

Supplementary Table 1 Mean performance of F₃ families in cross Anna (R) 4 × IR64 *Pup1*

Genotype no	F ₃ genotype	DFB	PH	NTPP	NPTP	PL	NFGPP	100 SW	LB ratio	AP	SP	GY
1	AI-1	78	107.70	33.60*	24.20*	22.38*	51.60	2.25	3.64	0.327	0.123	21.70
2	AI-2	75*	104.70	35.40*	24.00*	22.44*	67.80	2.06	3.88*	0.296	0.133	20.92
3	AI-3	74*	101.56	28.60	22.80	23.42*	61.20	2.11	3.60	0.254	0.155	20.45
4	AI-4	78	106.84	30.60*	21.60	20.76	56.80	2.07	3.67	0.286	0.122	14.87
5	AI-5	70*	96.70	22.80	14.00	20.68	44.80	2.26	3.37	0.312	0.121	13.30
6	AI-6	79	94.50	23.20	15.80	19.66	62.20	2.51	4.17*	0.318	0.111	19.78
7	AI-7	77*	95.98	33.20*	20.00	20.20	90.00	2.47	3.78	0.315	0.132	23.55
8	AI-8	80	112.38	27.40	21.60	20.10	49.20	2.70*	3.44	0.219	0.131	25.26*
9	AI-9	79	97.54	26.40	19.40	21.54	48.00	2.59	3.52	0.280	0.142	21.67
10	AI-10	98	97.02	20.60	16.80	17.16	52.20	2.61	3.88*	0.260	0.123	20.76
11	AI-11	84	114.06	28.40	20.20	22.46*	96.00*	2.86*	3.76	0.255	0.142	23.44
12	AI-12	77*	111.00	23.20	19.20	21.76	65.40	2.72*	3.50	0.296	0.152	21.20
13	AI-13	77*	114.88	31.00*	24.00*	19.08	52.40	2.28	4.09*	0.317	0.129	24.23
14	AI-14	77*	99.10	24.00	16.20	17.86	58.60	2.51	3.62	0.286	0.132	22.60
15	AI-15	77*	102.72	26.60	18.60	20.02	49.80	2.65	4.13*	0.271	0.142	23.60
16	AI-16	76*	106.48	24.80	18.20	18.54	62.60	2.44	3.56	0.313	0.141	19.08
17	AI-17	80	106.32	23.40	26.60*	24.23*	100.00*	2.75*	3.88*	0.341	0.168*	32.17*
18	AI-18	82	101.18	32.40*	16.60	17.48	81.80	2.44	3.60	0.270	0.138	17.55
19	AI-19	81	105.72	25.00	26.40*	21.99*	100.00*	2.71*	3.96*	0.341	0.162*	32.01*
20	AI-20	77*	103.14	29.40	20.60	21.40	82.60	2.58	3.69	0.271	0.156	28.28*
21	AI-21	86	107.62	28.20	18.40	20.02	92.60	2.23	3.87*	0.313	0.142	23.58
22	AI-22	77*	103.20	28.60	27.80*	17.56	99.00*	2.30	3.77	0.345*	0.167*	33.19*
23	AI-23	82	104.50	27.00	21.20	20.62	75.40	2.63	3.79	0.270	0.111	28.17*
24	AI-24	77*	99.50	28.40	20.60	18.38	90.20	2.09	3.83*	0.260	0.142	26.37*
25	AI-25	81	99.98	20.00	15.20	19.78	95.00	2.44	4.00*	0.225	0.114	25.43*
26	AI-26	87	95.50	26.80	21.40	18.24	99.00*	2.43	3.75	0.287	0.121	24.42
27	AI-27	88	109.60	19.20	26.60*	17.88	97.00*	2.50	3.32	0.357*	0.159	29.62*
28	AI-28	81	112.98	25.40	18.20	19.40	80.40	2.57	3.74	0.325	0.132	23.35
29	AI-29	82	109.04	24.00	16.00	18.92	78.20	2.45	3.54	0.318	0.136	25.36*
30	AI-30	70*	113.40	23.20	18.80	24.02*	93.00	2.34	3.79	0.278	0.128	23.85
31	AI-31	77*	98.68	31.20*	21.80	21.94	89.00	1.85	3.72	0.225	0.138	13.02
32	AI-32	76*	108.46	25.80	19.00	25.68*	84.80	2.27	3.52	0.274	0.112	23.33
33	AI-33	77*	95.86	22.00	17.00	19.04	83.00	2.14	4.00*	0.331	0.122	16.65
34	AI-34	76*	104.14	35.80*	25.60*	20.02	78.80	1.84	3.63	0.311	0.132	26.55*
35	AI-35	76*	100.50	35.00*	21.20	20.00	87.60	2.05	3.83	0.271	0.156	25.45*
36	AI-36	69*	102.76	26.60	24.20*	17.94	84.80	2.16	3.80	0.296	0.128	16.71
37	AI-37	76*	108.38	23.00	15.60	20.50	73.00	2.15	3.69	0.289	0.119	19.28
38	AI-38	78	106.02	36.80*	24.40*	16.88	78.00	2.31	3.88*	0.311	0.128	14.67
39	AI-39	78	99.58	36.00*	26.00*	18.10	90.20	2.54	4.00*	0.321	0.137	27.13*
40	AI-40	79	102.80	34.40*	31.00*	19.56	115.00*	2.37	3.87*	0.362*	0.180*	37.11*
41	AI-41	75*	106.98	31.80*	20.60	19.70	73.80	2.11	3.60	0.311	0.156	27.40*
42	AI-42	80	112.02	34.60*	24.00*	20.86	74.80	2.72*	4.04*	0.210	0.142	26.56*

