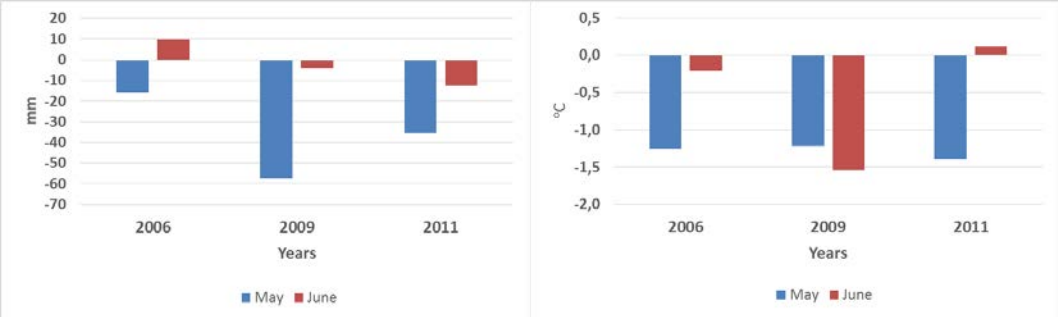

Figure S1. Changes in yearly precipitation (a) and average temperatures (b) in the experimental years obtained from long-term average data (1981-2010) in Martonvásár.

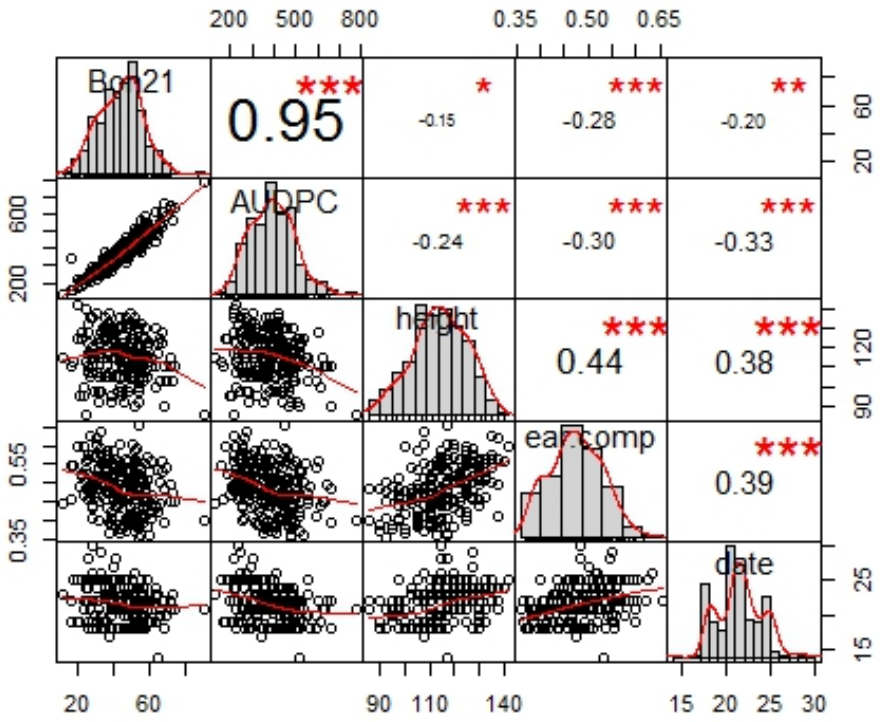

Figure S2. Correlation plot between plant height, ear compactness, date of infection and resistance (Bon21 infection severity 21 days after inoculation; AUDPC: area under the disease progress curve; height: plant height; ear. comp: ear compactness; date: date of the infection).

