A *Wx^b* (Os06g0133000)

5'UTR

ATG

SNP c. 473G>A
（p. Arg158His ）

3'UTR

☐ 5'UTR
▷ 3'UTR
■ Exon
— Intron

B

M HD5 NJ9108 NJ9108

2000

1000
750
500

250
(bp)

439 bp
292 bp
200 bp

Appendix A, Identification of the *Wx* alleles in NJ9108 and HD5 rice. (A) The gene structure of *Wx^b* and allelic variant gene *Wx^{mq}*. (B) Detection of *Wx^b* gene in HD5 and *Wx^{mq}* gene in NJ9108 by tetra-primer amplification refractory mutation system PCR.

Appendix B Sequences of primers used for PCR of the amylopectin synthesis related genes

Gene	Accession number	Sequence
OsGBSSI	AK070431	F: 5'-AACGTGGCTGCTCCTTGAA-3'
		R: 5'-TTGGCAATAAGCCACACACA-3'
OsSSI	AK109458	F: 5'-GGGCCTTCATGGATCAACC-3'
		R: 5'-CCGCTTCAAGCATCCTCATC-3'
OsSSIIa	AK101978	F: 5'-GCTTCCGGTTTGTGTGTTCA-3'
		R: 5'-CTTAATACTCCCTCAACTCCACCAT-3'
OsSSIIIa	AK061604	F: 5'-GCCTGCCCTGGACTACATTG-3'
		R: 5'-GCAAACATATGTACACGGTTCTGG-3'
OsBEI	AK065121	F: 5'-TGGCCATGGAAGAGTTGGC-3'
		R: 5'-CAGAAGCAACTGCTCCACC-3'
OsBEIIa	AB023498	F: 5'-GCCAATGCCAGGAAGATGA-3'
		R: 5'-GCGCAACATAGGATGGGTTT-3'
OsBEIIb	D16201	F: 5'-ATGCTAGAGTTTGACCGC-3'
		R: 5'-AGTGTGATGGATCCTGCC-3'
OsISA1	AB093426	F: 5'-TGCTCAGCTACTCCTCCATCATC-3'
		R: 5'-AGGACCGCACAACTTCAACATA-3'
OsPUL	AB012915	F: 5'-ACCTTTCTTCCATGCTGG-3'
		R: 5'-CAAAGGTCTGAAAGATGG-3'
OsACTIN	AB047313	F: 5'-CAACACCCCTGCTATGTACG-3'
		R: 5'-CATCACCAGAGTCCAACACAA-3'

Appendix C Pasting parameters of rice starch from the two cultivars under four N levels

Cultivar	N rate	PKV (cP)	HPV (cP)	CPV (cP)	SBV (cP)	BDV (cP)	CSV (cP)	PeT (cP)	PaT (cP)
NJ9108	0	4816 ± 113a	2879 ± 161a	3371 ± 138abc	-1445 ± 251b	1937 ± 274a	582 ± 3c	5.1 ± 0.3b	74.1 ± 0.4abc
	150	4995 ± 239a	2910 ± 401a	3350 ± 357abc	-1645 ± 595b	2085 ± 640a	560 ± 12c	5.2 ± 0.5b	75.2 ± 0.8a
	300	4958 ± 49a	2804 ± 319a	3232 ± 311bc	-1726 ± 359b	2154 ± 367a	509 ± 10c	5.0 ± 0.3b	74.9 ± 0.4ab
	450	4884 ± 75a	2675 ± 186a	3121 ± 174c	-1763 ± 248b	2209 ± 260a	499 ± 2c	4.9 ± 0.3b	74.1 ± 0.5abc
HD5	0	3888 ± 7b	2906 ± 31a	3698 ± 36ab	-190 ± 43a	982 ± 37b	901 ± 19ab	6.0 ± 0.1a	73.3 ± 0.5bc
	150	3835 ± 60b	3026 ± 199a	3786 ± 143a	-132 ± 84a	809 ± 140b	833 ± 45b	6.1 ± 0.1a	74.1 ± 1.2abc
	300	3821 ± 68b	2927 ± 57a	3675 ± 13ab	-146 ± 81a	894 ± 11b	931 ± 41a	6.1 ± 0.1a	74.1 ± 0.4abc
	450	3798 ± 7b	2807 ± 20a	3653 ± 12.5ab	-145 ± 6a	991 ± 14b	955 ± 8a	6.0 ± 0.1a	72.9 ± 0.1c

PKV, peak viscosity; HPV, hot paste viscosity; CPV, cool paste viscosity; SBV, setback viscosity (SBV=CPV−PKV); BDV, breakdown viscosity (BDV=PKV−HPV); CSV, consistence viscosity (CSV = CPV − HPV); PeT, peak time; PaT, pasting temperature. The four N levels are 0, 150, 300 and 450 kg ha^{-1}. Values are the mean of three independent replicas ± SE. Significant differences for the values in each column are indicated by different letters ($p < 0.05$).