

Accessory Publications

Table S1. The SRAP primers used in this study.

Upper primers		Lower primers	
Code	Sequence (5'-3') ^a	Code	Sequence (5'-3') ^a
A	em-AAT	1	me-ATA
B	em-TGC	2	me-AGC
C	em-GAC	3	me-AAT
D	em-TGA	4	me-ACC
E	em-AAC	5	me-AAG
F	em-GCA	6	me-TAG
G	em-ATG	7	me-TTG
H	em-AGC	8	me-TGT
I	em-ACG	9	me-TCA
J	em-TAG	10	me-TAC
K	em-TCG		
L	em-GTC		
M	em-GGT		
N	em-CAG		
O	em-CTG		
P	em-CGG		
Q	em-CCA		

^a The core sequences of primers for amplification were: em-=GACTGCGTACGAATT; me-=TGAGTCCAAACCGG.

Table S2. The AFLP primers used in this study

<i>EcoR</i> I primers ^a		<i>Pst</i> I primers ^a		<i>Mse</i> I primers ^a	
Code	Sequence (5'-3')	Code	Sequence (5'-3')	Code	Sequence (5'-3')
E1	E-AAA	P1	P-AGA	M1	M-CAA
E2	E-AAT	P2	P-AGT	M2	M-CAT
E3	E-AAC	P3	P-CAC	M3	M-CAC
E4	E-AAG	P4	P-CAG	M4	M-CAG
E5	E-ATA	P5	P-CCA	M5	M-CTA
E6	E-ATT	P6	P-CTG	M6	M-CTT
E7	E-ATC	P7	P-GCA	M7	M-CTC
E8	E-ATG	P8	P-GCT	M8	M-CTG
E9	E-ACA	P9	P-GGA	M9	M-CCA
E10	E-ACT	P10	P-GGT	M10	M-CCT
E11	E-ACC	P11	P-GTT	M11	M-CCC
E12	E-ACG	P12	P-TGA	M12	M-CCG
E13	E-AGA	P13	P-TGT	M13	M-CGA
E14	E-AGT	P14	P-TGC	M14	M-CGT
E15	E-AGC			M15	M-CGC
E16	E-AGG			M16	M-CGG

^aThe core sequences of primers for amplification were: E-= GACTGCGTACCAATT C; P-= GACTGCGTACATGCAG; M-= GATGAGTCCTGAGTAA.

Table S3 Characteristics of detected QTLs for each trait measured in two different locations

