

1 **Table S1** Simple sequence repeat markers used in marker-assisted selection

Allele	Marker name	Chromosome no.	Physical position (Mb)†	Forward primer (5'–3')	Reverse Primer (5'–3')
<i>qSH1</i>	RM5389	1	35.7	TGTGCTATTGCGCGAGATTATCC	CATCACCGCTCCAACATCATGC
	RM1361	1	39.1	ATGCTTGCAGACAATCGATGC	CTCTCCGCCTAAACAACCTTGTGC
<i>Rc</i>	RM6728	7	5.7	TCACCCTTCTTGTCAAGCAAACC	GAGGATCAGGATAGAACATGAGATGC
	RM1253	7	7.0	GTTCCCGGAGATGGACTACTCG	GCACAACATGGTGAACCTTGATCC
<i>qCdp7</i> ( <i>OsHMA3</i> )	RM21320	7	8.8	CGTGCAACCCTATATGTAGATTGTGG	GGAGCCCGGAGTAATTTCTAAAGC

2 †: Positional information from IRPSP1.0.

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1 **Table S2** Details of the cultivation conditions

Field	Year	Transplanting date	Drainage start date	Fertilizer† (g m <sup>-2</sup> )			Plot size (m <sup>2</sup> )	Planting density (no. m <sup>-2</sup> )	No. of repetitions	Cd concentration (mg kg <sup>-1</sup> )
				N	P	K				0.1 M HCl
1	2014	27 May	27 Jul	4+0+0	4+0+0	4+0+0	3.6	20.7	2	0.96
2	2014	16 May	20 Jun	2.8+2+2	2.8+0+0	2.8+0+0	1.8	22.2	2	0.50
3	2014	27 May	30 Jun	7+0+0	22+0+0	11.3+0+0	4.0	20.2	2	0.58
4	2014	25 Jun	25 Jul	8+0+0	4+0+0	4+0+0	1.8	22.2	2	0.45
	2013	20 May	—	5+5+0	5+5+0	5+5+0	8.1(5.4‡)	22.2	2	—
NIAES	2014	20 May	—	5+5+0	5+5+0	5+5+0	8.1	22.2	2	—
	2015	19 May	—	5+5+0	5+5+0	5+5+0	13.5	22.2	2	—

2 † : Basal dressing + first top dressing + second top dressing.

3 ‡ : Plots of 'Jarjan' and 'Koshihikari'.

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1 **Table S3** Size of brown rice<sup>†</sup>

Line/variety	Length (mm)	Width (mm)	Thickness (mm)	Pericarp color
TJTT8	6.22 ± 0.17 <sup>b</sup>	2.94 ± 0.06 <sup>c</sup>	2.05 ± 0.05 <sup>b</sup>	Brown
Tachisugata	6.23 ± 0.19 <sup>b</sup>	2.89 ± 0.06 <sup>b</sup>	2.16 ± 0.05 <sup>c</sup>	White
Jarjan	6.13 ± 0.20 <sup>b</sup>	2.44 ± 0.10 <sup>a</sup>	1.68 ± 0.07 <sup>a</sup>	Brown
Koshihikari	5.09 ± 0.11 <sup>a</sup>	3.04 ± 0.08 <sup>d</sup>	2.08 ± 0.07 <sup>b</sup>	White

2 <sup>†</sup> Different superscripted lowercase letters in columns indicate significant differences between line and variety at  $P = 0.01$ , as indicated  
3 by Steel–Dwass's multiple-comparisons test. Values are mean ± SD ( $n = 30$ ) for brown rice were measured with a vernier caliper.