

Supplemental Table 1. Resistance spectrum of the *Rps11* locus.

[illegible]

Supplemental Table 2. Resistance evaluation of the *Rps11* locus to 158 isolates.

Isolate ID	Williams (Control)		F ₅ RIL (<i>Rps11</i>)	
	Dead/Total	Dead rate	D/T	Dead Rate
1 A-1	10/11	91%	9/10	90%
2 A-1	12/12	100%	1/9	11%
3 B-1	9/11	82%	3/11	27%
4 E-2	9/9	100%	8/9	89%
5 A-1	11/12	92%	10/12	83%
6 E-2	9/9	100%	1/11	9%
7 E-2	10/10	100%	0/6	0%
8 A-1	9/11	82%	1/12	8%
9 A-1	8/11	73%	4/8	50%
9 A-1	7/10	70%	6/8	75%
10 B-1	7/8	88%	0/11	0%
11 B-1	11/12	92%	11/11	100%
12 E-2	9/9	100%	0/9	0%
14 A-1	9/10	90%	0/11	0%
15 A-1	12/12	100%	10/12	83%
16 C-3	11/12	92%	5/11	45%
16b C-2	4/10	40%	0/10	0%
16b C-2	6/10	60%	0/9	0%
16b H-5	11/11	100%	0/12	0%
17 A-1	10/10	100%	0/10	0%
18 H-3	11/11	100%	0/11	0%
19 A-1	12/12	100%	1/11	9%
20 B-2	10/11	91%	0/12	0%
21 A-1	10/10	100%	0/12	0%
22 A-1	12/12	100%	0/12	0%
25 C-2	10/13	77%	0/12	0%
29 A-2	11/12	92%	0/9	0%
29 E-2	5/10	50%	0/12	0%
30 C-1	9/10	90%	0/12	0%
32 B-1	11/12	92%	0/12	0%
33 B-1	8/10	80%	0/9	0%
35 A-1	11/11	100%	0/10	0%
35 F-3	11/11	100%	0/11	0%
36 A-1	0/12	0%	0/10	0%
36 A-1	4/9	44%	0/11	0%
36 B-2	10/10	100%	12/12	100%
37 E-3	11/11	100%	0/11	0%
38 G-4	9/9	100%	9/10	90%
39 B-2	12/12	100%	0/10	0%

40 G-4	10/10	100%	9/9	100%
42 B-1	9/9	100%	0/11	0%
43 A-1	11/11	100%	0/10	0%
43 B-1	9/9	100%	0/7	0%
44 B-1	8/8	100%	9/9	100%
45 B-1	9/10	90%	8/8	100%
46 C-2	11/11	100%	0/11	0%
47 A-1	11/11	100%	0/12	0%
48 A-1	11/11	100%	12/12	100%
48 B-1	8/9	89%	5/9	56%
49 A-1	11/12	92%	0/9	0%
50 B-1	11/11	100%	3/10	30%
51 M-4	9/11	82%	0/10	0%
52 B-1	7/11	64%	0/9	0%
52 B-1	11/11	100%	0/11	0%
54 F-4	10/10	100%	2/11	18%
55 A-3	10/10	100%	0/9	0%
56 C-1	12/12	100%	0/9	0%
57 E-1	12/12	100%	0/9	0%
58 J-4	8/11	73%	0/10	0%
58 L-5	9/10	90%	0/9	0%
59 A-1	11/11	100%	9/10	90%
61 A-1	7/7	100%	9/9	100%
62 B-2	9/9	100%	0/8	0%
65 B-1	9/9	100%	0/10	0%
67 F-3	10/10	100%	0/10	0%
69 E-2	11/11	100%	0/10	0%
70 A-1	8/11	73%	10/10	100%
70 B-1	12/12	100%	12/12	100%
71 D-1	9/9	100%	0/11	0%
72 B-1	12/12	100%	3/11	27%
73 E-2	3/9	33%	0/7	0%
73 E-2	11/11	100%	0/12	0%
75 E-3	7/9	78%	0/8	0%
77 F-4	9/9	100%	0/10	0%
79 A-1	9/10	90%	0/12	0%
82 A-1	10/11	91%	0/11	0%
85 A-1	12/12	100%	1/9	11%
85 B-2	9/10	90%	0/11	0%
86 A-1	10/11	91%	0/11	0%
87 A-1	8/10	80%	0/12	0%
89 G-2	4/12	33%	2/10	20%
89 I-3	10/11	91%	0/11	0%

90 B-2	12/12	100%	0/11	0%
91 A-1	8/12	67%	0/11	0%
91 B-1	11/11	100%	2/11	18%
92 C-2	10/10	100%	9/11	82%
93 E-3	9/12	75%	9/10	90%
94 E-3	10/10	100%	9/9	100%
95 E-2	12/12	100%	8/8	100%
96 A-1	11/11	100%	0/11	0%
96 C-2	9/12	75%	0/11	0%
97 A-1	10/11	91%	8/8	100%
98 E-4	9/11	82%	10/10	100%
99 E-3	5/7	71%	0/10	0%
99 G-3	11/11	100%	0/11	0%
101 A-1	8/10	80%	0/10	0%
102 A-1	10/12	83%	0/10	0%
103 C-1	7/9	78%	0/11	0%
104 F-4	12/12	100%	8/9	89%
105 A-1	7/8	88%	0/6	0%
105 K-4	12/12	100%	12/12	100%
106 A-1	10/10	100%	0/11	0%
107 C-1	8/9	89%	0/12	0%
108 C-1	9/11	82%	0/6	0%
109 B-1	8/10	80%	10/10	100%
110 A-1	9/12	75%	13/13	100%
111 A-1	10/11	91%	0/10	0%
113 B-2	9/12	75%	0/12	0%
113 E-2	8/12	67%	0/14	0%
114 F-3	11/11	100%	0/14	0%
116 A-1	9/10	90%	0/11	0%
117 N-7	12/13	92%	0/12	0%
119 C-1	9/9	100%	0/11	0%
120 D-1	6/8	75%	0/9	0%
121 B-1	8/9	89%	0/10	0%
122 A-1	9/9	100%	2/8	25%
123 A-1	11/12	92%	0/11	0%
124 C-1	9/10	90%	0/9	0%
126 B-1	12/12	100%	0/9	0%
128 C-2	7/9	78%	0/6	0%
129 D-2	8/10	80%	5/6	83%
130 C-2	9/12	75%	5/10	50%
131 D-1	10/11	91%	0/8	0%
132 C-1	8/8	100%	0/10	0%
134 B-1	10/11	91%	9/9	100%

135 F-2	7/8	88%	0/11	0%
136 F-2	7/8	88%	1/11	9%
137 B-1	7/10	70%	0/11	0%
137 B-1	11/12	92%	2/12	17%
138 C-2	12/12	100%	0/9	0%
139 D-2	10/11	91%	0/11	0%
140 B-1	10/10	100%	0/10	0%
141 B-2	10/11	91%	2/11	18%
142 E-2	10/10	100%	0/8	0%
143 C-1	9/11	82%	7/7	100%
144 D-2	10/10	100%	0/12	0%
145 A-1	12/12	100%	0/12	0%
146 B-1	10/11	91%	0/7	0%
147 C-1	10/10	100%	2/11	18%
148 D-2	10/10	100%	0/9	0%
149 B-1	11/11	100%	0/11	0%
150 B-3	11/11	100%	0/12	0%
152 A-1	10/10	100%	0/12	0%
154 B-2	9/9	100%	0/11	0%
155 A-1	10/10	100%	1/11	9%
156 A-1	9/9	100%	10/11	91%
157 A-1	11/12	92%	0/9	0%
158 A-1	10/11	91%	8/9	89%
159 A-1	10/10	100%	1/8	13%
160 A-1	11/11	100%	0/11	0%
161 A-1	8/8	100%	0/12	0%
163 B-1	9/9	100%	0/9	0%
164 B-2	11/11	100%	0/11	0%
165 C-2	10/10	100%	0/9	0%
166 A-1	11/11	100%	0/9	0%
167 A-1	9/9	100%	0/7	0%
168 B-1	10/10	100%	0/5	0%
R2T21 A-1	10/10	100%	2/8	25%

Supplemental Table 3. Number of NBS-LRR genes on each chromosome in the PI 594527 genome assembly.

