12-2006

Small Grains and Field Peas: 2007 Variety Recommendations (2006 Crop Performance Results)

Cooperative Extension Service, South Dakota State University

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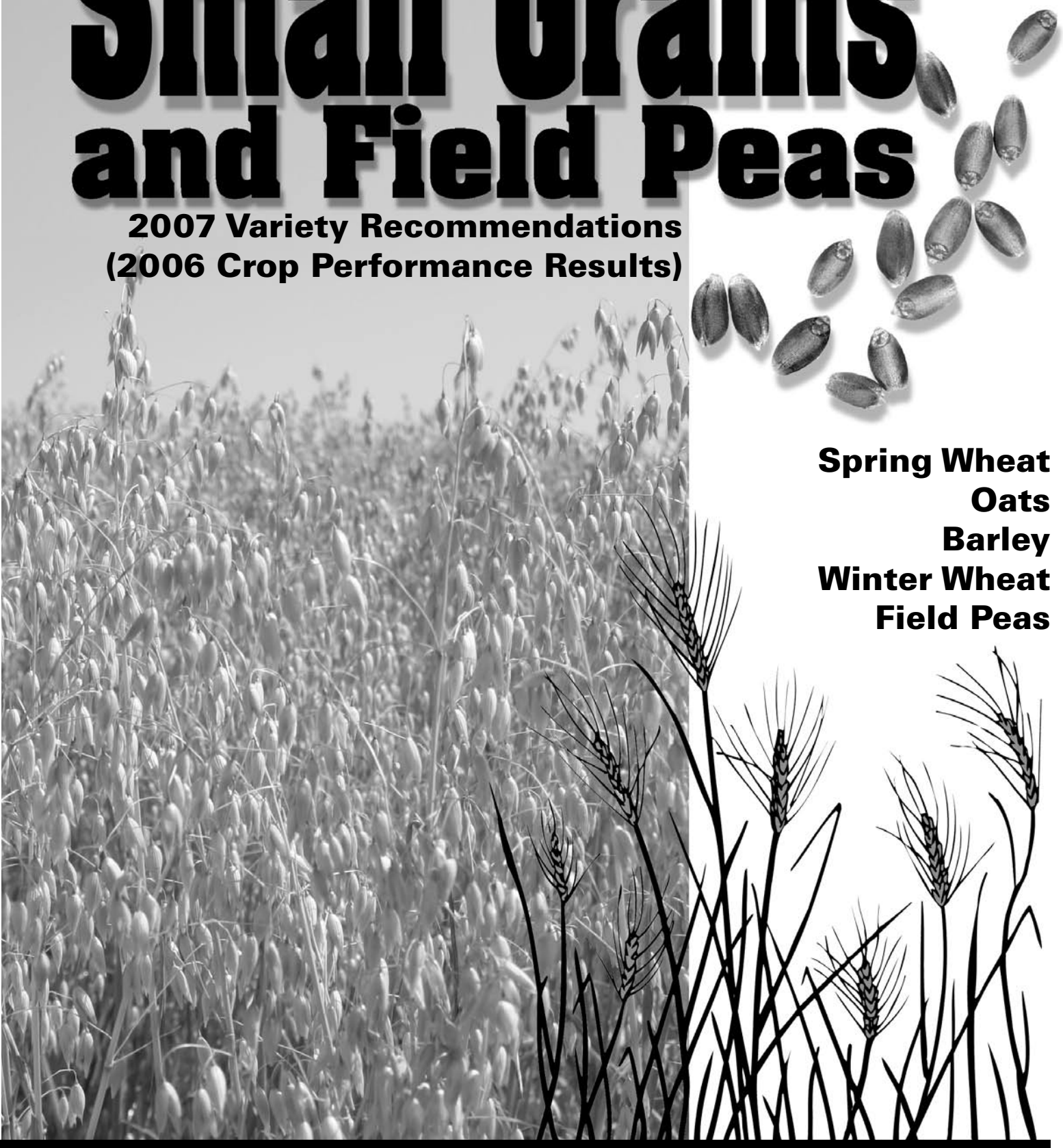
Revised
Annually

Small Grains and Field Peas

2007 Variety Recommendations (2006 Crop Performance Results)



Spring Wheat
Oats
Barley
Winter Wheat
Field Peas

South Dakota State University • Cooperative Extension Service • U.S. Department of Agriculture

The crop performance trials are available at http://plantsci.sdstate.edu/varietytrials/vartrial.html

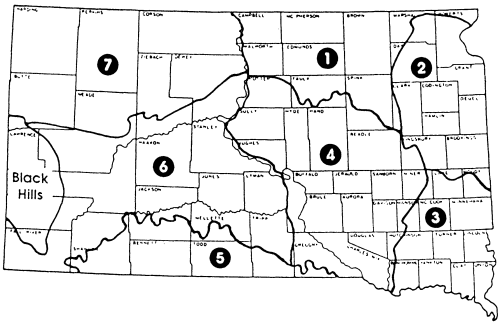
Small Grain Variety Recommendations for 2007

