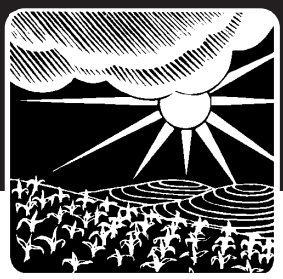
Visit the Iowa Crop Improvement Association online at http://www.agron.iastate.edu/icia/



Iowa Crop Performance Tests— Winter Wheat and Winter Triticale, 2006

Yield trials of winter wheat are conducted annually by Iowa State University and the Iowa Crop Improvement Association. Winter small grains can be used for either food or feed crops. Because of the large livestock industry in Iowa, winter wheat and triticale are particularly well suited as feed crops here. They can be used as the sole cereal grain in swine and poultry rations and can be used as 50 percent of the ration for ruminants.

Winter wheat varieties adapted to Iowa are classified as either hard red or soft red. Flour made from hard red varieties is used for baking bread and rolls, whereas soft wheat flour is used in baking cookies and cakes. Hard red winter wheat is grown extensively in Nebraska; therefore, producers living in southwestern Iowa would likely find hard red winter wheat easier to market as a food grain. Soft red winter wheat is grown extensively in Illinois; thus, producers living in southeast Iowa would likely find soft red winter wheat easier to market as a food grain.

Producers who intend to sell wheat grain should determine the market potential for both types in their area before deciding which type to plant. There are currently few cash markets for triticale. However, its high yields and feeding value make it valuable on farm.

Climatic conditions, prevalence of important diseases, and relative performances of varieties vary from year to year. Results from several years of testing are required for a reliable appraisal of a variety's value. Among varieties similar in yield, some may be superior to others in straw stiffness, grain quality, disease resistance, or winter hardiness, or they may have more desirable height and maturity. Survival of fall-sown winter small grains varies from year to year in all parts of Iowa, but stand losses due to winter weather are generally more common in central and northern Iowa compared to southern Iowa. Some triticale varieties are susceptible to ergot infection. Since grain with greater than 0.1 percent ergot should not be feed, select varieties with low ergot. All of these characteristics should be considered when choosing a variety.

How Winter Small Grain Tests are Conducted

Sixteen hard red, two soft red, and two hard white winter wheat varieties were tested in central Iowa near Ames, near Lewis (southwest), and near Crawfordsville (southeast) in 2005-2006. The locations of testing sites used are shown in Figure 1. Twelve winter triticale varieties and one winter wheat check were tested near Ames, Sutherland (northwest) and Crawfordsville. Winter small-grain tests were planted in late September and early October. Each plot of a variety occupied 32 square feet, and plots were replicated three times at each

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location to minimize the effects of soil variability. The plots were drill-seeded at approximately 1.5 bushels per acre in rows spaced one foot apart. Previous research indicates that higher planting density can be accomplished by using narrower row spacing, and this can result in higher yields. The relative performance of varieties tends to be similar at different planting rates, however. Plots were maintained weed-free by mechanical and hand cultivation throughout the season. This careful maintenance is, in part, responsible for the superior yields usually attained on experimental farms compared to large-scale production fields. Triticale tests were conducted using the same procedures but were also performed near Sutherland (northwest).

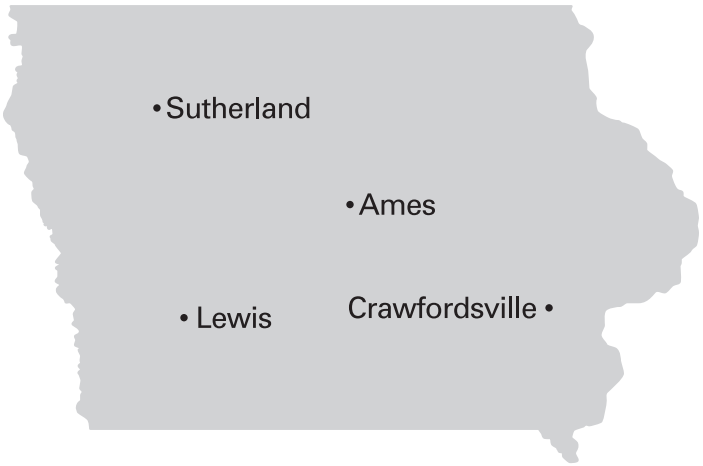

Figure 1. Location of wheat and triticale performance trials.

Long term winter wheat average yields across the three locations were computed.

Pathogen populations responsible for diseases can change from year to year, and varieties rated as resistant in one year may not be resistant in another year.

The 2005-2006 Season

The 2005-2006 winter was mild, and no substantial stand losses due to winter kill were observed at any of the test sites, even on cultivars known to be highly susceptible to winter kill. All plots were standing at harvest. Performances of the winter wheat varieties in 2006 for grain yield, test weight, date headed, and plant height as well as long-term averages for grain yield and test weight are shown in Table 1. Average grain yield in the wheat variety test was 95 bu/A up 22 bu/A from 2005. Average test weight was 60.0 lb/bu. Grain yields, grain test weights are averaged over three years (1998-2006) and are presented in Table 1. Long term averages for heading date and height are shown. Performances of the winter triticale varieties in 2006 are shown in Table 2. Ideal weather improved triticale yields considerably from those experienced in 2005.