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Supplementary Table 1 (Continued)

Genotype no	F ₃ genotype	DFE	PH	NTPP	NPTP	PL	NFGPP	100 SW	LB ratio	AP	SP	GY
43	AI-43	76*	103.40	38.00*	15.40	21.52	75.20	2.12	3.52	0.290	0.126	23.65
44	AI-44	79	106.40	26.60	24.00*	22.42*	76.40	2.48	3.83*	0.311	0.133	28.87*
45	AI-45	77*	101.18	25.00	22.40	17.96	83.20	2.65	3.68	0.273	0.124	27.73*
46	AI-46	73*	100.20	32.00*	24.80*	16.10	85.60	2.64	3.57	0.272	0.141	28.89*
47	AI-47	76*	104.44	27.60	27.20*	22.38*	100.00*	2.54	3.79	0.355*	0.164*	29.34*
48	AI-48	77*	108.18	26.60	26.20*	17.32	75.60	2.43	3.65	0.332	0.161	27.37*
49	AI-49	76*	107.76	31.80*	14.20	18.96	80.60	2.25	3.68	0.302	0.131	29.79*
50	AI-50	84	101.34	30.40	23.40*	20.50	95.00	2.77*	4.08*	0.359*	0.163*	31.60*
51	AI-51	76*	98.78	29.20	26.60*	20.14	102.00*	2.08	3.96*	0.264	0.117	23.37
52	AI-52	75*	109.55	30.60*	19.20	22.64*	67.60	2.37	3.92*	0.321	0.141	22.23
53	AI-53	77*	101.84	29.60	22.80	16.28	76.60	2.54	3.71	0.255	0.132	23.70
54	AI-54	78	97.16	22.80	18.80	16.58	85.60	2.17	3.83*	0.261	0.125	25.71*
55	AI-55	79	119.04	29.40	24.80*	20.06	86.40	2.83*	3.80	0.319	0.119	27.08*
56	AI-56	79	108.42	28.00	22.00	20.88	87.40	2.87*	3.87*	0.324	0.129	21.28
57	AI-57	76*	111.14	26.60	19.40	22.06*	78.40	2.43	3.67	0.226	0.139	21.62
58	AI-58	79	105.18	32.00*	22.80	18.58	77.00	2.39	3.79	0.306	0.154	23.49
59	AI-59	80	104.48	28.60	23.60*	19.62	72.40	2.42	4.00*	0.211	0.141	24.75
60	AI-60	86	100.06	34.00*	15.20	23.18*	85.50	2.22	3.76	0.219	0.133	26.46*
61	AI-61	80	102.14	26.20	20.80	18.32	75.60	2.46	3.71	0.301	0.139	20.20
62	AI-62	82	104.40	32.40*	21.60	20.30	80.40	2.62	3.96*	0.271	0.118	23.86
63	AI-63	79	107.96	33.20*	22.40	20.96	84.00	2.46	3.44	0.232	0.128	24.47
64	AI-64	79	98.80	27.80	20.20	18.66	76.00	2.58	4.00*	0.271	0.144	23.09
65	AI-65	78	95.64	27.40	18.40	18.78	79.60	2.67	3.92*	0.323	0.114	29.22*
66	AI-66	77*	102.6	36.20*	25.20*	19.28	72.40	2.49	3.15	0.303	0.138	25.09
67	AI-67	82	102.94	24.00	17.00	19.24	114.00*	2.37	3.76	0.371*	0.172*	36.29*