Recommendations are based on data from the South Dakota Crop Performance Testing (CPT) Program and regional land-grant university nurseries. Variety performance depends on genetics and the environment. Environmental factors like temperature, moisture, plant pests, soil fertility, soil type, and management practices affect variety performance. Performance of recommended varieties in response to environmental conditions is generally better than that of other varieties. The better performance of a recommended variety, however, cannot always be guaranteed due to its complex response to the environment. Variety recommendations, including crop adaptation area (CAA) where each is most suited, are listed below:

SPRING WHEAT

Recommended		Acceptable/Promising	
Variety	*CAA*	*Variety*	*CAA*
Briggs @	all except 3	Forge @	all except 3
Freyr @	Statewide	Glenn @	Statewide
Granger @	all except 3	Howard	all except 3
Steele-ND @	all except 3	Knudson @	all except 3
Traverse @	Statewide	Oxen @	all except 3
		Reeder @	5,6,7
		Russ @	all except 3
		Ulen @	all except 3

Crop Adaptation Areas for South Dakota (revised 1992)



OAT

Recommended		Acceptable/Promising	
Variety	*CAA*	*Variety*	*CAA*
Don	1,4,5,6,7	Beach	5,6,7
Jerry #	1,4,5,6,7	HiFi @	1,2,7
Loyal	1,2,7	Morton @	1,2,7
Reeves	Statewide	Buff (hull-less)	Statewide
Stallion	1,2,7		

BARLEY

Recommended		Acceptable/Promising	
Variety	*CAA*	*Variety*	*CAA*
Eslick @- feed	6,7	Conlon @	1,4,6,7
Excel @	1,2,4,6,7	Drummond @	Statewide
Haxby - feed	6,7	Robust @	1,2,4,6,7
Lacey @	Statewide	Tradition @	Statewide
		Rawson	1,2,7

American Malting Barley Association approved malting varieties for South Dakota for 2007:

Conlon	Legacy
Drummond	Morex
Excel	Robust
Foster	Tradition
Lacey	

WINTER WHEAT

Recommended		Acceptable/Promising	
Variety	*CAA*	*Variety*	*CAA*
Alice (white) @	1*,4*,5,6,7*	Alliance @	3,4*,5,6
Darrell @	1*,2*,3,4,5,6,7*	Arapahoe @	1*,3,4*,5,6, 7*
Expedition @	1*,4,5,6,7*	Hatcher @	5,6,7*
Harding @	1*,2*,4,7	Overland @	1*,3,4,*,5,6,7*
Jagalene @	5,6,7*	Wahoo @	3,4*,5,6
Millennium @	1*,4*,5,6,7*		
Wendy (white) @	5,6,7*		
Wesley	5,6,7*		

@ Plant variety protection (PVP) received or anticipated; seed sales are restricted to classes of certified seed.
# PVP non-title V status.
+ Exceptional crown rust resistance.
* Plant into protective cover.

This report is available on the Web at http://www.sdstate.edu/~wpls/http/var/vartrial.html

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Small Grains and Field Peas

2006 South Dakota Test Results, Variety Traits, and Yield Averages

Robert G. Hall, Extension agronomist - crops
John Rickertsen, research associate
Kevin K. Kirby, agricultural research manager
Bruce Swan, senior agricultural research technician

Variety selection is an important decision in a sound crop production program. This report contains variety recommendations or suggestions, descriptions, and yield data for spring-seeded small grains (hard red spring wheat, oats, and barley), fall-seeded hard red and white winter wheat, and spring-seeded field peas.

Key factors in variety selection include yield, yield stability, maturity, straw strength, height, test weight, quality, and disease resistance. Yield is important; however, a variety with good disease resistance, straw strength, and high grain quality may be more profitable in some cases than a variety merely selected for its yield history.

Disease resistance information is based on reactions to prevalent races of a disease. Disease resistance continually changes over time. Therefore, it is strongly suggested that growers inspect the reaction of a variety every year and not assume its response to a disease is unchanged.

Variety recommendations (inside cover)

The Plant Science Department Variety Recommendation Committee makes small grain variety recommendations annually. Recommendations for a given crop may vary from one crop adaptation area (CAA) to another. Crop adaptation areas (see map) are based on soil type, elevation, temperature, and rainfall. Varieties are recommended on the basis of growing season, annual rainfall, disease frequency, and farming practices common to a given crop adaptation area.

Varieties are listed as "Recommended" or "Acceptable/Promising." Varieties exhibiting a high level of agronomic performance are listed as "Recommended." Each test entry must meet the minimum criteria listed in Table A before it is eligible for the "Recommended" list. Varieties listed as "Acceptable/Promising" have performed well, but do not merit the "Recommended" list or are new varieties with a high performance potential but do not meet the 3-year criteria (Table A) needed to make the "Recommended" list. A variety needs 2 years and six location-years in the SDSU crop performance test trials and/or regional nurseries before it is eligible for the "Acceptable/Promising" list.

