

Understanding G x E x M by global characterization of rice array panels

Project Title: P1580 - IRRI contribution to RICE Flagship Project 4

Description of the innovation: A better understanding of G x E x M is essential for the development of future climate smart rice varieties. Here we characterized global rice array panels across several locations globally, and successfully generated data sets, curated and carried out preliminary analysis. There results showed wider genotypic responses, effects of environments and management practices. The preliminary GWAS resulted in consistent loci for major agronomic traits

New Innovation: No

Stage of innovation: Stage 1: discovery/proof of concept (PC - end of research phase)

Innovation type: Genetic (varieties and breeds)

Geographic Scope: Global

Number of individual improved lines/varieties: <Not Defined>

Description of Stage reached: We successfully completed trials establishment, data curation and analysis is in progress

Name of lead organization/entity to take innovation to this stage: IRRI - International Rice Research Institute

Names of top five contributing organizations/entities to this stage:

- Alliance of Bioversity International & the International Center for Tropical Agriculture (CIAT)
- ICAR - Indian Council of Agricultural Research
- CIRAD - Centre de coopération internationale en recherche agronomique pour le développement
- AfricaRice - Africa Rice Center

Milestones:

- Rice Data Hub with GRISP phenotyping and initial Reference Panel datasets and pilot analysis tools in place
- Contribution of G, E and M to QTL/gene effect determined using multi-environment GWAS analysis

Sub-IDs:

- 11 - Adoption of CGIAR materials with enhanced genetic gains
- 35 - Enabled environment for climate resilience
- 10 - Closed yield gaps through improved agronomic and animal husbandry practices

Contributing Centers/PPA partners:

- IRRI - International Rice Research Institute

Evidence link:

- <https://drive.google.com/drive/folders/1hSTP5x2vF1tEvAvzO8MufJV9P656Vu6v>

Deliverables associated: <Not Defined>

Contributing CRPs/Platforms:

- EiB - Excellence in Breeding Platform
- Rice - Rice