68	AI-68	80	104.96	28.40	30.00*	20.32	75.60	2.53	3.92*	0.298	0.132	24.64
69	AI-69	74*	103.92	29.40	19.40	22.80*	94.40	2.04	3.76	0.289	0.142	21.79
70	AI-70	76*	104.68	16.40	33.60*	21.46	104.00*	2.43	3.85*	0.342*	0.133	29.87*
71	AI-71	73*	97.78	27.00	18.60	20.76	78.20	2.24	3.96*	0.321	0.179*	18.44
72	AI-72	76*	109.92	25.80	17.20	17.22	84.20	1.98	3.78	0.223	0.145	24.33
73	AI-73	76*	98.14	25.40	18.20	19.40	80.40	2.02	3.65	0.208	0.139	26.15*
74	AI-74	78	104.5	30.00	17.40	22.60*	73.00	2.32	3.73	0.231	0.128	24.37
75	AI-75	78	108.74	25.40	17.80	20.52	91.60	2.54	3.78	0.271	0.132	34.39*
76	AI-76	83	113.74	27.20	18.20	20.24	74.20	2.41	3.88*	0.291	0.121	25.48*
77	AI-77	79	111.26	28.00	19.00	21.54	94.80	2.41	3.71	0.321	0.111	30.47*
78	AI-78	78	115.20	25.60	19.40	21.24	81.60	2.53	3.41	0.328	0.123	35.54*
79	AI-79	76*	103.48	22.00	16.80	20.20	87.00	2.45	3.52	0.264	0.134	26.80*
80	AI-80	85	103.52	24.80	18.00	18.78	76.80	2.17	3.96*	0.291	0.122	26.14*
81	AI-81	78	103.56	29.20	18.40	21.42	78.80	2.57	3.65	0.301	0.131	22.61
82	AI-82	75*	110.10	27.00	19.80	18.70	74.00	2.46	3.92*	0.288	0.148	28.70*
83	AI-83	81	110.20	26.00	18.20	19.20	73.60	2.59	4.00*	0.295	0.136	23.85
84	AI-84	76*	112.16	27.00	19.80	25.74*	89.40	2.58	3.92*	0.317	0.156	28.76*

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Supplementary Table 1 (Concluded)

Genotype no	F ₃ genotype	DFF	PH	NTPP	NPTP	PL	NFGPP	100 SW	LB ratio	AP	SP	GY
85	AI-85	77*	108.94	31.40*	22.40	18.78	79.80	2.39	3.92*	0.245	0.151	26.80*
86	AI-86	88	101.62	24.00	17.20	17.18	84.20	2.49	3.68	0.311	0.128	14.51
87	AI-87	81	103.4	34.00*	22.40	17.76	95.00*	2.72*	3.92*	0.307	0.141	30.29*
	Better parental Mean	77	93.25	28.60	22.60	21.12	91.20	2.51	3.78	0.321	0.158	23.13
	Parent 1 Mean (Anna (R) 4)	77	97.80	28.60	22.60	20.64	83.60	2.34	3.78	0.321	0.131	23.13
	Parent 2 Mean (IR64 <i>pup1</i>)	86	93.25	17.17	17.30	21.12	91.20	2.51	3.72	0.311	0.158	21.09
	SEd	0.92	0.75	1.42	0.80	0.93	3.43	0.10	0.18	0.110	0.110	0.47
	CD ($p=0.05$)	0.83	0.28	1.82	0.59	0.86	3.82	0.19	0.05	0.020	0.003	1.98

