

Table S1. Reactions of the maize inbred lines to *Striga* infestation and drought conditions.

S/N	Inbred lines	Reaction to <i>Striga</i>	Reaction to drought
1	TZdEEI 1	Tolerant	Tolerant
2	TZdEEI 4	Tolerant/Resistant	Tolerant
3	TZdEEI 5	Tolerant	Tolerant
4	TZdEEI 7	Tolerant	Tolerant
5	TZdEEI 9	Tolerant	Tolerant
6	TZdEEI 11	Tolerant	Tolerant
7	TZdEEI 12	Tolerant	Tolerant
8	TZdEEI 13	Tolerant	Tolerant
9	TZEEI 58	Tolerant	Tolerant
10	TZEEI 63	Tolerant	Tolerant
11	TZEEI 79	Tolerant/Resistant	Tolerant
12	TZEEI 95	Tolerant/Resistant	Tolerant

Table S2: Correlations between variables under optimal environment.

	DA	DS	ASI	PHT	EHT	PASP	EASP	EPP	Yield
DA	1.00								
DS	0.73***	1.00							
ASI	-0.22**	0.51***	1.00						
PHT	0.30***	-0.02	-0.41***	1.00					
EHT	0.40***	0.07	-0.40***	0.71***	1.00				
PASP	-0.13	0.07	0.26***	-0.37***	-0.38***	1.00			
EASP	0.05	-0.12*	-0.23***	0.07	0.02	0.22**	1.00		
EPP	-0.08	0.12*	0.27***	-0.28***	-0.29***	-0.05	-0.32***	1.00	
Yield	-0.23***	-0.12*	0.12*	-0.08	-0.11	-0.35***	-0.68***	0.42***	1.00

Yield = Grain yield; DS = Days to silking; DA = Days to anthesis; ASI = Anthesis-silking interval; PHT = Plant height; EHT = Ear height; EASP = Ear aspect; EPP = Ears per plant; PASP = Plant aspect; ***, **, * = significant F-test at 0.001, 0.01 and 0.05 levels of probability, respectively

Table S3: Correlations between variables under Striga environment.

	DA	DS	ASI	PHT	EHT	SDR1	SDR2	ESP1	ESP2	EASP	EPP	Yield
DA	1.00											
DS	0.85***	1.00										
ASI	-0.33***	0.21**	1.00									
PHT	0.31***	0.13**	-0.33***	1.00								
EHT	0.24***	0.06	-0.33***	0.85***	1.00							
SDR1	0.12*	0.27***	0.26***	-0.23***	-0.24***	1.00						
SDR2	0.14*	0.33***	0.32***	-0.24***	-0.25***	0.80***	1.00					
ESP1	-0.31***	-0.22**	0.19**	-0.18**	-0.11	0.23**	0.18**	1.00				
ESP2	-0.35***	-0.24***	0.22**	-0.23**	-0.16*	0.22**	0.18**	0.97***	1.00	0.12		
EASP	0.15*	0.31***	0.28***	-0.21**	-0.22**	0.67***	0.73***	0.12**	0.12**	1.00		
EPP	-0.22**	-0.35***	-0.23**	0.00	-0.01	-0.60***	-0.67***	-0.12*	-0.10	-0.59***	1.00	0.66
Yield	-0.41***	-0.54***	-0.21**	0.08	0.09	-0.69***	-0.75***	0.02	0.04	-0.75***	0.66***	1.00

Yield = Grain yield; DS = Days to silking; DA = Days to anthesis; ASI = Anthesis-silking interval; PHT = Plant height; EHT = Ear height; EASP = Ear aspect; EPP = Ears per plant; SDR1 and SDR2 = *Striga* damage rating at 8 and 10 WAP; ESP1 and ESP2 = Number of emerged *Striga* plants at 8 and 10 WAP; STGR= Stay-green characteristic. ***, **, * = significant F-test at 0.001, 0.01 and 0.05 levels of probability, respectively

Table S4: Correlations between variables under drought environment.

	DA	DS	ASI	PHT	EHT	EASP	PASP	STGR	EPP	Yield
DA	1.00									
DS	0.86***	1.00								
ASI	0.34***	0.77***	1.00							
PHT	-0.25**	-0.35***	-0.33***	1.00						
EHT	-0.12	-0.19*	-0.21*	0.77***	1.00					
EASP	0.31**	0.50***	0.52***	-0.58***	-0.44***	1.00				
PASP	0.09	0.08	0.04	-0.43***	-0.28**	0.28**	1.00			
STGR	-0.04	-0.06	-0.06	-0.27**	-0.18*	0.22*	0.66***	1.00		
EPP	-0.18*	-0.29**	-0.31**	0.28**	0.28**	-0.38***	-0.23**	-0.20**	1.00	
Yield	-0.40***	-0.60***	-0.59***	0.52***	0.44***	-0.79***	-0.32***	-0.23*	0.54***	1.00

Yield = Grain yield; DS = Days to silking; DA = Days to anthesis; ASI = Anthesis-silking interval; PHT = Plant height; EHT = Ear height; EASP = Ear aspect; EPP = Ears per plant; PASP = Plant aspect; STGR= Stay-green characteristic. ***, **, * = significant F-test at 0.001, 0.01 and 0.05 levels of probability, respectively

Table S5: SCA effects of extra-early yellow maize inbred parents for grain yield and other agronomic traits across 5 environments (two *Striga*-infested, one drought and two rainfed environments) in Nigeria, 2013-2014.