Certified seed is the best source of seed and the only way farmers can be assured of the genetic purity of the variety purchased.

How to use this information

Use this report as follows:

1. Check the variety-crop adaptation area (CAA) designations for the "Recommended" and "Acceptable/ Promising" lists on the preceding page. Compare these variety-CAA designations with the CAA map of South Dakota. **Identify the varieties suggested for your CAA.**

2. **Evaluate the varieties you selected for desirable traits.** Descriptive information (Tables 3, 6, 9, 12, and 15) is updated as changes occur. This information is obtained from the SDSU Crop Performance Testing Program and from research plots maintained by plant breeders and plant pathologists. Data like protein, height, and bushel weight (test weight) are obtained from every location when possible. To evaluate maturity, compare the relative maturity (heading) rating of each variety to the reference variety given.

Disease resistance continually changes; therefore, new information is reported as it becomes available. The Fusarium head blight tolerance ratings for hard red spring wheat are given. Note the ratings show there is presently **no variety resistance to head blight.** It does, however, indicate **some varieties are more tolerant than others.**

3. **Evaluate each variety you select for agronomic performance.** Yields and other agronomic performance data are obtained from the SDSU Crop Performance Testing Program. Both 1- and 3-year average yields for each variety tested are included for each test location if the variety was tested for 3 or more years. Yield values for each variety and location average and each location least-significant-difference (LSD) values are rounded to the nearest bushel per acre (bu/acre).

Yield averages for hard red spring wheat are reported in Tables 1a–c, for oats in Tables 4a–4b, for barley in Tables 7a–b, for hard red and white winter wheat in Tables 10a–b, and for field pea in Tables 13a–b. Averages for agronomic data like bushel weight, protein content levels, and plant height in hard red spring wheat are reported in Tables 2a–c, for oats in Tables 5a–b, for barley in Tables 8a–b, for hard red and white winter wheat in Tables 11a–b, and for field pea in Tables 14a–b.

The location test-trial yield average, high yield average, low yield average, LSD value, yield value required to qualify for the

top-performance group for yield, and test-trial coefficient of variation (CV) value are listed below each location yield column. These statistics are calculated from data that include both released varieties and newer experimental lines in each performance test trial; this enables us to compare varieties to experimental lines that may be released soon.

Always compare yields from the same period of time. Compare 1-year yields with other 1-year yields and 3-year yields with other 3-year yields.

Next, determine whether the data at a given test location are valid. The CV value at the bottom of each yield column is a measure of experimental error. **Yield tests with a CV of 15% or higher contain higher levels of experimental error than tests with a CV of 10% or less.** Test sites with a CV greater than 15% are not included in the calculations for yield stability. Likewise, the LSD value and the top performance group for yield or other performance variables are not indicated if the CV exceeds 15%.

Use LSD values to evaluate yield differences between varieties. The LSD value indicates if one variety really outyields another. If the yield difference between two varieties is greater than the LSD value, the varieties differ in yield. If the yield difference is equal to or less than the LSD value, the varieties do not statistically differ in yield.

The LSD value can also be used to determine the top performance group (TPG) for each location. For example, at each location the variety with the highest numerical yield is identified using 1- or 3-year averages. The LSD value is subtracted from the highest yielding variety. Varieties with yields greater than this value (highest yield minus test LSD) are in the top yield group at that location.

For example, in hard red spring wheat, the top yielding entry at Brookings for 2006 was the experimental line SD 3943 that yielded 59 bu/acre (Table 1a). Subtracting 6 bu/acre (the rounded-off LSD value) from the highest yield entry of 59 bu/acre equals 53 bu/acre. Therefore, all varieties listed in that column yielding more than 53 bu are in the TPG.

Since the LSD values and reported yield averages are rounded off to the nearest whole bushel we can say that 53 bu/acre can also be included in the TPG. Therefore, due to rounding off of yield average to the nearest bushel, all varieties at Brookings with a 2006 yield average of 53 bu/acre or higher are in the TPG for yield.

The TPG of varieties for any other given performance variable can be determined in the same manner (except for lodging) and is easily identified in all the performance tables. The TPG value for yield, bushel weight, and height are minimum TPG values whereas the TPG value for lodging is a maximum TPG value. The TPG value for a given location and variable is determined by either subtracting the LSD value from the highest numerical yield, bushel weight, or height value within a column to obtain a minimum TPG value. For lodging, add the LSD value from the lowest numerical lodging score value to obtain a maximum TPG value.

For example, at Brookings the TPG value 53 bu/acre for yield in 2006 was indicated in Table 1a. Likewise, at Brookings the TPG for lodging score can be identified. In this case, adding the lodging score LSD of zero (0) to the lowest numerical lodging score value of 1 results in a maximum TPG value of 1 (0 + 1 = 1). In this case all varieties with a lodging score of 1 or less are in the TPG for lodging performance (Table 2a). This year all the entries showed little lodging (1); hence there was no difference between the entries in lodging response at Brookings.

