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

PROJECT 1 ABSTRACT

(1 Page Limit)

The objective of this project is to develop FHB resistant soft wheat cultivars for the northeastern U.S. in collaboration with Gary Bergstrom, Department of Plant Pathology. This will be accomplished by evaluating our elite lines in the Cornell University FHB Advanced Line nursery, pyramiding FHB resistance genes from native and Asian sources of FHB resistance and evaluating FHB resistant lines in regional trials for release, farmer recommendations, and seed increase. We will also 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. The successful commercialization of our Jensen soft white winter wheat variety addressed the two biggest threats to wheat production in NY because it has resistance to FHB and preharvest sprouting. Because most of the DON toxin is in the bran, FHB resistance in white wheat is more important than for red because white wheat bran is widely marketed to the food industry for use as an additive in high bran food products. White wheat commands a premium price in the NY market place. We will use marker-assisted selection and standard breeding methods to pyramid FHB resistance genes. In addition, we recently co-released an FHB resistant soft red winter wheat variety with Ohio State University. All advanced lines are evaluated for up to four years in our FHB tests and regional trials to ensure they have adequate FHB resistance and agronomic performance.