DFF, Days to fifty Per cent flowering (days); PH, Plant height (cm); NTPP, No. of tillers/plant; NPTP, No. of productive tillers/plant; PL, Panicle Length (cm); NFGPP, No. of filled grains/panicle; 100 SW, Hundred seed weight (g); LB ratio, Length-breadth ratio; AP, Acid Phosphatase (molar para nitro phenol released/min/mg of fresh weight); SP, Phosphorus content in shoot (mg/g shoot weight); GY, Grain yield/plant (g).

Supplementary Table 2 Mean performance of F₄ families in cross Anna (R) 4 × IR64 *Pup1*

Genotype no	F ₄ genotypes	DFF	PH	NTPP	NPTP	PL	NFGPP	100 SW	LB ratio	AP	SP	GY
1	AI-1	73*	102.30	28.40	24.20*	24.30	52.20	2.06	3.42	0.329	0.133	22.57
2	AI-2	73*	105.10	27.50	21.50	23.33	70.03	2.11	3.87*	0.322	0.135	24.82
3	AI-3	76*	95.30	34.90*	22.30	23.11	53.22	2.07	3.91*	0.302	0.156	22.77
4	AI-4	72*	101.70	28.40	26.20*	22.11	33.76	2.26	4.05*	0.295	0.120	24.84
5	AI-5	75*	84.20*	27.40	23.20	25.70*	50.09	2.12	3.78	0.276	0.141	28.23*
6	AI-6	73*	100.12	24.80	18.20	25.00*	88.20	2.32	3.38	0.264	0.129	22.27
7	AI-7	74*	100.95	30.40*	26.40*	22.22	73.50	2.45	4.09*	0.271	0.158	29.68*
8	AI-8	79	101.30	31.70*	26.40*	21.55	54.99	1.89	3.79	0.301	0.144	25.89*
9	AI-9	72*	98.20	24.50	19.90	23.01	73.20	2.29	3.48	0.271	0.152	24.52
10	AI-10	80	95.94	31.50*	28.90*	23.54	50.44	2.12	4.04*	0.288	0.129	26.41*
11	AI-11	72*	100.89	27.00	25.30*	23.70	99.50*	2.43	3.68	0.325	0.162*	34.65*
12	AI-12	72*	95.40	32.30*	23.10	29.60*	43.74	1.98	3.90*	0.321	0.158	32.31*
13	AI-13	74*	96.22	28.60	21.10	24.20	52.85	2.12	3.38	0.277	0.121	33.47*
14	AI-14	75*	96.43	35.10*	29.10*	23.20	97.60*	2.54*	4.10*	0.345*	0.133	37.15*
15	AI-15	77*	95.07	34.80*	30.10*	23.30	105.32*	1.84	3.26	0.344*	0.172*	37.72*
16	AI-16	76*	97.27	32.30*	28.20*	22.40	109.30*	2.43	3.69	0.341*	0.168*	36.10*
17	AI-17	73*	96.36	28.70	29.30*	23.30	107.17*	2.45	3.68	0.356*	0.172*	38.43*
18	AI-18	80	98.25	34.20*	20.10	22.20	62.12	2.66*	3.24	0.335*	0.138	30.62*
19	AI-19	75*	94.54	32.60*	27.30*	24.80*	97.72*	2.25	4.04*	0.343*	0.179*	36.33*
20	AI-20	72*	96.96	33.80*	27.30*	24.20	103.20*	2.12	4.18*	0.276	0.149	21.72
21	AI-21	75*	94.62	32.10*	22.10	21.66	83.34	2.12	3.95*	0.282	0.156	24.42
22	AI-23	77*	98.68	34.90*	19.40	21.90	68.50	2.54*	3.86*	0.290	0.127	24.11
23	AI-24	75*	97.55	34.80*	18.20	23.10	44.86	2.71*	3.68	0.254	0.118	22.57

