

Supplementary Table S1: List of foreground markers and primer sequences

S. No. .	genes	Primer	Chromosome	Forward sequence	Reverse sequence	Expected PCR Product Size	Annealing temperature
1	<i>xa13</i>	Xa13 prom	8	5'AGCTCCAGCTCTCCAAATG3'	5'GGCCATGGCT CAGTGTTTAT3'	300	60°C
2	<i>Xa21</i>	pTA248	11	5'AGCCGCGGAAGGATAGTTCCCGGA3'	5'AGACGCGGTAATCGAAAGATGAAA3'	800	60°C
3	<i>Pi9</i>	NBS 4	6	5'ACTTTGTTGTGCTTGA TAAC3'	5'ATGGTGAACGG TATCTGTAT3'	1000	55°C
4	<i>Pi54</i>	Pi54MAS	11	5'CAATCTCCAAAGTTTTTCAGG3'	5'GCTTCAATCACTGCTAGACC3'	216, 360	55°C
5	<i>Gm4</i>	RM22550	8	5'GGAGTTAATTCAACCTGTCTG3'	5'ACATGCTTGTTAGGCCACACC3'	296	55°C
6	<i>Gm1</i>	RM1328	9	5'GAATGGGATTAGACGATTTG3'	5'CCATGAGTGACATCAAAGG3'	204	55°C

Supplementary Table S2. Genotyping of F₂ of CO 51 X 562-4 with FGS

F ₂	<i>Gm1</i> (RM1328)	<i>Gm4</i> (RM22550)	<i>Pi54</i> (Pi54MAS)	<i>Pi9</i> (NBS4)	<i>xa13</i> (<i>Xa13</i> prom)	<i>Xa21</i> (pTA248)	Number of <i>QTLs</i> /genes
Progeny# 9-1	+	+	+	+	H	+	6
Progeny# 9-2	+	H	+	-	H	+	5
Progeny# 9-3	H	H	H	+	H	-	5
Progeny# 9-4	H	H	H	+	H	+	6
Progeny# 9-5	-	-	H	+	+	+	4
Progeny# 9-6	H	H	-	+	H	-	4
Progeny# 9-7	+	-	+	+	-	+	4
Progeny# 9-8	H	+	H	+	H	-	5
Progeny# 9-9	H	+	+	+	H	+	6

Progeny# 9-10	+	+	+	+	H	+	6
Progeny# 9-11	H	-	H	-	H	+	4
Progeny# 9-12	-	+	H	+	+	-	4
Progeny# 9-13	H	+	-	-	H	-	3
Progeny# 9-14	+	+	+	-	H	+	5
Progeny# 9-15	H	+	+	-	H	+	5
Progeny# 9-16	-	+	H	+	H	+	5
Progeny# 9-17	H	H	H	-	-	+	4
Progeny# 9-18	H	+	H	+	H	+	6
Progeny# 9-19	+	H	+	+	+	+	6
Progeny# 9-20	H	+	H	+	H	+	6
Progeny# 9-21	H	H	-	-	H	-	4
Progeny# 9-22	H	-	H	+	-	+	4
Progeny# 9-23	H	H	H	-	H	+	5
Progeny# 9-24	H	H	H	+	H	+	6
Progeny# 9-25	+	+	-	-	-	+	3
Progeny# 9-26	H	H	-	+	-	+	4
Progeny# 9-27	H	+	H	+	H	+	6
Progeny# 9-28	H	H	-	-	H	-	3
Progeny# 9-29	H	H	+	-	H	+	5
Progeny# 9-30	H	H	H	+	+	+	6

FGS; Fore Ground Selection, +; Indicate present of *QTLs*/genes, -; Indicate absence of *QTLs*/genes, H; Indicate Heterozygosis of concerned *QTLs*/genes.