At the bottom of each table column is listed the "TPG value," defined as the yield or bushel weight values that a given variety must attain or exceed in value for the variety to be considered in the top performing group. For example, 6 bu/acre is the column LSD value and 53 bu/acre is the TPG value for Brookings.

For reading convenience, the TPG values for all variables are reported as "TPG value" at the bottom of each variable column in each table. More importantly, all varieties in the TPG within a column are identified with the plus (+) symbol next to the reported variable average in each column.

Sometimes, an LSD value is not given and the designation NS^ is listed. This indicates yield differences were not significant (NS) or yield differences could not be detected. Therefore, all the varieties have a similar yielding potential and are considered to be in the TPG. In test trials with high levels of experimental error (CV exceeds 15%), LSD values and TPG values are not reported because the data is invalid.

When evaluating yield performance, remember that environmental conditions at a test location seldom repeat themselves from year to year. Therefore, look at yield data from as many trial locations and years as possible.

Look at the performance or "yield stability" of a variety over several locations. A simple way of evaluating yield stability is to see how often a variety is in the TPG for yield over all test locations.

For convenience, the top yield frequency or the percentage of locations where a variety is in the TPG for yield has been calculated. The top yield percentage for each variety of hard red spring wheat is reported in Tables 1a–c, for oats in Table 4a–b, and for barley in Table 7a–c. Top yield frequencies for hard red winter wheat are not reported because winter hardiness greatly influences spring stands and makes it impossible to report valid top yield frequencies for more than a year. The top yield frequency for field pea was not calculated because there were only three locations harvested.

A variety exhibiting a relatively high top yield frequency will appear in the top yield group at many locations but not necessarily at all locations. For example, a variety with a top yield frequency of 50% or more exhibits good yield stability. In contrast, a top yield frequency of 20% or less indicates low yield stability.

Varieties with a high top yield frequency have the ability to adapt to a wide range of environmental conditions across many locations. In contrast, varieties with a low top yield frequency typically adapt to a narrow range of environments. **Look for varieties with a relatively high top yield percentage of 50% or higher if possible.**

If you are evaluating winter wheat varieties, it is suggested that you also review the relative coleoptile length values reported in Table 12. Generally, varieties with relatively long coleoptiles are able to germinate and emerge from a deeper seeding depth than varieties with shorter coleoptiles. This trait may be advantageous in years where the soil moisture is deeper than the normal seeding zone.

The coleoptile length of 3.2 inches for Harding is used as the reference standard (100%) for making comparisons. The coleoptile length for the varieties Tandem and Crimson are slightly

longer than for Harding; the coleoptile length for the varieties Alice, Alliance, Arapahoe, Darrell, Expedition, Jagalene, Millennium, Nekota, Trego~W, Wahoo, and Wesley are shorter compared to Harding. Note the coleoptile length for Wendy is the shortest of all entries and this variety may exhibit poor emergence if planted as deep as Tandem or Crimson that have longer coleoptiles.

Origin of varieties tested

Public varieties were released from state agricultural experiment stations. Abbreviations for each include:

Colorado- CO
Illinois- IL
Kansas- KS
Minnesota- MN
Montana- MT
Nebraska- NE
North Dakota- ND
South Dakota- SD
Wisconsin- WI

Many public varieties were developed and released jointly by one or more experiment stations or USDA. Proprietary varieties released by commercial companies and tested by brand name include:

AgriPro Wheat, Inc.- AW
Busch Agricultural Resources, Inc.- BARI
General Mills- GM
Meridian Seeds, LLC- MS
Westbred, LLC- WB

Trial methods

A random complete block design is used in all trials. Plots are harvested with a small plot combine. Plot size differs between the East River and West River locations. East River plots are 5 feet wide and either 12 or 14 feet long compared to West River plots measuring 5 feet wide and 25 feet long. Plots consist of drill strips with 7- or 8-inch spacing at East River locations and 10-inch spacing at West River locations. Trial locations are listed in Table B. Yield means are generated from four variety replications per location per year.

Fertility and weed control programs differed between the East and West River locations. East River plots were fertilized with 60 lb/acre of 18-46-0 (10.8 lb N and 27.6 lb P per acre) down the seed tube at seeding. In addition, at these locations a post-emergence application of Bronate (1.0 pint) was applied on the spring wheat, oats, and barley plots.

West River plots were fertilized with 6 gal of 10-34-0 per acre (6.6 lb N and 24 lb P per acre) at seeding. Post-emergence applications of 0.10 oz of Ally herbicide per acre plus 6 oz active ingredient per acre of 2,4-D (wheat) and 1 pint of Bronate (oats and barley) were applied at the 3- to 5-leaf stage.

Field pea plots were seeded at 7 pure-live-seeds (PLS) per square foot with inoculated seed and received 3 oz/acre of Pursuit pre-emergence at West River locations, 2.8 oz/acre Spartan plus 4 oz/acre Sencor pre-emergence, and .75 pt/acre Poast post-emergence at Selby.

