

2008-09 KySGGA Annual Research Summary

Performance of Small Grain Varieties in Kentucky

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Justification:

Small grain production is an important component of Kentucky's agricultural economy. New wheat and barley varieties are continually being developed by breeders. In order to maximize the profitability of small grain production, annual evaluation of varieties is needed to help farmers select varieties with superior agronomic performance.

Grain yield and test weight, as well as straw and forage yield are directly related to crop income, but varietal traits, such as plant height, lodging potential, maturity, and disease resistance are also important management-related components of profitability. The UK Small Grain Variety Testing Program annually evaluates the agronomic performance, general adaptability and pest resistance of small grain varieties grown in Kentucky.

Support of the UK Small Grain Variety Testing program is essential for the programs long term sustainability, ability to function and release a quality product annually to growers in a timely manner.

Objectives:

1. To determine the agronomic performance, general adaptability, and disease reaction of wheat and barley varieties in Kentucky.
2. To disseminate results to growers, extension agents, and agri-industry via electronic and printed format.

Benefit to Kentucky Wheat Growers

Many University of Kentucky agriculture research projects/programs benefit Kentucky's growers. The UK Small Grain Variety Testing Program is unique in that it exists almost exclusively for Kentucky's small grain growers and its goal is to maximize farm profitability by means of proper variety selection. Variety selection is recognized as the simplest and most cost effective way to maximize productivity and profitability.

Research Methods:

Seven wheat tests for variety evaluation will be conducted across the wheat production regions of Kentucky using either no-till or conventional tillage. Two barley tests and one wheat forage and straw test will be conducted using conventional tillage. The experimental design will be a randomized complete block with four replications per entry. Data will be analyzed for each test using analysis of variance and a combined analysis will be conducted across locations and years.

Conventional tillage plots will consist of six rows to form a plot 4 feet wide and 15 feet long. No-till plots will consist of seven rows to form a plot 4.5 feet wide and 25 feet long. Grain will be harvested with a small plot combine. The forage test will be harvested at the soft dough stage with a small plot forage combine. Winter grazing production potential will be determined prior to spring green-up using a rising plate pasture meter recording 5 samples per plot. Wheat straw yield will be determined using a small plot forage combine following grain harvest at one location.

Tests will be managed using intensive management practices. Herbicide application will include a spring application for broadleaf control and a fall pre-planting burn-down (no-till only) based on recommended management practices. Fungicides will be applied in the spring on all but two (disease rating) tests. An insecticide for aphid control will be applied in the fall and spring to protect plots from Barley Yellow Dwarf Virus. Nitrogen will be applied in a February/March split application at a rate of 40/60 lbs N per acre. Other nutrients will be applied at rates determined by soil tests.

Data will be collected for grain yield and test weight, straw yield, forage yield, winter grazing production potential, plant height, winter survival, lodging, maturity date, and disease reaction. Data will be published annually in an official UK bulletin. Printed copies will be distributed to all county extension offices and available online.

2009 Results:

88 wheat and 43 barley varieties/lines were tested in the 2009 Kentucky Small Grain Variety Performance Tests. The results were publicly released on July 6th. Kentucky was the first state in the country to release 2009 small grain variety tests results. The coefficient of variance for the tests was impressively low, indicating a high quality data set. The timeliness of releasing results and the high quality of data was in part the result of utilizing a new Wintersteiger plot combine with an onboard HarvestMaster GrainGage weighing system. Acquisition of this new combine would not have been possible without the support of the Kentucky Small Grain Growers Association.

4000 copies of the 2009 variety testing bulletin will be printed and distributed to all Kentucky county extension offices – results are also available online at <http://www.ca.uky.edu/agc/pubs/pr/pr586/pr586.pdf> . By utilizing information from variety tests, growers can maximize potential farm profitability by proper variety selection.