

## Supplementary tables

**Supplementary Table 1.** ANOVA for line x tester analysis including parents.

Source	df	DFE	PH	NPTP	PL	FLL	FLW	FLA	NFGPP	NGPP	SF	HSW	GY
Replications	1	0.893	5.254	66.036*	3.093	0.0385	0.0007	33.027	0.932	3.894	0.389	0.0005	321.208*
Treatments	13	31.343**	1414.169**	422.662**	24.595**	136.445**	0.076**	427.274**	3513.254**	3320.652**	20.831**	0.302**	2418.307**
Parents	5	33.133**	598.229**	3.350	26.43**	124.833**	0.018	138.479**	6530.415**	6108.299**	33.148**	0.648**	1118.236**
Parents vs. Crosses	1	67.860**	7368.542**	3786.857**	4.085*	57.686**	0.545**	1925.740**	126.000	37.482	2.810	0.543**	22306.828**
Crosses	7	24.848**	1146.359**	241.571**	26.215**	155.990**	0.050*	419.489**	1842.032**	1798.499**	14.608*	0.021	505.712**
Lines	3	57.229**	2563.123**	4.167	27.386	92.734	0.103	171.548	198.299	467.342	11.654	0.027	215.534
Testers	1	0.063	9.589	1369*	73.449*	261.356	0.0006	1817.785*	7980.118	7338.621	29.743	0.002	2525.331*
Lines x Testers	3	0.729	108.516**	103.167**	9.299**	184.125**	0.0142	201.333**	1439.736**	1282.948**	12.517	0.022	122.683
Error	13	0.508	12.371	11.497	0.762	1.900	0.0141	29.345	95.025	111.670	4.659	0.025	66.577

1) Days to 50% Flowering (DFE), Plant Height (PH), Number of Productive Tillers Per Plant (NPTP), Panicle Length (PL), Flag Leaf Length (FLL), Flag Leaf Width (FLW), Flag Leaf Area (FLA), Number of Filled Grains Per Panicle (NFGPP), Total Number Of Grains Per Panicle (NGPP), Spikelet Fertility Percentage (SF), 100-Seed Weight (HSW), and Grain Yield Per Plant (GY). 2) \* & \*\* significance at 5% and 1%, respectively

**Supplementary Table 2.** Combining ability variance and genetic components.

Trait	GCA variance ( $\sigma^2$ GCA - avg)	SCA variance ( $\sigma^2$ SCA)	Additive Variance ( $\sigma^2$ A)	Dominance Variance ( $\sigma^2$ D)	Dominance Ratio $\sqrt{(\sigma^2$ D / $\sigma^2$ A)}	Predictability Ratio [ $\sigma^2$ A / ( $\sigma^2$ A + $\sigma^2$ D)]
<b>DFF</b>	6.811	0.111	13.622	0.222	0.1277	0.984
<b>PH</b>	318.67	48.073	637.34	96.145	0.3884	0.8689
<b>NPTP</b>	84.689	45.835	169.378	91.67	0.7357	0.6488
<b>PL</b>	8.121	4.269	16.242	8.538	0.725	0.6554
<b>FLL</b>	43.474	91.112	86.948	182.224	1.4477	0.323
<b>FLW</b>	0.0092	0.001	0.0184	0.002	0.1086	0.9019
<b>FLA</b>	129.553	85.994	259.106	171.988	0.8147	0.601
<b>NFGPP</b>	503.553	672.356	1007.106	1344.712	1.1555	0.4282
<b>NGPP</b>	495.05	585.639	990.1	1171.278	1.0877	0.4581
<b>SF</b>	2.816	3.929	5.632	7.858	1.1812	0.4175
<b>HSW</b>	0.0001	-0.001	0.002	0.002	1.000	0.5001
<b>GY</b>	171.667	28.053	343.334	56.106	0.4042	0.8595

