

**Rural Development Administration** National Institute of **Crop Science** 

## A new mid maturing and high-eating quality *japonica* rice variety 'Chamjinmi' derived from Korea native resources

Chang-Min Lee\*, Hyun-Su Park, Man-Kee Baek, Ki-Yeong Kim, O-Young Jeong, Ji-Ung Jeong, Choon-Song Kim, Jung-Pil Suh, Su-Kyung Ha, Dong-Kyu Lee, Hyun-Sook Lee, Min-A Jin, Jeonghwan Seo, Song-Hee Park, Gileung Lee, Seung Young Lee Crop Breeding Division, National Institute of Crop Science, Wanju 55365, Korea

## Abstract

'Chamjinmi' is a mid-maturing rice variety that can be harvested faster than mid-late maturing varieties and also exhibits good the rate of milling, and the taste. From the analysis of the glossiness and taste of cooked rice resources, we selected the promising resource 'Hoengseongaengmi3', which had better rice eating quality compared to Korean (Ilpum) and Japanese (Hitomebore) varieties. 'Jeonju 654', which was bred by crossing 'Hwayeong' and 'Hoengseongaengmi 3', was developed through pedigree breeding, yield trials, and regional adaptability test, and 'Jeonju 654' was released as 'Chamjinmi' in 2022. The average heading date of 'Chamjinmi' for ordinary planting and late planting for double cropping was August 10th and August 20th, which were 4 days earlier than that of the check variety 'Nampyeong'. The milled rice yield of 'Chamjinmi' was 5.67 MT/ha for ordinary planting (103% of 'Nampyeong') and 5.64 MT/ha for late planting for double cropping (96% of 'Nampyeong'). 'Chamjinmi' had a culm length of 78 cm, a panicle length of 21 cm and 13 panicles per plant. The brown rice type of 'Chamjinmi' was slightly bigger than 'Nampyeong', with a 1,000 grain weight of 23.1 g and a length/width ratio of 1.84. The milled rice of 'Chamjinmi' was translucent, with a protein content of 5.9% and an amylose content of 17.2% (1.3% lower than 'Nampyeong'). The release of 'Chamjinmi' is anticipated to contribute a beneficial mid-maturing rice variety that can be employed across diverse cropping systems in paddy fields, effectively enhancing farm work efficiency.

## **Materials and Methods**





Fig. 3. Plant type at maturing stage (A) and grain shape of rough, brown, and milled rice (B).

Table 1. Heading date and yield summary of at local adapatbaility test.

Culture Season <sup>z</sup>	Region	No.of trial sites	Heading d	ate (m.d) <sup>y</sup>	Milled Rice	Index	
			Chamjinmi	Nampyeong	Chamjinmi (A)	Nampyeong (B)	(A/B) × 100
Ordinary planting	South-western coast	1	8.10	8.15	5.21	4.99	104
	Honam plain	5	8.10	8.14	5.75	5.58	103
	Yeongnam plain	4	8.09	8.14	5.7	5.55	103
	Mean	9	<b>8.10</b> **	8.14	5.67	5.51	103 <sup>ns</sup>
Doble Cropping planting	Honam plain	1	8.20	8.25	5.22	5.49	95
	Yeongnam plain	1	8.22	8.25	6.06	6.22	98
	Mean	2	<b>8.21</b> **	8.25	5.64	5.85	<b>96</b> <sup>ns</sup>

<sup>4</sup> Local adaptability trials for ordinary planting and doble cropping planting were conducted 3 years and 2 Chamjinmi  $5.13^{115} 2.78^{115} 1.84^{115}$ U/U**b.**2a **J.**9a 1/.20 0.33years, respectively. 18.5a -0.08 Nampyeong 5.05 2.78 1.82 0/0 6.3a 6.0a <sup>y</sup>Not significant (ns) in the t-test, while <sup>\*</sup> and <sup>\*\*</sup> Significant at <sup>\*</sup>P < 0.05 and P < 0.01, respectively. Not significant (ns) in the t-test, while \* and \*\* Significant at \*P < 0.05 and P < 0.01, respectively. Reference Acknowledgement

Variety	Heading date (mm.dd) <sup>z</sup>	Culm length (cm)	Panicle length (cm)	No. of panicles /hill	No. of spikelets /panicle	Ratio of ripened grain(%)	1,000-grain weight of brown rice(g)	
Chamjinmi	8.10**	78 <sup>ns</sup>	21*	13 <sup>ns</sup>	98 <sup>ns</sup>	88.2 <sup>ns</sup>	23.1 <sup>ns</sup>	
Nampyeong	8.14	75	20	14	101	88.8	21.3	
The data set are derived from the replicated yield trial conducted in 2020-2022 at NICS, RDA, Vanju.								

Table 3. Characteristics related to grain shape and quality.

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Variety	Brown rice		Trans-	White	Alkali	Protein	Amylose	Palatability	
	Length	ength Width L/W nm) (mm) ratio	L/W	lucency	belly/core	digestive	content	content	of cooked
	(mm)		(1~9)	(0~9)	value	(%)	(%) rice	rice	
	()			()	(***)	(1~7)	()	()	(-3~+3)
	5 1 2 ns	<b>7 7 0</b> ns	1 O / ns	1	$\Omega / \Omega$	$\epsilon \gamma_{\alpha}$	5 00	17 06	0.22

Kim et al., 2019. Screening of High-Palatability Rice Resources and Assessment of Eating

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Quality Traits of Korean Landraces and Weedy Rice Germplasms

\* corresponding author: Tel.063-238-5215, E-mail: cropas@korea.kr