

Appendix A. Supplementary data

Analysis of QTLs associated with the rice quality related gene by double haploid populations

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Supplementary Table 1

Analysis of the general growth characteristics between parents and the double hybridization (DH) population.

Item	Plant height (cm)	Panicle length (cm)	Spikelets per panicle (no.)	Weight of 1,000 grains (g)	Yield (kg/10 a)
Cheongcheong	78.1 ± 3.4 ^a	22.2 ± 1.0	14.6 ± 1.6	24.6	611.2
Nagdong	72.1 ± 7.7	19.1 ± 1.0	13.9 ± 2.3	24.2	650.6
CNDH	76.5 ± 19.1	20.6 ± 2.8	14.5 ± 3.1	23.4	498.4

^aThe data are presented as mean ± standard deviation

Supplementary Table 2

The 20 lines having high level of amylose content.

Sample ^a	Parents		CNDH lines with high amylose content																				Index of coincidence (%)
	C	N	49	50	51	65	39	57	67	5	20	19	2	36	55	64	15	27	1	59	56	46	
Content ^b	15.30	18.37	25.36	24.63	23.89	22.42	21.31	21.17	19.28	18.96	18.83	18.50	18.45	18.32	18.10	18.05	17.88	17.84	17.82	17.65	17.61	17.51	
RM21105 ^c	O ^d	X ^e	O	O	O	X	X	X	O	O	O	O	X	O	O	O	X	O	X	O	O	O	70%

^aThe parents ‘Cheongcheong’ and ‘Nagdong’ and 20 lines of CNDH population with high amylose content are used, ^b Amylose content is measured by using NIRS, ^c RM21105 on chromosome 7 is used for PCR, ^{d, e} The genotypes mean as genotype of Cheongcheong and Nagdong.

Supplementary Table 3

The 20 lines having low level of amylose content.

Sample ^a	Parents		CNDH lines with low amylose content																			Index of coincidence (%)	
	C	N	8	16	31	24	58	11	12	52	10	53	3	13	34	26	47	48	4	61	25		9
Content ^b	15.30	18.37	12.41	12.44	13.14	13.57	13.60	13.66	13.66	13.74	13.91	14.16	14.21	14.27	14.27	14.30	14.40	14.54	14.68	14.72	15.07	15.16	
RM26771 ^c	O ^d	X ^e	O	O	O	O	X	O	O	O	O	O	O	X	O	O	X	O	O	O	X	O	80%
RM3482	O	X	X	O	O	O	O	O	O	O	O	O	X	X	O	O	-	O	O	O	O	O	75%
RM26801	O	X	O	O	O	O	X	O	X	X	O	O	O	O	O	X	O	X	O	O	X	O	70%

^aThe parents ‘Cheongcheong’ and ‘Nagdong’ and 20 lines of CNDH population with high amylose content are selected, ^b Amylose content is measured by using NIRS, ^c The markers on chromosome 11 are used for PCR, ^{d, e} The genotypes mean as genotype of Cheongcheong and Nagdong.

Supplementary Table 4

The 20 lines having low level of protein content.

Chr.	Sample ^a	CNDH lines with low protein content																				Index of coincidence (%)		
		C	N	60	19	44	2	55	14	59	1	37	54	67	61	56	62	36	5	41	68		5	64
	Content ^b	7.656	6.381	6.279	6.362	6.365	6.371	6.488	6.611	6.622	6.638	6.758	6.798	6.853	6.880	6.914	6.973	6.981	7.401	7.552	7.631	7.644	7.652	
2	RM12532 ^c	O ^d	X ^e	X	O	X	O	X	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	70%
	RM555	O	X	X	O	X	O	X	O	X	X	O	X	X	X	X	X	X	X	X	X	O	X	70%
8	RM506	O	X	O	O	O	X	X	X	X	X	X	O	X	O	X	X	X	X	X	X	X	X	75%
	RM22198	O	X	O	O	O	X	X	X	X	X	X	O	X	O	X	X	X	X	X	X	X	X	75%
	RM22334	O	X	O	O	O	X	X	X	X	X	X	O	X	O	X	X	X	X	X	X	X	O	70%

^aThe parents ‘Cheongcheong’ and ‘Nagdong’ and 20 lines of CNDH population with high amylose content are selected, ^b Amylose content is measured by using NIRS, ^c The SSR markers on chromosome 2 are used for PCR, ^{d, e} The genotypes mean as genotype of Cheongcheong and Nagdong.

Supplementary Table 5

The 20 lines having low level of lipid content.

Sample ^a	Parents		CNDH lines with low protein content																				Index of coincidence (%)
	C	N	18	55	49	67	56	63	43	44	54	40	60	66	27	50	45	61	68	39	51	47	
Content ^b	3.414	2.934	2.178	2.496	2.531	2.578	2.619	2.620	2.671	2.672	2.675	2.724	2.731	2.776	2.806	2.822	2.849	2.861	2.930	3.002	3.066	3.078	
RM15063 ^c	O ^d	X ^e	O	O	O	X	O	O	O	O	O	X	O	O	O	X	X	O	X	X	O	O	70%
RM15448	O	X	O	O	O	O	O	O	O	O	O	X	O	O	O	O	X	O	X	X	X	X	70%

^aThe parents ‘Cheongcheong’ and ‘Nagdong’ and 20 lines of CNDH population with high amylose content are selected, ^bAmylose content is measured by using NIRS, ^cThe SSR markers on chromosome 3 are used for PCR, ^d,^eThe genotypes mean as genotype of Cheongcheong and Nagdong.