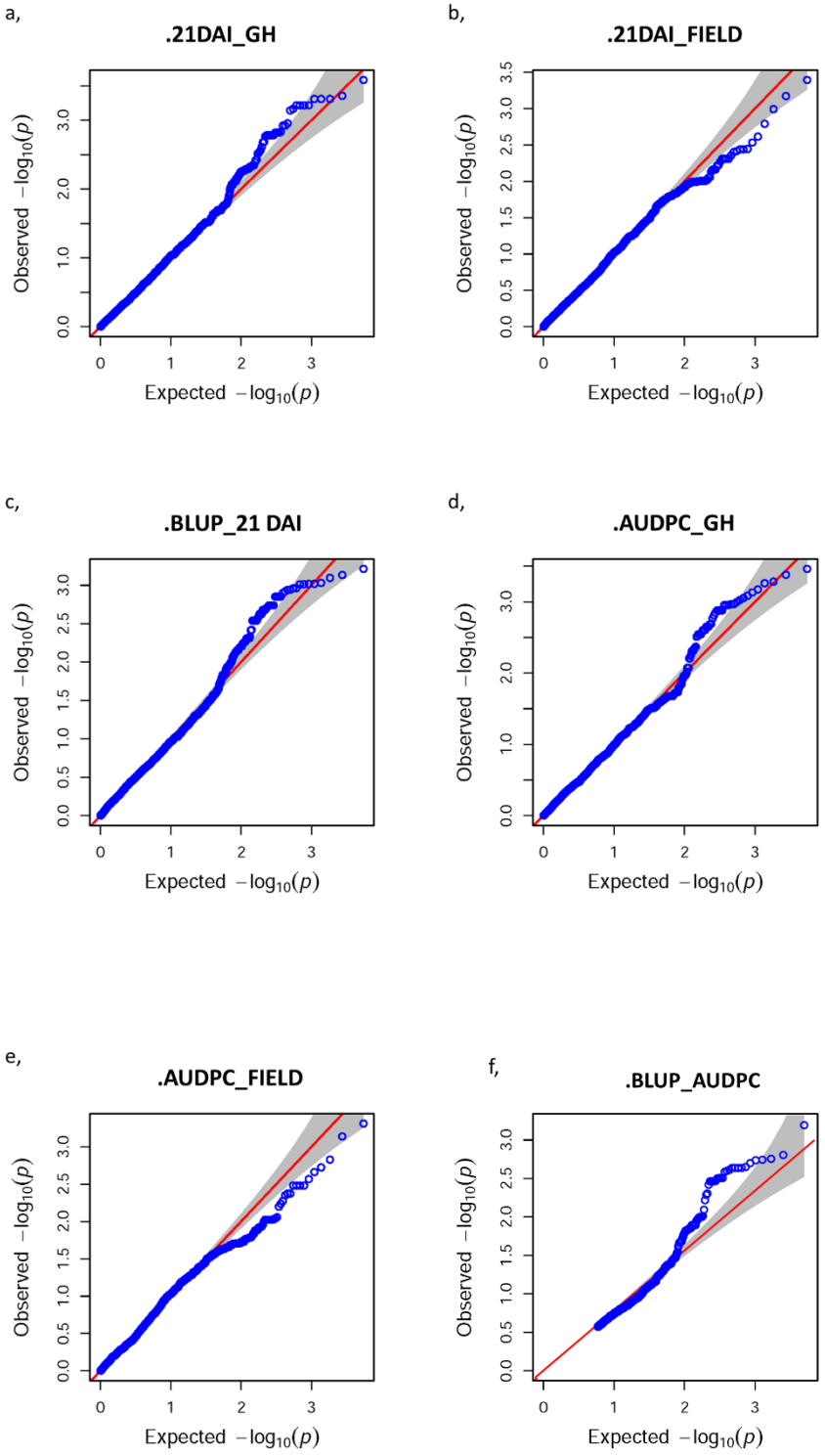

Figure S3. Quantile-quantile plots of the K model for a.: average infection values 21 days after inoculation under greenhouse conditions, b.: average infection values on the 21st day after inoculation under field conditions, c.: BLUP values of infection on the 21st day after inoculation, across years and study sites; d.: average AUDPC values under greenhouse conditions; e.: average AUDPC values under field conditions, f.: AUDPC BLUP values, across all experimental years and sites

Table S1. *p*-values of the significant SNP markers based on 21 DAI (the genotype of the resistant parent is marked with bold, the favourable alleles are underlined, position = iwgsc refseq v2.0).