S/N	HYBRID	YIELD‡ (kg ha ⁻¹)				SDR1	SDR2	ESP1	ESP2	STGR
		Optimal	Striga	Drought	Across					
1	TZdEEI 1 × TZdEEI 4	-489	529	-244	19	-0.95	-0.75	-0.13	-0.12	1.12
2	TZdEEI 1 × TZdEEI 5	38	-308	161	-135	0.48	0.40	-0.01	-0.03	-0.03
3	TZdEEI 1 × TZdEEI 7	559	814	-119	687	-0.72	-0.50	-0.06	-0.02	1.87
4	TZdEEI 1 × TZdEEI 9	273	-389	536	-58	0.30	-0.08	0.22	0.14	-0.63
5	TZdEEI 1 × TZdEEI 11	-1322**	-1231	-408	-1276**	0.80	0.90*	-0.20	-0.16	0.09
6	TZdEEI 1 × TZdEEI 12	646	339	-923*	492	0.08	-0.38	-0.04	-0.001	-1.13
7	TZdEEI 1 × TZdEEI 13	-403	348	-262	-28	-0.40	-0.48	-0.07	-0.12	1.32
8	TZdEEI 1 × TZEEI 58	147	95	882*	121	-0.10	0.22	0.29*	0.26	-0.63
9	TZdEEI 1 × TZEEI 63	180	622	295	401	-0.67	-0.33	0.07	0.03	-0.63
10	TZdEEI 1 × TZEEI 79	423	-269	-178	77	0.80	0.45	-0.10	-0.02	-0.98
11	TZdEEI 1 × TZEEI 95	-53	-549	261	-301	0.35	0.57	0.03	0.04	-0.38
12	TZdEEI 4 × TZdEEI 5	103	330	-79	216	-0.62	-0.50	-0.24	-0.17	-1.28
13	TZdEEI 4 × TZdEEI 7	-116	-605	34	-361	0.43	0.85*	0.10	0.06	0.12
14	TZdEEI 4 × TZdEEI 9	-604	127	185	-238	0.20	0.02	-0.01	0.01	-0.38
15	TZdEEI 4 × TZdEEI 11	-225	88	299	-69	-0.30	-0.25	0.15	0.13	-0.68
16	TZdEEI 4 × TZdEEI 12	235	-352	-244	-59	-1.02*	-0.53	0.04	0.03	-0.38
17	TZdEEI 4 × TZdEEI 13	-872	289	-299	-291	-0.25	-0.13	-0.03	0.01	-0.43
18	TZdEEI 4 × TZEEI 58	951*	-170	211	391	0.80	0.57	0.05	0.02	1.12
19	TZdEEI 4 × TZEEI 63	477	-88	204	195	0.48	0.02	-0.08	-0.09	0.12
20	TZdEEI 4 × TZEEI 79	44	-636	-646	-296	1.46**	1.05**	0.18	0.14	0.77
21	TZdEEI 4 × TZEEI 95	495	488	580	492	-0.25	-0.33	-0.02	-0.03	-0.13
22	TZdEEI 5 × TZdEEI 7	-477	-767	-190	-622	1.11*	0.50	0.27	0.23	1.47
23	TZdEEI 5 × TZdEEI 9	419	866	252	643	-1.37**	-0.83*	0.03	-0.03	-0.03
24	TZdEEI 5 × TZdEEI 11	429	376	1263**	402	-0.62	-0.35	-0.14	-0.12	-0.33
25	TZdEEI 5 × TZdEEI 12	-813	192	-1020*	-310	0.65	0.12	0.07	0.05	1.47
26	TZdEEI 5 × TZdEEI 13	-171	31	40	-70	-0.32	-0.23	0.01	0.02	-1.08
27	TZdEEI 5 × TZEEI 58	219	193	-312	206	-0.27	-0.53	0.09	0.05	0.97
28	TZdEEI 5 × TZEEI 63	99	-354	111	-128	-0.10	0.42	-0.06	0.00	-0.03
29	TZdEEI 5 × TZEEI 79	347	-309	221	19	0.63	0.70	0.02	0.05	-0.38
30	TZdEEI 5 × TZEEI 95	-194	-250	-444	-222	0.43	0.32	-0.04	-0.05	-0.78
31	TZdEEI 7 × TZdEEI 9	-224	113	-194	-55	-0.07	0.02	-0.27	-0.18	-0.13
32	TZdEEI 7 × TZdEEI 11	-71	160	-115	44	0.18	0.00	0.26	0.21	-0.43
33	TZdEEI 7 × TZdEEI 12	-612	-431	73	-522	-0.80	-0.03	-0.27	-0.29*	-0.63
34	TZdEEI 7 × TZdEEI 13	-94	-93	-171	-94	0.23	0.12	0.08	0.10	-0.18
35	TZdEEI 7 × TZEEI 58	-167	391	191	112	0.03	-0.68	0.14	0.13	-1.13
36	TZdEEI 7 × TZEEI 63	517	189	801	353	-0.55	-0.73	-0.08	-0.09	-0.63
37	TZdEEI 7 × TZEEI 79	593	22	397	308	0.18	0.05	-0.20	-0.19	-0.48