Trait	QTL	location	LG	Closest neighboring locus	Marker interval	Maximum LOD score	Additive value	Dominant Value	Percentage variance explained	Functional markers
PH	Qph1.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	1	CB10597	CB10597/AUXDR-2	2.85	-2.56	-5.10	10.41	-
	Qph2.1	Wuhan	2	BKCOAS	BKCOAS/CN33b	3.16	5.11	13.20	17.31	BKCOAS
		Jingmen	-	-	-	-	-	-	-	-
	Qph2.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	J10-2-280	J10-2-280/B4-1-330	2.68	5.39	-2.13	6.55	-
	Qph2.3	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	CN34	CN34/J2-4-180	2.82	4.59	-2.06	5.80	-
	Qph2.4	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	DNAPL-2	DNAPL-2/P4-5-260	2.89	2.61	2.69	6.19	DNAPL-2
	Qph4.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	4	RM5-300	RM5-300/DNAJ	2.85	3.71	3.61	10.78	-
	Qph6.1	Wuhan	6	VHSD	CB10006/VHSD	2.93	4.55	6.58	8.22	VHSD
		Jingmen	-	-	-	-	-	-	-	-
	Qph7.1^a	Wuhan	7	CB10526	F7-1-130/CB10526	5.59	7.18	0.50	13.64	-
		Jingmen	7	F7-1-130	F7-1-130/CB10526	4.80	4.64	6.15	11.35	-
	Qph7.2	Wuhan	7	RM5-130	Ra2-A01/CB10569	6.10	12.26	0.18	19.68	-
		Jingmen	7	B5-1-280	Ra2-A01/RM5-130	4.42	3.93	1.48	9.81	-
	Qph7.3	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	7	B5-2-270	CN64/RabGAP-1	4.26	3.82	3.75	10.40	RabGAP-1
	Qph9.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	9	PM8-112	PM8-112/CB10298	2.72	-2.72	2.67	8.29	-
	Qph9.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	9	CB10311	CB10311/CHS-1	2.52	-1.55	-4.35	5.79	-
	Qph10.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	10	NAM-2	C5-1-550/NAM-2	3.30	2.07	-5.54	6.56	NAM-2
	Qph15.1	Wuhan	15	Ra1-F06	Ra1-F06/Na10-E08	2.54	-1.30	5.82	5.86	-
		Jingmen	-	-	-	-	-	-	-	-
Qph19.1	Wuhan	-	-	-	-	-	-	-	-	
	Jingmen	19	PM1-230	L9-1-340/LADC	3.88	6.32	-9.12	12.33	LADC	
HPB	Qhpb1.1	Wuhan	1	AUXDR-1	AUXDR-1/Na14-F11a	2.81	3.71	-5.43	6.74	AUXDR-1
		Jingmen	-	-	-	-	-	-	-	-
	Qhpb1.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	1	CB10597	CB10597/AUXDR-2	2.60	-8.90	1.35	10.02	-
	Qhpb2.1	Wuhan	2	AUXR	AUXR/EIF-4F	2.51	2.55	2.51	5.75	AUXR
		Jingmen	-	-	-	-	-	-	-	-
	Qhpb2.2	Wuhan	2	J2-4-180	CN34/DNAPL-2	3.00	1.74	4.42	6.84	DNAPL-2
		Jingmen	-	-	-	-	-	-	-	-
	Qhpb3.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	3	Q6-3-850	N1-1-280/Q6-3-850	3.44	0.83	-6.63	10.67	-
	Qhpb7.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	7	KEMP	BRMS-036/C2H2T-2	5.59	2.62	8.64	18.24	KEMP,C2H2T-2
	Qhpb7.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	7	SUC-2	SUC-2/RPSaA	10.21	-3.34	9.26	21.55	SUC-2, RPSaA
	Qhpb7.3	Wuhan	7	PM9-130	BRAS004/RabGAP-2	5.50	4.66	1.21	11.47	C2H2T-1, RabGAP-2
		Jingmen	7	PM9-130	BRAS004/RabGAP-2	3.95	4.68	-0.32	9.22	C2H2T-1, RabGAP-2
	Qhpb7.4	Wuhan	7	B5-1-280	CN67/CB10569	6.39	5.45	0.64	13.98	-
		Jingmen	7	B5-1-280	CN67/RM5-130	4.38	4.76	-0.27	10.26	-
Qhpb7.5	Wuhan	7	P9-3-160	P9-3-160/PM3-248	4.79	15.7	6.45	12.35	-	
	Jingmen	-	-	-	-	-	-	-	-	
LMI	Qlmi2.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	CN34	CN34/J2-4-180	2.83	3.17	-1.48	6.73	-
	Qlmi7.1	Wuhan	7	BRMS-036	BRMS-036/KEMP	4.23	3.53	-4.48	14.37	KEMP
		Jingmen	7	KEMP	BRMS-036/KEMP	7.27	4.69	-6.02	22.60	KEMP
	Qlmi7.2	Wuhan	7	SUC-2	SUC-2/CB10526	4.67	3.27	-3.30	8.69	SUC-2, RPSaA
		Jingmen	7	SUC-2	SUC-2/RPSaA	5.68	6.02	-4.70	12.11	SUC-2, RPSaA
	Qlmi7.3	Wuhan	7	BRAS004	BRAS004/C2H2T-1	12.30	-1.31	-0.63	5.06	-
		Jingmen	-	-	-	-	-	-	-	-
	Qlmi7.4	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	7	RabGAP-2	RabGAP-2/Ra2-A01	2.64	-1.88	-1.29	6.38	RabGAP-2
	Qlmi7.5	Wuhan	7	B5-1-280	B5-1-280/RM5-130	2.79	-2.47	0.70	6.04	-
		Jingmen	-	-	-	-	-	-	-	-
	Qlmi7.6	Wuhan	7	AT103	J8-1-580/AT103	2.99	-1.65	-0.54	5.67	AT103
	Jingmen	7	J8-1-580	P9-3-160/PM3-248	2.89	-3.35	-4.71	7.16	-	
Qlmi10.1	Wuhan	10	NAM-2	C5-1-550/NAM-2	2.77	2.22	-2.28	5.28	NAM-2	
	Jingmen	-	-	-	-	-	-	-	-	
Qlmi13.1	Wuhan	13	FERRIT-1	FERRIT-1/CN38b	5.40	-3.49	2.37	15.24	FERRIT-1	
	Jingmen	-	-	-	-	-	-	-	-	

