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Project Title: Genetic and Physical Mapping of the chr. 2H Bin 10 FHB Resistance QTL and Development of Recombinant Lines and Mutants to Facilitate Breeding.

PROJECT 1 ABSTRACT

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We have developed recombinant lines that combine genome fragments from the Fusarium Head Blight (FHB) resistant cultivar CI4196 into a susceptible cultivar Morex genetic background. Saturation genetic and physical mapping has facilitated this work. We continue to refine the size of the CI4196 fragment introgressed in order to facilitate identification of the CI4196 genomic region required for FHB resistance. These lines, in conjunction with the sequencing effort described in a different project, will facilitate identification of the gene or genes required for FHB resistance. They are also useful as improved parents for FHB resistance breeding.

Complementing this effort, we identified and continue to identify mutants with improved agronomic qualities in the landrace resistant line CI4196. A six-rowed mutant from the 2-rowed CI4196 line is one of the most important mutants identified to date. Since it has been difficult to separate the FHB resistance trait from the 2-rowed trait, this mutant will facilitate development of 6-rowed cultivars acceptable to the US brewing industry. Additional mutants of interest include semi-dwarf, early flowering and intermedium types. The mutants that exhibit improved agronomic qualities and maintain the CI4196 level of FHB resistance will be combined to improve an improved CI4196 line for use as parent in breeding.