

Supplemental Table S2. Summary of 122 QTLs for 38 agronomic traits detected in the Nipponbare/Koshihikari BILs

Trait	Institute	Marker Interval	Chr.	LOD	PVE	AE	GxE	Nearby QTL
Seedling height at transplanting stage (SHT)	NICS	NIAS_Os_aa03002687-RM2187	3	13.2	35.7	-0.6		<i>Hd16</i>
		NIAS_Os_aa12005228-NIAS_Os_aa12005318	12	5.4	13.6	0.3		
Leaf color at transplanting stage (LCT)	NICS	NIAS_Os_aa03002687-RM2187	3	7.9	22.6	0.5		<i>Hd16</i>
Degree of plant growth after transplanting in paddy field (DPP)	NICS	NIAS_Os_aa03002687-RM2187	3	10.2	33.6	-0.4		<i>Hd16</i>
Leaf color after transplanting in paddy field (LCP)	NICS	NIAS_Os_aa03002687-RM2187	3	6.6	17.3	0.3		<i>Hd16</i>
Plant height at maximum tiller number stage (PHM)	NARCHRC	NIAS_Os_aa03002687-RM2187	3	13.7	36.7	-0.5	0.002 **	<i>Hd16</i>
		O007O20-P525F142	6	15.5	44.3	0.5	0.065	<i>Hd17</i>
Leaf width at maximum tiller number stage (LWM)	KARC	NIAS_Os_aa03002610-RM1038	3	4.5	13.8	0.1	0.009 **	<i>Hd16</i>
Days to heading (DTH)	MARI	OJ24J17-NIAS_Os_aa03002564	3	23.0	50.4	2.3	0.000 ***	<i>Hd16</i>
		O007O20-P525F142	6	3.8	6.3	-0.8	0.007 **	<i>Hd17</i>
	KARC	NIAS_Os_aa01046-05-NIAS_Os_aa08000907	8	6.5	9.5	0.9	0.592	
		OJ24J17-NIAS_Os_aa03002564	3	36.2	65.5	4.8	0.000 ***	<i>Hd16</i>
	NICS	O007O20-P525F142	6	7.4	9.0	-1.7	0.007 **	<i>Hd17</i>
		OJ24J17-NIAS_Os_aa03002564	3	62.9	73.8	7.5	0.000 ***	<i>Hd16</i>
	NARCHRC	O007O20-P525F142	6	29.0	9.7	-2.7	0.007 **	<i>Hd17</i>
		OJ24J17-NIAS_Os_aa03002564	3	54.9	69.7	7.8	0.000 ***	<i>Hd16</i>
Culm length (CL)	KARC	O007O20-P525F142	6	17.5	7.6	-2.5	0.007 **	<i>Hd17</i>
		NIAS_Os_aa01000431-NIAS_Os_aa01000638	1	3.1	12.2	-1.9	0.540	<i>qCL1</i>
	NICS	NIAS_Os_aa01000431-NIAS_Os_aa01000638	1	6.0	18.5	-2.3	0.540	<i>qCL1</i>
		NIAS_Os_aa03000545-RM1284	3	4.7	12.7	-1.9	0.225	<i>qCL3-1</i>
	NARCHRC	O007O20-P525F142	6	3.0	8.4	-1.7	0.621	<i>Hd17</i>
		NIAS_Os_aa12001500-NIAS_Os_aa12001533	12	3.2	8.4	-1.4	0.853	
	NARCHRC	RM10078-NIAS_Os_aa01000431	1	3.3	9.5	-1.9	0.540	<i>qCL1</i>
		RM5178-RM3434	3	4.2	14.2	-2.2	0.225	<i>qCL3-1</i>
Culm diameter (CDI)	KARC	OJ94O03-4-OJ24J17	3	8.8	30.8	0.5	0.000 ***	<i>Hd16</i>
		O007O20-P525F142	6	6.5	41.2	-0.6	0.134	<i>Hd17</i>
	NARCHRC	RM6740-NIAS_Os_aa01006287	1	3.2	8.7	-0.2	0.064	
		NIAS_Os_aa02004129-RM5179	2	3.0	7.8	-0.2	0.134	