Chromosome ID	Length (bp)	No. of NLR
Chr01	58479646	32
Chr02	51823354	18
Chr03	46994370	58
Chr04	52535076	6
Chr05	44312942	3
Chr06	50373303	45
Chr07	45788982	16
Chr08	48806881	30
Chr09	50310076	22
Chr10	53640677	11
Chr11	39637742	12
Chr12	42723935	22
Chr13	46929662	28
Chr14	51027704	17
Chr15	53394395	36
Chr16	37902597	58
Chr17	42197827	2
Chr18	59935911	49
Chr19	50705441	28
Chr20	49315660	19
Total	976836181	512

Supplemental Table 4. List of NBS-LRR genes across the PI 594527 genome.

Chromosome	Start	End	NLR ID
Chr01	1018243	1020772	Chr01_NLR_1
Chr01	1028735	1032332	Chr01_NLR_2
Chr01	1155718	1158247	Chr01_NLR_3
Chr01	1205536	1208569	Chr01_NLR_32
Chr01	3108328	3109752	Chr01_NLR_4
Chr01	3346470	3350153	Chr01_NLR_5
Chr01	3402501	3406211	Chr01_NLR_6
Chr01	3429226	3433313	Chr01_NLR_7
Chr01	3457895	3461060	Chr01_NLR_8
Chr01	3475540	3479598	Chr01_NLR_9
Chr01	3667231	3669484	Chr01_NLR_10
Chr01	3721305	3728439	Chr01_NLR_11
Chr01	3753256	3756121	Chr01_NLR_31
Chr01	4101324	4105346	Chr01_NLR_12
Chr01	4170801	4178689	Chr01_NLR_13
Chr01	5428123	5431064	Chr01_NLR_30
Chr01	6938035	6943111	Chr01_NLR_14
Chr01	7105590	7106438	Chr01_NLR_15
Chr01	10181969	10184537	Chr01_NLR_16
Chr01	11671567	11673783	Chr01_NLR_17
Chr01	13489864	13499459	Chr01_NLR_29
Chr01	38589414	38594185	Chr01_NLR_28
Chr01	39249408	39252531	Chr01_NLR_18
Chr01	39269138	39273150	Chr01_NLR_19
Chr01	45032137	45035928	Chr01_NLR_27
Chr01	45111318	45119410	Chr01_NLR_26
Chr01	45318880	45323686	Chr01_NLR_20
Chr01	45628458	45631884	Chr01_NLR_25
Chr01	50211917	50213723	Chr01_NLR_21
Chr01	50271665	50275918	Chr01_NLR_22
Chr01	52519285	52521826	Chr01_NLR_23
Chr01	53523755	53526335	Chr01_NLR_24
Chr02	2314819	2317423	Chr02_NLR_18
Chr02	2681939	2686763	Chr02_NLR_17
Chr02	2735020	2737510	Chr02_NLR_16
Chr02	2956476	2959676	Chr02_NLR_1
Chr02	3068461	3069006	Chr02_NLR_15
Chr02	3837003	3838822	Chr02_NLR_2
Chr02	6583035	6589230	Chr02_NLR_3
Chr02	6591196	6593970	Chr02_NLR_14

Chr02	10602852	10604713	Chr02_NLR_13
Chr02	10607147	10609574	Chr02_NLR_4
Chr02	10832025	10833422	Chr02_NLR_5
Chr02	12936214	12939798	Chr02_NLR_6
Chr02	35383398	35385830	Chr02_NLR_12
Chr02	44251441	44258749	Chr02_NLR_11
Chr02	45820920	45832428	Chr02_NLR_7
Chr02	48551783	48555285	Chr02_NLR_8
Chr02	49799087	49803294	Chr02_NLR_9
Chr02	49818472	49822579	Chr02_NLR_10
Chr03	3930708	3934092	Chr03_NLR_58
Chr03	3956375	3959744	Chr03_NLR_57
Chr03	4090213	4093576	Chr03_NLR_56
Chr03	4113203	4114943	Chr03_NLR_55
Chr03	4140643	4144005	Chr03_NLR_54
Chr03	4182585	4185870	Chr03_NLR_53
Chr03	4284140	4286212	Chr03_NLR_52
Chr03	4337323	4340740	Chr03_NLR_51
Chr03	4356115	4369096	Chr03_NLR_50
Chr03	4393941	4397316	Chr03_NLR_49
Chr03	4472889	4474961	Chr03_NLR_48
Chr03	4501961	4505342	Chr03_NLR_47
Chr03	4513721	4517102	Chr03_NLR_46
Chr03	4531439	4534760	Chr03_NLR_45
Chr03	4797133	4800508	Chr03_NLR_1
Chr03	4823707	4827085	Chr03_NLR_2
Chr03	4887729	4892596	Chr03_NLR_3
Chr03	4943437	4946812	Chr03_NLR_4
Chr03	5115680	5118146	Chr03_NLR_5
Chr03	5141852	5145263	Chr03_NLR_6
Chr03	5189490	5192859	Chr03_NLR_7
Chr03	5206807	5208003	Chr03_NLR_8
Chr03	5688001	5690673	Chr03_NLR_44
Chr03	5792617	5795980	Chr03_NLR_9
Chr03	5809948	5811232	Chr03_NLR_10
Chr03	5846170	5849416	Chr03_NLR_11
Chr03	5860616	5863933	Chr03_NLR_12
Chr03	5877802	5881161	Chr03_NLR_13
Chr03	5899792	5902182	Chr03_NLR_14
Chr03	5921218	5924647	Chr03_NLR_15
Chr03	5936482	5939783	Chr03_NLR_16
Chr03	5974597	5977840	Chr03_NLR_17
Chr03	6128247	6133997	Chr03_NLR_43

Chr03	6238667	6242327	Chr03_NLR_18
Chr03	6264949	6271338	Chr03_NLR_42
Chr03	6278264	6280484	Chr03_NLR_41
Chr03	6294071	6300428	Chr03_NLR_40
Chr03	6311699	6313272	Chr03_NLR_39
Chr03	6354860	6363248	Chr03_NLR_38
Chr03	6383992	6385955	Chr03_NLR_37
Chr03	7041854	7042733	Chr03_NLR_19
Chr03	7078849	7079728	Chr03_NLR_36
Chr03	7227958	7228837	Chr03_NLR_20
Chr03	7303058	7303619	Chr03_NLR_35
Chr03	18585749	18588665	Chr03_NLR_34
Chr03	20228389	20231818	Chr03_NLR_33
Chr03	20298719	20303653	Chr03_NLR_21
Chr03	20812492	20816980	Chr03_NLR_32
Chr03	21309219	21309653	Chr03_NLR_22
Chr03	26634900	26635179	Chr03_NLR_23
Chr03	27408074	27408640	Chr03_NLR_31
Chr03	27472235	27476310	Chr03_NLR_24
Chr03	27480237	27482624	Chr03_NLR_25
Chr03	29139630	29141430	Chr03_NLR_30
Chr03	29149303	29150734	Chr03_NLR_29
Chr03	36362249	36365017	Chr03_NLR_28
Chr03	36473066	36475271	Chr03_NLR_27
Chr03	36577956	36580353	Chr03_NLR_26
Chr04	12326557	12326962	Chr04_NLR_1
Chr04	15980406	15982526	Chr04_NLR_2
Chr04	16531386	16532809	Chr04_NLR_6
Chr04	18782329	18783164	Chr04_NLR_5
Chr04	20598925	20601307	Chr04_NLR_3
Chr04	45221421	45221743	Chr04_NLR_4
Chr05	655197	657864	Chr05_NLR_1
Chr05	4246763	4250008	Chr05_NLR_2
Chr05	37736806	37739602	Chr05_NLR_3
Chr06	11988495	11991066	Chr06_NLR_1
Chr06	14029540	14031946	Chr06_NLR_45
Chr06	19374375	19377248	Chr06_NLR_2
Chr06	19383583	19384912	Chr06_NLR_3
Chr06	37896220	37899094	Chr06_NLR_44
Chr06	42089645	42092978	Chr06_NLR_4
Chr06	42577878	42581025	Chr06_NLR_43
Chr06	42599307	42601070	Chr06_NLR_42
Chr06	42610088	42613773	Chr06_NLR_41