Table S3 (Continued)

Trait	QTL	location	LG	Closest neighboring locus	Marker interval	Maximum LOD score	Additive value	Dominant Value	Percentage variance explained	Functional markers
	Qlmi13.2	Wuhan	13	PM9-450	PM9-450/CN38a	5.92	-4.70	3.66	18.88	-
		Jingmen	-	-	-	-	-	-	-	-
	Qlmi13.3	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	13	CPS	BRAS051b/H9-3-150	3.70	-1.87	-1.59	11.08	CPS
	Qlmi14.1	Wuhan	14	RRM-2	RRM-2/PM9-134	4.28	5.16	-4.78	36.68	RRM-2
		Jingmen	14	RRM-2	PM4-130/RRM-2	2.71	6.44	-6.11	26.54	THRXX, RRM-2
	Qlmi19.1	Wuhan	19	LADC	PM1-230/O112-A04	4.56	3.40	-5.11	14.42	LADC
		Jingmen	-	-	-	-	-	-	-	-
	Qlmi19.2	Wuhan	19	J2-2-250	J2-2-250/PM1-500	3.60	9.99	-4.36	18.26	-
		Jingmen	-	-	-	-	-	-	-	-
ELMI	Qelmi1.1	Wuhan	1	SCPT	ACT2-2/SCPT	3.29	2.72	-2.29	6.20	ACT2-2, SCPT
		Jingmen	-	-	-	-	-	-	-	-
	Qelmi2.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	CN34	CN34/J2-4-180	2.84	2.71	-0.86	6.35	-
	Qelmi6.1	Wuhan	6	G10-1-160	CB10006/G10-1-160	2.56	2.96	0.07	9.02	-
		Jingmen	-	-	-	-	-	-	-	-
	Qelmi6.2	Wuhan	6	VHSD	G10-1-160/VHSD	2.68	3.49	-1.32	14.16	VHSD
		Jingmen	-	-	-	-	-	-	-	-
	Qelmi7.1	Wuhan	7	BRMS-036	BRMS-036/KEMP	4.76	3.66	-4.11	11.75	KEMP
		Jingmen	7	KEMP	BRMS-036/KEMP	4.19	2.61	-4.61	13.40	KEMP
	Qelmi7.2	Wuhan	7	RPSaA	SUC-2/F7-1-130	4.84	3.09	-3.59	8.88	SUC-2, RPSaA
		Jingmen	-	-	-	-	-	-	-	-
	Qelmi7.3	Wuhan	7	BRAS004	BRAS004/C2H2T-1	2.72	-1.53	-0.43	5.12	-
		Jingmen	-	-	-	-	-	-	-	-
	Qelmi10.1	Wuhan	10	NAM-2	C5-1-550/NAM-2	2.81	2.32	-2.16	5.33	NAM-2
		Jingmen	-	-	-	-	-	-	-	-
	Qelmi13.1	Wuhan	13	FERRIT-1	FERRIT-1/CN38b	4.40	-3.09	1.90	12.40	FERRIT-1
		Jingmen	-	-	-	-	-	-	-	-
	Qelmi13.2	Wuhan	13	PM9-450	CN38b/CN38a	5.40	-4.95	4.02	18.12	-
		Jingmen	-	-	-	-	-	-	-	-
	Qelmi13.3	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	13	CPS	BRAS051b/CPS	3.31	-1.32	-1.81	11.13	CPS
	Qelmi14.1	Wuhan	14	PM9-134	RRM-2/PM9-134	5.14	4.68	-4.26	34.16	RRM-2
		Jingmen	-	-	-	-	-	-	-	-
	Qelmi19.1	Wuhan	19	LADC	L9-1-340/O112-A04	3.78	3.68	-4.59	10.84	LADC
		Jingmen	-	-	-	-	-	-	-	-
SMI	Qsmi2.1	Wuhan	2	BKCOAS	BKCOAS/CN33b	2.99	4.75	13.27	21.83	BKCOAS
		Jingmen	-	-	-	-	-	-	-	-
	Qsmi2.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	AUXR	AUXR/EIF-4F	3.27	4.10	-0.09	9.13	AUXR, EIF-4F
	Qsmi2.3	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	CN34	C3-3-125/CN34	5.51	4.51	-1.59	11.63	-
	Qsmi2.4	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	DNAPL-2	DNAPL-2/P4-5-260	2.67	2.00	1.48	5.78	DNAPL-2
	Qsmi6.1	Wuhan	6	VHSD	VHSD/STPOZ	3.72	6.84	-1.23	18.12	VHSD
		Jingmen	-	-	-	-	-	-	-	-
	Qsmi7.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	7	BRMS-036	BRMS-036/KEMP	3.91	4.62	-3.06	13.08	KEMP
	Qsmi9.1	Wuhan	9	RM5-375	O7-4-140/RM5-375	3.51	5.84	-8.40	12.06	-
		Jingmen	-	-	-	-	-	-	-	-
	Qsmi10.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	10	RM11-220	PM8-120/RM11-210	3.25	5.04	-2.34	7.66	-
	Qsmi12.1	Wuhan	12	GAPA	CN35/PM1-358	6.97	-4.17	8.15	13.39	GAPA
		Jingmen	-	-	-	-	-	-	-	-
	Qsmi14.1	Wuhan	14	PTPTP	PTPTP/CB10355	2.82	5.47	-2.47	7.45	PTPTP
		Jingmen	-	-	-	-	-	-	-	-
SDMI	Qsdmi2.1	Wuhan	2	PM5-450	H9-1-270/AUXR	5.07	0.10	0.04	9.15	AUXR
		Jingmen	-	-	-	-	-	-	-	-
	Qsdmi2.2	Wuhan	2	J10-2-280	EIF-4F/J10-2-280	3.47	0.07	0.01	6.00	EIF-4F
		Jingmen	-	-	-	-	-	-	-	-
	Qsdmi7.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	7	BRMS-036	BRMS-036/KEMP	3.18	-0.02	0.12	12.16	KEMP
	Qsdmi7.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	7	RPSaA	SUC-2/F7-1-130	5.70	-0.14	0.14	11.43	SUC-2, RPSaA
	Qsdmi7.3	Wuhan	7	BRAS004	CB10526/C2H2T-1	8.25	0.10	0.03	14.57	C2H2T-1
		Jingmen	-	-	-	-	-	-	-	-