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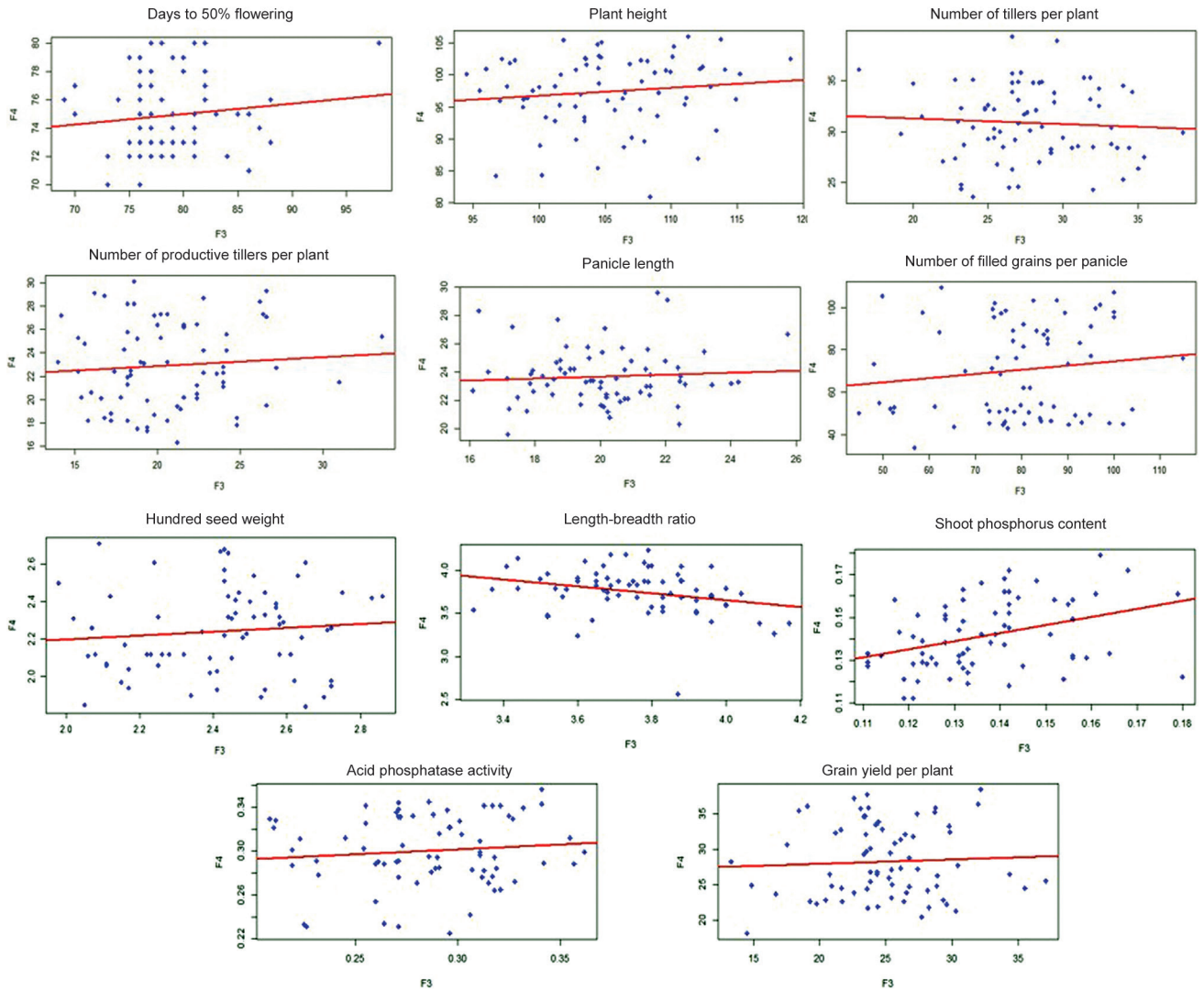
Supplementary Table 1 (Continued)

