

Wheat Disease Research and Education

South Dakota Wheat Commission

Reporting period: July 1, 2014 – August 28, 2015

Project investigators:

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Research Summary:

Wheat disease education was made available to producers through private pesticide applicator trainings, commercial pesticide applicator trainings, crops clinics, Wheat Walks, SDSU IPM Field School, West River Field School, farm shows, iGrow articles, iGrow Radio spots, news releases, weekly news columns, and other educational materials as handouts. Education was also provided to high school students through educational displays and presentations at Women in Science and Sanford Promise Day events. Plots were established and maintained for the "Wheat Health Management" project, in which various levels, sources, application methods and rates of chloride are being explored with the intent of maintaining wheat health, better managing root diseases and minimizing the need for foliar fungicides. Winter wheat plots were also established for a study focusing on ergot.

Introduction:

- *The Wheat Walk Tours provided an opportunity for producers to receive information on identifying and managing various wheat diseases, weeds, and insects, best management fertility practices and other agronomic information. The benefits of crop rotations, cover crops, and using resistant varieties were stressed. The Wheat Walks allowed producers to interact with Plant Pathology, Weed, Entomology, Soil Fertility, and Agronomy Field Specialists and/or State Specialists, discuss their concerns and get their questions answered in person. Handout material was provided to attendees for further reference.*
- *Extension staff assisted with general and specific surveys of wheat diseases occurring over a representative portion of South Dakota in conjunction with other researchers. Information is needed on the occurrence of various wheat diseases in South Dakota to help justify both research and educational efforts. Periodic visits to wheat fields were made to document wheat diseases that are present in the field and collect samples for proper diagnosis through laboratory analysis.*

Description of Accomplishments:

"Wheat Walks" were held at four locations (Fort Pierre, Wall, Winner, & Delmont), with approximately 61 producers in attendance. Each of the major topic areas of wheat production

were represented, including: agronomy, entomology, soil fertility, plant pathology, and weed control. Also present were representatives of the SD Wheat Commission and SD Wheat Inc. A specialist from each area gave a brief presentation on the major issues regarding wheat production in their topic area, and time was allowed for producers to interact with the specialists and ask questions. SD Wheat Inc. sponsored the lunch or dinner at the conclusion of each meeting. Between the grant and sponsorship of the meal by the SD Wheat Inc. we were able to offer the program without an additional registration fee.

Research results from the WSMV Green Bridge project will be reported by B. Hadi and A. Bachmann. The Wheat Health Management project indicated minimal yield responses to applied chloride fertilizer, but significant increases in chloride levels in plant tissue. Another winter wheat study involving ESN (environmentally sensitive Nitrogen) showed little or no differences between N management practices.

A field survey was conducted in the vicinity of selected South Dakota Automatic Weather Stations to document the incidence and severity of Fusarium Head Blight (FHB or scab) and leaf spotting diseases.

When ergot emerged as a widespread problem in 2014, the incidence of the disease in two of the spring wheat CPT trial locations were rated and documented. To further enhance the need for information regarding ergot, a field study was established in the Fall 2014 on winter wheat. Unfortunately for us the winter wheat winter killed and we were unable to gather any information from this study.

Projections:

The Wheat Walks provided an excellent opportunity for producers to get up to date, research based information and interact directly with SDSU Extension Specialists. These efforts will be evaluated to determine how they should be continued. The Wheat Health Management project is also planned to be continued in hopes of evaluating the effectiveness in managing root and crown diseases with chloride fertility. Selected winter wheat varieties were planted in a plot, located in a spring wheat field that was infected with ergot in the 2014 growing season. Plans are to rate the incidence of ergot among the varieties in 2015. We hope to establish a few demonstration type plots to be used in conjunction with the Wheat Walks and any other educational meeting that may be appropriate.

Publications/Data:

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<http://igrow.org/up/resources/03-2001-2015.pdf>

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