



Rice 'IR36' - Pest and Disease Resistance

International Rice Research Institute, Philippines

In the 1980's rice variety 'IR36' was the most widely adapted variety in rice lands throughout Asia due to its multiple resistance to diseases and pests that were causing significant yield loss. The development of 'IR36' was led by the International Rice Research Institute (IRRI), which has a long history of rice breeding, including the breakthrough success with 'IR8', a key variety of the green revolution. To improve rice beyond the success of 'IR8', IRRI expanded its germplasm collection with the goal of developing rice varieties with multiple disease and pest resistance.



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IR36 improved rice variety grown in IRRI field plot

PROJECT GOALS

- ✓ Create improved rice variety resistant to main diseases and pests
- ✓ Reduce yield fluctuations due to high disease and pest pressure

Problems Addressed

In the 1950s and 1960s, lack of food production threatened many regions across Asia. To avert famine, a focus was placed on increasing rice productivity using improved varieties. Farmers were quick to switch to these new varieties thanks to improvements in important agronomic traits that led to increased yield potential; however, the use of so few varieties led to a rapid decrease in genetic diversity of rice production in many regions, which left rice more susceptible to diseases and pests.

Solutions Developed

The development of disease resistant rice varieties helped stabilize rice production and protected farmers from economic losses. IRRI's most successful release was 'IR36', as it was developed using a wide genepool and possessed the most comprehensive pest and disease resistance. 'IR36' was established across 11 million hectares in the early 1980s, allowing farmers to harvest on average \$1 billion of extra rice annually between 1980 and 1984. Five years after its release, a review team stated that the development of 'IR36' alone justifies the original investment in IRRI 21 years prior.



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