Marker	polymorphism	Position	Greenhouse			Field				BLUP
			2007	2009	Average	2006	2009	2011	Average	
1B										
RAC875_c5556_328	**C**/**T**	489900921	ns	ns	ns	ns	ns	0,0026	ns	ns
2A										
AX-95126447	A/**G**	24060452	ns	0.0012	ns	ns	ns	ns	ns	ns
BS00065946_51	A/**G**	82131475	ns	ns	ns	ns	0.0024	ns	ns	ns
IAAV4282	**C**/T	82212300	ns	ns	ns	ns	0.0015	ns	0.0029	ns
AX-94960755	A/**C**	187820088	ns	ns	ns	ns	0.0013	ns	ns	ns
AX-94551829	C/**G**	465555046	ns	ns	ns	ns	ns	ns	0.0010	ns
RAC875_c29716_871	**A**/G	607997395	ns	ns	0.0017	ns	ns	ns	0.0007	0.0029
2B										
Tdurum_contig29563_257	**A**/G	28339816	ns	0.0009	0.0017	ns	ns	ns	ns	ns
AX-94393508	**A**/G	542759646	ns	ns	0.0017	ns	ns	ns	ns	0.0029
RAC875_c67311_429	**C**/T	545757334	ns	0.0026	0.0012	ns	ns	ns	ns	0.0021
Ra_c111671_555	A/**G**	546201942	ns	0.0026	0.0012	ns	ns	ns	ns	0.0021
IACX7505	C/**T**	546202143	ns	ns	0.0017	ns	ns	ns	ns	0.0029
AX-94507617	**A**/C	546614125	0,0029	0.0029	0.0011	ns	ns	ns	ns	0.0021
Excalibur_c9580_1142	**C**/T	556685818	ns	ns	0.0029	ns	ns	ns	ns	ns
RFL_Contig2290_184	**C**/T	559430407	ns	0.0006	0.0015	ns	ns	ns	ns	ns
TA006140-0798	**C**/T	560894874	ns	0.0006	0.0021	ns	ns	ns	ns	ns
Kukri_c4097_898	A/**G**	561226926	ns	0.0006	0.0015	ns	ns	ns	ns	ns
BobWhite_c16130_362	**C**/T	561283580	ns	0.0006	0.0015	ns	ns	ns	ns	ns
AX-94440712	A/**G**	563044252	ns	0.0016	ns	ns	ns	ns	ns	ns
BobWhite_c26981_66	**C**/T	563045904	ns	0.0016	ns	ns	ns	ns	ns	ns
wsnp_BE490763B_Ta_2_1	A/**G**	563859648	ns	0.0016	ns	ns	ns	ns	ns	ns
wsnp_BE490763B_Ta_2_2	**C**/T	563859736	ns	0.0016	ns	ns	ns	ns	ns	ns
wsnp_Ex_rep_c67543_66165372	**G**/T	593675081	ns	0.0017	ns	ns	ns	ns	ns	ns
AX-94872625	**A**/G	594172437	ns	0.0017	ns	ns	ns	ns	ns	ns
Kukri_c19751_873	**A**/G	594172460	ns	0.0017	ns	ns	ns	ns	ns	ns
Tdurum_contig30930_184	C/**T**	594201475	ns	0.0010	ns	ns	ns	ns	ns	ns
BS00093993_51	C/**T**	595126581	ns	0.0018	ns	ns	ns	ns	ns	ns
AX-94401657	C/**G**	597550742	ns	0.0021	ns	ns	ns	ns	ns	ns
2D										
BS00047901_51	**A**/G	15967374	ns	0.0008	0.0017	ns	ns	ns	ns	ns
AX-94761296	C/**T**	20061931	ns	0.0005	0.0031	ns	ns	ns	ns	0.0014
Kukri_rep_c106786_230	C/**T**	20632046	ns	0.0015	ns	ns	ns	ns	ns	ns
Kukri_rep_c113120_104	C/**T**	20768643	ns	0.0011	ns	ns	ns	ns	ns	ns
wsnp_JD_rep_c63957_40798121	**A**/G	20768668	ns	0.0011	ns	ns	ns	ns	ns	ns
JD_c63957_1176	**C**/T	20769330	ns	0.0006	ns	ns	ns	ns	ns	0.0025