Chr06	43380806	43383929	Chr06_NLR_40
Chr06	43391983	43399958	Chr06_NLR_39
Chr06	43461638	43464744	Chr06_NLR_38
Chr06	43492892	43496074	Chr06_NLR_37
Chr06	43503552	43504828	Chr06_NLR_36
Chr06	43557763	43560898	Chr06_NLR_35
Chr06	43593291	43595720	Chr06_NLR_5
Chr06	43609826	43610506	Chr06_NLR_6
Chr06	43822768	43825912	Chr06_NLR_34
Chr06	43863310	43866454	Chr06_NLR_33
Chr06	44121485	44124597	Chr06_NLR_7
Chr06	44136215	44144088	Chr06_NLR_8
Chr06	44168499	44172160	Chr06_NLR_9
Chr06	44194575	44197591	Chr06_NLR_10
Chr06	44203838	44207073	Chr06_NLR_11
Chr06	44258853	44262803	Chr06_NLR_12
Chr06	44282926	44285919	Chr06_NLR_13
Chr06	44314947	44318545	Chr06_NLR_14
Chr06	44580513	44582148	Chr06_NLR_15
Chr06	44587025	44589525	Chr06_NLR_32
Chr06	44590414	44591771	Chr06_NLR_31
Chr06	44650664	44651340	Chr06_NLR_16
Chr06	44687452	44688999	Chr06_NLR_17
Chr06	44752046	44756131	Chr06_NLR_18
Chr06	44756632	44759135	Chr06_NLR_30
Chr06	44760565	44762104	Chr06_NLR_29
Chr06	45616008	45620432	Chr06_NLR_28
Chr06	46465764	46469223	Chr06_NLR_27
Chr06	48822781	48826136	Chr06_NLR_19
Chr06	48924327	48926754	Chr06_NLR_26
Chr06	48931594	48935711	Chr06_NLR_25
Chr06	48939995	48941924	Chr06_NLR_20
Chr06	49392722	49395009	Chr06_NLR_24
Chr06	49559933	49561939	Chr06_NLR_23
Chr06	49593109	49596220	Chr06_NLR_21
Chr06	49846999	49848968	Chr06_NLR_22
Chr07	575635	580634	Chr07_NLR_16
Chr07	3037671	3041520	Chr07_NLR_1
Chr07	5532547	5537035	Chr07_NLR_15(R1)
Chr07	5568238	5572804	Chr07_NLR_14(R2)
Chr07	5605573	5610003	Chr07_NLR_13(R3)
Chr07	5648442	5652964	Chr07_NLR_12(R4)
Chr07	5698247	5702803	Chr07_NLR_2(R5)

Chr07	5737137	5741668	Chr07_NLR_3(R6)
Chr07	5782086	5786645	Chr07_NLR_4(R7)
Chr07	5816684	5821388	Chr07_NLR_5(R8)
Chr07	5846404	5850961	Chr07_NLR_6(R9)
Chr07	5874676	5886104	Chr07_NLR_7(R10)
Chr07	5932950	5937508	Chr07_NLR_8(R11)
Chr07	5974753	5986619	Chr07_NLR_9(R12)
Chr07	6200569	6206829	Chr07_NLR_11
Chr07	14511580	14514560	Chr07_NLR_10
Chr08	9499111	9501898	Chr08_NLR_30
Chr08	11718607	11720233	Chr08_NLR_29
Chr08	15408755	15410819	Chr08_NLR_1
Chr08	15587862	15590980	Chr08_NLR_2
Chr08	21721011	21724281	Chr08_NLR_3
Chr08	23086954	23088019	Chr08_NLR_4
Chr08	23624236	23626717	Chr08_NLR_28
Chr08	33232220	33232832	Chr08_NLR_27
Chr08	41262599	41263486	Chr08_NLR_26
Chr08	41787851	41792602	Chr08_NLR_25
Chr08	42808320	42811413	Chr08_NLR_24
Chr08	42862126	42865264	Chr08_NLR_23
Chr08	43030810	43035774	Chr08_NLR_22
Chr08	43218113	43219004	Chr08_NLR_21
Chr08	43229056	43231690	Chr08_NLR_20
Chr08	43270256	43270964	Chr08_NLR_5
Chr08	43489752	43490193	Chr08_NLR_19
Chr08	43851062	43851852	Chr08_NLR_18
Chr08	44073574	44076921	Chr08_NLR_6
Chr08	44538408	44540731	Chr08_NLR_17
Chr08	44560840	44562834	Chr08_NLR_16
Chr08	44574248	44576795	Chr08_NLR_15
Chr08	44596979	44598973	Chr08_NLR_14
Chr08	44611899	44614455	Chr08_NLR_13
Chr08	44729505	44732079	Chr08_NLR_12
Chr08	44741100	44743659	Chr08_NLR_11
Chr08	44761318	44763856	Chr08_NLR_10
Chr08	45069363	45071937	Chr08_NLR_9
Chr08	45557169	45564646	Chr08_NLR_8
Chr08	46826848	46829182	Chr08_NLR_7
Chr09	1664357	1667201	Chr09_NLR_22
Chr09	1685051	1687889	Chr09_NLR_21
Chr09	3488082	3490219	Chr09_NLR_20
Chr09	5121063	5126222	Chr09_NLR_19

Chr09	5132852	5135160	Chr09_NLR_18
Chr09	5178947	5183424	Chr09_NLR_1
Chr09	5187662	5191629	Chr09_NLR_2
Chr09	5932668	5936323	Chr09_NLR_17
Chr09	7746329	7748278	Chr09_NLR_3
Chr09	8246465	8249461	Chr09_NLR_4
Chr09	8732309	8734557	Chr09_NLR_5
Chr09	12227037	12229572	Chr09_NLR_16
Chr09	39321069	39324284	Chr09_NLR_6
Chr09	39381914	39382573	Chr09_NLR_7
Chr09	39645058	39647509	Chr09_NLR_15
Chr09	43350673	43356393	Chr09_NLR_14
Chr09	44087511	44090841	Chr09_NLR_13
Chr09	44095685	44098223	Chr09_NLR_12
Chr09	44248184	44251257	Chr09_NLR_8
Chr09	44297213	44298897	Chr09_NLR_9
Chr09	47818943	47821304	Chr09_NLR_11
Chr09	50151815	50154466	Chr09_NLR_10
Chr10	5653748	5655800	Chr10_NLR_1
Chr10	8449827	8450405	Chr10_NLR_11
Chr10	10224206	10230814	Chr10_NLR_2
Chr10	10254152	10255595	Chr10_NLR_10
Chr10	17483998	17491238	Chr10_NLR_3
Chr10	17507105	17508071	Chr10_NLR_4
Chr10	23026533	23027326	Chr10_NLR_9
Chr10	32722976	32725983	Chr10_NLR_5
Chr10	43827450	43830396	Chr10_NLR_6
Chr10	43836750	43839705	Chr10_NLR_7
Chr10	44876514	44880495	Chr10_NLR_8
Chr11	2542567	2546354	Chr11_NLR_12
Chr11	5358965	5361512	Chr11_NLR_11
Chr11	14324247	14328618	Chr11_NLR_10
Chr11	15579667	15584507	Chr11_NLR_1
Chr11	18327280	18329679	Chr11_NLR_9
Chr11	18558704	18562605	Chr11_NLR_8
Chr11	18930094	18930304	Chr11_NLR_7
Chr11	19437285	19443806	Chr11_NLR_2
Chr11	19442243	19443806	Chr11_NLR_3
Chr11	19582824	19584643	Chr11_NLR_4
Chr11	20180848	20184987	Chr11_NLR_6
Chr11	35429448	35431792	Chr11_NLR_5
Chr12	863768	866390	Chr12_NLR_22
Chr12	1971747	1975444	Chr12_NLR_1

Chr12	6352712	6355154	Chr12_NLR_2
Chr12	13851350	13854204	Chr12_NLR_3
Chr12	15043240	15046062	Chr12_NLR_21
Chr12	15057697	15060656	Chr12_NLR_20
Chr12	15078837	15081682	Chr12_NLR_4
Chr12	15088192	15088746	Chr12_NLR_19
Chr12	15096325	15099214	Chr12_NLR_18
Chr12	15220789	15223665	Chr12_NLR_17
Chr12	16280331	16283178	Chr12_NLR_16
Chr12	16629657	16632781	Chr12_NLR_15
Chr12	16785201	16788384	Chr12_NLR_14
Chr12	17692710	17694367	Chr12_NLR_5
Chr12	33866793	33869580	Chr12_NLR_13
Chr12	39792405	39796698	Chr12_NLR_6
Chr12	40437016	40439383	Chr12_NLR_12
Chr12	42159629	42161873	Chr12_NLR_11
Chr12	42440942	42444124	Chr12_NLR_7
Chr12	42482624	42486279	Chr12_NLR_10
Chr12	42491409	42495643	Chr12_NLR_8
Chr12	42518426	42521135	Chr12_NLR_9
Chr13	6984488	6986586	Chr13_NLR_1
Chr13	17881337	17885328	Chr13_NLR_2
Chr13	17912334	17915115	Chr13_NLR_3
Chr13	18581083	18584299	Chr13_NLR_4
Chr13	18959267	18962364	Chr13_NLR_5
Chr13	19065359	19067005	Chr13_NLR_28
Chr13	24311336	24312967	Chr13_NLR_6
Chr13	24319731	24320587	Chr13_NLR_27
Chr13	24903170	24903609	Chr13_NLR_26
Chr13	30854565	30857796	Chr13_NLR_25
Chr13	31152218	31156250	Chr13_NLR_7
Chr13	31181253	31191119	Chr13_NLR_8
Chr13	31198396	31202453	Chr13_NLR_9
Chr13	31364517	31367793	Chr13_NLR_10
Chr13	31369960	31373751	Chr13_NLR_11
Chr13	31387380	31390884	Chr13_NLR_12
Chr13	31488757	31493851	Chr13_NLR_24
Chr13	31587868	31589176	Chr13_NLR_13
Chr13	31590980	31594184	Chr13_NLR_14
Chr13	31610516	31613780	Chr13_NLR_23
Chr13	31674131	31677434	Chr13_NLR_15
Chr13	31700584	31703741	Chr13_NLR_22
Chr13	31705054	31706511	Chr13_NLR_21