New Varieties

"Alice" is a hard white wheat developed by the South Dakota Agricultural Experiment Station. It is an early maturing, semi-dwarf variety. "Alice" has moderate resistance to stem rust and wheat streak mosaic virus while being moderately susceptible to leaf rust.

"Darrell" is a hard red wheat developed by the South Dakota Agricultural Experiment Station. It is good yielding with strong milling and baking quality. "Darrell" has moderate resistance to stem rust and wheat streak mosaic virus while being moderately susceptible to leaf rust.

"Fuller" is a hard red wheat developed by the Kansas Agricultural Experiment Station. It is later than "Jagger" with good leaf and stripe rust resistance and improved tolerance to shattering.

Certified Winter Wheat and Triticale

"NE426GT" variety of winter triticale along with "Arapahoe" and "Millennium" winter wheat were grown for certification or Quality Assurance in 2006.

Table 1. Performance of winter wheat cultivars tested in Iowa.

Variety	Long-term Averages		2006 Averages				2001 Winter Survival [2]	State of Origin
	Grain Yield (bu/acre)	Test Weight (lb/bu)	Grain Yield (bu/acre)	Test Weight (lb/bu)	Date Headed (May)[1]	Plant Height (in.)[1]		
Hard red winter wheat								
2137	78	57.9	94	60.2	24	34.8	35	KS
2145	80	57.8	95	60.2	24	34.8	30	KS
Arapahoe	68	56.6	94	59.4	23	34.5	—	NE
Custer	77	58.1	96	60.5	21	36.4	7	OK
Expedition	74	58.1	95	60.3	20	36.9	—	SD
Fuller	80	58.5	98	60.6	24	37.0	—	KS
Goodstreak	79	59.7	97	61.5	25	40.9	—	NE
Hallam	78	55.8	96	58.1	24	36.8	—	NE
Infinity	81	56.9	97	59.2	25	34.8	—	NE
Jagger	76	56.0	95	57.9	22	32.7	17	KS
Karl92	77	58.7	96	61.1	23	37.1	32	KS
Millenium	67	56.8	92	59.3	20	33.9	63	NE
Overley	80	57.9	98	59.9	24	37.8	—	KS
Wahoo	76	58.6	95	60.9	24	32.7	54	NE
Wesley	75	58.5	93	60.3	19	35.2	62	NE
Hard white winter wheat								
Alice	71	58.2	92	60.4	27	39.4	—	SD
Wendy	74	57.7	94	59.8	22	33.8	—	SD
Soft red winter wheat								
Kaskaskia	77	58.7	95	60.9	21	33.3	33	IL
Truman	75	57.1	95	59.9	25	33.2	—	MO
Mean	73	57.5	95	60.0	23	35.3	40	
LSD[3]	10	1.3	5	0.8	2	2.2	17	

[1]Heading date and height data recorded at Ames only.

[2]Survival in % of plot remaining alive in the spring. No measurable stand loss due to winterkill has been observed in these trials since 2001.

[3]Cultivars that differ by less than the least significant difference (LSD) are considered to be the same with 95% probability.

Table 2. Performance of winter triticale cultivars tested in Iowa.

	2006 Averages				Long-term Averages			
Variety	Grain Yield (bu/acre)[1]	Test Weight (lb/bu)	Date Headed (May)[2]	Plant Height (in.)	Grain Yield (bu/acre)[1]	Test Weight (lb/bu)	Date Headed (May)[2]	Lodging %
Alzo	100	51.1	26	37.9	79	48.2	27	29.3
Arapahoe (check)[3]	96	58.2	26	33.8	69	57.6	25	9.9
Danko Presto	100	54.4	22	40.3	79	51.0	23	26.9
Décor	101	56.9	20	38.8	79	53.9	22	8.6
Kitaro	107	55.8	23	36.1	85	52.0	24	30.6
Lamberto	102	53.8	25	38.1	79	49.8	26	26.7
NE422T	94	54.1	29	48.2	75	50.5	31	26.9
NE426GT	104	53.8	23	39.3	93	51.3	23	26.9
Pika	94	54.7	35	51.3	58	50.1	34	66.9
Sorento	104	52.8	25	38.4	86	49.0	26	15.0
Trical 336	98	53.8	23	40.4	74	49.7	25	26.9
Trical 815	104	53.6	24	40.3	85	49.7	25	26.9
Vero	100	53.2	24	41.2	84	50.2	25	13.8
Mean	100	54.3	25	40.3	80	51.0	25	26.9
LSD[4]	10	2.5	3	4.3	7	1.5	2	37.8

[1]Bushels per acre given using a 60-lb bushel.

[2]Heading date data recorded at Ames only. Numbers higher than 31 indicate heading in June.

[3]Winter wheat check was included in the trial.

[4]Cultivars that differ by less than the least significant difference (LSD) are considered to be the same with 95% probability.

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Iowa Crop Improvement Association offers unbiased, third-party information to Iowa growers on the adaptation and performance of hybrids and varieties of alfalfa, barley, corn, oat, soybean, triticale, and wheat. The latest results are available at http://www.agron.iastate.edu/icia/.

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