AX-94782932	C/**T**	21061255	ns	0.0012	ns	ns	ns	ns	ns	ns
AX-95124335	C/**T**	52232863	ns	ns	ns	ns	ns	ns	ns	0.0011
wsnp_Ku_c12022_19520410	A/**G**	62023977	0,0017	0.0025	0.0006	ns	0.0010	ns	0.0004	0.0012
					3A					
IACX9256	A/**G**	387309672	ns	ns	ns	0.0018	ns	ns	ns	ns
					4A					
Excalibur_c13276_1322	A/**G**	40443622	ns	ns	ns	ns	0.0028	ns	ns	ns
wsnp_Ex_c55245_57821568	**A**/G	40879501	ns	ns	ns	ns	0.0028	ns	ns	ns
BS00009970_51	**C**/T	45338252	ns	ns	ns	ns	0.0014	ns	ns	ns
wsnp_JD_c5499_6647799	A/**G**	45338276	ns	ns	ns	ns	0.0014	ns	ns	ns
Kukri_rep_c69389_1215	**A**/G	589591222	ns	ns	ns	ns	0.0024	ns	ns	ns
Jagger_rep_c10288_53	**A**/G	590112289	ns	ns	ns	ns	0.0024	ns	ns	ns
					4B					
RAC875_c2545_1186	**C**/T	558596685	0,0023	ns	ns	ns	ns	ns	ns	ns
Excalibur_c29568_163	**A**/C	646267499	0,0023	ns	ns	ns	ns	ns	ns	ns
Kukri_rep_c103450_1504	**A**/G	646658329	0,0023	ns	ns	ns	ns	ns	ns	ns
Ku_c103450_879	**C**/T	646658954	0,0023	ns	ns	ns	ns	ns	ns	ns
					4D					
AX-94812380	A/**G**	419314379	ns	ns	ns	ns	0.0014	ns	ns	ns
					5A					
AX-94978476	A/**G**	466617397	ns	0.0002	0.0007	ns	ns	ns	ns	0.0006
BS00049403_51	**C**/T	606811421	ns	ns	ns	ns	0.0004	ns	ns	ns
wsnp_Ku_c38543_47157828	**A**/G	697727820	ns	ns	ns	ns	ns	0.0003	ns	0.0011
RAC875_c8642_231	**C**/T	698510039	ns	ns	ns	ns	ns	0.0004	ns	0.0014
Kukri_c25994_609	**A**/G	700356686	ns	ns	ns	ns	ns	0.0008	ns	0.0019
Tdurum_contig8348_831	C/**T**	700443572	ns	ns	ns	ns	ns	0.0004	ns	0.0010
Kukri_c16087_281	C/**T**	702166174	0,0024	ns	0.0027	ns	ns	0.0004	ns	0.0008
Excalibur_c42255_425	A/**C**	702166731	ns	ns	ns	ns	ns	0.0004	ns	0.0010
BS00068108_51	A/**G**	702461388	0,0030	ns	0.0030	ns	ns	0.0003	ns	0.0007
AX-95684743	A/**G**	704833006	ns	ns	ns	ns	ns	0.0008	ns	0.0027
AX-94511212	C/**G**	705439523	ns	ns	ns	ns	ns	0.0004	ns	0.0014
BS00021684_51	A/**C**	705571191	ns	ns	ns	ns	ns	0.0004	ns	0.0014
AX-94457680	C/**G**	706663415	ns	ns	ns	ns	ns	0.0004	ns	0.0010
AX-95231592	A/**G**	708165083	ns	ns	ns	ns	ns	0.0005	ns	0.0018
AX-94974108	A/**G**	708309244	ns	ns	ns	ns	ns	0.0005	ns	0.0018
wsnp_Ex_c20899_30011827	A/**G**	708418265	ns	ns	ns	ns	ns	0.0005	ns	0.0013
Excalibur_c2171_2728	**C**/T	708441431	ns	ns	ns	ns	ns	0.0005	ns	0.0018
wsnp_Ex_c2171_4074003	**C**/T	708442531	ns	ns	ns	ns	ns	0.0005	ns	0.0018
					5B					
AX-95113708	C/**T**	594908682	ns	ns	ns	ns	0.0005	ns	ns	ns
AX-94435882	**C**/G	596905053	ns	ns	ns	ns	0.0002	ns	ns	ns
					6A					
Kukri_c80869_122	C/**T**	100058314	ns	ns	ns	ns	0.0028	ns	ns	ns

