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**Project ID: FY14-HW-007**

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**Research Category: HWW-CP**

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**Project Title: Transfer of FHB Resistance to NDSU Hard Red Winter Wheat Breeding Material.**

### **PROJECT 1 ABSTRACT**

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A winter wheat breeding program is being implemented at North Dakota State University since 2011. A first objective is to build a productive breeding population with adequate variation to breed successfully for improved cold-hardiness, regional adaptation, yield, disease resistance and processing quality. Presently available and suitably cold-hardy germplasm has a narrow genetic base and is seriously lacking in disease resistance, particularly with respect to Fusarium head blight, the cereal rusts and leaf spot diseases. In a previous project accelerated pre-breeding was used to speedily transfer useful and diverse FHB resistance genes from spring wheat and less winter-hardy winter wheat. Winter habit lines with intermediate winter-hardiness were developed and are now being evaluated for FHB resistance. Superior lines will serve as transitional parents in crosses with the most cold-hardy genotypes so as to move the new resistance genes into a broad spectrum of breeding material. This should greatly improve our ability to breed for increased FHB resistance and to combine FHB resistance with newly introgressed resistance to other diseases.