38	TZdEEI 7 × TZEEI 95	91	208	-708	149	-0.02	0.42	0.04	0.03	0.12
39	TZdEEI 9 × TZdEEI 11	-498	-593	84	-546	0.45	0.42	-0.03	0.01	0.07
40	TZdEEI 9 × TZdEEI 12	333	83	657	208	-0.02	0.15	-0.15	-0.05	-0.13
41	TZdEEI 9 × TZdEEI 13	-58	-667	-989*	-363	1.01*	0.80	0.28	0.27*	0.82
42	TZdEEI 9 × TZEEI 58	258	122	-312	189	-0.20	-0.25	-0.02	0.00	-1.13
43	TZdEEI 9 × TZEEI 63	-563	41	69	-261	-0.02	0.20	0.05	0.00	0.37
44	TZdEEI 9 × TZEEI 79	211	239	44	225	-0.30	-0.28	-0.02	-0.06	0.52
45	TZdEEI 9 × TZEEI 95	453	59	-331	256	0.00	-0.15	-0.07	-0.10	0.62
46	TZdEEI 11 × TZdEEI 12	53	437	-383	245	-0.02	-0.13	-0.02	-0.02	1.07
47	TZdEEI 11 × TZdEEI 13	216	-239	-514	-12	0.75	0.77	0.18	0.12	0.02
48	TZdEEI 11 × TZEEI 58	1039*	281	353	660	-0.45	-0.28	-0.17	-0.16	0.07
49	TZdEEI 11 × TZEEI 63	930*	429	-24	679	-0.52	-0.58	-0.02	0.03	-0.43
50	TZdEEI 11 × TZEEI 79	-299	449	-211	75	-0.80	-0.55	0.05	0.03	0.22
51	TZdEEI 11 × TZEEI 95	-251	-155	-345	-203	0.50	0.07	-0.08	-0.07	0.32
52	TZdEEI 12 × TZdEEI 13	743	-579	352	81	0.53	0.50	-0.02	-0.01	0.82
53	TZdEEI 12 × TZEEI 58	-209	252	745	21	0.08	-0.30	-0.12	-0.07	0.87
54	TZdEEI 12 × TZEEI 63	221	-155	414	33	0.50	0.15	0.18	0.12	-0.63
55	TZdEEI 12 × TZEEI 79	-317	-87	231	-202	0.23	0.17	0.24	0.15	-0.48
56	TZdEEI 12 × TZEEI 95	-278	301	97	11	-0.22	0.30	0.08	0.10	-0.88
57	TZdEEI 13 × TZEEI 58	217	-561	399	-172	0.60	0.60	-0.15	-0.12	-0.18
58	TZdEEI 13 × TZEEI 63	-23	1063*	461	519	-0.47	-0.45	-0.21	-0.18	-0.18
59	TZdEEI 13 × TZEEI 79	265	-47	525	109	-0.75	-0.43	0.05	0.05	-0.03
60	TZdEEI 13 × TZEEI 95	183	456	457	319	-0.95	-1.06**	-0.13	-0.13	-0.93
61	TZEEI 58 × TZEEI 63	-1716**	-1329**	-2007**	-1523**	1.3**	1.50**	0.02	0.03	0.87
62	TZEEI 58 × TZEEI 79	-759	322	-348	-219	-1.20*	-0.23	-0.19	-0.16	-0.48
63	TZEEI 58 × TZEEI 95	21	404	196	212	-0.65	-0.60	0.06	0.03	-0.38
64	TZEEI 63 × TZEEI 79	-81	430	-298	175	-0.52	-0.78	-0.02	0.00	0.02
65	TZEEI 63 × TZEEI 95	-41	-846	-25	-443	0.53	0.60	0.15	0.16	1.12
66	TZEEI 79 × TZEEI 95	-427	-116	262	-271	0.25	-0.13	-0.02	0.01	1.27

[†]YIELD = Grain yield; SDR1 and SDR2 = *Striga* damage rating at 8 and 10 WAP; ESP1 and ESP2 = Emerged *Striga* plants at 8 and 10 WAP; STGR= Stay-green characteristic. **, * = significant F-test at 0.01 and 0.05 levels of probability, respectively.