

**0203-KI-031 Diversity of *Gibberella zeae* populations from the U.S., China and Italy.**

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PROJECT ABSTRACT

(1 Page Limit)

The overall goal of this project is to characterize and to compare populations of the *Fusarium* head blight pathogen (*Fusarium graminearum*) from wheat in the United States, China and Italy employing molecular markers. Intensive collections of strains from eight states within the U.S. and four sites in China have been made and a contemporary collection of strains from Italy has been obtained. Plans to characterize and to compare these populations involve: 1) examining polymorphic, co-dominant markers in strains from these populations, 2) determining the phylogenetic lineage of all strains, 3) calculating allele frequencies and gene diversities within populations and comparing them among populations, 4) determining gene flow between populations within lineages and 5) determining the level of sexual recombination within populations. As plant breeders develop new varieties of wheat resistant to *Fusarium* head blight, it will be necessary to determine not only whether pathogen populations may vary from location to location, but also the potential of individuals within and between populations to exchange genetic material through recombination. Both China and Italy are sources of disease resistant plant germplasm used in U.S. breeding programs; therefore it is imperative to compare pathogen populations from these locations to those from the U.S. Also, due to the import of breeding materials from these countries it may be crucial to carefully examine the U.S. population to detect possible immigration of novel lineages and/or genotypes and to assess the effect of this potential population admixture.