

COOPERATIVE BULLETIN #119

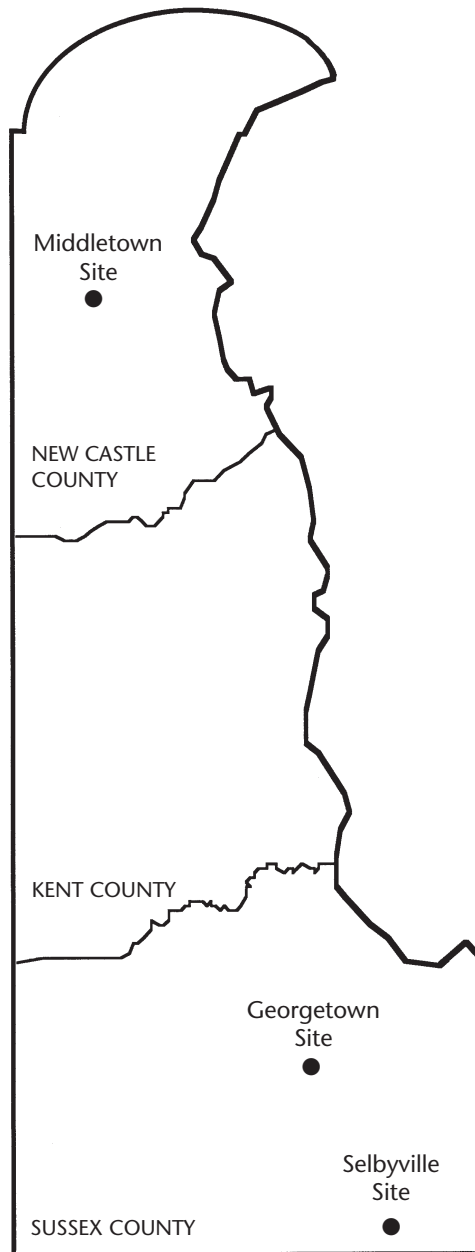
# DELAWARE SMALL GRAIN VARIETY PERFORMANCE TRIALS

2008



University of Delaware  
College of Agriculture and Natural Resources  
Agricultural Experiment Station  
Cooperative Extension  
Newark, DE 19717-1303

## Test plot locations



July 2008

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# DELAWARE SMALL GRAIN VARIETY PERFORMANCE TRIALS

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**Acknowledgments:** Appreciation is extended to Vic Green, Bud Hawkins, Kyle Mitchell, Albert Nojunas, and Charles Willis for their assistance in planting, pesticide application and harvesting of the variety trials. To Brian Hearn, Crops Research Coordinator and Scott Hopkins, Farm Manager for their assistance in managing the trials. The technical assistance of John C., Nancy Rogge, and Becca Green is greatly appreciated. The authors are indebted to Baker Farms in Middletown and Murray Farms in Selbyville for providing land and assistance for without their help these variety trials would not be possible.



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## **INTRODUCTION**

**During 2007 - 2008, 41 wheat (including 11 experimental), 9 public barley varieties were tested at three locations, and 5 winter oat, 6 rye, and 4 triticale varieties at one location in Delaware. These trials are conducted according to the policies and procedures of the University of Delaware Agriculture Experiment Station and Cooperative Extension. This publication reports the results of the Delaware Small Grain Performance Trials.**

**In 2008 private entries – entered voluntarily by the owner – were accepted after meeting eligibility requirements. Public entries were solicited from universities and crop improvement associations. No verification has been made that the seed (grade or quality) entered is the same as that offered for sale. Plans and rules for entering these trials are available, upon request, to anyone. The author will contact persons wishing to enter the 2009 Delaware Small Grain Performance Trials in September 2008.**

## **HOW BEST TO USE SMALL GRAIN RESULT INFORMATION**

- 1. Select the test location that best represents your production location(s). Small grain varieties are widely adapted across Delaware, but certain soil or climatic conditions, cultural practices, or insect/disease problems can change yield results, and may limit the choice of varieties.**
- 2. Multiple-year averages across the greatest number of years are probably the best predictor of performance. Additionally, averages that combine locations for a single year may be a better predictor of performance than data from a single location.**
- 3. When using long-term averages, select the variety or varieties that you are best acquainted with, or are currently utilizing on your farm and use these as “benchmarks” when comparing new varieties.**
- 4. Obtain additional information from your own farm observations, neighbors, local seed dealers, company seed catalogs, and other variety trial information conducted on Delmarva. Use this accumulated information to compare new or promising varieties with your benchmark varieties.**

