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Project ID: FY14-NW-006

ARS Agreement #: New Agreement (Expiring Agreement # 59-0206-9-081)

Research Category: VDHR-NWW

Duration of Award: 1 Year

Project Title: Improvement of Soft Winter Wheat that is Resistant to FHB and Adapted to Indiana

PROJECT 1 ABSTRACT

(1 Page Limit)

Strong FHB resistance must be combined with high-yield and high quality to impact the Eastern US wheat industry. This project will develop soft winter wheat cultivars with resistance to fusarium head blight (low disease severity and DON) and that are adapted (agronomic performance, resistance to important diseases, pastry wheat milling and baking qualities) to Indiana and the Eastern U.S. This project addresses the three VDHR research goals: A) Increase acreage planted with varieties with improved FHB resistance to reduce DON in the US grain supply; B) Increase efficiency of coordinated project breeding programs to develop and release FHB resistant varieties; C) Develop new breeding technologies and germplasm to further enhance short term and long term improvement of FHB resistance and to efficiently introgress effective resistance genes into breeding germplasm. This project has successfully developed a number of lines with partial resistance to FHB that have been released: INW0316, INW0411, INW0412, INW0731, and INW1021, all having partial resistance to FHB. In 2014-15, two lines (Exp02444 & Exp05247) may be released and named depending upon performance and resistance levels. Approximately 70% of the budget is directed at all aspects of breeding for variety development and field assessment with approximately 30% for QTL mapping and ensuring we have the maximum levels of effective QTL combinations. The objectives for this research are to: 1) Identify lines with type 1 and 2 resistance, genotype select lines, and select elite lines for further agronomic performance evaluation 2) Select elite lines with FHB 1 and *Qfhs.pur-7EL*, for resistance, yield and quality performance and genotype.