Chr13	31711039	31714348	Chr13_NLR_16
Chr13	31743906	31747284	Chr13_NLR_20
Chr13	31796683	31800060	Chr13_NLR_17
Chr13	37417686	37421079	Chr13_NLR_18
Chr13	37432745	37436902	Chr13_NLR_19
Chr14	673609	677931	Chr14_NLR_17
Chr14	2284057	2284979	Chr14_NLR_1
Chr14	3890663	3895736	Chr14_NLR_16
Chr14	6810943	6815569	Chr14_NLR_2
Chr14	20354037	20359468	Chr14_NLR_15
Chr14	29038674	29044844	Chr14_NLR_14
Chr14	43679196	43679856	Chr14_NLR_13
Chr14	47095870	47102831	Chr14_NLR_3
Chr14	48378315	48380727	Chr14_NLR_12
Chr14	48914189	48918247	Chr14_NLR_4
Chr14	48931023	48934698	Chr14_NLR_5
Chr14	48951932	48957368	Chr14_NLR_6
Chr14	48974366	48980101	Chr14_NLR_7
Chr14	49010712	49015977	Chr14_NLR_11
Chr14	49028923	49034411	Chr14_NLR_10
Chr14	49180248	49185319	Chr14_NLR_8
Chr14	49202538	49206464	Chr14_NLR_9
Chr15	2021636	2024853	Chr15_NLR_36
Chr15	5478551	5480957	Chr15_NLR_35
Chr15	9936867	9939200	Chr15_NLR_1
Chr15	10049226	10052067	Chr15_NLR_34
Chr15	10059234	10062081	Chr15_NLR_33
Chr15	12652234	12656021	Chr15_NLR_2
Chr15	12661227	12665112	Chr15_NLR_3
Chr15	13704450	13709762	Chr15_NLR_4
Chr15	13973230	13976501	Chr15_NLR_32
Chr15	14180667	14182340	Chr15_NLR_31
Chr15	14979058	14982479	Chr15_NLR_30
Chr15	17235990	17236643	Chr15_NLR_5
Chr15	18285541	18287598	Chr15_NLR_6
Chr15	18590564	18592354	Chr15_NLR_29
Chr15	19294391	19296734	Chr15_NLR_7
Chr15	19354355	19357205	Chr15_NLR_28
Chr15	42737399	42742409	Chr15_NLR_8
Chr15	42899470	42902803	Chr15_NLR_9
Chr15	44590127	44591904	Chr15_NLR_27
Chr15	44656207	44659033	Chr15_NLR_10
Chr15	44665191	44668230	Chr15_NLR_11

Chr15	44674389	44677215	Chr15_NLR_12
Chr15	44766231	44768119	Chr15_NLR_13
Chr15	44848528	44851408	Chr15_NLR_14
Chr15	44953099	44955904	Chr15_NLR_15
Chr15	44989601	44992429	Chr15_NLR_16
Chr15	45092856	45095814	Chr15_NLR_17
Chr15	45176628	45179463	Chr15_NLR_26
Chr15	45270344	45271893	Chr15_NLR_25
Chr15	45291210	45293268	Chr15_NLR_18
Chr15	45297225	45300088	Chr15_NLR_19
Chr15	45316132	45319036	Chr15_NLR_24
Chr15	45904754	45909003	Chr15_NLR_23
Chr15	48664646	48671589	Chr15_NLR_22
Chr15	48720027	48722970	Chr15_NLR_21
Chr15	48762810	48765463	Chr15_NLR_20
Chr16	493765	496916	Chr16_NLR_58
Chr16	2906589	2913285	Chr16_NLR_1
Chr16	3089227	3094852	Chr16_NLR_57
Chr16	8134130	8137343	Chr16_NLR_56
Chr16	8466583	8468739	Chr16_NLR_55
Chr16	10000338	10002893	Chr16_NLR_54
Chr16	10015641	10018050	Chr16_NLR_53
Chr16	10164533	10167124	Chr16_NLR_2
Chr16	10311063	10314508	Chr16_NLR_52
Chr16	10460023	10463249	Chr16_NLR_51
Chr16	10494043	10497093	Chr16_NLR_50
Chr16	10600576	10603954	Chr16_NLR_49
Chr16	21839575	21839779	Chr16_NLR_3
Chr16	24147712	24148058	Chr16_NLR_48
Chr16	26914284	26915226	Chr16_NLR_47
Chr16	26957011	26958873	Chr16_NLR_4
Chr16	28443093	28446102	Chr16_NLR_5
Chr16	28469764	28473534	Chr16_NLR_46
Chr16	28488672	28491819	Chr16_NLR_6
Chr16	28526208	28530128	Chr16_NLR_45
Chr16	28535488	28540255	Chr16_NLR_44
Chr16	29823950	29832367	Chr16_NLR_43
Chr16	29866590	29869589	Chr16_NLR_42
Chr16	29873108	29877738	Chr16_NLR_41
Chr16	29892052	29893623	Chr16_NLR_40
Chr16	29913207	29919677	Chr16_NLR_39
Chr16	29942008	29947274	Chr16_NLR_38
Chr16	29985870	29986526	Chr16_NLR_7

Chr16	29995984	30000154	Chr16_NLR_37
Chr16	30013191	30016592	Chr16_NLR_36
Chr16	30030099	30033126	Chr16_NLR_35
Chr16	31356970	31360468	Chr16_NLR_34
Chr16	31401021	31404078	Chr16_NLR_8
Chr16	32532682	32535821	Chr16_NLR_9
Chr16	32537558	32550451	Chr16_NLR_10
Chr16	32559448	32570210	Chr16_NLR_11
Chr16	32575467	32580611	Chr16_NLR_12
Chr16	32582667	32585512	Chr16_NLR_13
Chr16	32586997	32588880	Chr16_NLR_14
Chr16	36064092	36067149	Chr16_NLR_15
Chr16	37020266	37023300	Chr16_NLR_16
Chr16	37033924	37036952	Chr16_NLR_17
Chr16	37049094	37050958	Chr16_NLR_18
Chr16	37078112	37081371	Chr16_NLR_19
Chr16	37137817	37142148	Chr16_NLR_33
Chr16	37235288	37238304	Chr16_NLR_32
Chr16	37241524	37244598	Chr16_NLR_31
Chr16	37248795	37251800	Chr16_NLR_30
Chr16	37254543	37257612	Chr16_NLR_29
Chr16	37261902	37264973	Chr16_NLR_28
Chr16	37279909	37281277	Chr16_NLR_27
Chr16	37292504	37295512	Chr16_NLR_26
Chr16	37299247	37305637	Chr16_NLR_25
Chr16	37318417	37321876	Chr16_NLR_24
Chr16	37323990	37327765	Chr16_NLR_23
Chr16	37334887	37337967	Chr16_NLR_22
Chr16	37340600	37341779	Chr16_NLR_21
Chr16	37348654	37354069	Chr16_NLR_20
Chr17	20522337	20527359	Chr17_NLR_2
Chr17	31347748	31349596	Chr17_NLR_1
Chr18	7342824	7344921	Chr18_NLR_1
Chr18	7889361	7891554	Chr18_NLR_49
Chr18	7910752	7913227	Chr18_NLR_48
Chr18	7921859	7922883	Chr18_NLR_47
Chr18	7928246	7930799	Chr18_NLR_46
Chr18	7957312	7959874	Chr18_NLR_45
Chr18	7977415	7979821	Chr18_NLR_44
Chr18	8022920	8025120	Chr18_NLR_43
Chr18	8033902	8036459	Chr18_NLR_42
Chr18	8233968	8236170	Chr18_NLR_2
Chr18	8260277	8262737	Chr18_NLR_3

