

**Table S1.** QTLs from composite interval mapping of individual replicates in the ABR6 x Bd21 F<sub>4:5</sub> population.

Isolate <sup>1</sup>	Replicate	Trait <sup>2</sup>	Locus	Chr <sup>3</sup>	cM	EWT <sup>4</sup>	LOD	AEE <sup>5</sup>	PVE <sup>6</sup>
<i>Pst</i> 08/21	1	Browning	<i>Yrr3</i>	Bd2	328.0	2.92	4.87	-0.128	13.8
<i>Pst</i> 08/21	1	Browning	<i>Yrr1</i>	Bd4	146.8	2.92	6.35	-0.124	13.1
<i>Pst</i> 08/21	1	pCOL	-	Bd1	124.3	2.86	3.48	-0.026	4.5
<i>Pst</i> 08/21	1	pCOL	<i>Yrr3</i>	Bd2	328.0	2.86	8.62	-0.051	18.2
<i>Pst</i> 08/21	1	pCOL	<i>Yrr1</i>	Bd4	133.6	2.86	16.52	-0.068	32.5
<i>Pst</i> 08/21	2	Browning	<i>Yrr3</i>	Bd2	328.0	2.67	5.86	-0.193	17.9
<i>Pst</i> 08/21	2	Browning	<i>Yrr1</i>	Bd4	137.7	2.67	4.85	-0.162	11.4
<i>Pst</i> 08/21	2	pCOL	<i>Yrr3</i>	Bd2	328.0	2.83	7.74	-0.047	18.8
<i>Pst</i> 08/21	2	pCOL	<i>Yrr1</i>	Bd4	137.0	2.83	11.28	-0.057	26.5
<i>Pst</i> 08/501	1	Browning	<i>Yrr3</i>	Bd2	328.0	3.03	8.12	-0.329	18.2
<i>Pst</i> 08/501	1	Browning	<i>Yrr1</i>	Bd4	135.0	3.03	9.71	-0.374	23.5
<i>Pst</i> 08/501	1	pCOL	<i>Yrr3</i>	Bd2	328.0	2.74	6.89	-0.027	17.1
<i>Pst</i> 08/501	1	pCOL	<i>Yrr2</i>	Bd4	89.2	2.74	5.85	-0.025	12.1
<i>Pst</i> 08/501	1	pCOL	<i>Yrr1</i>	Bd4	137.0	2.74	5.21	-0.021	9.9
<i>Pst</i> 08/501	2	Browning	<i>Yrr3</i>	Bd2	328.0	2.69	4.52	-0.117	13.9
<i>Pst</i> 08/501	2	Browning	<i>Yrr1</i>	Bd4	135.0	2.69	6.22	-0.131	17.7
<i>Pst</i> 08/501	2	pCOL	<i>Yrr3</i>	Bd2	328.0	3.06	6.94	-0.030	18.0
<i>Pst</i> 08/501	2	pCOL	<i>Yrr2</i>	Bd4	94.1	3.06	3.64	-0.021	11.7
<i>Pst</i> 08/501	2	pCOL	<i>Yrr1</i>	Bd4	135.0	3.06	7.13	-0.024	15.4
<i>Pst</i> 11/08	1	Browning	<i>Yrr3</i>	Bd2	328.9	2.66	5.65	-0.066	14.4
<i>Pst</i> 11/08	1	Browning	<i>Yrr1</i>	Bd4	137.0	2.66	5.79	-0.066	13.9
<i>Pst</i> 11/08	1	pCOL	<i>Yrr3</i>	Bd2	328.0	3.15	11.06	-0.049	18.9
<i>Pst</i> 11/08	1	pCOL	<i>Yrr2</i>	Bd4	133.6	3.15	15.15	-0.065	33.8
<i>Pst</i> 11/08	1	pCOL	-	Bd5	70.3	3.15	3.17	-0.029	6.3
<i>Pst</i> 11/08	2	Browning	<i>Yrr3</i>	Bd2	328.0	2.59	5.07	-0.137	13.1
<i>Pst</i> 11/08	2	Browning	<i>Yrr1</i>	Bd4	144.8	2.59	6.15	-0.143	14.2
<i>Pst</i> 11/08	2	pCOL	<i>Yrr3</i>	Bd2	328.0	2.77	6.88	-0.049	17.3
<i>Pst</i> 11/08	2	pCOL	<i>Yrr1</i>	Bd4	140.8	2.77	6.47	-0.044	12.8
<i>Psh</i> B01/2	1	Browning	-	Bd2	174.4	3.01	3.07	0.168	13.7
<i>Psh</i> B01/2	1	Browning	<i>Yrr3</i>	Bd2	321.7	3.01	3.18	-0.136	9.4
<i>Psh</i> B01/2	1	pCOL	<i>Yrr3</i>	Bd2	328.9	2.99	4.10	-0.035	18.7
<i>Psh</i> B01/2	2	Browning	<i>Yrr3</i>	Bd2	328.0	3.15	10.64	-0.364	28.9
<i>Psh</i> B01/2	2	pCOL	<i>Yrr3</i>	Bd2	328.9	3.15	11.35	-0.098	26.1
<i>Psh</i> B01/2	2	pCOL	-	Bd3	330.6	3.15	5.99	-0.063	12.4

<sup>1</sup>*Puccinia striiformis* isolate (*Pst* = f. sp. *tritici*, *Psh* = f. sp. *hordei*)

<sup>2</sup>Browning = leaf browning; pCOL = percent colonization

<sup>3</sup>Chromosome

<sup>4</sup>Experiment-wide permutation threshold

<sup>5</sup>Additive effect estimate

<sup>6</sup>Percent of variation explained of variation explained