	KARC	OJ24J17-NIAS_Os_aa03002564	3	5.0	13.9	0.3	0.000 ***	<i>Hd16</i>
		OJ24J17-NIAS_Os_aa03002564	3	6.5	21.8	-0.5	0.000 ***	<i>Hd16</i>
Culm stiffness (CSF)	NICS	OJ21G19-OJ87C10	3	8.7	23.1	-0.4	0.000 ***	<i>Hd16</i>
		RM4996-NIAS_Os_aa03000545	3	4.1	10.0	-0.5	0.000 ***	
	NARCHRC	OJ24J17-NIAS_Os_aa03002564	3	10.7	26.4	-0.8	0.000 ***	<i>Hd16</i>
		RM7285-NIAS_Os_aa08005493	8	4.5	9.6	-0.4	0.002 **	
	NICS	NIAS_Os_aa10002579-NIAS_Os_aa1002796	10	4.4	9.6	0.5	0.001 **	
		NIAS_Os_aa06000096-RM8101	6	3.4	11.7	0.4	0.004 **	<i>Hd17</i>
Lodging degree (LD)	KARC	RM2593-NIAS_Os_aa03002546	3	3.7	13.3	0.3	0.000 ***	<i>Hd16</i>
Panicle length (PL)	NICS	NIAS_Os_aa01004414-NIAS_Os_aa01004804	1	3.6	9.9	0.3	0.853	<i>qCL1</i>
		O007O20-P525F142	6	5.5	15.4	-0.4	0.000 ***	<i>Hd17</i>
Number of panicles (NOP)	NARCHRC	RM2309-NIAS_Os_aa12004785	12	7.1	24.2	-1.0	0.087	
Glume density per panicle (GDP)	KARC	OJ24J17-NIAS_Os_aa03002564	3	10.3	27.8	0.4	0.000 ***	<i>Hd16</i>
		NIAS_Os_aa12004785-NIAS_Os_aa12004855	12	4.3	9.9	0.2	0.397	
	NARCHRC	NIAS_Os_aa03002687-RM2187	3	6.7	22.9	-0.3	0.000 ***	<i>Hd16</i>
		NIAS_Os_aa04007836-NIAS_Os_aa04008763	4	12.8	68.6	-0.5	0.853	
Flag leaf length (FLL)	NARCHRC	NIAS_Os_aa07001651-RM3300	7	3.9	28.0	0.7	0.008 **	
		RM2309-NIAS_Os_aa12004785	12	3.7	15.4	0.5	0.011 *	
Flag leaf: angle of leaf blade (FLA)	NICS	RM8128-NIAS_Os_aa01009909	1	5.3	13.6	-0.4	0.124	
		NIAS_Os_aa03000782-NIAS_Os_aa03000943	3	5.5	14.1	-0.4	0.841	
	NARCHRC	NIAS_Os_aa10001572-NIAS_Os_aa10001614	10	4.2	10.3	0.3	0.528	
		NIAS_Os_aa03002546-OJ2J24	3	8.7	22.8	-0.5	0.007 **	<i>Hd16</i>
Panicle exertion length (PEL)	KARC	O007O20-P525F142	6	4.9	10.6	0.4	0.056	<i>Hd17</i>
		RM10058-RM10078	1	7.5	24.2	-0.6	0.061	<i>qCL1</i>
	NICS	NIAS_Os_aa12004062-NIAS_Os_aa12004300	12	4.4	14.5	-0.5	0.263	
		RM8068-NIAS_Os_aa01000855	1	4.1	12.0	-0.3	0.061	<i>qCL1</i>
	NARCHRC	NIAS_Os_aa03000026-NIAS_Os_aa03000141	3	3.6	10.2	0.2	0.540	<i>qCL3-1</i>
		NIAS_Os_aa12001500-NIAS_Os_aa12001533	12	4.0	11.6	-0.2	0.225	
	NARCHRC	OJ94O03-4-OJ24J17	3	6.6	20.3	-0.5	0.000 ***	<i>Hd16</i>
		NIAS_Os_aa04009913-NIAS_Os_aa04002275	4	3.7	11.2	-0.3	0.054	
Presence of awns (POA)	NICS	NIAS_Os_aa04007836-NIAS_Os_aa04008763	4	9.0	40.7	-0.9	0.861	
		NIAS_Os_aa03002610-RM1038	3	18.4	51.3	0.5	0.978	<i>Hd16</i>
