U.S. Wheat and Barley Scab Initiative
FY01 Final Performance Report (approx. May 01 – April 02)
July 15, 2002

Cover Page

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Year:	**FY2001 (approx. May 01 – April 02)**
Grant Number:	**59-0790-1-068**
Grant Title:	**Fusarium Head Blight Research**
FY01 ARS Award Amount:	**$ 54,984**

Project

Program Area	Project Title	Requested Amount
Epid/Dis. Mgt.	Disease Prediction Models for Fussarium Head Blight and Gibberella zeae Perithecia Development	$ 56,483
	Total Amount Requested	**$ 56,483**

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Principal Investigator Date

(Form – FPR01)

Project 1: Disease Prediction Models for Fussarium Head Blight and Gibberella zeae Perithecia Development

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

The prediction of wheat Fusarium head blight remains the major issue of this project. The cooperative effort continues to produce valuable information that is now being used to develop prediction models for this devastating disease. Penn State has taken a lead role in the compilation and analysis of the cooperative data set, and plans are in place to utilize this data for the development and validation of scab prediction models.

2. What were the most significant accomplishments?

Penn State is currently involved in collaborative work with Ohio State University, to validate and deliver several risk assessment models for scab. The proposed models were described in a manuscript submitted to *Phytopathology*. The 2001 growing season was our first attempt at wide scale validation and delivery of the risk assessment models via the Internet. Preliminary results indicate the models are performing well. Further validation and testing will be done during the 2002 growing season.

Research at Penn State to investigate the perithecia development of *Gibberella zeae* is also underway. Sensor technology has been developed to monitor the moisture content of crop residues. This past winter 3 replicates of the growth chamber experiments were completed and field evaluations were carried out as planed during the 2001growing season. Additional improvements to sensor design where developed and are scheduled for testing during the 2002 season.

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.

De Wolf, E., El-Allaf, S., Lipps, P., Francl, L., and Madden, L. 2001. Influence of environment on inoculum level and Fusarium head blight severity. Proceedings of the 2001 National Fusarium Head Blight Forum. Erlanger, KY. Dec. 8-1.

De Wolf, E. D., Madden, L. V. and Lipps, P. E. 2002. Risk assessment models for wheat Fusarium head blight epidemics in North America based on with-in season weather data. Phytopathology 92 (submitted 4/02).

De Wolf, E.D., Madden, L. V., and Lipps, P. E. 2001. Fusarium Head Blight Epidemic Prediction and Risk Assessment. Phytopathology 91:S22. (Abstract).

Dufault, N. De Wolf, E., Lipps, P. and Madden, L. 2001. Modification of a crop residue moisture sensor for application in the epidemiology of Fusarium head blight. Proceedings of the 2001 National Fusarium Head Blight Forum. Erlanger, KY. Dec. 8-1. (Abstract)

Lipps, P. Mills, D., De wolf, E., and Madden, L. 2001. Use of head scab risk assessment models in Ohio, 2001. Proceedings of the 2001 National Fusarium Head Blight Forum. Erlanger, KY. Dec. 8-1.