Genotype no	F ₄ genotypes	DFP	PH	NTPP	NPTP	PL	NFGPP	100 SW	LB ratio	AP	SP	GY
24	AI-25	74*	98.10	34.70*	22.40	23.40	77.20	2.32	3.60	0.233	0.132	23.12
25	AI-26	74*	97.55	29.20	19.20	23.70	45.48	2.22	3.87*	0.281	0.112	21.90
26	AI-27	76*	100.73	29.80	27.10*	23.85	101.20*	2.40	3.54	0.288	0.131	22.22
27	AI-28	73*	98.17	32.20*	18.20	22.42	62.12	2.37	3.83*	0.332*	0.126	29.28*
28	AI-29	76*	97.20	30.40*	20.60	23.90	84.23	2.10	3.79	0.294	0.142	29.44*
29	AI-30	77*	91.30*	24.40	17.50	23.20	45.71	1.90	3.50	0.332*	0.155	26.79*
30	AI-35	78	93.40*	26.40	16.30	22.91	103.40*	1.85	3.52	0.231	0.131	27.12*
31	AI-36	76*	100.80	33.90*	25.60*	24.10	87.23	2.17	4.05*	0.225	0.138	23.68
32	AI-37	76*	80.90*	31.00*	24.80*	23.55	45.28	1.97	3.82*	0.284	0.112	22.64
33	AI-40	75*	89.90*	28.40	21.50	23.30	75.93	2.24	2.56	0.299	0.122	25.47*
34	AI-41	72*	90.20*	33.20*	23.20*	23.41	99.20*	2.06	3.87*	0.309	0.132	27.15*
35	AI-42	78	86.90*	33.90*	22.80	22.10	76.25	2.26	3.73	0.321	0.145	23.86
36	AI-43	70*	92.80*	29.90*	20.20	22.37	50.70	2.43	3.46	0.294	0.128	21.71
37	AI-44	75*	88.70*	35.70*	22.30	20.30	46.02	2.21	3.57	0.296	0.119	24.80
38	AI-45	78	92.80*	29.30	20.50	22.63	89.04	2.61*	3.67	0.305	0.128	20.39
39	AI-46	70*	84.30*	24.30	17.80	22.70	83.00	2.21	3.78	0.331*	0.137	26.22*
40	AI-47	73*	85.40*	31.90*	22.70	21.56	95.40*	1.93	4.23*	0.312	0.133	22.78
41	AI-48	73*	102.20	39.30*	28.40*	27.20*	97.30*	2.68*	3.87*	0.339*	0.161*	34.97*
42	AI-49	72*	99.00	35.30*	27.20*	25.80*	45.18	2.32	3.91*	0.315	0.132	33.28*
43	AI-51	74*	95.00	27.90	19.50	27.10*	44.99	2.12	3.70	0.288	0.158	34.63*
44	AI-53	75*	105.50	38.90*	28.70*	28.31*	98.40*	2.33	3.87*	0.341*	0.163*	35.81*
45	AI-54	80	102.50	35.10*	25.20*	24.00	85.23	1.94	3.86*	0.29	0.131	30.84*
46	AI-55	79	102.52	32.90*	18.40	25.40*	46.50	2.42	3.57	0.284	0.121	31.74*
47	AI-57	77*	96.40	26.30	17.30	29.10*	50.75	2.51	3.77	0.231	0.152	32.76*
48	AI-58	75*	96.00	28.50	24.20*	23.50	43.02	2.02	4.04*	0.242	0.121	32.11*
49	AI-59	73*	101.10	30.50*	22.20	25.78*	54.35	2.67*	3.59	0.328	0.146	32.78*
50	AI-60	71*	89.00*	34.50*	25.30*	25.43*	89.09	2.12	3.83*	0.287	0.124	32.11*
51	AI-62	78	104.80	32.50*	20.20	20.80	81.61	1.98	3.71	0.291	0.143	25.40*
52	AI-63	74*	89.60*	28.80	26.43*	24.80*	47.90	2.34	4.14*	0.278	0.151	33.81*
53	AI-64	72*	96.20	30.10*	27.30*	24.70*	44.71	2.32	3.79	0.338*	0.159*	35.73*
54	AI-70	72*	102.80	36.10*	25.40*	25.60*	51.97	2.57*	3.73	0.289	0.135	32.41*
55	AI-71	72*	101.90	30.80*	28.20*	24.18	89.09	2.61*	3.40	0.341*	0.161*	35.45*
56	AI-72	75*	100.50	30.00*	18.80	21.40	46.45	2.50	3.87*	0.311	0.127	26.49*
57	AI-73	79	102.30	30.30*	21.90	21.70	92.10	2.31	3.96*	0.329	0.142	27.33*
58	AI-74	76*	103.00	29.40	22.40	23.12	51.11	2.12	4.18*	0.291	0.138	26.72*
59	AI-75	73*	100.40	29.40	20.20	22.47	49.21	2.45	3.87*	0.331*	0.148	26.45*
60	AI-76	75*	105.60	35.80*	25.80*	21.20	102.10*	2.03	3.88*	0.316	0.128	24.98
61	AI-77	79	106.00	34.80*	23.20	23.80	49.48	1.93	3.71	0.265	0.133	27.66*
62	AI-78	73*	100.20	26.80	17.60	22.60	50.55	1.89	4.04*	0.272	0.139	24.44
63	AI-79	75*	102.70	27.10	18.40	22.40	53.27	2.31	3.96*	0.234	0.128	24.72
64	AI-80	75*	102.50	32.20*	24.30*	24.82*	51.85	2.04	3.68	0.285	0.151	31.33*
65	AI-81	72*	101.60	28.30	22.50	23.00	76.23	2.39	3.82*	0.327	0.129	23.80