Since seed size can vary greatly among varieties, a seed count is conducted on each entry and all seeding rates are adjusted accordingly. The spring-seeded small grain trials were seeded at 28 PLS/square foot compared to rates of 22 PLS/square foot for the fall-seeded winter wheat trials. Under good seedbed preparation and favorable conditions these adjusted seeding rates result in seedling densities of about 25 and 20 seedlings per square foot at the spring-seeded and fall-seeded small grain trials, respectively. This results in a final stand of about 1.1 million and 870,000 plants/acre, respectively.

If the seedbed is poor, increase the spring-seeded grain seeding rate to 32 PLS/square foot. If planting is delayed until May 1 or later, increase the seeding rates to 35 PLS/square foot. If the seedbed is poor, increase the fall-seeded winter wheat seeding rate to 28 PLS/square foot. Seeding dates are listed in Table B.

Performance trial highlights

General - Agronomic performance of all small grain crops in 2006 was quite variable statewide as the result of different moisture levels around the state.

Generally, the effects of moisture stress on the 2006 crop started last fall when many West River areas suffered from a lack of moisture that still persists today. The critical factor is that many West River areas have little if any subsoil moisture to grow any fall- or spring-seeded small grains.

During the spring of 2006, the drought areas gradually expanded both east and west of the Missouri River. Consequently, a number of small grain test trials were abandoned as the result of drought, poor stands, or other factors; or the data was dropped because too much experimental error was associated with the test trial for the data to be valid. These dropped test trials are indicated in Table B.

Table comments - Tables 1a–c, 4a–b, 7a–c, 10a–b, and 13a–b are first sorted (high to low) by state 3-year and then sorted (high to low) by state 2006 yield averages. Likewise, Tables 2a–c, 5a–b, 8a–c, 11a–c, and 14a–b are sorted (high to low) by state bushel weight (BW). Care should be taken when reading the yield average tables because the varieties are first sorted by 3-year averages and then by the 2006 averages.

You are encouraged to first evaluate yield performance by looking at the 3-year averages. Then look at the 2006 yield averages. In some cases, varieties that were only tested in 2006 produced the highest numerical yields for year 2006. In other cases, however, the highest numerical yields may have been produced by varieties that have been tested for 3 years or more.

In either case, remember to examine all values in the 2006 yield column, regardless if they were tested for one year or for 3 years. Although some new entries may have produced numerically higher yields than some varieties tested for 3 years, they may all be in the top-performance group for yield in 2006.

HRS Wheat (Tables 1a – 2c) - The top entries for yield for the past 3 years (2004–06) by variety or experimental line and top yield frequency were SD 3868 at 100%; Briggs, Granger, and Traverse at 86%; Steele-ND at 71%; Freyr and SD 3860 at 57%; and Forge, Knudson, Oxen, and Reeder at 43% (Tables 1b–c). This means these entries exhibited very good yield stability or the ability to adapt to a wide range of production environments by being

in the top performance group for yield at more than 43% of the test locations during the past 3-year period.

The top yield frequency entries for yield in 2006 included SD 3868, SD 3942, and Traverse at 71%; SD 3860, SD 3870, and SD 3943 at 57%; and Forge, Howard, Oxen, Reeder, and SD 3879 at 43% of the test locations.

The top bushel weight entries (based on state averages in Tables 2b–c) included 2 entries at 62 lb; 11 entries at 61 lb; 16 entries at 60 lb, and 6 entries at 59 lb for year 2006.

The check variety Chris (36 inches) tended to be the tallest variety across all locations in 2006 followed by entries SD 3879 at 33 inches and CS3100-Q~W, Granger, Russ, SD 3860, SD 3934, SD 3868, and Traverse at 32 inches in 2006 (Tables 2b–c).

The top protein entries on a state average basis included Chamberlin at 16.6%, Granite at 16.2%, Kelby at 16.1%, and Alsen at 15.8% protein content.

Oats (Tables 4a – 5c) - Top performing entries for yield for the past 3 years (2004–06) by variety and top yield frequency included HiFi, Morton, Loyal, and Stallion at 100%; and Jerry at 60% (Table 4b). This means these varieties exhibited very good yield stability or the ability to adapt to a wide range of production environments by being in the top performance group for yield at more than 60% of the test locations during the past 3-year period. Top-performing entries for yield in 2006 were the experimental lines SD 011315-15 at 83%; SD 020701 and SD 030888 at 67%; and Baker, Beach, SD 030324, and SD 021021 at 50% of the test locations.

In 2006, on a state basis, the hull-less entries Buff, Paul, and Stark at 44, 42, and 40 lb, respectively, had the best bushel or test weight average across all locations. Among the hulled entries the varieties Hytest, Beach, and Stallion at 39 lb followed by Loyal, SD 020883, SD 020536, and SD 030888 at 38 lb were the highest in bushel weight. In contrast, the entry GG-304 at 30 lb was the lowest state bushel weight among the standard hulled varieties (Tables 5a–b).

