

Barley Coordinated Agricultural Project Work Plan FY07 (4/1/07 – 3/29/08)
Ruth Dill-Macky, University of Minnesota

1) Describe the research, education, and outreach activities you are planning for the next year (4/1/07 – 3/29/08)

Research

We will participate along with Kevin Smith in establishing misted and inoculated FHB nurseries in Saint Paul, MN as part of a collaborative FHB trial (384 entries). The input of our small grains pathology lab will include the production of the inoculum which will be produced in the spring (January-April). We will also assist with maintenance of the nursery including the set-up and operation of the mist-irrigation system and provide assistance in the spray application of inoculum to the plots over the summer field season.

We will also conduct a greenhouse screening of all 960 CAP lines for net blotch. We will plant 5-7 seeds per container (seed provided by Kevin Smith) in the greenhouse. Seedlings at 14-17 days old will be inoculated with a characterized isolate of *Pyrenophora teres* and incubated for 24 h at 100% RH in a dew chamber to promote infection. Following the dew period inoculated plants will be returned to the greenhouse bench. Net blotch reactions will be assessed 7 days after inoculation. Data will be provided to Kevin Smith.

2) List specific outcomes and deliverables that will be accomplished in the first 6 months (4/1 – 9/31). These will be used as benchmarks for your bi-annual progress report.

- Complete production of Fusarium inoculum by April 30.
- Conduct FHB trial in St Paul plant between mid- April and early May, inoculate early July.

3) List specific outcomes and deliverables that will be accomplished in the second 6 months (10/1 – 3/31). These will be used as benchmarks for the bi-annual progress report.

- Conduct greenhouse screening for net blotch – planting in early September.
- Send net blotch data to Kevin Smith by November.

Barley Coordinated Agricultural Project Annual Progress Report
FY06 (3/1/06 – 2/29/07)
Ruth Dill-Macky, University of Minnesota

1) Describe the research, education, and outreach activities you completed in the FY06 year.

Research

We participated in a collaborative effort with Kevin Smith in establishing misted and inoculated nurseries for screening barley lines for their response to Fusarium head blight. The nursery established in Morris, MN evaluated 384 entries from four Midwest breeding programs. The input of our small grains pathology lab involved the production and application of the inoculum which was produced in the spring (January-April).

Greenhouse screening of all 960 CAP lines for net blotch was conducted between 1/3/07 and 2/6/07 with five planting dates to stagger the workload. Inoculum consisted of four Minnesota isolates of *Pyrenophora teres*. The lines (5-7 plants/pot) were inoculated with a suspension of spores 14-19 days after planting and incubated in a dew chamber at ~100% RH for 24 hours following inoculation to promote infection. Plants were visually assessed 7 days after inoculation. The checks responded as expected with Stander (susceptible) ranging from 7.3-9.7 and BT-462 (resistant) from 2.3-5 on a 1 to 10 scale. Approximately 16% of the lines tested demonstrated resistance better than that of the resistant check. The data were entered into a spreadsheet and provided to Kevin Smith.

2) List specific outcomes and deliverables accomplished in the first year of the project.

- Fusarium inoculum production was completed by the end of April 2006.
- Collaborated in a nursery in Morris MN to evaluate 384 lines for reaction to Fusarium – completed in August 2006.
- Greenhouse screening of the 960 CAP lines for net blotch was completed in February 2007.
- Data from the net blotch screening was entered into a spreadsheet and provided to Kevin Smith.