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Project Title: Determining FHB Susceptibility in Barley and Wheat Cultivars in the Western US.

PROJECT 1 ABSTRACT

(1 Page Limit)

Ten years ago, the incidence of FHB in the irrigated west was regarded as a minor and relatively rare occurrence. With the substantial increase in corn acreage directly due to the increase in the dairy industry, and with substantial changes in irrigation practices, FHB has become a regularly occurring problem with economically significant impacts on small grain producers. There is a need to determine host resistance levels in wheat and barley varieties released for the arid irrigated production areas of the PNW that have been selected without the need to screen for FHB disease reaction. Unacceptable levels of DON toxin have been found consistently in irrigated wheat and barley in areas of the PNW in the past five years. While detectable levels of DON have been found in barley, the concentration has not been above 0.5 PPM. However, levels in wheat and durum have regularly been above 1 PPM, and levels in durum have been recorded as high as 23 PPM DON. Corn debris, where high levels of *Fusarium graminearum* reside, takes up to three or four years to degrade in arid west environments. In order to reduce risk in the rotations where grain follows corn, this project will determine level of effective FHB resistance in advanced lines and widely grown cultivars needed in irrigation systems in the western US.

Management practices to reduce FHB disease, *Fusarium* damaged kernels (FDK), and DON levels under irrigation will be tested in an attempt to provide best management practice recommendations in the irrigated barley and wheat production systems of the west. The specific objectives are: 1) Establish a field screening nursery; 2) Characterize FHB resistance in spring barley and wheat cultivars; 3) Determine the effectiveness of fungicide application in reducing symptoms and DON levels under irrigation.