Identification of Resistant Sources for Rice Sheath Blight Disease from Wild *Oryza* species and Development of Mapping Population using Resistant Wild Accessions

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Objectives:

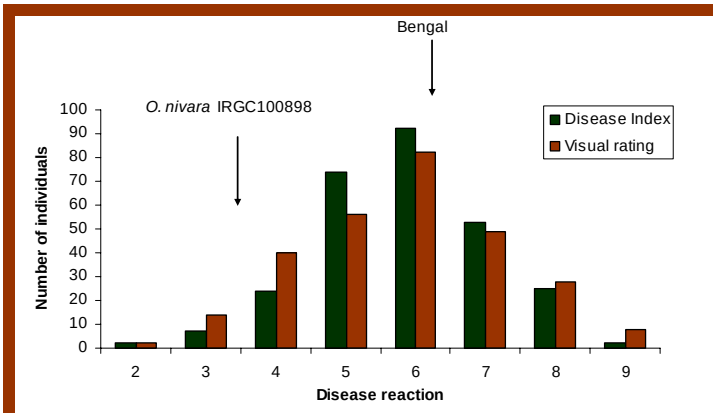
- Identify suitable screening methods for wild *Oryza* spp.
- Identify resistant *Oryza* spp. for sheath blight resistance for population development.
- Identify sheath blight resistant genes/QTLs from wild *Oryza* spp.

Original sheath blight screening techniques:

- Micro-chamber method
- Detached leaf method
- Toothpick method

Summary of results from screening selected *Oryza* spp. accessions for resistance to rice sheath blight

Genotypes	IRGC / PI no.	Micro-chamber method	Detached-leaf method	Toothpick method	Mean methods
O. nivara	IRGC100898	4.2	4.0	4.0	4.1
O. nivara	IRGC104705	4.4	4.0	4.8	4.4
O. nivara	IRGC104443	4.0	4.0	5.5	4.5
O. nivara/O. sativa	IRGC100943	3.4	4.0	3.2	3.5
O. meridionalis	IRGC105306	3.6	5.0	3.3	4.0
O. barthii	IRGC100223	4.2	4.0	6.0	4.7
O. officinalis	IRGC105979	4.3	4.0	6.5	4.9
Cocodrie	PI606331	6.7	6.0	6.5	6.4
Lemont	PI475833	7.0	7.0	7.0	7.0
Ahrent	PI628972	5.1	6.0	6.5	5.9
Bengal	PI561735	5.5	5.0	6.0	5.5
Jasmine 85	PI595927	4.1	4.0	3.5	3.9
TeQing	PI536047	3.9	4.0	3.5	3.8



Frequency distribution of sheath blight disease reaction of 279 BC_2F_2 families derived from a cross between Bengal and *O. nivara* IRGC100898

End products:

- Novel sheath blight genes (QTL)
- Germplasm released to the breeding community
- Additional crossing and selection by the breeders to incorporate the resistance genes/QTLs into commercial background.

Conclusion:

- The micro-chamber method was the best for screening wild *Oryza* spp.
- Seven *Oryza* spp. accessions were identified moderately resistant.
- Two mapping populations have been developed using two resistant accessions.
- Molecular markers are being used to identify sheath blight resistant QTLs.

Learn more and follow our progress at: www.ricecap..uark.edu or http://www.ars.usda.gov/news/News.htm?modecode+62-25-05-00

Recent publication: Prasad, B., and Eizenga, G.C. 2008. Rice sheath blight resistance identified in *Oryza* spp. accessions. Plant Disease 92: (in press)