Table S3 (Continued)

Trait	QTL	location	LG	Closest neighboring locus	Marker interval	Maximum LOD score	Additive value	Dominant Value	Percentage variance explained	Functional markers
SDMI	Qsdmi7.4	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	7	RabGAP-2	BRAS004/Ra2-A01	3.42	0.08	0.01	7.74	C2H2T-1, RabGAP-2
	Qsdmi7.5	Wuhan	7	CN67	Ra2-A01/B5-1-280	12.04	0.14	-0.03	20.47	-
		Jingmen	-	-	-	-	-	-	-	-
	Qsdmi7.6	Wuhan	7	AT103	PM3-248/CN64	7.10	0.11	0.01	12.76	AT103
		Jingmen	-	-	-	-	-	-	-	-
	Qsdmi7.7	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	7	CN64	CN64/B5-2-270	2.57	0.08	-0.03	5.37	-
	Qsdmi8.1	Wuhan	8	Ra2-E11	Ra2-E11/Ra2-E12	3.69	-0.09	0.01	5.55	-
		Jingmen	-	-	-	-	-	-	-	-
	Qsdmi10.1	Wuhan	10	CYPRT-2	CYPRT-2/Na12-E09	2.72	0.10	-0.05	4.48	CYPRT-2
		Jingmen	-	-	-	-	-	-	-	-
	Qsdmi10.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	10	SCPS-2	SCPS-2/CYPRT-3	3.45	0.10	-0.04	9.64	SCPS-2, CYPRT-3
	Qsdmi14.1	Wuhan	14	PM9-134	RRM-2/PM9-134	3.28	-0.12	0.10	14.53	RRM-2
		Jingmen	14	PM9-134	RRM-2/RM12-355	3.29	-0.12	0.13	20.51	RRM-2
Qsdmi16.1	Wuhan	16	J8-2-400	K8-2-330/J8-2-400	3.19	-0.10	0.00	7.38	-	
	Jingmen	-	-	-	-	-	-	-	-	
FB	Qfb2.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	AUXR	MR52a/AUXR	3.47	0.58	0.19	8.22	AUXR, EIF-4F
	Qfb3.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	3	BRMS-042	BRMS-042/CAS1	2.58	0.51	-0.32	5.71	-
	Qfb6.1	Wuhan	6	KRCP-1	CB10330/KRCP-1	2.74	-0.65	0.69	5.47	KRCP-1
		Jingmen	-	-	-	-	-	-	-	-
	Qfb6.2	Wuhan	6	VHSD	G10-1-160/VHSD	2.70	0.14	0.89	9.78	VHSD
		Jingmen	-	-	-	-	-	-	-	-
	Qfb7.1	Wuhan	7	RM5-130	CN67/CB10569	7.18	1.10	0.22	16.76	-
		Jingmen	-	-	-	-	-	-	-	-
	Qfb7.2	Wuhan	7	CN64	AT103/H4-2-190	5.45	0.58	0.09	9.75	AT103, RabGAP-1
		Jingmen	-	-	-	-	-	-	-	-
	Qfb8.1	Wuhan	8	Ra2-E12	Ra2-E12/RM2-128	2.95	-0.60	0.02	6.45	-
		Jingmen	-	-	-	-	-	-	-	-
	Qfb12.1	Wuhan	12	BRAS051c	I9-2-180/CN35	11.64	1.58	-1.54	27.39	-
