 2. PCA factor loading plots and their corresponding score plots with imputations, showing the percent explanation of two selected components and the distribution patterns of agro-morphological characteristics of diverse grain sorghum lines under; (A) control, (B) pre-flowering drought, and (C) postflowering drought irrigation treatments.