Chr18	8269885	8274572	Chr18_NLR_4
Chr18	8280681	8281026	Chr18_NLR_5
Chr18	8305564	8306827	Chr18_NLR_6
Chr18	8310849	8313333	Chr18_NLR_7
Chr18	8333328	8334814	Chr18_NLR_8
Chr18	8333328	8338334	Chr18_NLR_9
Chr18	8342661	8345144	Chr18_NLR_10
Chr18	8877895	8880462	Chr18_NLR_11
Chr18	8890029	8892597	Chr18_NLR_12
Chr18	8957974	8960557	Chr18_NLR_13
Chr18	8964856	8967442	Chr18_NLR_14
Chr18	9001127	9003677	Chr18_NLR_15
Chr18	9008232	9010084	Chr18_NLR_16
Chr18	9053102	9055011	Chr18_NLR_17
Chr18	9073235	9075146	Chr18_NLR_18
Chr18	10360331	10362918	Chr18_NLR_41
Chr18	10399186	10402592	Chr18_NLR_40
Chr18	11195972	11198489	Chr18_NLR_19
Chr18	11209589	11212476	Chr18_NLR_20
Chr18	13808494	13811653	Chr18_NLR_21
Chr18	14094676	14097711	Chr18_NLR_39
Chr18	14310604	14311049	Chr18_NLR_22
Chr18	47343047	47345609	Chr18_NLR_23
Chr18	52795319	52797631	Chr18_NLR_24
Chr18	52996804	53004716	Chr18_NLR_25
Chr18	53082056	53089911	Chr18_NLR_26
Chr18	53157519	53164584	Chr18_NLR_27
Chr18	53223770	53229987	Chr18_NLR_28
Chr18	53331648	53340069	Chr18_NLR_29
Chr18	57293643	57297270	Chr18_NLR_30
Chr18	58062843	58064997	Chr18_NLR_31
Chr18	58065962	58070382	Chr18_NLR_32
Chr18	58179322	58181449	Chr18_NLR_38
Chr18	58189906	58192009	Chr18_NLR_37
Chr18	58207090	58209259	Chr18_NLR_36
Chr18	58342210	58344649	Chr18_NLR_35
Chr18	58644139	58646674	Chr18_NLR_33
Chr18	58647822	58650539	Chr18_NLR_34
Chr19	2551179	2554564	Chr19_NLR_28
Chr19	6327382	6332201	Chr19_NLR_27
Chr19	9243997	9246091	Chr19_NLR_1
Chr19	9334424	9337524	Chr19_NLR_26
Chr19	9375900	9379354	Chr19_NLR_25

Chr19	30472973	30475388	Chr19_NLR_2
Chr19	30509432	30515052	Chr19_NLR_3
Chr19	36191718	36194493	Chr19_NLR_4
Chr19	36695540	36698342	Chr19_NLR_24
Chr19	39155746	39156670	Chr19_NLR_5
Chr19	39409447	39411937	Chr19_NLR_23
Chr19	39423087	39424992	Chr19_NLR_22
Chr19	39437795	39440285	Chr19_NLR_21
Chr19	39553652	39555956	Chr19_NLR_6
Chr19	39565519	39567655	Chr19_NLR_7
Chr19	39575181	39577599	Chr19_NLR_8
Chr19	39587274	39592035	Chr19_NLR_9
Chr19	39607519	39610024	Chr19_NLR_10
Chr19	39731711	39734129	Chr19_NLR_20
Chr19	39738178	39738964	Chr19_NLR_19
Chr19	39747565	39750058	Chr19_NLR_18
Chr19	39824643	39826107	Chr19_NLR_17
Chr19	39954477	39956892	Chr19_NLR_11
Chr19	39967395	39969810	Chr19_NLR_12
Chr19	39981296	39983711	Chr19_NLR_13
Chr19	39995227	39997714	Chr19_NLR_14
Chr19	40016924	40019342	Chr19_NLR_15
Chr19	40044020	40046408	Chr19_NLR_16
Chr20	2082969	2086781	Chr20_NLR_19
Chr20	7141725	7142697	Chr20_NLR_1
Chr20	7366848	7369665	Chr20_NLR_18
Chr20	7374248	7375104	Chr20_NLR_2
Chr20	7785340	7787890	Chr20_NLR_17
Chr20	7847194	7852073	Chr20_NLR_3
Chr20	8669833	8670974	Chr20_NLR_4
Chr20	8776246	8779717	Chr20_NLR_5
Chr20	8795261	8798732	Chr20_NLR_6
Chr20	9335103	9336259	Chr20_NLR_16
Chr20	9691034	9694907	Chr20_NLR_7
Chr20	10901516	10903273	Chr20_NLR_8
Chr20	10955542	10958938	Chr20_NLR_9
Chr20	12669762	12681675	Chr20_NLR_10
Chr20	19828433	19831986	Chr20_NLR_11
Chr20	35755519	35757603	Chr20_NLR_12
Chr20	44620356	44624430	Chr20_NLR_13
Chr20	44637360	44639559	Chr20_NLR_14
Chr20	45670091	45672685	Chr20_NLR_15

Supplemental Table 5. List of the NBS-LRR genes in the *RpsII* corresponding region across 30 soybean genomes.

Chromosome	Start	End	NLR ID	Strand	Expression	TSR ^a
Chr07	5524572	5537604	PI594527.R1	-	9.58	yes
Chr07	5568113	5573308	PI594527.R2	-	0.03	no
Chr07	5600488	5610572	PI594527.R3	-	0.14	yes
Chr07	5638345	5653547	PI594527.R4	-	37.89	yes
Chr07	5697682	5707265	PI594527.R5	+	0.42	no
Chr07	5736565	5750658	PI594527.R6	+	15.39	yes
Chr07	5781515	5795000	PI594527.R7	+	0.01	no
Chr07	5816113	5826412	PI594527.R8	+	0.02	no
Chr07	5845991	5859637	PI594527.R9	+	9.69	yes
Chr07	5879422	5895822	PI594527.R10	+	0.11	no
Chr07	5932310	5946431	PI594527.R11	+	0.16	yes
Chr07	5974185	5986739	PI594527.R12	+	4.04	yes
GWHACEK00000007	5544398	5556747	SoyC01.r1	-	13.83	yes
GWHACEK00000007	5580474	5594087	SoyC01.r2	-	3.80	yes
GWHACEK00000007	5632196	5645868	SoyC01.r3	-	17.61	yes
GWHACEK00000007	5696751	5710922	SoyC01.r4	+	1.28	no
GWHACEK00000007	5741132	5746369	SoyC01.r5	+	0.22	no
GWHACEK00000007	5774498	5787019	SoyC01.r6	+	11.94	yes
GWHACEK00000007	5807317	5824380	SoyC01.r7	+	16.84	yes
GWHACEK00000007	5841733	5852009	SoyC01.r8	+	0.19	no
GWHACEK00000007	5869634	5884394	SoyC01.r9	+	3.59	yes
GWHACEK00000007	5908884	5922083	SoyC01.r10	+	5.77	yes
GWHACEK00000007	5946523	5959565	SoyC01.r11	+	0.86	yes
GWHACEK00000007	5983746	5995843	SoyC01.r12	+	1.55	yes
GWHACEK00000007	6023644	6040696	SoyC01.r13	+	17.32	yes
GWHACEK00000007	6053718	6068702	SoyC01.r14	+	0.00	no
GWHACEK00000007	6112665	6125929	SoyC01.r15	+	1.09	yes
GWHACEK00000007	6141814	6154111	SoyC01.r16	+	0.28	yes
GWHACEK00000007	6177299	6190296	SoyC01.r17	+	4.96	yes
GWHACEL00000007	5540642	5552939	SoyC02.r1	-	4.31	yes
GWHACEL00000007	5578572	5583810	SoyC02.r2	-	0.08	no
GWHACEL00000007	5621396	5635102	SoyC02.r3	-	27.95	yes
GWHACEL00000007	5685595	5699099	SoyC02.r4	+	0.75	no
GWHACEL00000007	5737718	5747999	SoyC02.r5	+	0.18	no
GWHACEL00000007	5767540	5786535	SoyC02.r6	+	8.33	yes
GWHACEL00000007	5802306	5815661	SoyC02.r7	+	0.71	yes
GWHACEL00000007	5835363	5850378	SoyC02.r8	+	0.41	no

