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Project Title: Identify Barley Genes that Respond to Deoxynivalenol.

PROJECT 2 ABSTRACT

(1 Page Limit)

Fusarium head blight (FHB; scab), a fungal disease of barley caused by *Fusarium graminearum*, is a major problem for barley growers. Grain quality is reduced primarily due to the fungal biosynthesis of trichothecene mycotoxins such as deoxynivalenol (DON), 3-acetyl-deoxynivalenol (3-ADON), and 15-acetyl-deoxynivalenol (15-ADON). This proposal aims to identify and characterize barley genes that respond to DON accumulation. The specific objective of this proposal is to: (1) identify barley genes that respond to DON. We plan to use the Barley1 Genechip to examine transcript accumulation in barley spikes inoculated with DON and mock inoculated with water. We will analyze the data and identify the genes that respond to DON treatment. To refine the set of genes that respond to DON, we will compare the data obtained from the proposed GeneChip experiment with our previous GeneChip experiments. The outcomes from this work will be a novel set of barley genes that respond to DON accumulation. These genes will be useful for genetic engineering and molecular breeding applications.