Among the entries tested, Hytest at 36 inches was the tallest and GG-304 at 21 inches was the shortest in height in 2006 (Table 5a–b). In 2006, there was little if any lodging across the state (Table 5a–b). The hulled variety Hytest at 19.5% and the hull-less varieties Buff and Paul at 18.2% exhibited the highest grain protein levels for 2006 (Tables 5a–b).

Barley (Tables 7a – 8c) - The top performing entries for yield for the past 3 years (2004–06) by variety and top yield frequency included Eslick at 100%; Haxby at 83%; Excel at 67%; and Conlon, Lacey, and Tradition at 50% (Tables 7b–c). This means these varieties exhibited very good yield stability or the ability to adapt to a wide range of production environments by being in the top performance group for yield at more than 50% of the test locations during the past 3-year period.

The top-performing entries for yield in 2006 included Eslick at 83%; and Haxby and Rawson at 67% of the test locations. The hull-less varieties Stanuwax and Meresse weighed 4 to 5 lb more in bushel weight than the two-row varieties Eslick and Conlon, which in turn weighed 1 to 2 lb more in bushel weight than the other varieties across all locations (Tables 8b–c). In contrast, the variety Stellar-ND tended to have the lowest bushel weight average across the state (Tables 8b–c).

The varieties Robust, Tradition, Drummond, and Legacy tended to be the tallest varieties across all locations statewide (Tables 8b–c).

As seen in Tables 8b–c, the lodging scores for Conlon and Pronghorn were higher than for the other entries and indicated these varieties tended to lodge slightly more than the other entries tested in 2006.

Grain protein content ranged from 12.6 to 16.3% across the state. At the East River locations (Table 8b) the protein ranged 5% from about 13.3 to 17.3%; while at the West River locations (Table 8c) protein levels were lower and ranged 3.4% from 9.4 to 12.8%.

HRW Wheat (Tables 10a – 12) - The top entries for yield for the past 3 years (2004–06) by variety and state yield average (Tables 10b–c) include Wahoo, Millennium, and SD97059-2 at 54 bu/acre. The top entries for yield in 2006 were the entries NuDakota~W at 52 bu/acre; Hatcher at 51 bu/acre; SD01058 and SD98W175-1 at 50 bu/acre; and Alliance, Darrell, Expedition, Harry, Trego~W, Wahoo, and Wesley at 49 bu/acre.

The top bushel weight entries (state averages in Tables 11a–b) included 4 entries at 62 lb; 9 entries at 61 lb; 12 entries at 60 lb, and 4 entries at 59 lb for year 2006.

The varieties or experimental lines Harding, Jerry, SD02279, and SD01058 at 30 inches tended to be the tallest while NuDakota and Wendy at 24 inches tended to be the shortest entries (state averages Tables 11a–b).

Grain protein content ranged from a low of 12.8% for SD01W064 to a high of 14.9% for Jerry on a state basis. At the West River locations (Table 11a), protein levels ranged from a low of 12.0% to a high of 14.9%, while at the East River locations (Table 11b) protein levels were slightly lower and ranged from a low of 11.8% to a high of 14.4% for year 2006.

Field Pea (Tables 13a – 15c) - The top entries for yield for 2006 by variety and test location were Polstead, Cooper, Stratus, Tudor, and CDC Mozart at Beresford (Table 13a); and Polstead, Cooper, Stratus, Camry, SW Midas, and Topeka at Wall (Table 13b), and Polstead, Cooper, Stratus, Camry, SW Midas, Eclipse, SW Cabot, SW Capri, and Grande at Hayes (Table 13b).

The varieties Aragorn, SW Midas, Topeka, SW Salute, CDC Mozart, SW Capri, and Tudor produced bushel weights of 60 lb or higher on a state average (Tables 14a–b). Protein levels in the grain were not determined for year 2006.

The entries Grande at 20 inches and Camry and Stratus at 13 inches were the tallest and shortest varieties, respectively, in year 2006. In 2006, lodging scores were only obtained at Wall and Hayes where lodging was not observed.

The Variety Release/Recommendation Committee includes plant breeders, pathologists, research scientists, Extension agronomists, and managers of the Seed Certification Service and Foundation Seed Stocks Division.

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SE Research Farm (Beresford), R. Berg and Staff
Central Research Farm (Highmore), R. Bortnem, M. Volek
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Table A. Minimum criteria required for the recommended list in this publication.

Trait	Crop			
	HRS Wheat	Oats	Barley	HRW Wheat
Yield	3/15*	3/15	3/12	3/15
Bushel weight	3/15	3/15	3/12	3/15
Height	3/15	3/15	3/12	3/15
Lodging	WA	WA	WA	WA
Disease reaction	A	A	A	A
Protein	3/15	-	3/12	3/15
Quality data#	2/4	WA	WA	WA
Unique traits$	WA	WA	WA	WA

* 3 years/15 location-years.
# includes milling and baking.
$ traits that affect production and marketing.
A= annually, WA= when available.