GWHACEL00000007	5884946	5898365	SoyC02.r9	+	2.07	yes
GWHACEL00000007	5923537	5933269	SoyC02.r10	+	1.38	no
GWHACEL00000007	5992102	6005104	SoyC02.r11	+	21.71	yes
GWHACEL00000007	6027465	6040960	SoyC02.r12	+	5.51	yes
GWHACEM00000007	5631789	5644891	SoyC03.r1	-	5.81	yes
GWHACEM00000007	5672790	5677985	SoyC03.r2	-	0.09	no
GWHACEM00000007	5709965	5723277	SoyC03.r3	-	12.20	yes
GWHACEM00000007	5755537	5770590	SoyC03.r4	-	19.01	yes
GWHACEM00000007	5824887	5830161	SoyC03.r5	+	0.34	no
GWHACEM00000007	5859389	5873334	SoyC03.r6	+	14.95	yes
GWHACEM00000007	5893427	5903711	SoyC03.r7	+	0.07	no
GWHACEM00000007	5923109	5936937	SoyC03.r8	+	10.04	no
GWHACEM00000007	5956282	5971323	SoyC03.r9	+	0.16	no
GWHACEM00000007	6004594	6020960	SoyC03.r10	+	2.40	yes
GWHACEM00000007	6042567	6055123	SoyC03.r11	+	1.59	yes
GWHACEM00000007	6066036	6079773	SoyC03.r12	+	9.22	yes
GWHACEM00000007	6108338	6125249	SoyC03.r13	+	2.19	yes
GWHACEM00000007	6149355	6159844	SoyC03.r14	+	0.61	no
GWHACEN00000007	5575068	5588755	SoyC04.r1	-	3.91	yes
GWHACEN00000007	5603799	5617851	SoyC04.r2	-	5.36	yes
GWHACEN00000007	5698035	5712042	SoyC04.r3	+	3.43	no
GWHACEN00000007	5741526	5758215	SoyC04.r4	+	0.64	no
GWHACEN00000007	5768316	5781953	SoyC04.r5	+	5.96	yes
GWHACEN00000007	5811011	5824734	SoyC04.r6	+	3.67	yes
GWHACEN00000007	5854684	5864979	SoyC04.r7	+	0.59	no
GWHACEN00000007	5889129	5902277	SoyC04.r8	+	3.96	no
GWHACEO00000007	5584980	5598387	SoyC05.r1	-	38.54	yes
GWHACEO00000007	5652691	5662453	SoyC05.r2	+	0.67	no
GWHACEO00000007	5668792	5674035	SoyC05.r3	+	0.45	no
GWHACEO00000007	5698787	5711090	SoyC05.r4	+	2.13	yes
GWHACEO00000007	5734500	5749552	SoyC05.r5	+	0.64	no
GWHACEO00000007	5793605	5807611	SoyC05.r6	+	4.61	yes
GWHACEO00000007	5826686	5843168	SoyC05.r7	+	0.22	no
GWHACEO00000007	5850293	5864562	SoyC05.r8	+	1.67	yes
GWHACEO00000007	5890586	5903252	SoyC05.r9	+	1.11	yes
GWHACEO00000007	5911795	5925543	SoyC05.r10	+	10.94	yes
GWHACEO00000007	5945281	5961703	SoyC05.r11	+	0.54	no
GWHACEO00000007	6018188	6035253	SoyC05.r12	+	2.36	yes
GWHACEO00000007	6059152	6070506	SoyC05.r13	+	0.56	no
GWHACEP00000007	5526536	5539004	SoyC06.r1	-	22.49	no
GWHACEP00000007	5562805	5576343	SoyC06.r2	-	8.40	yes
GWHACEP00000007	5605594	5617604	SoyC06.r3	-	4.15	no
GWHACEP00000007	5625508	5637841	SoyC06.r4	-	4.89	yes

GWHACEP000000007	5661936	5667181	SoyC06.r5	-	0.32	no
GWHACEP000000007	5673529	5683245	SoyC06.r6	-	3.99	no
GWHACEP000000007	5736662	5746687	SoyC06.r7	+	2.88	yes
GWHACEP000000007	5766158	5781173	SoyC06.r8	+	0.66	no
GWHACEP000000007	5813616	5827218	SoyC06.r9	+	1.28	yes
GWHACEP000000007	5851943	5864245	SoyC06.r10	+	2.73	yes
GWHACEP000000007	5916061	5926613	SoyC06.r11	+	1.75	no
GWHACEQ000000007	5517496	5531215	SoyC07.r1	-	11.24	yes
GWHACEQ000000007	5572209	5586580	SoyC07.r2	-	1.64	yes
GWHACEQ000000007	5625367	5634239	SoyC07.r3	-	3.71	yes
GWHACEQ000000007	5666364	5679509	SoyC07.r4	-	20.45	yes
GWHACEQ000000007	5730484	5744658	SoyC07.r5	+	1.06	no
GWHACEQ000000007	5774843	5780081	SoyC07.r6	+	0.12	no
GWHACEQ000000007	5808248	5820801	SoyC07.r7	+	8.33	yes
GWHACEQ000000007	5841097	5858045	SoyC07.r8	+	1.43	yes
GWHACEQ000000007	5875346	5885617	SoyC07.r9	+	0.06	no
GWHACEQ000000007	5903219	5916755	SoyC07.r10	+	8.72	yes
GWHACEQ000000007	5941215	5953421	SoyC07.r11	+	0.33	yes
GWHACEQ000000007	5981351	5998298	SoyC07.r12	+	2.15	yes
GWHACEQ000000007	6011311	6026287	SoyC07.r13	+	0.01	no
GWHACEQ000000007	6070250	6083489	SoyC07.r14	+	1.81	yes
GWHACEQ000000007	6099374	6111673	SoyC07.r15	+	1.53	yes
GWHACEQ000000007	6136910	6145537	SoyC07.r16	+	1.09	yes
GWHACER000000007	5514579	5528260	SoyC08.r1	-	1.64	yes
GWHACER000000007	5543334	5557370	SoyC08.r2	-	13.82	yes
GWHACER000000007	5637497	5651511	SoyC08.r3	+	1.13	no
GWHACER000000007	5680963	5697557	SoyC08.r4	+	0.01	no
GWHACER000000007	5707594	5721155	SoyC08.r5	+	12.49	yes
GWHACER000000007	5750207	5763918	SoyC08.r6	+	6.00	yes
GWHACER000000007	5793878	5804170	SoyC08.r7	+	0.01	no
GWHACER000000007	5828314	5841465	SoyC08.r8	+	11.12	no
GWHACES000000007	5497707	5511463	SoyC09.r1	-	0.66	yes
GWHACES000000007	5526287	5540378	SoyC09.r2	-	8.34	yes
GWHACES000000007	5569188	5582479	SoyC09.r3	-	11.66	yes
GWHACES000000007	5662579	5676624	SoyC09.r4	+	0.72	no
GWHACES000000007	5706371	5723060	SoyC09.r5	+	0.29	no
GWHACES000000007	5733184	5746782	SoyC09.r6	+	10.49	yes
GWHACES000000007	5775863	5789577	SoyC09.r7	+	2.66	yes
GWHACES000000007	5825451	5839186	SoyC09.r8	-	0.46	no
GWHACES000000007	5877849	5888182	SoyC09.r9	+	0.24	no
GWHACES000000007	5912297	5925459	SoyC09.r10	+	5.91	no
GWHACET000000007	5559384	5571684	SoyC10.r1	-	2.35	yes
GWHACET000000007	5597313	5602517	SoyC10.r2	-	0.19	no