Awn length (AL)	NICS	RM14311-NIAS_Os_aa03000026	3	9.3	16.5	0.4	0.157	
		OJ24J17-NIAS_Os_aa03002564	3	22.4	55.1	0.8	0.179	<i>Hd16</i>
	NARCHRC	NIAS_Os_aa03000026-NIAS_Os_aa03000141	3	3.4	14.0	0.6	0.157	
		OJ21G19-OJ87C10	3	11.8	44.2	1.8	0.000 ***	<i>Hd16</i>
Days to maturity (DTM)	NICS	OJ24J17-NIAS_Os_aa03002564	3	25.1	62.4	3.0	0.000 ***	<i>Hd16</i>
		OJ24J17-NIAS_Os_aa03002564	3	20.2	52.7	4.8	0.000 ***	<i>Hd16</i>
Plant appearance at maturity stage (AMS)	KARC	OJ94O03-4-OJ24J17	3	17.2	53.8	-0.6	0.002 **	<i>Hd16</i>
		NIAS_Os_aa06001061-NIAS_Os_aa04097-07	6	3.3	10.8	-0.3	0.148	
Senescence (SNC)	NICS	NIAS_Os_aa01078-06-NIAS_Os_aa11002340	11	3.3	11.0	-0.3	0.027 *	
		OJ24J17-NIAS_Os_aa03002564	3	10.5	28.8	0.4	0.023 *	<i>Hd16</i>
	NARCHRC	O007O20-P525F142	6	5.5	13.7	0.3	0.064	<i>Hd17</i>
		RM10078-NIAS_Os_aa01000431	1	4.2	16.6	0.4	0.003 **	<i>qCL1</i>
Pre-harvest sprouting resistance (PHS)	NARCHRC	RM7332-RM14275	3	5.6	13.6	0.5		<i>qLTG3-1</i>
		OJ94O03-4-OJ24J17	3	5.3	16.3	-0.6		<i>Hd16</i>
	NICS	NIAS_Os_aa06000223-O007O20	6	3.7	9.4	0.4		<i>Hd17</i>
		OJ24J17-NIAS_Os_aa03002564	3	17.4	53.9	7.5		<i>Hd16</i>
Aboveground dry weight (ADW)	KARC	P548D347-O007O20	6	3.4	6.0	-2.5		<i>Hd17</i>
Gross brown rice weight (GBW)	KARC	OJ24J17-NIAS_Os_aa03002564	3	13.9	41.0	1.8		<i>Hd16</i>
Head brown rice weight (HBW)	KARC	OJ24J17-NIAS_Os_aa03002564	3	13.1	42.8	1.7	0.541	<i>Hd16</i>
Weight of aborted rice weight (ARW)	KARC	NIAS_Os_aa02002909-NIAS_Os_aa02003089	2	3.7	10.6	-0.1		
		RM7332-RM14275	3	5.5	16.3	-0.1		
1000-grain weight (TGW)	NICS	RM1284-RM5178	3	6.0	18.3	0.1		
		RM7365-NIAS_Os_aa03000782	3	5.3	13.5	-0.3		
	NARCHRC	OJ94O03-4-OJ24J17	3	5.6	14.5	-0.3		<i>Hd16</i>
		NIAS_Os_aa11003846-NIAS_Os_aa11003992	11	3.2	7.9	0.3		
Protein content of brown rice (PCB)	NICS	RM6375-NIAS_Os_aa02000772	2	3.3	7.3	-0.1		
		NIAS_Os_aa03000545-RM1284	3	4.2	9.1	0.1		
	KARC	OJ24J17-NIAS_Os_aa03002564	3	6.3	16.9	-0.2		<i>Hd16</i>
		O007O20-P525F142	6	6.0	15.4	0.5	0.004 **	<i>Hd17</i>
Grain appearance (GA)	NARCHRC	NIAS_Os_aa08005271-NIAS_Os_aa08005354	8	4.0	12.5	0.4	0.853	
		RM4996-NIAS_Os_aa03000545	3	4.1	12.8	-0.3	0.317	
Normal kernel ratio (NKR)	NICS	OJ94O03-4-OJ24J17	3	9.9	28.9	-0.5	0.026 *	<i>Hd16</i>
		RM6740-NIAS_Os_aa01006287	1	4.7	12.8	-1.7	0.883	