Table B. Date test trials were seeded, by crop and test location, for year 2006.

Location	Crop				
	HRS Wheat	Oats	Barley	Field Pea	HRW Wheat (Fall 2005)
Beresford	-	15-Apr	-	15-Apr	-
Bison		-	8-May	8-May	Sept. 19
Brookings	12-Apr	12-Apr	12-Apr		Sept. 23
Brown Co.	10-Apr	10-Apr	10-Apr		-
Pierre-DL	-	-	-		Sept. 20
Hayes	-	-	-	12-Apr	Sept. 22
Highmore	-	-	-		Sept.16
Kennebec	-	-	-		Sept. 20
Martin	-	-	-		Sept. 23
Miller	5-Apr	5-Apr	5-Apr		-
Oelrichs	-	-	-		Sept. 21
Okaton		17-Apr			
Platte	-	-	-		Sept. 14
Ralph	8-May	8-May	8-May		-
Selby	11-Apr	11-Apr	11-Apr	5-Apr	Sept. 9
South Shore	14-Apr	14-Apr	14-Apr	12-Apr	Sept. 8
Spink Co.	14-Apr	-	-		-
Sturgis	-	-	-		Sept. 19
Tripp Co.	-	-	-		Sept. 14
Wall	13-Apr	13-Apr	13-Apr	11-Apr	Sept. 15

*Darkened dates indicates test trials, by location and crop, that were not harvested because of drought or other factors; or the data was dropped because the level of experimental error in the test trial was too high for the data to be valid or acceptable.

Table 1a. HRS wheat yield results - South Dakota East River locations, 2004-2006.

Variety (Hdg.)* - by 3-yr then 2006 state avg.	Location Yield Avg. (Bu/A) at 13% moist.						East Yield Avg. (Bu/A)	
	Brookings		South Shore		Spink Co.			
	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr
Traverse (0)	58+	63+	53+	59+	65	66+	59	62
SD 3868	53+	56+	46	56+	68+	70+	56	60
Granger (0)	51	55+	46	53+	65	65+	55	58
Briggs (0)	53+	57+	47	54+	63	67+	54	59
SD 3860	54+	57+	46	51	63	63+	53	55
Steele-ND (3)	50	53	49+	55+	64	65+	54	57
Knudson (2)	52	56+	42	52	60	65+	50	56
Freyr (1)	49	51	46	51	63	60	53	54
Glenn (3)	45	49	42	52	59	63+	50	54
Oxen (2)	52	48	48	46	71+	61	55	53
Forge (-1)	53+	50	45	47	67	60	53	52
Walworth (0)	52	50	41	45	66	61	53	52
Ulen (2)	47	49	43	48	64	63+	53	53
Reeder (3)	47	48	43	43	59	57	52	50
Trooper (-1)	54+	51	40	44	64	62	52	53
Russ (2)	45	49	43	47	53	56	49	51
Alsen (4)	46	45	45	48	59	58	51	51
Granite (5)	45	47	39	40	56	57	50	49
Chris,CK (3)	41	39	36	36	50	45	45	41
SD 3942	57+	.	48	.	69+	.	57	.
SD 3870	54+	.	45	.	72+	.	56	.
SD 3943	59+	.	52+	.	65	.	57	.
Howard (4)	49	.	50+	.	63	.	54	.
SD 3879	52	.	46	.	65	.	55	.
SD 3851	51	.	42	.	63	.	50	.
SD 3941	52	.	46	.	60	.	52	.
Ada (0)	48	.	46	.	63	.	53	.
SD 4001	55+	.	40	.	61	.	52	.
CS3100L~W (6)	46	.	44	.	54	.	51	.
Kelby (2)	46	.	43	.	60	.	50	.
CS3100Q~W (3)	43	.	41	.	58	.	49	.
Banton (1)	47	.	43	.	63	.	49	.
SD 3927	46	.	43	.	57	.	48	.
SD 4002	52	.	39	.	60	.	49	.
Chamberlin (0)	39	.	39	.	56	.	43	.
SD 3934	39	.	39	.	57	.	40	.
Test avg. :	49	51	44	49	62	61		
High avg. :	59	63	53	59	72	70		
Low avg. :	39	39	36	36	50	45		
# Lsd(.05) :	6	8	4	6	4	7		
## TPG-value :	53	55	49	53	68	63		
### C.V. :	8	7	7	7	5	7		

* Heading, the relative days to heading, compared to the variety - Briggs.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

Table 1b. HRS wheat yield results- South Dakota East River locations, 2004-2006 (Continued).

