Project Abstract

Project Title:	**Coordination of the NABSEN and screening US barley germplasm**	
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Fusarium head blight remains the most important disease issue for barley production in most of the United States. The North American Barley Scab Evaluation Nurseries (NABSEN) has the goal of promoting collaboration between barley breeders and pathologists in North America to advance and distribute elite barley germplasm with resistance to Fusarium head blight. Midwestern barley breeding efforts to develop adapted varieties with acceptable resistance to FHB and DON accumulation has made steady progress in the last two decades. However, to maintain this trajectory towards acceptable levels of genetic resistance to FHB it is essential to continue this program and expand in new directs of improved screening for FHB.

The over all project objective is to development of adapted barley varieties with improved type I resistance and lower DON accumulation. Objective 1 is to make available FHB nurseries across a range of environments with sufficient levels of disease to adequately screen barley for FHB resistance. The NABSEN has consistently established sufficient levels of infection across a wide range of environments including Crookston and St. Paul, MN, Osnabrock, Fargo and Langdon, ND, and Brandon, MB Canada. Coordinated screening effort will evaluate advanced breeding lines with putative FHB resistance from four barley-breeding programs in the upper Midwest US and two breeding programs in Canada. Objective 2 will coordinate the NABSEN, establish misted irrigated nurseries at the Fargo and Langdon, ND locations, and coordinate the evaluation of western breeding materials. The determination of Fusarium head blight severity and deoxynivalenol (DON) accumulation for each entry replicated at least twice per location allows for the robust and timely evaluation of material coming out of multiple breeding programs.

The NABSEN will make it possible for Midwestern breeding programs to evaluate their elite materials and make head to head comparisons of lines from different programs containing distinct genetic resistances. Results will be shared with collaborating breeding programs and the USWBSI by producing the annual NABSEN report.