PI: Mark Sorrells

PI's E-mail: mes12@cornell.edu

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Research Category: VDHR-NWW

Duration of Award: 1 Year

Project Title: Genetics and Breeding of FHB Resistant Soft White & Red Winter Wheat for the Northeastern U.S

PROJECT 2 ABSTRACT
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The overall project goals are to evaluate the FHB resistance for all wheat varieties grown in New York and develop new varieties of soft winter wheat that have FHB resistance and perform well in New York. Specifically the goals are to:

1. Develop FHB resistant soft wheat cultivars for the northeastern U.S. in collaboration with Gary Bergstrom, Department of Plant Pathology. Evaluate our elite lines in the Cornell University FHB Advanced Line nursery.
2. Pyramid FHB resistance genes by hybridizing elite lines with native FHB resistance to new sources of FHB resistance both Asian and other sources.
3. Evaluate FHB resistant lines in New York regional trials for release, farmer recommendations, and seed increase.
4. Participate in the coordinated sharing of information from the above activities to generate a comprehensive source of information that can be used in forward breeding strategies.

Expected outcomes include elite lines and varieties with native resistance to FHB, elite populations segregating for FHB resistance to be used with marker assisted selection in variety development, variety FHB resistance recommendations for farmers and other stakeholders, and distribution of information to collaborators and stakeholders.

Plans to accomplish project goals consist of 1) selection and hybridization of elite lines and varieties that have both native and exotic FHB resistance to generate enriched, elite populations to be used in variety development, 2) screening for polymorphism and marker assisted selection for major resistance QTL using elite lines and varieties as recurrent parents, 3) evaluation of elite FHB resistant wheat lines in New York state-wide, regional trials, 4) participating in the development of a comprehensive source of information that can be used by breeders to design forward breeding and selection schemes that will result in superior germplasm for variety development.

Stakeholders and end users will benefit from the increased availability of FHB resistant varieties and more consistent grain quality.