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Research Category: **VDHR-NWW** **Duration of Award: 1 Year**

Project Title: Coordinated Phenotyping of Uniform Nurseries and Official Variety Trials.

PROJECT 3 ABSTRACT

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Strong FHB resistance must be combined with high-yield to impact the Eastern US wheat industry. Each year the seven breeding programs in this CP generate breeding lines that are in the advanced stages of development. Due to low to moderate heritability of FHB resistance (1,2,3), multi-location testing is needed to determine the FHB resistance of these lines, as well as their yield, quality, agronomic value, and resistance to other diseases. The objectives of this project are to phenotype advanced breeding lines that are candidates for release, place FHB and other agronomic, disease resistance, and quality data in a database and report on purification and seed increase of the best lines. Regional uniform testing has stood the test of time as one of the best ways to evaluate and distribute new germplasm. Breeders benefit from both the extended testing in other environments and from access to superior lines from other breeding programs. The NUWWSN and PNUWWSN tests were created to specifically test FHB resistance of up to 120 entries and are coordinated by Ohio State University. The NUWWSN and PNUWWSN are also evaluated for milling and baking quality by the USDA Soft Wheat Quality Lab and are assessed for other diseases as they occur. Our most advanced lines are tested for yield and other traits in uniform tests coordinated by Harold Bockelman of the USDA or by breeders. In addition, each state has an Official Variety Test (OVT) of released cultivars that are evaluated for FHB resistance and make that information available to growers through the state extension service. Through these coordinated evaluation efforts, we can determine the FHB resistance of nearly all germplasm that is currently released, or likely to be released in the near future. We anticipate that all data from the trials of breeding lines will be placed in the database that will facilitate queries from breeders, growers, millers, and bakers.