

Category	: 8th Rice Genetics Symposium
Select Theme	: High through-put technologies: Genotyping, Phenotyping and Omics
Endorsement email	:
High through put technologies Genotyping Phenotyping and Omics Keyword 1	: Phenotype
High through put technologies Genotyping Phenotyping and Omics Keyword 2	: SNPs
High through put technologies Genotyping Phenotyping and Omics Keyword 3	: InDels
Title of Entry	: Next steps to improve targeted and efficient breeding
Presenting author	: Girish Kumar Krishna
Presenting author email	: girish.krishna@bayer.com
Co author 1	: Debashis Rana
Co author 2	: Yog Raj
Co author 3	:
Co author 4	:
Co author 5	:
Co author 6	:
Co author 7	:
Co author 8	:
Co author 9	:
Co author 10	:
Co author 11	:
Co author 12	:
Co author 13	:
Co author 14	:

Affiliation presenting author	: Bayer Crop Science
Affiliation 1	: Bayer Crop Science
Affiliation 2	: Bayer Crop Science
Affiliation 3	:
Affiliation 4	:
Affiliation 5	:
Affiliation 6	:
Affiliation 7	:
Affiliation 8	:
Affiliation 9	:
Affiliation 10	:
Affiliation 11	:
Affiliation 12	:
Affiliation 13	:
Affiliation 14	:
Select only one type of presentation	: 15 minute oral presentation

Abstract : In the present era of increasing world population and challenges of climate change it is estimated that food production must be increased by 70 % by the year 2050. As most yield and stress tolerant traits have a complex genetic architecture apart from being pleotropic and environment dependent, conventional methods of plant breeding alone could not decipher the intricacies of genetics. Despite significant progress and success in delivering yield increase by conventional methods, the increase has plateaued since past few decades. The present age of biotechnology has opened new avenues in the field of agricultural science: molecular markers help in identifying and marking selected desired gene(s) or quantitative traits for yield and stress tolerance from wide and elite sources.. scientists are screening novel genes rapidly using high throughput phenotyping platforms to delineate the factors for functional analysis of these genes, while tissue culture techniques are used to rapidly rescue and fix variation by wide hybridization, and doubled haploidy. Breakthrough in shortening breeding cycle using speed breeding techniques have significantly increased genetic gains in crops. Plant breeding has focused on developing new improved climate resilience, sustainable and stable genotypes/hybrids in crops. Advancements in molecular genetics and associated low cost and high throughput genotyping/ sequencing technologies have opened up avenues to decipher the inheritance of complex targeted traits. The objective is to improve efficiencies of selection in breeding using genome mapping, association genetics studies, marker assisted selection through breeder ready markers for traits and background genome recovery. Further advancements in

statistics, computational modelling and prediction has elevated breeding from polygenic (QTL) trait discovery, mapping, fine mapping and transfer by MARS to an upgraded Genomic Selection (GS) based breeding methodologies using the whole genome markers for development of better agronomic, biotic and abiotic stress resilient crops. Presently targeted mutagenesis /genome editing like CRISPR technologies are widely used in manipulating simple and complex traits using a single guide RNAs to bring desired changes in genome without impacting other genome of the plant.

[Read Less»](#)

Uploaded Files »

No files found.