

Blast associated genotyping-by-sequencing markers for marker-assisted selection and genomic profiles of 4,143 wheat breeding lines for the 2NS translocation.

Project Title: P1308 - Identification of sources of resistance to wheat blast and their deployment in wheat varieties adapted to Bangladesh CIM/2016/219

Description of the innovation: Multi-environment genome-wide association mapping for blast resistance enabled identification of consistent blast associated genotyping-by-sequencing markers and provided valuable insights into the genetic architecture of resistance against different isolates of MoT in Bolivia and Bangladesh. The fingerprints of 4,143 lines for the 2NS translocation provided excellent insights into the increasing frequency of the translocation over years and emphasized the urgent need to identify novel non-2NS sources of blast resistance

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: Multi-national

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

Country(ies):

- Bangladesh
- Bolivia

Description of Stage reached: Breeders develop blast resistant wheat varieties more efficiently through better understanding of the shared genetic basis of blast resistance across different geographical regions and genomic characterization of breeding lines for the 2NS translocation.

Name of lead organization/entity to take innovation to this stage: CIMMYT - Centro Internacional de Mejoramiento de Maíz y Trigo / International Maize and Wheat Improvement Center

Names of top five contributing organizations/entities to this stage: <Not Defined>

Milestones: No milestones associated

Sub-IDs:

- 11 - Adoption of CGIAR materials with enhanced genetic gains

Contributing Centers/PPA partners:

- CIMMYT - Centro Internacional de Mejoramiento de Maíz y Trigo / International Maize and Wheat Improvement Center

Evidence link:

- <https://www.nature.com/articles/s41598-020-72735-8>

Deliverables associated: <Not Defined>

Contributing CRPs/Platforms:

- Wheat - Wheat