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Project ID: 0506-BO-072

FY04 ARS Agreement #: NA

Research Area: EDM

Duration of Award: 1 Year

Project Title: Genetics of Pathogenicity and Fertility in *Gibberella zeae*.

PROJECT 1 ABSTRACT

(1 Page Limit)

The long-term goals of our genetics project are to: 1) create linkage maps of important strains of *Gibberella zeae* (*Fusarium graminearum*) as a genetic resource; 2) use the maps to choose unlinked markers for population diversity studies, 3) use the maps to help order and validate the genomic sequence and understand genome organization; and 4) to study the genetic basis of important traits of the pathogen such as toxin production, fertility, or aggressiveness. First, we will pursue the identity of several linked loci with very interesting phenotypes related to toxin accumulation, pathogenicity, pigmentation, and female fertility. Second, we will determine the nature of interlineage fertility barriers using our existing genetic map. The third objective will carefully define the fertility barriers among lineages within the *Gibberella zeae* clade. This is important to understand the potential for genetic exchange between lineages.