BS00010780_51	C/**T**	533259271	ns	ns	ns	0.0025	ns	ns	ns	ns
wsnp_Ra_c11269_18309313	A/**G**	539649467	ns	ns	ns	0.0022	ns	ns	ns	ns
BS00004466_51	**C**/T	599035170	ns	0.0031	ns	ns	ns	ns	ns	ns
					7A					
BobWhite_c5235_710	**A**/G	644117776	0,0023	ns	0.0017	ns	ns	ns	ns	ns
RAC875_c27696_2299	**C**/T	644612985	0,0023	ns	0.0017	ns	ns	ns	ns	ns
AX-94976788	**G**/T	645028871	ns	ns	0.0025	ns	ns	0.0006	0.0016	0.0011
AX-94716924	**C**/G	645029023	0,0018	0.0022	0.0007	ns	ns	0.0007	0.0024	0.0029
Ra_c8394_1381	**A**/G	645092185	0,0023	0.0004	0.0003	ns	ns	0.0024	ns	0.0029
BS00070626_51	A/**G**	645092444	0,0027	0.0009	0.0005	ns	ns	0.0031	ns	0.0029
IAAV6287	A/**C**	645093914	0,0027	0.0009	0.0005	ns	ns	0.0026	ns	0.0024
wsnp_Ku_c1552_3060297	**C**/T	645945000	0,0027	0.0009	0.0005	ns	ns	0.0029	ns	ns
BS00103846_51	C/**T**	646956163	0,0018	0.0016	0.0006	ns	ns	0.0013	ns	0.0024
BS00022202_51	**A**/G	646956313	ns	ns	0.0021	ns	ns	ns	ns	0.0020
BS00034085_51	**A**/C	647307722	0,0018	0.0016	0.0006	ns	ns	ns	ns	0.0009
BS00077891_51	**G**/T	647308649	ns	0.0016	0.0015	ns	ns	ns	ns	0.0024
BobWhite_c30461_131	**C**/T	647933749	0,0015	0.0011	0.0004	ns	ns	ns	ns	ns
TA006231-0789	**C**/T	650626928	0,0018	0.0016	0.0006	ns	ns	ns	ns	0.0010
Kukri_rep_c98227_390	**A**/G	701638322	ns	ns	ns	ns	ns	ns	ns	0.0012

Table S2. *p*-values of the significant markers based on AUDPC values (genotype of the resistant parent is bold, the favourable allele type is underlined, position = iwgsc refseq v2.0).

Marker	polymorphism	Position	Greenhouse			Field				BLUP
			2007	2009	Average	2006	2009	2011	Average	
					2A					
AX-95126447	A/**G**	24060452	ns	0.0004	0.0011	ns	ns	ns	ns	0.0004
GENE-0717_28	**C**/T	29104369	ns	ns	ns	ns	ns	ns	ns	0.0030
Tdurum_contig91519_224	**G**/T	451809379	ns	ns	ns	ns	ns	ns	0.0015	ns
AX-94551829	C/**G**	465555046	ns	ns	ns	ns	0.0017	0.0031	0.0005	ns
					2B					
Tdurum_contig29563_257	**A**/G	28339816	ns	0.0004	0.0006	ns	ns	ns	ns	0.00057
BS00093760_51	**C**/T	44424389	ns	ns	ns	ns	ns	ns	ns	0.00109
RAC875_c67311_429	**C**/T	545757334	ns	ns	ns	ns	ns	ns	ns	0.00260
Ra_c111671_555	A/**G**	546201942	ns	ns	ns	ns	ns	ns	ns	0.00260
AX-94507617	**A**/C	546614125	ns	ns	ns	ns	ns	ns	ns	0.00265
					2D					
BS00047901_51	**A**/G	15967374	ns	0.0004	ns	ns	ns	ns	ns	ns
AX-94908406	C/**T**	15967380	ns	0.0022	0.0005	ns	ns	ns	ns	0.0006
AX-94761296	C/**T**	20061931	ns	0.0001	0.0003	ns	ns	ns	ns	0.0001
Kukri_rep_c106786_230	C/**T**	20632046	ns	0.0004	0.0010	ns	ns	ns	ns	0.0004
Kukri_rep_c113120_104	C/**T**	20768643	ns	0.0003	0.0013	ns	ns	ns	ns	0.0004

