

**PI: Luther Talbert**

**PI's E-mail: [ltalbert@montana.edu](mailto:ltalbert@montana.edu)**

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**Research Category: VDHR-SPR**

**Duration of Award: 1 Year**

**Project Title: Fusarium Head Blight Resistance for Montana Spring Wheat.**

### **PROJECT 1 ABSTRACT**

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Fusarium head blight has been a long-standing problem on irrigated wheat acreage in Montana. Shifting rainfall patterns have helped grain yields on dryland acreage, but have also increased the occurrence of FHB in dryland areas. Thus, while a primary objective of the spring wheat breeding effort is to develop FHB-resistant varieties suitable for production in high-yield, irrigated systems, varieties for dryland areas are becoming increasingly important. The spring wheat breeding program has relied upon a traditional crossing program to incorporate FHB resistance. Two sources of resistant material have been used. First, we grow the Uniform Regional Hard Red Spring Wheat Nursery in Bozeman. We have selected lines from this nursery over the past decade to be used as parental material for our own breeding program. Crosses have included currently released lines such as Glenn, Forefront, Sabin, and RB07. In addition, we grown a large panel of elite lines under the auspices of the USDA-funded T-CAP program, and have selected several FHB-resistant lines for our crossing program. As a result, we have lines with a resistant parent at some frequency at all stages of development. Testing of four elite lines close to release in 2015 showed no resistance. Molecular marker analysis conducted with 2015 funding has indicated 12 lines in advanced yield trials in 2016 that have Fhb1. These lines have been entered into inoculated FHB nurseries in Montana and Idaho for 2017. Funding requested in this proposal will be used make additional crosses using FHB resistant lines from both the Uniform Regional Nursery and the elite T-CAP nursery.