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Research Category: BAR-CP **Duration of Award:** 1 Year

Project Title: Breeding Spring and Winter 2-rowed Malting Barley for FHB Resistance and Reduced DON

PROJECT 1 ABSTRACT

(1 Page Limit)

The passage of the New York Farm Brewery Bill created an opportunity to develop a new industry in New York with great potential for collateral economic opportunities. However, malting barley had not been grown on a commercial scale in New York for several decades, so there was no information available on varieties, management practices, or production and marketing. Malting barley production in the northeastern U.S. poses major disease risks because of the wet, humid climate and FHB is by far the most important of the diseases. We have been evaluating spring barley varieties from various regions for the past three years and it is clear that for this crop to reach its' potential in this region, a breeding program is required.

Overall Project Goals: The overall goal of this project is to develop spring and winter 2-row malting barley varieties with FHB resistance and adaptation to the northeastern U.S.

Project Objectives:

1. Evaluate FHB resistance in spring malting barley varieties in a Uniform Eastern Spring Malting Barley nursery coordinated by Richard Horsley at North Dakota State University and a Winter 2-row Malting Barley Trial coordinated by Kevin Smith at the University of Minnesota.
2. Evaluate FHB resistance in malting barley varieties that are tested in both New York State Regional Spring and Winter Malting Barley testing programs.
3. Evaluate FHB resistance in winter malting barley germplasm from Idaho and Nebraska.
4. Evaluate FHB resistance and agronomic traits in our NY spring 2-row elite line training population and use genomic selection to develop spring 2-row malting barley varieties with FHB resistance and adaptation to the northeastern U.S.

Plans to Accomplish Goals: We will evaluate cooperative uniform spring and winter barley nurseries and our own breeding lines in misted, inoculated nurseries using accepted management practices and data analyses. All results will be reported to coordinators and the barley breeding community.

Statement of Mutual Interest: Reduced use of fungicides, risk to the farmer, and improved food safety are among the most important benefits. Rural economies also benefit from diversification of the farm income, development of local businesses using local farm products, and increased local infrastructure. Collaborators have agreed to exchange germplasm to develop and evaluate 2-row spring and winter barley varieties adapted to the northeast.