		Jingmen	12	I9-2-180	CN75/CN35	4.47	0.93	-0.87	12.47	-
	Qfb12.2	Wuhan	12	CB10057	PM1-358/OI12-F11a	5.58	1.19	-1.02	14.12	-
		Jingmen	12	CB10057	PM1-358/OI12-F11a	5.28	1.04	-0.91	14.96	-
	Qfb12.3	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	12	CB10302	CB10302/O7-2-240	4.22	0.94	-0.54	15.05	-
	Qfb13.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	13	K4-3-120	K4-3-120/ATPS	3.10	-0.36	-0.09	7.28	ATPS
Qfb14.1	Wuhan	-	-	-	-	-	-	-	-	
	Jingmen	14	RRM-2	RRM-2/PM9-134	2.59	-0.92	0.79	28.48	RRM-2	
SFB	Qsfb2.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	AUXR	AUXR/EIF-4F	3.47	8.82	6.86	3.02	AUXR, EIF-4F
	Qsfb2.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	CN34	CN34/J2-4-180	3.46	11.12	0.23	7.14	-
	Qsfb6.1	Wuhan	6	CN59	CN59/Na12-B12	3.72	-35.67	15.02	6.76	-
		Jingmen	-	-	-	-	-	-	-	-
	Qsfb6.2	Wuhan	6	PI-2-220	IRONT/athA-1	6.09	-67.70	18.99	12.14	IRONT, CDKC-1, athA-1, athA-2
		Jingmen	-	-	-	-	-	-	-	-
	Qsfb6.3	Wuhan	6	G10-1-160	OMET-1/VHSD	4.70	3.68	26.72	14.43	OMET-1, VHSD
		Jingmen	-	-	-	-	-	-	-	-
	Qsfb7.1	Wuhan	7	KEMP	KEMP/SUC-2	4.20	16.16	7.07	9.48	KEMP, C2H2T-2, SUC-2
		Jingmen	-	-	-	-	-	-	-	-
	Qsfb7.2	Wuhan	7	CB10526	RPSaA/CB10526	3.46	16.88	7.04	7.87	RPSaA
		Jingmen	-	-	-	-	-	-	-	-
	Qsfb12.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	12	ANL2	APL-1/CN75	2.82	22.77	-22.42	9.59	APL-1, ANL2, CHS-2, APL-2,
	Qsfb13.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	13	APRR2-1	CPS/K4-3-120	3.18	-10.49	2.40	4.48	CPS, APRR2-1
	Qss2.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	J10-2-280	J10-2-280/B4-1-330	2.62	-0.29	-0.38	6.61	-
	Qss2.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	DNAPL-2	DNAPL-2/C3-2-120	3.92	-0.04	-1.42	10.74	DNAPL-2, LD
Qss7.1	Wuhan	7	SUC-2	SUC-2/F7-1-130	3.51	0.74	-1.17	6.42	SUC-2, RPSaA	
	Jingmen	-	-	-	-	-	-	-	-	
Qss7.2	Wuhan	7	CN62	CN62/RM2-180	3.35	0.97	-0.14	6.64	-	
	Jingmen	-	-	-	-	-	-	-	-	