Contd.

Genotype no	F ₄ genotypes	DFF	PH	NTPP	NPTP	PL	NFGPP	100 SW	LB ratio	AP	SP	GY
66	AI-82	79	102.90	24.60	18.70	27.70*	95.32*	2.41	3.50	0.333*	0.167*	35.23*
67	AI-83	80	104.50	28.50	21.30	24.20	71.30	2.29	3.60	0.337*	0.166*	30.13*
68	AI-84	74*	101.00	33.10*	27.20*	26.70*	97.40*	2.28	3.77	0.341*	0.158	35.81*
69	AI-85	80	93.60*	35.30*	21.20	24.20	53.90	2.10	3.52	0.312	0.142	28.76*
70	AI-86	73*	100.10	23.60	18.20	19.60	54.63	2.23	3.74	0.299	0.149	18.11
71	AI-87	72*	93.40*	25.30	20.10	21.23	91.03	1.95	3.65	0.283	0.162*	21.23
	Better parental Mean	76	93.11	28.20	23.50	24.12	92.30	2.53	3.79	0.323	0.157	24.82
	Parent 1 Mean (Anna (R)4)	76	96.80	28.20	23.50	21.34	85.80	2.41	3.79	0.323	0.138	24.82
	Parent 2 Mean (IR64pup1)	88	93.11	19.63	18.50	24.12	92.30	2.53	3.68	0.317	0.157	22.45
	SEd	1.62	1.32	2.71	0.83	1.87	2.32	1.21	0.16	0.19	0.24	1.21
	CD ($p=0.05$)	1.21	0.65	1.21	0.45	0.53	1.22	0.012	0.02	0.007	0.001	0.51

DFF, Days to fifty Per cent flowering (days); PH, Plant height (cm); NTPP, No. of tillers/plant; NPTP, No. of productive tillers/plant; PL, Panicle Length (cm); NFGPP, No. of filled grains/panicle; 100 SW, Hundred seed weight (g); LB ratio, Lengthbreadth ratio; AP, Acid Phosphatase (molar para nitro phenol released/min/mg of fresh weight); SP, Phosphorus content in shoot (mg/g shoot weight); GY, Grain yield/plant (g).



Supplementary Fig. 1 Parent progeny regression plot of biometrical traits.