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**ARS Agreement #: 59-0206-6-006**

**Research Category: BAR-CP**

**Duration of Award: 1 Year**

**Project Title: Mapping Loci Conferring Resistance to FHB and DON Accumulation in Barley.**

### **PROJECT 1 ABSTRACT**

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Fusarium head blight (FHB) has devastated the once thriving malting barley industry in the Midwest. Our overall goal is to reduce the losses caused by FHB, especially quality discounts due to the accumulation of mycotoxins such as deoxynivalenol (DON). In conjunction with chemical and cultural management strategies, this can be best achieved by identifying and incorporating into barley cultivars genes that confer a high level of resistance to FHB and the accumulation of mycotoxins. Our specific objectives for this proposal are to: 1) determine the number, effect, and chromosomal position of FHB resistance loci in the select barley accession PI350725 (a two-rowed variety from the Tyrol in Austria) using the advanced backcross QTL method and 2) provide adapted FHB-resistant parental materials to barley improvement programs. This project was initiated in 2013. We are on track to complete the research in 2018 as outlined in the timeline. This research addresses Barley-CP VDHR objective #2 (Mapping novel QTL for resistance to FHB in barley), but is also an important step in advancing objective #4 (Develop new barley varieties with enhanced resistance to FHB and lower DON). The outputs from this work will be advanced breeding lines with novel genes for FHB resistance. Use of this germplasm in breeding will help fulfill the USWBSI primary goal to develop as quickly as possible effective control measures that minimize the threat of FHB, including the reduction of mycotoxins, to the producers, processors, and consumers of barley.