Table S3 (Continued)

Trait	QTL	location	LG	Closest neighboring locus	Marker interval	Maximum LOD score	Additive value	Dominant Value	Percentage variance explained	Functional markers
SS	Qss10.1	Wuhan	10	B8-1-180	B8-1-180/pMR33	2.64	-0.07	-0.89	5.75	-
		Jingmen	-	-	-	-	-	-	-	-
	Qss12.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	12	UXS-3	A2-310/PM3-187	3.28	0.94	-0.45	9.67	UXS-3
Qss12.2	Wuhan	12	CB10204	CB10204/N4-2-180	5.35	1.61	-1.62	18.37	-	
	Jingmen	-	-	-	-	-	-	-	-	
SW	Qsw7.1	Wuhan	7	BRMS-036	BRMS-036/KEMP	2.92	-0.04	-0.12	7.26	-
		Jingmen	-	-	-	-	-	-	-	-
	Qsw7.2	Wuhan	7	RPSaA	C2H2T-2/RPSaA	5.55	0.17	-0.27	9.26	SUC-2, RPSaA, C2H2T-2
		Jingmen	7	SUC-2	SUC-2/RPSaA	5.31	0.27	-0.14	10.26	SUC-2, RPSaA
	Qsw7.3	Wuhan	7	BRAS004	F7-1-130/C2H2T-1	3.99	-0.10	-0.07	6.75	C2H2T-1
		Jingmen	-	-	-	-	-	-	-	-
	Qsw7.4	Wuhan	7	CN67	Ra2-A01/B5-1-280	3.49	-0.12	-0.02	6.12	-
		Jingmen	-	-	-	-	-	-	-	-
	Qsw7.5	Wuhan	7	PM3-248	J8-1-580/AT103	4.39	-0.29	-0.13	9.66	AT103
		Jingmen	-	-	-	-	-	-	-	-
	Qsw7.6	Wuhan	7	RabGAP-1	B5-2-270/O110-D03c	3.33	-0.14	-0.19	7.28	RabGAP-1
		Jingmen	-	-	-	-	-	-	-	-
	Qsw7.7	Wuhan	7	PM3-292	PM2-340/GCIP1	8.6	-0.25	-0.06	18.12	GCIP1
		Jingmen	-	-	-	-	-	-	-	-
	Qsw7.8	Wuhan	7	CN62	CN62/CN63d	8.96	-0.26	0.00	17.66	-
		Jingmen	7	CN63d	CN62/CN63d	4.51	-0.13	-0.05	12.13	-
Qsw7.9	Wuhan	-	-	-	-	-	-	-	-	
	Jingmen	7	RM2-184	RM2-184/CN63b	2.94	-0.17	-0.06	12.55	-	
Qsw12.1	Wuhan	-	-	-	-	-	-	-	-	
	Jingmen	12	PM3-175	PM3-175/RM14-355	3.03	-0.05	-0.15	6.84	-	
Qsw14.1	Wuhan	-	-	-	-	-	-	-	-	
	Jingmen	14	CB10355	PTPTP/CB10355	2.90	0.14	-0.09	5.62	PTPTP	
Qsw14.2	Wuhan	14	PM9-134	RRM-2/PM9-134	5.49	0.29	-0.32	25.86	RRM-2	
	Jingmen	-	-	-	-	-	-	-	-	
YP	Qyp2.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	AUXR	AUXR/EIF-4F	2.75	0.91	0.08	7.56	AUXR
