U.S. Wheat and Barley Scab Initiative
Annual Progress Report
September 15, 1999

Cover Page

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Year:	**FY1999**
Grant Number:	**59-0790-9-030**
Grant Title:	**Fusarium Head Blight Research**
Amount Granted:	**$68,293.00**[1]

Project

Program Area	Objective	Requested Amount
Food Safety, Toxicology, Utilization	Diagnostic services for DON.	$70,000
	Requested Total	$70,000

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Principle Investigator Date

[1] Note: The Requested Total and the Amount Granted are not equal.

Project 1: Diagnostic services for DON.

1. What major problem or issue is being resolved and how are you resolving it?

   The major issue is Fusarium head blight or scab resistance in spring wheat. The methods of resolving it involve cooperative efforts and a multi disciplinary approach since the disease has many facets. This grant was to aid in vomitoxin testing. Spring wheat's most significant problem is vomitoxin and these vomitoxin levels are used in the evaluation of wheat germplasm.

2. Please provide a comparison of the actual accomplishments with the objectives established.

   Objective A: Provide timely DON assays (3,000 max.) on ground samples from scientists.
   We have received and completed ~1,200 of the 3,000 anticipated samples. We run ~45 samples per day. If necessary, we can process ~100 samples per day using GC/MS in conjunction with GC/ECD. We anticipate ~1,500 additional samples from scientists in North Dakota, Minnesota, Iowa, and South Dakota. We hired a full-time helper for this project and have also established a proficiency check sample system to compare data from the vomitoxin labs in Michigan, Minnesota, and North Dakota. We have established a system that allows us to use GC/ECD for 15-ADON, nivalenol, and vomitoxin in the research samples.

   Objective B: Provide broad-spectrum (17 mycotoxins) GC/MS screens.
   We have completed ~90 broad-spectrum GC/MS screens and have detected significant levels of nivalenol, TMR-1, HT-2, and T-2 in intact head samples from Dr. Len Francl at North Dakota State University. Further work is in progress on intact head samples from field plots.

   Objective C: Complete the development of "fast DON assays" by GC/ECD and GC/MS.
   We have not succeeded in developing a "fast DON assay". We were unable to resolve the peaks of interest from interfering peaks. We anticipate further work on this objective after the 1999 research samples are done.

3. What were the reasons established objectives were not met?

   The "fast DON assay" was not developed due to chromatographic resolution problems on the GC/ECD. We anticipate further work on this project.

4. What were the most significant accomplishments this past year?

   We are one-third of the way through the grant period, but have established the trained technicians and equipment to handle the 3,000 vomitoxin assays for research scientists. We were successful in establishing a proficiency check sample system to compare DON results from different labs.

Include below a list of the publications, presentations, peer reviewed articles, and non-peer reviewed articles written about your work that resulted from all of the projects included in the grant. Please reference each item using an accepted journal format. If you need more space, continue the list on the next page.

There were no publications or presentations completed during the time we received the grant (May 10, 1999) and the present date (September 15, 1999).