

**Supplemental Table 1.** Means and analysis of variance using a segregating DH population from the cross between KH14 and Sumai3.

SSR Marker	Chr.	No. of lines		Fsarium damaged grains <sup>a</sup>			DON <sup>a</sup>			2004 FHB severity			Heading date <sup>a</sup>			Stem length			Spike length			Thousand grain weight <sup>a</sup>				
		KH14 allele	Sumai3	(% )		F-value	( ppb )		F-value	KH14 allele	Sumai3 allele	F-value	( month.day )		( cm )		( cm )		( g )		F-value	KH14 allele	Sumai3 allele	F-value		
				KH14 allele	Sumai3		KH14 allele	Sumai3					KH14 allele	Sumai3	KH14 allele	Sumai3	KH14 allele	Sumai3	KH14 allele	Sumai3					KH14 allele	Sumai3
<i>Xwmc601</i>	2DL	170	62	1.55	1.70	0.45	1485	1692	0.69	12.5	9.9	0.80	6.21	6.22	0.67	75.6	76.5	0.08	8.60	8.42	0.37	36.3	35.5	0.70		
<i>Xgwm608</i>	2DL	136	91	1.55	1.66	0.26	1462	1658	0.75	13.0	9.8	1.51	6.21	6.22	0.07	75.2	76.5	0.22	8.57	8.48	0.10	36.7	35.0	** 4.43		
<i>Xgwm539</i>	2DL	148	84	1.60	1.56	0.05	1526	1556	0.02	14.5	7.0	** 8.11	6.21	6.22	*	1.68	74.9	77.4	0.77	8.54	8.58	0.01	37.3	33.9	** 16.52	
<i>Xwmc175</i>	2DL	144	87	1.59	1.58	0.01	1619	1409	0.86	12.1	11.3	0.09	6.21	6.22	0.76	75.7	75.8	0.00	8.50	8.62	0.17	36.1	36.1	0.00		
<i>Xgwm389</i>	3BS	127	100	1.83	1.28	** 7.07	1782	1234	** 6.05	13.5	9.3	*	2.85	6.21	6.22	0.03	73.8	78.1	*	2.44	8.42	8.71	1.15	35.7	36.5	0.83
<i>Xgwm533.1</i>	3BS	136	96	1.81	1.26	** 7.22	1764	1216	** 6.08	13.0	10.0	*	1.88	6.22	6.21	0.14	74.5	77.7	1.36	8.44	8.71	0.93	35.8	36.4	0.48	
<i>Xgwm493</i>	3BS	144	88	1.78	1.27	** 6.09	1719	1240	** 4.51	12.1	11.2	0.13	6.22	6.21	0.68	74.9	77.3	0.69	8.44	8.73	1.09	35.7	36.7	1.45		
<i>Xgwm533.2</i>	3BS	131	100	1.68	1.47	1.10	1557	1515	0.04	12.7	10.6	0.66	6.22	6.21	0.08	75.2	76.7	0.31	8.38	8.79	2.22	36.0	36.1	0.01		
<i>Xwmc710</i>	4BS	126	105	1.50	1.69	0.85	1350	1767	** 3.57	13.2	10.2	1.46	6.21	6.22	** 2.95	69.6	83.2	** 24.51	8.41	8.71	1.25	35.0	37.3	** 7.95		
<i>Rht-B1</i>	4BS	124	107	1.52	1.67	0.60	1360	1747	** 3.09	13.5	9.8	*	2.15	6.21	6.22	** 3.52	68.7	84.0	** 31.15	8.35	8.77	*	2.45	35.0	37.3	** 8.13
<i>Xwmc048</i>	4BS	123	106	1.47	1.72	1.57	1344	1760	** 3.57	13.8	9.5	*	2.81	6.21	6.22	** 4.20	69.1	83.6	** 27.54	8.30	8.81	** 3.51	34.9	37.4	** 8.99	
<i>Xwmc238</i>	4BS	113	118	1.46	1.71	1.47	1324	1747	** 3.71	13.7	10.1	*	2.04	6.21	6.22	** 4.34	69.3	81.9	** 21.26	8.38	8.70	1.38	35.1	37.0	** 5.90	
<i>Xgwm513</i>	4BS	122	105	1.48	1.75	* 1.74	1355	1771	** 3.53	12.5	10.4	0.74	6.21	6.22	** 3.23	70.4	82.5	19.61	8.46	8.66	0.54	35.2	37.1	** 5.36		
<i>Xgwm293</i>	5AS	110	121	1.92	1.29	** 9.54	1676	1416	1.41	14.7	9.3	** 4.64	6.21	6.22	1.63	72.3	78.9	** 5.82	8.09	8.96	** 10.24	35.7	36.4	0.91		
<i>Xwmc705</i>	5AS	108	122	1.94	1.28	** 10.53	1699	1407	* 1.76	14.8	9.2	** 5.03	6.21	6.22	1.56	72.1	79.1	** 6.48	8.07	8.96	** 10.70	35.6	36.4	0.97		
<i>Xgwm304</i>	5AS	113	118	1.90	1.28	** 9.61	1669	1398	1.53	14.5	9.0	** 4.93	6.21	6.22	* 2.05	72.7	78.8	** 5.03	8.12	8.97	** 9.86	35.7	36.3	0.54		
<i>Xgwm508</i>	6BS	144	86	1.61	1.55	0.08	1514	1579	0.08	12.1	11.5	0.06	6.21	6.23	** 5.35	74.7	77.7	1.08	8.44	8.77	1.35	35.9	36.5	0.56		
<i>Xwmc398</i>	6BS	140	81	1.69	1.45	1.26	1558	1539	0.01	12.3	10.9	0.27	6.21	6.22	** 6.11	75.2	77.1	0.43	8.43	8.72	1.05	36.1	36.0	0.01		
<i>Xwmc397</i>	6BS	148	84	1.69	1.41	* 1.81	1567	1486	0.12	12.5	10.7	0.46	6.21	6.22	** 6.16	74.9	77.3	0.72	8.42	8.74	1.30	36.2	35.9	0.12		
<i>Xwmc105</i>	6BS	145	82	1.70	1.41	* 1.92	1574	1503	0.10	12.6	10.5	0.64	6.21	6.22	** 6.54	74.7	77.7	1.16	8.43	8.78	1.54	36.1	36.0	0.01		

\* F-value significantly different from 0 at  $P < 0.05$ ; \*\* F-value significantly different from 0 at  $P < 0.01$

<sup>a</sup>Average of two years (2003,2004)