

Plant Genomics

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Marker assisted transfer of drought QTLs and BPH resistance for development of new generation rice varieties

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Rice is the most important cereal food crop of India. Ongoing climate change is predicted to become a major challenge to sustainable rice production in India in the years to come. Among the different rice-producing states in India, the highest average rice yields are obtained in Punjab. Rice is cultivated on around 2.9 million ha in Punjab, with total paddy production of 16.6 million tons and productivity above 5.75 t/ha. The incidence of brown plant hopper has increased tremendously in the past few years causing significant yield losses, furthermore; deteriorating ground table is also a major concern. The situation will worsen with an increase in temperature and deteriorating ground irrigation water scenario. PR 121 is a very popular high yielding bacterial blight resistant variety occupying a large area in the state. It is, however, susceptible to BPH. Attempts are being made to improve this variety for resistance to drought (abiotic stress) and hoppers (biotic stress) through marker assisted selection. Multiple crossing was done to combine drought and BPH resistance in PR 121. IR71033-121-15-B (*Bph20+Bph21*) and IR96321-213-214 (*qDTY1.1, qDTY3.1*) were used as donors. Presently, the material is in BC1F2 generation with about 1050 seeds and will be analyzed for target traits.

Biography

G S Mangat has completed his PhD from Punjab Agricultural University, India. He is the Team Leader of the Rice Research Group, Department of Plant Breeding and Genetics, Punjab Agricultural University, India. He is involved in the development of seventeen high yielding rice varieties using both conventional and marker assisted selection. He is also actively involved in basic and strategic research, teaching and guiding post graduate students. He has published more than 25 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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