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Project Title: Montana Winter Wheat Fusarium Head Blight Resistance.

PROJECT 1 ABSTRACT

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Until recently, little emphasis has been devoted by Montana State University's (MSU)'s winter wheat breeding program towards developing Fusarium Head Blight (FHB) resistant varieties. The recent appearance of FHB on dryland Montana winter wheat acreage and observed susceptibility of Decade, currently grown on ~200,000 acres, to FHB infection has warranted research towards the following 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) methods 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 during 2016-2017.
- 2) Conduct phenotypic screens during the 2016 and 2017 field seasons to evaluate FHB resistance in adapted Montana winter wheat varieties and germplasm with the goal of identifying germplasm/varieties with FHB resistance. Elite Montana germplasm and released varieties will be screened for FHB resistance in 2016-2017 thus providing the possibility a FHB resistant variety could be released during the proposed time-frame.

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