	Qyp2.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	CN34	CN34/J2-4-180	3.99	0.96	-0.16	8.75	-
	Qyp6.1	Wuhan	6	IRONT	IRONT/P1-2-220	2.81	-2.10	0.46	5.74	IRONT
		Jingmen	-	-	-	-	-	-	-	-
	Qyp6.2	Wuhan	6	VHSD	VHSD/STPOZ	3.11	6.29	1.94	32.08	VHSD
		Jingmen	-	-	-	-	-	-	-	-
	Qyp7.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	7	KEMP	KEMP/C2H2T-2	2.52	0.98	-0.66	7.04	KEMP
	Qyp7.2	Wuhan	7	RPSaA	RPSaA/CB10526	4.87	6.57	-1.74	15.74	RPSaA
		Jingmen	-	-	-	-	-	-	-	-
	Qyp9.1	Wuhan	9	CHS-1	CHS-1/RPPOB-3	2.55	0.76	-5.97	14.13	RPPOB-3
		Jingmen	-	-	-	-	-	-	-	-
Qyp9.2	Wuhan	9	athb-1	Na10-F01b/athb-1	2.71	2.20	-6.12	9.92	athb-1	
	Jingmen	-	-	-	-	-	-	-	-	
Qyp13.1	Wuhan	-	-	-	-	-	-	-	-	
	Jingmen	13	ATPS	K4-3-120/ATPS	4.23	-0.07	-1.02	15.51	ATPS	
Qyp14.1	Wuhan	14	RM7-165	PM9-134/PM4-362	3.08	5.99	-5.64	36.00	-	
	Jingmen	-	-	-	-	-	-	-	-	
SP	Qsp2.1	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	AUXR	AUXR/J10-2-280	4.62	14.31	7.51	12.22	AUXR, EIF-4F
	Qsp2.2	Wuhan	-	-	-	-	-	-	-	-
		Jingmen	2	CN34	CN34/J2-4-180	4.89	16.04	-0.51	10.39	-
	Qsp6.1	Wuhan	6	CN59	CN59/Na12-H07	2.65	-28.21	10.40	5.13	-
		Jingmen	-	-	-	-	-	-	-	-
	Qsp6.2	Wuhan	6	P1-2-220	IRONT/athA-1	4.27	-41.29	11.96	8.34	IRONT, CDKC-1, athA-1, athA-2
		Jingmen	-	-	-	-	-	-	-	-
	Qsp6.3	Wuhan	6	VHSD	VHSD/STPOZ	5.72	25.41	45.66	26.20	VHSD
		Jingmen	-	-	-	-	-	-	-	-
Qsp7.1	Wuhan	7	BRMS-036	BRMS-036/KEMP	4.51	22.56	-13.38	8.57	-	
	Jingmen	-	-	-	-	-	-	-	-	
Qsp13.1	Wuhan	-	-	-	-	-	-	-	-	
	Jingmen	13	APRR2-1	CPS/K4-3-120	3.44	-13.35	3.59	13.67	CPS, APRR2-1	

^a the bold face refers to stable QTLs across locations

Table S4 Functional markers involved in QTLs for agronomic traits and functions of them