Supplementary Table S3. Phenotypic scoring of RILs against blast and BLB disease

S. No	RILs	Blast Score I in 30 DAS	Blast Score II in 45 DAS	Mean score	BLB Score I in 14 DAI (in cm)	BLB Score II in 21 DAI (in cm)	Mean score (in cm)
1	RIL #9-10-1-1	1.8	2.6	2.2	0.40	0.71	0.56
2	RIL #9-10-10-6	3.4	3.0	3.2	0.30	0.66	0.48
3	RIL #9-10-10-8	3.8	3.0	3.4	0.31	0.72	0.52
4	RIL #9-10-7-17	3.8	1.8	2.8	0.32	0.42	0.37
5	RIL #9-10-7-19	2.2	2.2	2.2	0.29	0.71	0.50
6	RIL #9-10-8-21	4.2	3.8	4.0	0.34	0.79	0.57
7	RIL #9-10-8-23	1.8	1.8	1.8	0.32	0.42	0.37
8	RIL #9-10-8-25	2.2	1.4	1.8	0.37	0.79	0.58
9	RIL #9-9-4-30	2.2	1.8	2.0	0.25	0.35	0.30
10	RIL #9-9-2-31	2.6	2.2	2.4	0.30	0.73	0.52
11	RIL #9-9-2-32	2.2	3.0	2.6	0.33	0.64	0.49
12	RIL #9-9-2-34	3.4	3.8	3.6	0.26	0.36	0.31
13	RIL #9-9-2-35	1.8	2.2	2.0	0.26	0.36	0.31
14	RIL #9-9-13-61	1.8	2.2	2.0	0.33	0.43	0.38
15	RIL #9-20-2-96	1.4	3.4	2.4	0.35	0.45	0.40
16	RIL #9-20-2-97	1.4	3.4	2.4	0.26	0.36	0.31
17	RIL #9-20-2-98	1.4	2.2	1.8	0.29	0.39	0.34
18	RIL #9-20-2-99	1.0	2.2	1.6	0.28	0.38	0.33
19	RIL #9-20-2-100	1.0	2.2	1.6	0.29	0.39	0.34
20	RIL #9-20-7-102	1.0	2.6	1.8	0.24	0.34	0.29
21	RIL #9-20-9-112	0.6	1.8	1.2	0.26	0.36	0.31
22	RIL #9-10-9-145	1.6	1.8	1.7	0.29	0.68	0.49
23	RIL #9-10-9-146	1.0	1.8	1.4	0.36	0.77	0.57
24	RIL #9-10-9-149	3.8	1.8	2.8	0.34	0.78	0.56
25	RIL #9-10-9-150	2.2	1.8	2.0	0.31	0.41	0.36
26	RIL #9-10-9-152	1.4	1.8	1.6	0.43	0.53	0.48

27	CO 51	4.4	5.9	5.2	7.49	12.32	9.91
28	562-4	1.3	2.3	1.8	0.23	0.34	0.29
29	CO 39	6.8	9.9	8.4	-	-	-
30	TN 1	-	-	-	15.00	19.82	17.41
31	Mean of RILs	2.1	2.4	2.2	0.3	0.5	0.4
32	SD	1.09	0.94	0.88	1.36	2.23	1.80
33	SE	0.21	0.18	0.17	0.26	0.42	0.34

DAS; Days After Sowing, DAI; Days After Inoculation, BLB; Bacterial Leaf Blight, CO 39 and TN 1 have been used as Blast and BLB Screening respectively; SD- Standard Deviation, SE; Standard Error.

Supplementary Table S4. Agro-morphological performance of RILs population

RILs of CO 51 X 562-4	PH (cm)	NT	NPT	FLL (cm)	FLW (cm)	PL (cm)	DFB	GL (mm)	GW (mm)	Total Grain	FG	CG	F%	1000g WT	SPY (g)
RIL #9-10-8-23	89.71	24.92	23.01	27.45	1.11	24.02	92.0	5.48	1.85	146.50	137.50	9.00	93.87	19.91	37.35
RIL #9-10-8-25	88.40	23.50	22.00	27.60	1.08	24.41	91.9	5.49	1.88	179.00	167.50	11.50	93.58	20.38	35.23
RIL #9-20-2-98	90.20	23.80	22.00	28.17	1.00	25.21	91.5	5.45	1.89	163.50	156.00	7.50	95.44	22.76	36.45
RIL #9-20-2-99	83.30	24.30	25.30	27.90	1.14	24.52	92.5	5.44	1.85	162.00	155.50	6.50	95.99	15.50	30.22
RIL #9-20-2-100	78.10	24.30	22.60	28.11	1.07	23.65	91.5	5.69	1.83	157.50	148.50	9.00	94.29	17.67	29.97
RIL #9-20-7-102	83.80	22.60	22.30	29.39	1.15	25.48	91.5	5.69	1.92	148.50	141.00	7.50	94.93	18.42	34.26
RIL #9-20-9-112	88.20	24.20	23.30	28.85	1.17	25.85	92.5	5.82	1.85	171.00	164.00	7.00	95.91	16.19	31.82
RIL #9-10-9-145	88.80	22.70	21.30	29.42	1.11	26.16	93.0	5.64	1.92	144.00	136.50	7.50	94.78	22.01	32.01
RIL #9-10-9-146	90.10	21.60	17.50	30.64	1.03	26.35	91.5	5.29	1.90	152.50	144.50	8.00	94.77	23.28	42.21