GWHACET00000007	5639942	5653344	SoyC10.r3	-	6.87	yes
GWHACET00000007	5749481	5763123	SoyC10.r4	+	13.12	yes
GWHACET00000007	5800396	5805634	SoyC10.r5	+	0.40	no
GWHACET00000007	5833797	5846333	SoyC10.r6	+	6.43	yes
GWHACET00000007	5873549	5890543	SoyC10.r7	+	1.61	yes
GWHACET00000007	5907825	5918111	SoyC10.r8	+	0.07	no
GWHACET00000007	5938223	5951650	SoyC10.r9	+	1.04	yes
GWHACET00000007	5975841	5988947	SoyC10.r10	+	0.78	yes
GWHACET00000007	6013340	6025208	SoyC10.r11	+	0.14	yes
GWHACET00000007	6103823	6116199	SoyC10.r12	-	0.12	yes
GWHACET00000007	6140540	6153745	SoyC10.r13	-	0.66	yes
GWHACET00000007	6232788	6249840	SoyC10.r14	+	2.51	no
GWHACET00000007	6267219	6277518	SoyC10.r15	+	0.13	no
GWHACET00000007	6295150	6308687	SoyC10.r16	+	7.68	yes
GWHACET00000007	6333205	6346405	SoyC10.r17	+	3.18	yes
GWHACET00000007	6370829	6383260	SoyC10.r18	+	0.36	yes
GWHACET00000007	6410847	6427896	SoyC10.r19	+	2.61	yes
GWHACET00000007	6440933	6455910	SoyC10.r20	+	0.00	no
GWHACET00000007	6499886	6513124	SoyC10.r21	+	0.81	yes
GWHACET00000007	6529013	6541312	SoyC10.r22	+	0.72	yes
GWHACET00000007	6564498	6577494	SoyC10.r23	+	1.41	yes
GWHACEU00000007	5728714	5741014	SoyC11.r1	-	1.54	yes
GWHACEU00000007	5766645	5771883	SoyC11.r2	-	0.13	no
GWHACEU00000007	5809483	5823190	SoyC11.r3	-	20.10	yes
GWHACEU00000007	5873609	5887784	SoyC11.r4	+	0.74	no
GWHACEU00000007	5917957	5923195	SoyC11.r5	+	0.10	no
GWHACEU00000007	5951357	5963894	SoyC11.r6	+	6.64	yes
GWHACEU00000007	5991109	6008079	SoyC11.r7	+	0.50	yes
GWHACEU00000007	6025319	6035572	SoyC11.r8	+	0.01	no
GWHACEU00000007	6053129	6066610	SoyC11.r9	+	4.70	yes
GWHACEU00000007	6091135	6104276	SoyC11.r10	+	1.15	yes
GWHACEU00000007	6128738	6137765	SoyC11.r11	+	0.06	yes
GWHACEU00000007	6168417	6185419	SoyC11.r12	+	0.52	yes
GWHACEU00000007	6202699	6212984	SoyC11.r13	+	0.01	no
GWHACEU00000007	6230618	6244155	SoyC11.r14	+	7.67	yes
GWHACEU00000007	6268673	6281873	SoyC11.r15	+	5.19	yes
GWHACEU00000007	6306305	6318617	SoyC11.r16	+	0.32	yes
GWHACEU00000007	6346325	6363371	SoyC11.r17	+	0.87	yes
GWHACEU00000007	6376407	6391382	SoyC11.r18	+	0.00	no
GWHACEU00000007	6435357	6448595	SoyC11.r19	+	0.47	yes
GWHACEU00000007	6464482	6476781	SoyC11.r20	+	0.28	no
GWHACEU00000007	6499965	6512959	SoyC11.r21	+	0.50	yes
GWHACEV00000007	2887648	2900925	SoyC12.r1	-	4.44	yes

GWHACEV00000007	2925340	2938919	SoyC12.r2	-	10.01	yes
GWHACEV00000007	2967666	2977313	SoyC12.r3	-	0.00	no
GWHACEV00000007	2988250	3000572	SoyC12.r4	-	6.46	yes
GWHACEV00000007	3024676	3029919	SoyC12.r5	-	1.71	no
GWHACEV00000007	3036279	3046017	SoyC12.r6	-	0.90	no
GWHACEV00000007	3099556	3109608	SoyC12.r7	+	2.13	yes
GWHACEV00000007	3129088	3144107	SoyC12.r8	+	0.66	no
GWHACEV00000007	3179301	3196195	SoyC12.r9	+	0.45	yes
GWHACEV00000007	3220314	3230672	SoyC12.r10	+	0.40	no
GWHACEW00000007	5527016	5540702	SoyC13.r1	-	2.02	yes
GWHACEW00000007	5555815	5569856	SoyC13.r2	-	16.26	yes
GWHACEW00000007	5650034	5664072	SoyC13.r3	+	1.22	no
GWHACEW00000007	5693574	5710248	SoyC13.r4	+	0.26	no
GWHACEW00000007	5720350	5733976	SoyC13.r5	+	16.55	yes
GWHACEW00000007	5763027	5776738	SoyC13.r6	+	5.00	yes
GWHACEW00000007	5806706	5817011	SoyC13.r7	+	0.17	no
GWHACEW00000007	5841158	5854314	SoyC13.r8	+	11.44	no
GWHACEX00000007	5518259	5531522	SoyC14.r1	-	2.33	yes
GWHACEX00000007	5555948	5569367	SoyC14.r2	-	2.22	yes
GWHACEX00000007	5598846	5610847	SoyC14.r3	-	0.23	no
GWHACEX00000007	5618803	5631121	SoyC14.r4	-	6.01	yes
GWHACEX00000007	5643183	5653527	SoyC14.r5	-	7.62	no
GWHACEX00000007	5677648	5694547	SoyC14.r6	-	1.52	yes
GWHACEX00000007	5729726	5744745	SoyC14.r7	-	0.02	no
GWHACEX00000007	5764214	5774257	SoyC14.r8	-	14.81	yes
GWHACEX00000007	5827769	5837498	SoyC14.r9	+	0.22	no
GWHACEX00000007	5843852	5861213	SoyC14.r10	+	0.15	no
GWHACEB00000007	5516144	5529824	SoyL01.r1	-	1.73	yes
GWHACEB00000007	5544854	5558906	SoyL01.r2	-	16.79	yes
GWHACEB00000007	5638983	5652997	SoyL01.r3	+	2.17	no
GWHACEB00000007	5682411	5698991	SoyL01.r4	+	0.15	no
GWHACEB00000007	5709035	5722565	SoyL01.r5	+	6.73	no
GWHACEB00000007	5751354	5764930	SoyL01.r6	+	3.68	yes
GWHACEB00000007	5794683	5811315	SoyL01.r7	+	0.17	no
GWHACEB00000007	5821324	5834848	SoyL01.r8	+	10.29	yes
GWHACEB00000007	5863621	5877210	SoyL01.r9	+	4.14	yes
GWHACEB00000007	5906904	5917167	SoyL01.r10	+	0.19	no
GWHACEB00000007	5941311	5954453	SoyL01.r11	+	10.78	no
GWHACEC00000007	5586419	5600586	SoyL02.r1	-	20.63	yes
GWHACEC00000007	5655134	5668543	SoyL02.r2	+	1.73	no
GWHACEC00000007	5689544	5703511	SoyL02.r3	+	1.22	yes
GWHACEC00000007	5722901	5737879	SoyL02.r4	+	0.30	no
GWHACEC00000007	5771302	5787654	SoyL02.r5	+	1.85	yes

GWHACEC00000007	5809368	5822857	SoyL02.r6	+	0.33	no
GWHACEC00000007	5856079	5869462	SoyL02.r7	+	0.96	yes
GWHACED00000007	5583480	5597039	SoyL03.r1	-	6.02	yes
GWHACED00000007	5629556	5644661	SoyL03.r2	-	21.54	yes
GWHACED00000007	5698812	5708695	SoyL03.r3	+	0.84	no
GWHACED00000007	5720307	5737592	SoyL03.r4	+	0.65	no
GWHACED00000007	5749468	5763180	SoyL03.r5	+	16.69	yes
GWHACED00000007	5787462	5800590	SoyL03.r6	+	19.32	yes
GWHACED00000007	5828269	5841006	SoyL03.r7	+	6.17	yes
GWHACEE00000007	5498063	5510524	SoyL04.r1	-	2.78	yes
GWHACEE00000007	5534243	5547774	SoyL04.r2	-	0.06	yes
GWHACEE00000007	5591870	5604023	SoyL04.r3	+	1.63	no
GWHACEE00000007	5650168	5660475	SoyL04.r4	+	0.31	no
GWHACEE00000007	5684866	5697007	SoyL04.r5	+	1.12	yes
GWHACEE00000007	5722933	5736802	SoyL04.r6	+	0.26	yes
GWHACEE00000007	5763063	5776025	SoyL04.r7	+	0.91	yes
GWHACEE00000007	5797669	5812695	SoyL04.r8	+	0.29	no
GWHACEE00000007	5852037	5865363	SoyL04.r9	+	2.11	yes
GWHACEE00000007	5895125	5912024	SoyL04.r10	+	1.05	yes
GWHACEF00000007	5612701	5624996	SoyL05.r1	-	4.10	yes
GWHACEF00000007	5650652	5656129	SoyL05.r2	-	0.21	yes
GWHACEF00000007	5693473	5707181	SoyL05.r3	-	39.66	yes
GWHACEF00000007	5757623	5767368	SoyL05.r4	+	0.90	no
GWHACEF00000007	5773634	5778865	SoyL05.r5	+	0.14	no
GWHACEF00000007	5830160	5843140	SoyL05.r6	+	16.94	yes
GWHACEF00000007	5865493	5878992	SoyL05.r7	+	7.17	yes
GWHACEG00000007	5552819	5566115	SoyL06.r1	-	7.55	yes
GWHACEG00000007	5590551	5604132	SoyL06.r2	-	3.70	yes
GWHACEG00000007	5633499	5645522	SoyL06.r3	-	0.92	no
GWHACEG00000007	5653490	5665823	SoyL06.r4	-	14.39	no
GWHACEG00000007	5689948	5695191	SoyL06.r5	-	0.08	no
GWHACEG00000007	5701553	5711300	SoyL06.r6	-	0.59	no
GWHACEG00000007	5764879	5774932	SoyL06.r7	+	26.63	yes
GWHACEG00000007	5794421	5809451	SoyL06.r8	+	0.64	no
GWHACEG00000007	5844669	5861583	SoyL06.r9	+	4.11	yes
GWHACEG00000007	5885731	5896094	SoyL06.r10	+	1.01	no
GWHACEH00000007	5581385	5594677	SoyL07.r1	-	3.37	yes
GWHACEH00000007	5619111	5632691	SoyL07.r2	-	2.68	yes
GWHACEH00000007	5662058	5674081	SoyL07.r3	-	0.57	no
GWHACEH00000007	5682049	5694384	SoyL07.r4	-	12.88	yes
GWHACEH00000007	5740965	5757880	SoyL07.r5	-	2.08	yes
GWHACEH00000007	5793104	5808130	SoyL07.r6	-	0.39	no