Markers	Traits	Function
Cell cycle (1/1)^a		
DNAPL-2	HPB, PH, SMI, SS	DNA primase, large subunit family
Cellular organization (6/5)		
ACT2-2	ELMI	Encodes an actin that is constitutively expressed in vegetative structures but not pollen
athA-1	SP, SFB	cellulose synthase catalytic subunit (Ath-A) (At4g39350; T22F8.250) mRNA, complete cds.
athA-2	SP, SFB	cellulose synthase catalytic subunit (Ath-A) (At4g39350; T22F8.250) mRNA, complete cds.
athb-1	YP	Arabidopsis thaliana cellulose synthase, catalytic subunit (Ath-B)(At5g05170) mRNA, complete cds.
KEMP	ELMI, LMI, SDMI, SMI, YP, SFB, HPB	kinesin motor protein-related
VHSD	SFB, ELMI, FB, PH, SMI, SP, YP	VHS domain-containing protein / GAT domain-containing protein
Development systemic (3/3)		
ANL2	SFB	Encodes a homeodomain protein of the HD-GLABRA2 group.
LD	SS	Wassilewskija Luminidependens mRNA
NAM-2	ELMI, LMI, PH	no apical meristem (NAM) family protein
Energy metabolism (2/2)		
GAPA	SMI	glyceraldehyde-3-phosphate dehydrogenase A subunit (G
THRX	LMI	thioredoxin family protein
General metabolism (10/9)		
APL-1	SFB	Apl3 gene
APL-2	SFB	Apl3 gene
BKCOAS	PH, SMI	beta-ketoacyl-CoA synthase family protein, KCS1 fatty acid elongase 3-ketoacy
CDKC-1	SP, SFB	cyclin-dependent kinase, putative / CDK, putative (At5g6
CPS	ELMI, LMI, SFB, SP	cyclase ent-kaurene synthetase A (GA1-BN-1) g
PIPTP	SMI, SW	phosphate/triose-phosphate translocator precursor
SCPS-2	SDMI	sucrose-phosphate synthase
SCPT	ELMI	serine C-palmitoyltransferase
UXS-3	SS	UDP-glucuronic acid decarboxylase
ATPS	FB, YP	Arabidopsis thaliana cellulose synthase, catalytic subunit (Ath-B)(At5g05170) mRNA, complete cds.
Protein fate (2/1)		
CYPRT-2	SDMI	cysteine proteinase
CYPRT-3	SDMI	cysteine proteinase
Protein synthesis (3/3)		
EIF-4F	FB, SP, SMI, SFB, SDMI	eukaryotic translation initiation factor 4F
RPPOB-3	YP	60S acidic ribosomal protein P0
RPSaA	ELMI, HPB, SFB, YP, LMI, SDMI, SS, SW	40S ribosomal protein SA (RPSaA)
Secondary metabolism (2/2)		
CHS-2	SFB	chalcone synthase A2 (CHSA2) mRNA, complete cds
OMET-1	SFB	O-methyltransferase
Signal transduction (2/1)		
RabGAP-1	FB, PH, SW	RabGAP/TBC domain-containing protein
RabGAP-2	HPB, SDMI, LMI	RabGAP/TBC domain-containing protein
Subcellular localization (1/1)		
LADC	ELMI, LMI, PH	La domain-containing protein / proline-rich family protein
Systemic response and sensing (1/1)		
AUXR	HPB, SDMI, YP, FB, SMI, SP, SFB	auxin-responsive protein, putative
Transcription (6/4)		
APRR2-1	SFB	APRR2 mRNA for pseudo-response regulator 2
APRR2-1	SP	APRR2 mRNA for pseudo-response regulator 2
AT103	LMI, SDMI, SW, FB	Encodes a putative ZIP protein with varying mRNA accumulation in leave
C2H2T-1	SDMI, SW, HPB	zinc finger (C2H2 type) family protein
C2H2T-2	SFB, HPB, SW	zinc finger (C2H2 type) family protein
RRM-2	LMI, ELMI, FB, LMI, SDMI, SW	RNA recognition motif (RRM)-containing protein
Transport (3/3)		
FERRIT-1	ELMI, LMI	Encodes a ferritin protein that is targeted to the chloroplast
IRONT	YP, SP, SFB	transporter, putative, similar to iron-phytosiderophore transporter protein yellow stripe 1 (Zea mays)
SUC-2	SFB, ELMI, HPB, LMI, SDMI, SS, SW	sucrose transporter SUC1 mRNA
unknown (3/3)		
AUXDR-1	HPB	expressed protein, similar to auxin down-regulated protein ARG10
GCIP1	SW	GCIP-interacting family protein
KRCP-1	FB	kelch repeat-containing protein

^a the number of functional markers

^b the number of functional genes or ESTs