Development and Characterization of Wheat Lines Near Isogenic for a Fusarium Head Blight QTL. (C01-pumphrey112625-Poster)

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Abstract:

We have developed near-isogenic lines (NILs) for a Fusarium head blight QTL using SSR markers flanking the Qfhs.ndsu-3BS region. F3:F4 lines from 17 populations were genotyped with two co-dominant markers to identify single F4 heterozygous plants. Using the same markers on progeny of these single plants, homozygous types with alternate marker alleles at this QTL were identified. Self-pollination of heterozygous plants and subsequent marker analysis to identify homozygous types has produced 34 QTL-NILs from 17 unique cross combinations with various inbreeding generations. Four out of nine NIL pairs tested in our 2001 field inoculated nursery showed significant ($P<0.05$) reduction in FHB severity in lines with the resistance alleles. The remaining five NIL pairs did not show a significant difference in FHB severity. In greenhouse point-inoculation screens, a total of 29 unique NIL pairs were tested. Sixteen of these pairs had significantly reduced disease spread in homozygous types with the resistance allele. Data from all pairs evaluated in two inoculated FHB nurseries in 2002 will also be presented.

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