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**Project ID: FY11-EN-018**

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**Research Category: PBG**

**Duration of Award: 1 Year**

**Project Title: Effects of Defense Peptides on Fusarium Head Blight.**

### **PROJECT 1 ABSTRACT**

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Small peptides, including mating pheromones and sequences derived therefrom, are known to inhibit spore germination and germling growth of *Fusarium graminearum*. In 2009, we began integrating laboratory and greenhouse studies to evaluate a number of these peptides as well as selected inhibitory combinatorial peptides for inhibition of infectious ascospores and for blight and DON control. The peptides are being evaluated in both chemically synthesized and protein scaffold-display formats. The scaffold-display peptides will be produced by yeast fermentation. During 2011, in addition to these continuing evaluations, we will assess the potential for combining inhibitory peptides for enhanced control of infection and disease development. We will also assess the efficacy of inhibitory peptides through cycles of wet and dry conditions and in relation to stage of floral development. We anticipate identifying small peptides with significant antifungal activity that can be produced inexpensively via fermentation and applied as protective sprays. The peptides in scaffold-display format also have potential for deployment in transgenic wheat.