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Project Title: Field Tests of Transgenic Barley Lines.

PROJECT 1 ABSTRACT

(1 Page Limit)

Selected transgenic barley lines in the cultivar "Conlon" that express combinations of glucanase, thaumatin-like protein, chitinase and/or trichothecene transporter genes from rice, yeast and *Fusarium* species will be tested for Fusarium Head Blight (FHB) reaction and DON contamination in replicated field trials 2012-2013. These lines had lower FHB and/or deoxynivalenol in previous years' trials, including 2 lines that show 40% less DON than Conlon. Golden Promise barley lines expressing the anti-fungal gene gastrodianin developed in Iowa or hordothionin developed in Wisconsin were crossed twice to Conlon, and heterozygotes were field tested for the first time in 2010. Lines were crossed a third time to Conlon in autumn 2010 because the dense spike characteristic of Golden Promise was still evident. Heterozygous progeny from these crosses were tested in the 2011 FHB nursery. Homozygous lines were developed and will be tested in 2012 and 2013. For field containment, additional safeguards will be followed to prevent transgene escape or mixing with seed from the breeding and pathology projects.