1) Days To 50% Flowering (**DFF**), Plant Height (**PH**), Number of Productive Tillers Per Plant (**NPTP**), Panicle Length (**PL**), Flag Leaf Length (**FLL**), Flag Leaf Width (**FLW**), Flag Leaf Area (**FLA**), Number of Filled Grains Per Panicle (**NFGPP**), Total Number of Grains Per Panicle (**NGPP**), Spikelet Fertility Percentage (**SF**), 100-Seed Weight (**HSW**), and Grain Yield Per Plant (**GY**). 2) **L1**- BIL 33; **L2**- BIL 752; **L3** - BIL 1094; **L4** - BIL 1102, **T1**- D5-1-3-2-1and **T2** - C16-1-2-8; **GCA**- general combining ability and **SCA** - Specific combining ability. 3) \* & \*\* significance at 5% and 1%, respectively

**Supplementary Table 3.** Combining ability effects for crosses.

Effect Type	Line/ Tester	DFF	PH	NPTP	PL	FLL	FLW	FLA	NFGPP	NGPP	SF	HSW	GY
<b>GCA</b>	L1	-2.812**	20.729**	1.000	2.138**	4.343**	0.134**	5.747*	9.500*	13.426*	-1.373*	-0.053	10.890**
<b>GCA</b>	L2	-3.562**	23.083**	-1.00	2.365**	3.993**	0.144**	5.595*	1.167	3.843	-1.181	-0.087	-3.746
<b>GCA</b>	L3	2.188**	-22.067**	-0.750	-1.906**	-4.148**	-0.155**	-5.636*	-5.019	-6.846*	0.228	0.065	-4.895
<b>GCA</b>	L4	4.188**	-21.746**	0.750	-2.597**	-4.188**	-0.122**	-5.706*	-5.649*	-10.422**	2.326**	0.075	-2.249
<b>GCA</b>	T1	-0.062	-0.774	9.250**	-2.143**	-4.042**	0.006	-10.659**	-22.333**	-21.416**	-1.363*	0.012	12.563**
<b>GCA</b>	T2	0.062	0.774	-9.250**	2.143**	4.042**	-0.006	10.659**	22.333**	21.416**	1.363*	-0.012	-12.563**
<b>SCA</b>	L1×T1	-0.438	-5.239*	-5.50*	-1.368**	-6.048**	-0.046	-6.215	20.246**	18.829**	1.497	-0.032	-3.423
<b>SCA</b>	L1×T2	0.438	5.239*	5.50*	1.368**	6.048**	0.046	6.215	-20.246**	-18.829**	-1.497	0.032	3.423
<b>SCA</b>	L2×T1	-0.188	-3.609	-3.000	-1.150**	-5.697**	-0.056	-6.063	12.079*	11.412	0.74	-0.088	-5.497
<b>SCA</b>	L2×T2	0.188	3.609	3.000	1.150**	5.697**	0.056	6.063	-12.079*	-11.412	-0.74	0.088	5.497

<b>SCA</b>	L3×T1	0.562	3.484	3.250	1.811**	6.086**	0.043	5.803	-15.279**	-11.948*	-2.550*	0.050	2.191
<b>SCA</b>	L3×T2	-0.562	-3.484	-3.250	-1.811**	-6.086**	-0.043	-5.803	15.279**	11.948*	2.550*	-0.050	-2.191
<b>SCA</b>	L4×T1	0.062	5.364*	5.250*	0.707*	5.659**	0.060	6.476	-17.046**	-18.294**	0.313	0.070	6.729
<b>SCA</b>	L4×T2	-0.062	-5.364*	-5.250*	-0.707*	-5.659**	-0.060	-6.476	17.046**	18.294**	-0.313	-0.070	-6.729

**1)** Days To 50% Flowering (**DF**), Plant Height (**PH**), Number of Productive Tillers Per Plant (**NTP**), Panicle Length (**PL**), Flag Leaf Length (**FLL**), Flag Leaf Width (**FLW**), Flag Leaf Area (**FLA**), Number of Filled Grains Per Panicle (**NFGPP**), Total Number Of Grains Per Panicle (**NGPP**), Spikelet Fertility Percentage (**SF**), 100-Seed Weight (**HSW**), and Grain Yield Per Plant (**GY**). **2)** **L1**- BIL 33; **L2**- BIL 752; **L3** - BIL 1094; **L4** - BIL 1102, **T1**- D5-1-3-2-1and **T2** - C16-1-2-8; **GCA**- general combining ability and **SCA** – Specific combining ability. **3)** \* & \*\* significance at 5% and 1%, respectively