

**U.S. Wheat and Barley Scab Initiative  
Annual Progress Report  
September 18, 2000**

**Cover Page**

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<b>Year:</b>	<b>FY2000</b>
<b>Grant Number:</b>	<b>59-0790-9-070</b>
<b>Grant Title:</b>	<b>Fusarium Head Blight Research</b>
<b>Amount Granted:</b>	<b>\$25,000.00</b>

**Project**

<b>Program Area</b>	<b>Objective</b>	<b>Requested Amount</b>
Epidemiology	Investigate the influence of residue decomposition rates on Fusarium survival.	\$25,000.00
	<b>Requested Total</b>	<b>\$25,000.00</b>

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Principal Investigator

Date

**Project 1: Investigate the influence of residue decomposition rates on *Fusarium* survival.**

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

This research is part of an ongoing investigation to establish the correlation between residue management and the survival of *Fusarium*. Residue decomposition and fusarium survival are quantified when wheat, barley and corn plant residues are placed on and below the soil surface. Cover crop and nitrogen (N) fertilizer treatments are included as well as monitoring parameters related to decomposition such as soil temperature and water, carbon to nitrogen ratio and lignin content of the residue. If *Fusarium graminearum* survival is related to residue decomposition, then residue management strategies which enhance displacement of *Fusarium* might be developed. Since residue decomposition is a microbial process, manipulation of the indigenous microorganisms might accelerate the loss of *Fusarium*.

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

Data collection began in the fall of 1999 and will continue for 24 months. During the first three-month incubation, buried residue decomposed at a faster rate than surface residue (Table 1). Initial plant residue fractions infected with red *Fusarium* (likely *F. graminearum*) were 49, 42 and 12% for barley, wheat and corn, respectively.

Table 1. Decomposition of plant residue fractions during a three-month incubation (September-November 1999) fertilized with 120 lb N/acre.

Residue Placement	% Weight Loss of Residue		
	Wheat	Barley	Corn
Surface	8.4	6.4	9.0
Buried	15.2	14.6	20.8

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

The established objectives are being met.

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

Continued monthly data collection and interpretation.

Year: 2000  
PI: Robert Todd  
Grant: 59-0790-9-070

Progress Report

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.

- Todd, R. L., R. Stack, E. Deibert and J. Enz. 1999. Plant Residue in the Control of Fusarium Head Blight. *In Proceedings of the 1999 National Fusarium Head Blight Forum, Sioux Falls, SD*, page 105.
- Todd, R. L., R. Stack, E. Deibert and J. Enz. 2000. Control of Fusarium Head Blight using Plant Residues. *In Proceedings of International Wheat Scab Symposium, Suzhou & Nanjing, China*, pages 274-278.