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**Project ID:** FY20-HW-004

**ARS Agreement #:** 59-0206-0-129

**Research Category:** HWW-CP

**Duration of Award:** 1 Year

**Project Title:** Development of Montana Adapted FHB Resistant Winter Wheat Varieties

### PROJECT 1 ABSTRACT

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Involvement of Montana State University's winter wheat breeding program in the US Wheat and Barley Scab Initiative (USWBSI) was initiated in 2015 in response to the presence of FHB in the 2014 North Central and Eastern Montana winter wheat crop. Occurrence of FHB in Montana winter wheat and the prevalence of FHB in Montana spring wheat and barley warrant the development of Montana adapted FHB resistant winter wheat varieties.

#### Research objectives:

- 1) Integrate FHB resistance genes from FHB resistant winter and spring wheat germplasm into MSU's winter wheat breeding program using both conventional breeding and marker assisted backcrossing (MAB) to increase FHB resistant allele frequencies in the Montana winter wheat breeding program. Four generations of MAB and two generations of conventional breeding can be achieved in 2020-2021.
- 2) Phenotype Montana adapted winter wheat experimental lines for FHB resistance during the 2020 and 2021 field seasons. Experimental lines found to have FHB resistance will be considered for public release.

Deployment of FHB resistant winter wheat varieties adapted to Montana will help protect Montana's winter wheat grain producers and end-users from FHB infections and unacceptable deoxynivalenol (DON) levels that would prevent the sale of FHB infected winter wheat.