PI: Frances Trail **PI's E-mail: trail@msu.edu**

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Research Category: **BAR-CP** **Duration of Award: 1 Year**

Project Title: Development of Transgenic Barley for Control of Scab.

PROJECT 1 ABSTRACT

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Through the efforts of breeders, resistance to head blight in barley has improved greatly in the last decade. However, more effective resistance is still sought for better protection when disease pressures are high. In treating the host, approaches that address early fungal ingress will be the most effective approaches in eliminating FHB. This project will take advantage of a weak and vulnerable stage of the fungus to develop transgenic resistance. With previous funding from the USDAWBSI, we have shown that following conidial germination of *F. graminearum*, germlings produce small infection pegs or use crevices to move into the barley epidermal cells. The most effective path to successful disease control is to eliminate pathogens early in the infection cycle. Once hyphae of fungal pathogens have infiltrated through host tissues, they are much harder to eliminate. We will investigate a new approach to arresting the spread of the fungus before it hit s the vascular system. We will do this by (1) identifying genes important to early infection and spread; (2) functionally testing those genes for arresting colonization in barley; (3) designing silencing vectors that will be use eventually to generate transgenic barley.