

Magnusson Research Farm General Support of the Wheat Breeding and Evaluation Program, Roseau, MN

Nancy Jo Ehlke, Dept. of Agronomy and Plant Genetics, University of MN, St. Paul

Research Questions

To provide research support to the University of Minnesota wheat breeding program by conducting small plot wheat research in Roseau, MN on the CFANS Magnusson Research Farm.

The CFANS Magnusson Research Farm (located 6 miles northwest of Roseau, MN) is a 40 acre site that was gifted to the University of Minnesota to conduct research that will have a positive impact on crops produced in the area with an emphasis on grass seed production. The Magnusson Research Farm is the northern most research site in Minnesota with unique environmental conditions that make this an attractive location for evaluating wheat cultivars and advanced breeding materials. The disease pressures and the climatic conditions are significantly different from locations in the Red River Valley supplying unique information to the wheat breeding program.

There is a long and productive history of supporting the plant breeding programs through variety evaluation trials of the major Minnesota crops in Roseau, MN. Initially these trials were managed by a Graduate Research Assistant receiving additional salary support. With the erosion of state funding to the University of Minnesota over the past twenty years, these state-funded Graduate Research Assistantships have disappeared completely. In addition, there was never permanent funding available to have staff located at the farm to manage these types of research plots. The wheat research is primarily conducted by Mr. Donn Vellekson, Research Plot Coordinator for the Turf and Forage Breeding, Genetics, and Seed Production Research Project, Department of Agronomy and Plant Genetics, University of Minnesota and manager of the CFANS Magnusson Research Farm and Dr. Dave Grafstrom, Northland College, Minnesota Turf Seed Council, and CFANS Magnusson Research Farm. All wheat research is done in close collaboration with Dr. Jim Anderson and Dr. Jochum Wiersma.

Results

This research is in support of the enhanced wheat breeding activities from Dr. Jim Anderson's and Dr. Jochum Wiersma's research programs. Results are available from these scientists.

Materials and Methods

In 2012, there were 528 spring wheat research plots at the CFANS Magnusson Research Farm. This includes both intensively and traditionally managed plots. All research is conducted according to the protocols provided by Dr. Jim Anderson and Dr. Jochum Wiersma. In addition, there was a winter wheat variety trial planted with 66 small plots to collect data on yield, maturity, disease pressures, and agronomic traits.

The Magnusson Research Farm has field scale equipment and limited plot scale equipment for conducting this research. The research required the following activities:

- Soil testing, soil preparation and tillage, and plot layout
- Seeding
- Herbicide applications
- Fungicide applications in intensively managed trial
- Heading notes, plant heights, and other notes of interest
- Making harvest tags, harvesting plots and drying samples
- Transporting wheat samples to St. Paul for quality evaluations

Other Sources of Funding for this Project

The CFANS Magnusson Research Farm receives limited funding from the college to perform its research and education mission.