

PA-90

## Shindongjin Rice Has Changed the Image of Jeonbuk Rice: A Review

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### [Introduction]

Shindongjin is a rice variety that has been mainly cultivated in the Jeonbuk region of South Korea for 20 years, and it is said that the variety has sharply changed the image of Jeonbuk rice. Although Jeonbuk rice accounts for about 17% of the domestic rice production in South Korea, it has not been given fair treatment for a long time. This is because rice produced in Jeonbuk is often used as raw material for other regions. It has only been about 20 years since Jeonbuk rice received the good treatment as Gyeonggi rice. Therefore, we would like to describe the impact of the Shindongjin variety on rice farming in Jeonbuk.

### [Results & Discussions]

In the 1990s, there was an urgent need for the development of suitable rice varieties for the southern regions, including Jeonbuk, on a national level. The evaluation that the quality of rice produced in Jeonbuk was excellent began with the cultivation of the Shindongjin variety in earnest. Until 1990, the main goal of rice breeding was to increase the yield. After the Uruguay Round negotiations in 1993, there was a shift towards improving the quality and taste of rice in order to compete with imported rice. However, it was not easy to develop new rice varieties because high yield often resulted in lower quality, uneven ripening, lower taste, and decreased resistance to pests and diseases. The decisive solution was Shindongjin rice. It was developed through crossbreeding between a disease-resistant variety and a multiple-harvest rice variety, starting in 1992 and going through regional adaptation tests, and was registered in 1999. The significance of the Shindongjin was remarkable in terms of a variety. It was an innovative rice that improved both quantity and quality. The rice grains were 1.3 times larger than those of other varieties, and the roots were strong and muscular. It had many primary branches (panicles), and a high number of xylem vessels (which absorb moisture and nutrients) that affected its maturation. Because of these characteristics, it was the best variety available, with an exceptional taste and quality that surpassed other varieties. Another advantage of Shindongjin rice is its adaptability to climate change. It has strong resistance to cold stress and other physiological disorders, high nitrogen utilization efficiency in its roots, and can secure a sufficient yield even if the seeding amount is increased by 10% and the amount of spikelet is reduced by 30%. Therefore, it is a suitable variety for low-carbon green technology agriculture. In the agriculture sector, it is necessary to reduce greenhouse gas emissions by 27% by 2030. The government, however, plans to exclude multi-harvest varieties that produce more than 570kg/1,000m<sup>2</sup> from public stockpile purchases starting in 2027 to prevent overproduction of rice. If the cultivation area of a single variety exceeds 70%, it could lead to a national disaster. Therefore, in order to realize national policies and increase farmers' income, various measures need to be explored. To this end, a quota system for cultivation area and effective education that can encourage voluntary participation by farmers should be implemented, limiting the cultivation area to below 53% (as of 2022) to reduce pest damage and increase farmers' income while continuing to promote the brand value of Jeonbuk rice. "If one side says, 'Since there is a large harvest, let's expel the other side,' and the other side says, 'We can never give up,' it will only increase social costs. That's why we need to find an alternative that is suitable for this times through mutual efforts.

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