

Category	: International Rice Research Conference
Select Theme	: Genetic improvement
Endorsement email	:
Keyword 1	: Marker-assisted selection
Keyword 2	: Breeding Strategy
Keyword 3	: Biotic stress tolerance
Title of Entry	: Biotech Rice In Indonesia : Current progress and future potency for farmer
Presenting author	: Dwinita W. Utami
Presenting author email	: dnitawu@windowslive.com
Co author 1	: Mastur
Co author 2	: Dwinita W. Utami
Affiliation presenting author	: ICABIOGRAD
Affiliation 1	: ICABIOGRAD
Affiliation 2	: ICABIOGRAD
Select only one type of presentation	: 15 minute oral presentation
Abstract	: Rice is the staple diet for all over the world. Dynamic changes in climate condition have affected on increasing the biotic and abiotic stresses. It could severe threat to the sustainable rice production and it has made challenge for rice molecular breeders to enhance production and productivity under multiple stresses which must be considered. This can be done by speeding up discovery of genes and alleles, and delivery of marker-assisted selection and genetic modification to crops. In parallel vision, molecular breeding and conventional breeding are harmonized to develop population. Intercrossing, backcrossing, selfing, double haploid and technique populations are developed based on genetic parents and target objectives. Development of phenotype selection include invitro selection methods is an important part in conventional breeding. While the main focus of molecular breeders is to understand the fundamentals of molecular pathways involved in complex agronomic traits to increase the yield. DNA markers derived from the fine mapped position of the genes for important agronomic traits will provide opportunities for breeders to develop high-yielding, stress-resistant, and better quality of rice cultivars. A significant contribution of molecular markers available as a detection tool kits is to simply assist for selection activities. Complete information of the important gene also significant for developing the genetic modification of rice line. Gene editing with CRISPR system will be able to target a certain gene that important for crop improvement purpose. Over-expression of gene originated from other species into rice is also applied to increase resistance to biotic stress, such as cry gene for resistance trait to rice stem borer. Molecular breeding could help to build new rice line constructively to changes in the environment caused by global climate change, like flooding, drought and salinity or pest and diseases. Inpari40 has survived growing

well in drought condition in Sumbawa, while Inpari Blas has good performance in Blast endemic location such as ini Garut, West Java. These two varieties were molecular breeding products which give the positive economic and benefit impact for farmer. The current present approach, molecular breeding findings has been delivered to farmer and other stakeholders for molecular Kit detection.

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