		OJ2J24-OJ94O03	3	4.6	13.3	1.4	0.035	*	Hd16
		NIAS_Os_aa07007441-RM1364	7	3.4	9.4	1.2	0.621		
		NIAS_Os_aa10003630-NIAS_Os_aa10002351	10	3.1	8.6	1.4	0.196		
White-belly kernel ratio (WBR)	NARCHRC	OJ94O03-4-OJ24J17	3	3.3	12.6	2.9	0.035	*	Hd16
	NICS	O007O20-P525F142	6	10.3	28.8	0.4	0.853		Hd17
	NARCHRC	RM14275-RM4108	3	5.9	9.4	0.6	0.054		
		NIAS_Os_aa03000545-RM1284	3	6.5	18.9	-0.8	0.007	**	
Degree of occurrence of white-back and white-based kernels (DWK)		NIAS_Os_aa07006550-NIAS_Os_aa07006642	7	3.7	10.1	0.6	0.001	**	
	KARC	P548D347-NIAS_Os_aa06000223	6	6.6	14.3	0.7			Hd17
		NIAS_Os_aa08005271-NIAS_Os_aa08005354	8	6.8	21.7	0.8			
White-backed and white-based kernel ratio (WKR)		NIAS_Os_aa11012252-NIAS_Os_aa11003517	11	6.2	18.0	0.8			
	NICS	NIAS_Os_aa06000223-O007O20	6	7.7	19.6	0.4	0.061		Hd17
	NARCHRC	OJ24J17-NIAS_Os_aa03002564	3	7.0	18.5	-1.0	0.122		Hd16
Milky-white kernel ratio (MWR)		P548D347-NIAS_Os_aa06000223	6	5.1	12.9	0.8	0.061		Hd17
	NARCHRC	OJ94O03-4-OJ24J17	3	6.1	14.4	-0.9	0.006	**	Hd16
		P548D347-NIAS_Os_aa06000223	6	8.6	21.5	1.1	0.001	**	Hd17
Leaf blast resistance (LBR)	AARCMARI	NIAS_Os_aa01007008-NIAS_Os_aa01011013	1	3.8	12.2	-0.4	0.009	**	
	NARCHRC	NIAS_Os_aa07000458-RM2381	7	7.5	34.2	0.5	0.398		
	TARC	RM8144-NIAS_Os_aa01007008	1	3.7	12.4	-0.4	0.009	**	
Panicle blast resistance (PBR)		RM5179-NIAS_Os_aa02001023	2	4.6	22.3	-0.7	0.482		
	NICS	P548D347-NIAS_Os_aa06000223	6	5.9	22.1	0.4	0.325		Hd17
		NIAS_Os_aa07005154-NIAS_Os_aa07005253	7	3.6	12.4	0.3	0.858		
		NIAS_Os_aa08001283-NIAS_Os_aa08001654	8	3.7	12.6	-0.3	0.263		
		NIAS_Os_aa08002718-NIAS_Os_aa08005354	8	3.3	11.7	-0.4	0.263		
		NIAS_Os_aa11002724-NIAS_Os_aa11001785	11	5.9	30.2	-0.5	0.225		
	NARCHRC	RM14275-RM4108	3	3.1	8.6	-0.4	0.103		
Bacterial leaf blight resistance (BLB)		NIAS_Os_aa07006550-NIAS_Os_aa07006642	7	4.5	12.9	0.5	0.858		
	MARI	NIAS_Os_aa01009800-RM8128	1	4.1	12.3	-0.5			
		NIAS_Os_aa12001721-NIAS_Os_aa12001813	12	7.0	23.4	-0.6			

All genetic parameters were calculated by QTL Cartographer ver. 2.5 (Basten *et al.* 2005)

LOD: Log-likelihood value

PVE: Percentage of total phenotypic variance explained by the QTL

AE: Additive effect of Nipponbare allele

G×E: Probability value of *F*-test for interaction effect between each QTL by environments. *, **, *** indicate significance at $P < 0.05$, $P < 0.01$, and $P < 0.001$, respectively.

Nearby QTL: QTLs located near those previously detected in the same BILs by Matsubara *et al.* (2008) (*Hd16* and *Hd17*), Hori *et al.* (2009) (*qCL1* and *qCL3-1*) and Hori *et al.* (2010) (*qLTG3-1*).