

Category	: International Rice Research Conference
Select Theme	: Genetic improvement
Endorsement email	:
Keyword 1	: Biotic stress tolerance
Keyword 2	: Abiotic stress tolerance
Keyword 3	: Pre-breeding
Title of Entry	: Exploiting native traits for development of multi-stress tolerant rice hybrids
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Select only one type of presentation	: 15 minute oral presentation

Abstract : Rice is staple food for more than half of the human population and is affected by various biotic and abiotic stresses that cause huge economic losses annually. In recent years, modern cultivars have become vulnerable to these stresses, because of the adverse effects of climate change and intensive agriculture that may be causing big changes in stress inducing agents/factors. Host-plant resistance is the most effective breeding strategy to combat these issues in efficient and sustainable way. In the recent times, technological innovations have facilitated the transfer of native trait factors that confer broad spectrum resistance/tolerance to different biotic stresses (Bacterial leaf blight-BLB, blast, brown plant hopper-BPH and gall midge etc.) and abiotic stresses (Submergence and Salinity etc.). We at Bayer are exploiting the experimentally assessed knowledge generated on various stress inducing agents, and translating it for an effective strategy to combat multiple stresses of rice via conventional and molecular breeding approaches. We studied the Indian population structure of major biotic stress causing agents e.g., *Xanthomonas oryzae* pv *oryzae* (BLB), *Magnaporthe oryzae* (Blast), *Nilaparvata lugans* (BPH) and *Orseolia oryzae* (Gall midge), identified effective resistance factors and successfully pyramided them into different hybrid products as per their geographical need. We also worked on abiotic stresses like submergence & salinity, and integrated the tolerance factors into products suitable for affected regions. Performance of developed products in different geographies across Asia has encouraged the stakeholders and shown the way forward to further enhance the resistance/tolerance spectrum as well as trait durability.

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