wsnp_JD_rep_c63957_40798121	**A**/G	20768668	ns	0.0003	0.0013	ns	ns	ns	ns	0.0004
JD_c63957_1176	**C**/T	20769330	ns	0.0002	0.0009	ns	ns	ns	ns	0.0002
AX-94782932	C/**T**	21061255	ns	0.0003	0.0009	ns	ns	ns	ns	0.0003
AX-95124335	C/**T**	52232863	ns	ns	ns	ns	0.0025	ns	0.0007	ns
3A										
IACX9256	A/**G**	387309672	ns	ns	ns	0.0019	ns	ns	0.0019	ns
4D										
AX-94815171	A/**G**	484155365	ns	0.0024	ns	ns	ns	ns	ns	ns
5A										
AX-94978476	A/**G**	466617397	ns	2.7E-05	0.0004	ns	ns	ns	ns	0.0014
AX-94387470	**A**/G	663914530	ns	9.5E-04	ns	ns	0.0006	ns	ns	ns
AX-95232773	T/**C**	664275024	ns	1.7E-03	ns	ns	ns	ns	ns	ns
AX-94488939	A/**C**	664484721	ns	2.8E-03	ns	ns	ns	ns	ns	ns
BobWhite_c27193_217	A/**G**	664550549	ns	2.4E-03	ns	ns	ns	ns	ns	ns
BS00091080_51	C/**T**	691828137	0,0027	ns	ns	ns	ns	ns	ns	0.0025
wsnp_Ku_c38543_47157828	**A**/G	697727820	0,0012	ns	0.0014	ns	ns	ns	ns	0.0004
RAC875_c8642_231	**C**/T	698510039	0,0013	ns	0.0022	ns	ns	0.0025	ns	0.0006
Kukri_c25994_609	**A**/G	700356686	0,0010	ns	0.0031	ns	ns	0.0030	ns	0.0007
Tdurum_contig8348_831	C/**T**	700443572	0,0006	ns	0.0013	ns	ns	0.0030	ns	0.0004
Kukri_c16087_281	C/**T**	702166174	0,0004	ns	0.0007	ns	ns	0.0025	ns	0.0003
Excalibur_c42255_425	A/**C**	702166731	0,0007	ns	0.0011	ns	ns	0.0025	ns	0.0003
BS00068108_51	A/**G**	702461388	0,0005	ns	0.0008	ns	ns	0.0025	ns	0.0003
AX-94511212	C/**G**	705439523	0,0013	ns	0.0022	ns	ns	0.0030	ns	0.0006
BS00021684_51	A/**C**	705571191	0,0013	ns	0.0022	ns	ns	0.0030	ns	0.0006
AX-94457680	C/**G**	706663415	0,0006	ns	0.0013	ns	ns	0.0030	ns	0.0004
AX-95231592	A/**G**	708165083	0,0016	ns	0.0029	ns	ns	0.0030	ns	0.0006
AX-94974108	A/**G**	708309244	0,0016	ns	0.0029	ns	ns	0.0030	ns	0.0006
wsnp_Ex_c20899_30011827	**A**/G	708418265	0,0007	ns	0.0017	ns	ns	0.0030	ns	0.0004
Excalibur_c2171_2728	**C**/T	708441431	0,0016	ns	0.0029	ns	ns	0.0030	ns	0.0006
wsnp_Ex_c2171_4074003	**C**/T	708442531	0,0016	ns	0.0029	ns	ns	0.0030	ns	0.0006
5B										
AX-95113708	C/**T**	594908682	ns	ns	ns	ns	0.0005	ns	ns	ns
AX-94435882	**C**/G	596905053	ns	ns	ns	ns	0.0003	ns	ns	ns
5D										
wsnp_Ex_c33327_41834973	C/**T**	349866506	ns	0.0006	0.0016	ns	ns	ns	ns	ns
6A										
BS00010780_51	C/**T**	533259271	ns	ns	ns	0.0032	ns	ns	ns	ns
wsnp_Ra_c11269_18309313	A/**G**	539649467	ns	ns	ns	0.0028	ns	ns	0.0022	ns
6B										
CAP12_c2701_221	C/**T**	625244494	ns	ns	ns	ns	0.0025	ns	ns	ns
7A										
Ku_c12139_1714	C/**T**	127834174	ns	ns	0.0027	ns	ns	0.0022	ns	0.0026
AX-94716924	**C**/G	645029023	ns	ns	0.0021	ns	ns	0.0021	ns	0.0020

Ra_c8394_1381	**A**/G	645092185	ns	0.0006	0.0007	ns	ns	0.0021	ns	ns
BS00070626_51	A/**G**	645092444	ns	0.0013	0.0011	ns	ns	ns	ns	ns
IAAV6287	A/**C**	645093914	ns	0.0013	0.0011	ns	ns	ns	ns	ns
wsnp_Ku_c1552_3060297	**C**/T	645945000	ns	0.0013	0.0011	ns	ns	ns	ns	ns
BS00103846_51	C/**T**	646956163	ns	ns	0.0025	ns	ns	ns	ns	ns
BS00034085_51	**A**/C	647307722	ns	ns	0.0025	ns	ns	ns	ns	ns
BS00077891_51	**G**/T	647308649	ns	0.0024	0.0031	ns	ns	ns	ns	0.0030
BobWhite_c30461_131	**C**/T	647933749	ns	0.0024	0.0020	ns	ns	ns	ns	0.0027
TA006231-0789	**C**/T	650626928	ns	ns	0.0025	ns	ns	ns	0.0027	ns