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Kerala scientists develop saltwater-tolerant paddy

Genes tolerant to salinity and iron toxicity were put into another variety

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Scientists at the Rice Research Station of Kerala Agricultural University (KAU) at Vyttila have developed a new variety of paddy tolerant to saline intrusion, a major challenge faced by farmers in the lowlands.

The landmark achievement in rice research was made possible by the introduction of genes tolerant to salinity and iron toxicity into Jyothi, Kerala's most popular rice variety. The project which began in 2008 involved the incorporation of the SalTol gene present in Pokkali, the most saline tolerant rice variety in the world, into Jyothi.

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Thus Jyothi, known for its superior grain quality, yet restricted by the lack of saline tolerance, has become suitable for Pokkali fields, Kuttanad and kolelands as well, according to the researchers.

The scientists used the introgressive hybridisation technique to move the SalTol gene from Pokkali to the gene pool of Jyothi. The project was part of a long-term programme initiated by KAU for the development of stress-tolerant rice varieties for less favourable environments.

SalTol Jyothi, the new variety of saltwater-tolerant paddy developed by scientists at the Rice Research Station, Vyttila in Kochi.

The SalTol gene is the donor for salinity-tolerant rice breeding programmes all over the world.

"The attempt to introduce SalTol into Jyothi has borne fruit after seven years of research. The introgressed Jyothi lines have recorded a very high yield of 6.2 tonnes per hectare," said P. Rajendran, KAU Vice-Chancellor.

V. Sreekumar, Professor and Head, RRS, Vyttila, said the introgressed Jyothi variety was suitable for cultivation in the eastern and western coastal areas of the Indian Peninsula. The research team is now working on the introduction of a submergent tolerant gene (Sub1) into Jyothi, to make the rice variety resistant to flash floods up to two weeks.

> Kerala Agricultural University scientists used introgressive hybridisation method to achieve this

The work is in the final stage, he said. Submergence is another major challenge faced by farmers in the lowlands.

Shylaraj, who piloted the research work, said that introgressing the saline tolerant gene into Jyothi was achieved through the Marker Assisted Backcross Breeding (MABB) technique.

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