

**PI: Mark Sorrells**

**PI's E-mail: mes12@cornell.edu**

**Project ID: 0405-SO-011**

**FY03 ARS Agreement #: 59-0790-9-066**

**Research Area: VDUN**

**Duration of Award: 1 Year**

**Project Title: Fusarium Head Blight Resistant Wheat Variety Development - Cornell.**

PROJECT 1 ABSTRACT

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Fusarium head blight causes significant crop losses every year in New York State and the surrounding region due to the humid wet climatic conditions and high inoculum load that is normally present at flowering time. Consequently, a comprehensive breeding program for development, evaluation and release of FHB resistant wheat cultivars is critical for this region.

Objectives:

- 1) Evaluate locally adapted wheat varieties and elite germplasm for resistance to FHB.
- 2) Hybridize elite lines and varieties to new sources of FHB resistance.
- 3) Select and evaluate lines possessing superior resistance to FHB by combining resistance genes from different sources.

This project is composed of three major activities that include evaluation of the Uniform Northern Winter Wheat Scab Nursery, evaluation of the Cornell FHB nursery, and selection and hybridization of FHB resistant lines and varieties to elite, locally adapted, genotypes.

Although evaluation is labor-intensive and somewhat unpredictable, we have made much progress towards improving the reliability and accuracy. In our trials, rankings of relative resistance to FHB are consistent over years and locations among the wheat lines we have used as resistant and susceptible checks. Incidence and severity of infection has varied considerably among trials and modifications in methodology have addressed this problem. Our evaluation nursery has the capability to test up to 200 different genotypes in 6 replicates planted in 2 meter row plots. Infected corn kernel inoculum is spread in the alleys just before heading time. New crosses from last year are planted each year for selection and generation advance. We are advancing lines for our FHB breeding program into our testing program each year now.