GWHACEH00000007	5827618	5837672	SoyL07.r7	-	19.76	no
GWHACEH00000007	5891244	5900989	SoyL07.r8	+	0.29	no
GWHACEH00000007	5907350	5912593	SoyL07.r9	+	0.05	no
GWHACEI00000007	5539358	5552658	SoyL08.r1	-	6.57	yes
GWHACEI00000007	5577099	5590681	SoyL08.r2	-	3.19	no
GWHACEI00000007	5620059	5632082	SoyL08.r3	-	0.83	no
GWHACEI00000007	5640050	5652387	SoyL08.r4	-	13.25	yes
GWHACEI00000007	5698972	5715887	SoyL08.r5	-	5.35	yes
GWHACEI00000007	5751118	5766144	SoyL08.r6	-	0.28	no
GWHACEI00000007	5785632	5795687	SoyL08.r7	-	23.29	yes
GWHACEI00000007	5849276	5859024	SoyL08.r8	+	0.53	no
GWHACEI00000007	5865392	5870635	SoyL08.r9	+	0.04	no
GWHACEJ00000007	5546928	5560620	SoyL09.r1	-	2.55	yes
GWHACEJ00000007	5575798	5590135	SoyL09.r2	-	17.95	yes
GWHACEJ00000007	5670055	5684092	SoyL09.r3	+	0.91	no
GWHACEJ00000007	5713590	5723904	SoyL09.r4	+	0.18	no
GWHACEJ00000007	5748058	5761218	SoyL09.r5	+	8.54	no
GWHACDY00000007	5506580	5519846	SoyW01.r1	-	7.76	no
GWHACDY00000007	5552390	5567052	SoyW01.r2	-	3.09	yes
GWHACDY00000007	5605711	5620748	SoyW01.r3	-	0.23	no
GWHACDY00000007	5652798	5663993	SoyW01.r4	-	0.19	no
GWHACDY00000007	5711183	5724983	SoyW01.r5	+	13.22	yes
GWHACDY00000007	5749791	5762391	SoyW01.r6	+	2.66	yes
GWHACDY00000007	5790528	5808931	SoyW01.r7	+	5.60	yes
GWHACDZ00000007	6745129	6757588	SoyW02.r1	-	1.91	yes
GWHACDZ00000007	6777241	6790598	SoyW02.r2	-	1.08	yes
GWHACDZ00000007	6814978	6828697	SoyW02.r3	-	14.13	yes
GWHACDZ00000007	6875651	6889696	SoyW02.r4	+	0.61	no
GWHACDZ00000007	6932488	6948419	SoyW02.r5	+	3.83	yes
GWHACDZ00000007	6977089	6990574	SoyW02.r6	+	3.89	yes
GWHACEA00000007	2949730	2962040	SoyW03.r1	-	5.22	yes
GWHACEA00000007	2992734	3006262	SoyW03.r2	-	0.23	yes
GWHACEA00000007	3046348	3059866	SoyW03.r3	-	0.83	yes
GWHACEA00000007	3085433	3095885	SoyW03.r4	-	6.12	yes
GWHACEA00000007	3107656	3124240	SoyW03.r5	-	2.12	no
GWHACEA00000007	3142093	3159019	SoyW03.r6	-	0.44	yes
GWHACEA00000007	3184924	3190159	SoyW03.r7	-	2.75	no
GWHACEA00000007	3222552	3235890	SoyW03.r8	-	0.69	no
GWHACEA00000007	3302232	3314531	SoyW03.r9	+	79.78	yes
GWHACEA00000007	3365030	3376806	SoyW03.r10	+	2.74	no
Chr07	5627901	5640373	W05.r1	-	16.49	yes
Chr07	5664158	5677694	W05.r2	-	9.89	yes

Chr07	5721832	5733992	W05.r3	+	2.81	no
Chr07	5780227	5790544	W05.r4	+	0.26	no
Chr07	5814984	5827135	W05.r5	+	14.39	yes
Chr07	5853198	5867107	W05.r6	+	32.52	yes
Chr07	5893478	5906473	W05.r7	+	21.49	yes
Chr07	5928147	5943192	W05.r8	+	0.78	no
Chr07	5982577	5995909	W05.r9	+	1.53	no
Chr07	6025675	6042586	W05.r10	+	5.69	yes
chr7_rc	5530236	5543928	Wms82.r1	-	5.08	yes
chr7_rc	5558994	5573049	Wms82.r2	-	22.37	yes
chr7_rc	5653256	5667279	Wms82.r3	+	0.87	no
chr7_rc	5696765	5713468	Wms82.r4	+	0.06	no
chr7_rc	5723574	5737210	Wms82.r5	+	3.93	yes
chr7_rc	5766276	5780002	Wms82.r6	+	11.29	yes
chr7_rc	5809978	5820276	Wms82.r7	+	0.05	no
chr7_rc	5844431	5857585	Wms82.r8	+	5.24	no
GWHAAEV00000007.1	5569122	5583289	ZH13.v2.r1	-	13.83	yes
GWHAAEV00000007.1	5637865	5651291	ZH13.v2.r2	+	0.92	no
GWHAAEV00000007.1	5672587	5686283	ZH13.v2.r3	+	1.66	yes
GWHAAEV00000007.1	5705779	5720774	ZH13.v2.r4	+	0.52	no
GWHAAEV00000007.1	5754298	5770669	ZH13.v2.r5	+	0.93	yes
GWHAAEV00000007.1	5792405	5805898	ZH13.v2.r6	+	0.38	yes
GWHAAEV00000007.1	5839204	5852602	ZH13.v2.r7	+	0.86	yes

^aTranscriptional Start Region.

Supplemental Table 6. List of the primers and sequences used for fine mapping and expression analysis.

Primer Name	Primer Sequences
SSR-07-286F	AAAAATCAGCACCCATCGAC
SSR-07-286R	AGCCCTGGCCTTATTTTGTT
SSR-07-295F	CTCTCCTTTCATTCCCCACA
SSR-07-295R	TTCTTGGAGCTTCGGAGGTA
InDel-626F	GAACTCCACTTAATCATCTCAC
InDel-626R	TTCACTCCGTCCTCGGCGGCG
InDel-43F	ATTTCCTAATTAAGTGAAAGTTTGAAATGTTATATTA
InDel-43R	GATTTATCACACTATCAAAGTGTATGAC
SSR-300F	TCGCAATATTGGCTACGATG
SSR-300R	CTGAAAACAAAATAAAAGAGAACAAA
Marker176F	CTCTGTCCCCACCTCTCC
Marker176R	CATGGTCAGTTTGATAGC
InDel-327F	TAAGTGATTTCGTTTGAGTCCT
InDel-327R	TATGGTGTGGCTATGGAGATTG
InDel-5.92F	GCATCAACACTTGGCGCAAGC
InDel-5.92R	GGATAATGCGATAATTGTTCTAGC
InDel-6.04F	AAATATAGCACCCCTTAGAG
InDel-6.04R	AGCCTCACTCTCCACAT
SSR-320F	TTTAACTGAAAATACTCCGGCA
SSR-320R	TCATAATTTAAGAGACCAAACCGA
qRT-PCR-F	TGTGAACATTCGTAGTTGTC
qRT-PCR-R	TTCCACTGACTCACAAAAAG
GmActin11F	CGGTGGTTCTATCTTGGCATC
GmActin11R	GTCTTTCGCTTCAATAACCCTA