**The performance of a variety cannot be measured with absolute precision. Uncontrollable variability exists whenever yields are determined using field studies. This variability may; occur because of small differences in soil such as fertility levels, moisture holding capacity, sand or gravel intrusions, and many related and unrelated conditions. When selecting sites, uniformity is of the utmost importance; frequently the factors or conditions contributing to variability cannot be identified with the naked eye. Because variability exists in all field experimentation, statistics are used as a tool to assist in making decisions when comparing varieties. The statistical tool used in these trials is the least significant difference (L.S.D.) multiple**

comparison procedure, computed at a 5% level of probability. The L.S.D. is very simple to apply. When two varieties are compared and the difference between them is greater than the L.S.D., the varieties are judged to be significantly different. An example for yield: variety A yields 90 bu/a, variety B yields 81 bu/a. and the L.S.D. is 7 bu/A., therefore variety A is said to be significantly better.

Another statistical tool is called the coefficient of variability (%C.V.). It is a measurement of uncontrollable variability due to differences in the soil, weather, fertility, etc. C.V.'s below 15% are considered good.

## PERFORMANCE TRIAL METHODOLOGY

Table 1.

	<b>New Castle County</b>	<b>High Organic Sussex County</b>	<b>Sussex County</b>
<i>Planting Date</i>	November 02, 2007	November 4, 2007	November 1, 2007
<i>Harvest Date</i>			
Barley	June 17, 2008	June 25, 2008	June 10, 2008
Wheat	July 03, 2008	June, 25, 2008	June 26, 2008
Population	20 seeds/ft. of row	20 seeds/ft. of row	20 seeds/ft. of row
Soil Type	Silt loam	Sandy Loam	Loamy Sand
Reps	4	4	4
Row Spacing	7.5"	7.5	7.5"
Previous Crop	Corn	Corn	Corn
<i>Fertility</i>			
Fall	300# 6-18-36		30#N
Early spring	40#N	40#N	40#N
Late spring	60#N	60#N	60#N
Herbicide	0.5 oz. Harmony Extra	0.5 oz. Harmony Extra	0.5 oz. Harmony Extra
Insecticide	3.2 oz. Warrior	3.2 oz. Warrior	3.2. oz. Warrior

**Results:**

**New Castle County – Barley – Table 2:**

Yields ranged from 145.4 (Thoroughbred) to 98.4 (PA exp 9550-151) bu/a. All varieties were significantly differently different from Thoroughbred. Test weights were from 60.0 (Eve a hulless Barley) to 42 lbs. /bu. There was significant differences for yield, test weight, and plant height. Lodging was moderate in all plots. Thoroughbred had the highest 2 year (141) and 3 year (125) bu/a. average.

**New Castle County – Wheat – Table 3:**

Of the 41 entries entered in the trial 8 were not significantly different from the leader (Vigoro Oglethorpe). Yields ranged from 104.5 (Vigoro Oglethorpe) to 80.2, test weights ranged from 62 (AgriPro W1377) to 55 lbs. /bu. There were significant differences for yield, test weight and plant height. Lodging was not a problem in any of the plots.

**Sussex County (high organic matter soil) – Barley – Table 4:**

Four varieties were not significantly different from the leader (Thoroughbred). Bu. Yields ranged from 127.9 (Thoroughbred) to 79.4 bu/a. and was ranked 1<sup>st</sup>, 1<sup>st</sup> and 6<sup>th</sup> in the pooled site ranking for the state. Test weights ranges from 57 (Eve a hulless variety) to 39lbs. /bu. Yield, test weight, plant height and lodging were also significantly different.

**Sussex County (high organic matter soil) – Wheat – Table 5:**

Yields ranged from 116.6 (USG 3665) to 85.6 bu/a. with a L.S.D. of 12.6 bu. Test weights ranged from 60 to 56 lbs. /bu. There were significant differences for yield, test weight and plant height. Lodging was not a problem at this location.

**Sussex County – Barley – Table 6:**

Two of the nine varieties not significantly different from (PA exp. 8649-95). Yields ranged from 123.7 (PA exp. 8649-95) to 60.3bu/a. (Doyce (hulless)). Yield, test weight and plant height were also significant. The lodging rating average was 3.8 on a 0 to 9 scale.

**Sussex County – Wheat – Table 7:**

Thirty of the forty eight varieties in the trial were not significantly different from the leader (Vigoro V-9713). Yields ranged from 99.7 (Vigoro V-9713) to 70.2 bu/a. Significant differences are also reported for test weight and plant height, lodging was not significant. Yields were considerably lower at this location due to some early season dry weather.