

**U.S. Wheat and Barley Scab Initiative
 FY00 Final Performance Report (approx. May 00 – April 01)
 July 30, 2001**

Cover Page

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Year:	FY2000 (approx. May 00 – April 01)
Grant Number:	59-0790-9-032
Grant Title:	Fusarium Head Blight Research
2000 ARS Award Amount:	\$8,779

Project

Program Area	Project Title	Requested Amount
Chemical & Biological Control	Identify safe, effective fungicides for FHB through evaluation across of wheat and/or barley varieties grown in relevant environments.	\$8,998.00
	Requested Total	\$8,998.00¹

 Principal Investigator

 Date

¹ Note: The Requested Total and the Award Amount are not equal.

Project 1: Identify safe, effective fungicides for FHB through evaluation across of wheat and/or barley varieties grown in relevant environments.

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

Fusarium head blight is a major concern for most wheat growers in South Dakota. Few chemical controls are available and none of the products available in South Dakota have full Section 3 labeling from EPA for application to heading wheat. Our South Dakota studies were planted at several locations in SD to increase the chances of matching a favorable environment for disease at the most susceptible time of crop development.

Growers have shown interest in applying fungicide to heading wheat with a 28-0-0 fertilizer to increase protein in the harvested grain. Our results have shown this to be a practice that can cause damage to the crop with no significant gain in protein.

This study is addressing the identification of effective new fungicidal products and improved methods of application to optimize control. Studies were initiated on hard red winter wheat, as well as hard red spring wheat.

2. What were the most significant accomplishments?

Much less scab developed across most of South Dakota in 2000 than was observed in 1999. However, in all locations, significantly less leaf spot and leaf rust diseases developed when a fungicide was applied for scab suppression.

Locations with less than one percent scab, but moderate leaf disease showed that yield increases associated with fungicide applications at heading are about 50% (about seven bushels/A) due to leaf disease suppression.

Strobilurin fungicides increased DON significantly at one SD location while a triazole, Caramba (metconazole), significantly decreased DON at the same location.

28-0-0 fertilizer, when applied alone, was found to increase leaf damage, but not to have any effect on scab incidence, severity, scab index, DON, yield, or protein. However, at one location protein was significantly increased with the addition of Folicur fungicide to the 28-0-0. Greater damage was consistently associated with the addition of Folicur and Folicur + NIS to the 28-0-0.

As a result of this data, more specific fungicidal scab suppression recommendations can be made for South Dakota producers. Demonstrations of the effectiveness of fungicide treatments in suppressing scab and providing a side benefit of suppressing leaf disease was very successful for growers that toured the plots.

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.

Bleakley, B.H., M.A. Draper, and Ruden, K.R.. 2000. Control of Fusarium head blight with biological antagonists. 2000 National Fusarium Head Blight Forum. December 10-12, 200. Cincinnati, OH.

Draper, M.A., Rudd, J.C., Casper, H.H., Ruden, K.R., and Lammers, G. 2000. Interaction of 28% nitrogen with Folicur fungicide when applied at heading as a tank mix. 2000 National Fusarium Head Blight Forum. December 10-12, 200. Cincinnati, OH.

Draper, M.A., Rudd, J.C., Casper, H.H., Ruden, K.R., and Lammers, G. 2000. Performance of various fungicides for suppression of Fusarium head blight (scab) in South Dakota – 2000. 2000 National Fusarium Head Blight Forum. December 10-12, 200. Cincinnati, OH.

Draper, M.A. 2000. SD Wheat Improvement Forum – What's up with Scab. Ag Horizons Conference (The Annual Meeting of the SD Crop Improvement Association, SD Oilseed Council, SD Wheat Commission, and SD Seed Trade Association). December 12-13, 2000. Pierre, SD.

Draper, M.A. 2001. 2000 in review: Diseases that were and diseases that will be. SD Fertilizer and Agricultural Chemical Dealers, Ag Expo 2001. Sioux Falls, SD.

Draper, M.A. 2001. New Millennium... Different Diseases? Commercial pesticide applicator training session. January 22, 2001. Mitchell, SD.

Draper, M.A. 2001. New Millennium... Different Diseases? Commercial pesticide applicator training session. January 23, 2001. Rapid City, SD.

Draper, M.A. 2001. New Millennium... Different Diseases? Commercial pesticide applicator training session. January 24, 2001. Pierre, SD.

Draper, M.A. 2001. New Millennium... Different Diseases? Commercial pesticide applicator training session. January 26, 2001. Brookings, SD.

Draper, M.A. 2001. New Millennium... Different Diseases? Commercial pesticide applicator training session. January 31, 2001. Watertown, SD.

Draper, M.A. 2001. New Millennium... Different Diseases? Commercial pesticide applicator training session. February 1, 2001. Aberdeen, SD.

Draper, M.A. 2001. New Millennium... Different Diseases? Commercial pesticide applicator training session. February 5, 2001. Sioux Falls, SD.

Draper, M.A. 2001. Managing plant diseases in winter cereals. County crop clinic. February 2, 2001. Gettysburg, SD.

Draper, M.A. 2001. Managing plant diseases in spring cereals. County crop clinic. February 15, 2001. Faulkton, SD.

Draper, M.A. 2001. Managing plant diseases in cereals. County crop clinic. February 27, 2001. Bison, SD.

Draper, M.A. 2001. Managing plant diseases in cereals. County crop clinic. February 28, 2001. Ralph, SD.

Draper, M.A. 2001. Managing scab and leaf disease in wheat. Brookings crops tour. July 5, 2001. Brookings, SD.

Draper, M.A. 2001. Managing scab and leaf disease in wheat. Brown County crops tour. July 10, 2001. Groton, SD.