RIL #9-10-9-152	84.60	23.60	22.00	25.03	1.08	23.53	92.0	5.60	1.88	175.00	163.50	11.50	93.46	20.74	33.03
BIL #6-17-5-18-29-1-1	85.33	25.72	24.97	28.34	1.07	25.49	93.5	5.67	1.88	155.08	133.02	22.06	85.87	20.45	36.52
BIL #6-17-5-18-29-1-2	85.60	25.79	24.20	28.49	1.11	25.45	92.4	5.65	1.89	152.36	135.80	16.56	89.15	19.51	38.71
BIL #6-17-5-18-29-1-3	84.45	26.28	23.66	26.57	1.03	23.29	92.8	5.48	1.90	157.82	137.14	20.68	86.88	19.21	34.69
BIL #6-17-5-18-29-1-5	86.27	25.77	24.84	29.17	1.17	23.89	93.4	5.56	1.91	145.66	132.16	13.50	90.71	18.50	42.94
BIL #6-17-5-18-29-1-6	86.90	26.60	25.60	28.24	1.11	24.51	94.5	5.67	1.93	154.20	137.90	16.30	89.42	21.08	42.02
BIL #6-17-5-18-29-1-7	86.49	25.95	25.37	28.76	1.14	24.36	91.5	5.69	1.93	145.66	130.98	14.68	90.11	22.05	34.61
BIL #6-17-5-18-29-1-9	87.03	25.76	23.59	28.13	1.17	24.88	92.8	5.59	1.94	139.60	123.72	15.88	88.63	21.52	36.30
BIL #6-17-5-21-19-1-1	88.74	26.56	26.38	28.88	1.10	25.87	92.6	5.64	1.85	142.10	126.60	15.50	88.92	19.43	34.22
BIL #6-17-5-21-19-4-1	85.14	24.55	21.98	27.08	1.13	24.76	93.1	5.60	1.86	143.20	128.78	14.42	89.73	20.58	33.47
BIL #6-17-5-21-19-4-3	89.90	26.26	24.54	29.03	1.07	26.93	91.4	5.33	1.91	145.00	131.62	13.38	90.52	22.4	33.29
BIL #6-17-5-21-19-4-9	87.13	24.01	22.88	28.09	1.13	25.29	92.4	5.66	1.86	145.72	133.42	12.30	91.30	23.10	35.42
BIL #6-17-5-18-5-1-1	84.52	25.42	23.34	27.62	1.15	25.10	92.3	5.56	1.86	160.44	146.36	14.08	91.26	23.92	40.42
BIL #6-17-5-18-5-1-2	86.85	23.50	22.49	26.40	1.05	24.55	93.8	5.37	1.92	154.30	137.72	16.58	89.16	21.69	39.58
BIL #6-17-5-18-5-1-4	85.62	24.00	22.88	27.90	1.13	22.07	92.8	5.59	1.91	145.28	132.20	13.08	90.82	23.49	42.57
BIL #6-17-5-18-5-1-5	87.65	23.02	21.84	27.47	1.02	24.95	92.4	5.43	1.89	146.86	132.00	14.86	89.54	22.96	43.74
BIL #6-17-5-18-5-1-6	85.50	23.16	21.92	28.36	1.00	24.70	92.6	5.45	1.85	148.84	133.52	15.32	89.57	18.65	33.78
Mean of BILs	86.45	25.15	23.78	28.03	1.10	24.76	92.7	5.56	1.89	148.88	133.31	15.57	89.47	21.16	37.64
CO 51	85.00	22.00	16.00	28.65	0.95	23.17	94.5	5.40	1.75	151.50	136.00	15.50	89.83	19.02	29.58
562-4	96.00	12.50	9.50	30.75	1.20	24.70	95.0	5.70	2.26	168.00	158.50	9.50	94.29	22.21	30.45
CD	5.46	1.80	1.57	1.87	0.07	1.89	7.22	0.41	0.13	10.50	8.99	0.96	6.6	1.60	2.60
SD	2.58	1.35	1.77	1.09	0.05	1.03	0.77	0.13	0.03	10.11	11.78	4.10	2.83	2.19	3.95
SE	0.28	0.28	0.37	0.21	0.05	0.21	0.08	0.05	0.02	0.82	0.99	1.14	0.30	0.48	0.66

PH: Plant Height, NT: Number of Tillers per plant, NPT: Number of Productive Tillers per plant, FLL: Flag Leaf Length, FLW: Flag leaf width, PL: Panicle Length, DFF: Days to First Flowering, GL: Grain length, GW: Grain Width, FG: Filled Grain, CG: Chaffy grain, F%: fertility percentage, 1000 grain WT: 1000 grain Weight, SPY: Single Plant Yield, cm: centi meter, mm: milli meter, g: grams, CD: Critical Difference, SD: Standard Deviation and SE: Standard Error