Variety (Hdg.)* - by 3-yr then 2006 state avg.	Location Yield Avg. (Bu/A) at 13% moist.				East Yield Avg. (Bu/A)		State Yield Avg. (Bu/A)		State Top-Yield Freq. ** (%)	
	Selby		Brown Co.							
	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr
Traverse (0)	57+	53+	62+	69+	59	62	52	55	71	86
SD 3868	53	52+	59+	67+	56	60	50	54	71	100
Granger (0)	61+	52+	53	63+	55	58	49	52	14	86
Briggs (0)	52	51+	56+	64+	54	59	48	52	29	86
SD 3860	48	43	55+	61	53	55	49	51	57	57
Steele-ND (3)	54	49+	54	61	54	57	48	51	29	71
Knudson (2)	50	47+	48	61	50	56	45	50	14	43
Freyr (1)	54	47+	55+	63+	53	54	48	49	29	57
Glenn (3)	50	46	53	59	50	54	45	49	14	29
Oxen (2)	55	47+	51	61	55	53	50	48	43	43
Forge (-1)	51	47+	49	57	53	52	48	48	43	43
Walworth (0)	50	47+	54	59	53	52	47	48	14	29
Ulen (2)	49	45	60+	62+	53	53	47	48	29	29
Reeder (3)	56+	42	57+	62+	52	50	48	47	43	43
Trooper (-1)	51	47+	49	60	52	53	46	47	14	14
Russ (2)	50	43	56+	61	49	51	45	47	14	29
Alsen (4)	51	44	53	58	51	51	45	46	14	0
Granite (5)	52	44	56+	58	50	49	44	45	14	0
Chris,CK (3)	42	37	55+	49	45	41	40	38	14	0
SD 3942	50	.	59+	.	57	.	51	.	71	.
SD 3870	52	.	57+	.	56	.	50	.	57	.
SD 3943	51	.	56+	.	57	.	50	.	57	.
Howard (4)	50	.	59+	.	54	.	49	.	43	.
SD 3879	53	.	59+	.	55	.	49	.	43	.
SD 3851	45	.	51	.	50	.	47	.	29	.
SD 3941	47	.	56+	.	52	.	47	.	29	.
Ada (0)	52	.	54	.	53	.	47	.	0	.
SD 4001	49	.	53	.	52	.	46	.	0	.
CS3100L~W (6)	49	.	63+	.	51	.	45	.	14	.
Kelby (2)	49	.	53	.	50	.	45	.	0	.
CS3100Q~W (3)	46	.	59+	.	49	.	44	.	14	.
Banton (1)	45	.	46	.	49	.	44	.	0	.
SD 3927	45	.	50	.	48	.	44	.	0	.
SD 4002	43	.	52	.	49	.	44	.	0	.
Chamberlin (0)	40	.	42	.	43	.	39	.	0	.
SD 3934	23	.	41	.	40	.	37	.	37	.
Test avg. :	49	46	54	61						
High avg. :	61	53	63	69						
Low avg. :	23	37	41	49						
# Lsd(.05) :	5	6	8	7						
## TPG-value :	56	47	55	62						
### C.V. :	7	8	10	7						

* Heading, the relative days to heading, compared to the variety - Briggs.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

** Frequency or percent of all test locations that a variety was in the TPG for yield.

Table 1c. HRS wheat yield results- South Dakota West River locations, 2004-2006.

Variety (Hdg.)* - by 3-yr then 2006 state avg.	Location Yield Avg. (Bu/A at 13% moist.)				West Yield Avg. (Bu/A)		State Yield Avg. (Bu/A)		State Top-Yield Freq. ** (%)	
	Wall		Ralph							
	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr
Traverse (0)	39+	32+	32	40	36	36	52	55	71	86
SD 3868	37+	34+	34+	43+	36	39	50	54	71	100
Granger (0)	35	33+	32	40	34	37	49	52	14	86
Briggs (0)	33	32+	33	39	33	36	48	52	29	86
SD 3860	38+	36+	36+	44+	37	40	49	51	57	57
Steele-ND (3)	33	32+	34+	41+	34	37	48	51	29	71
Knudson (2)	32	29	34+	40	33	35	45	50	14	43
Freyr (1)	32	32+	35+	41+	34	37	48	49	29	57
Glenn (3)	37+	34+	32	39	35	37	45	49	14	29
Oxen (2)	36+	33+	37+	42+	37	38	50	48	43	43
Forge (-1)	38+	34+	34+	42+	36	38	48	48	43	43
Walworth (0)	35	33+	34+	40	35	37	47	48	14	29
Ulen (2)	35	32+	32	37	34	35	47	48	29	29
Reeder (3)	35	33+	37+	42+	36	38	48	47	43	43
Trooper (-1)	32	28	30	38	31	33	46	47	14	14
Russ (2)	35	32+	33	41+	34	37	45	47	14	29
Alsen (4)	33	28	31	39	32	34	45	46	14	0
Granite (5)	30	29	27	37	29	33	44	45	14	0
Chris,CK (3)	32	28	25	30	29	29	40	38	14	0
SD 3942	40+	.	35+	.	38	.	51	.	71	.
SD 3870	37+	.	32	.	35	.	50	.	57	.
SD 3943	37+	.	32	.	35	.	50	.	57	.
Howard (4)	35	.	34+	.	35	.	49	.	43	.
SD 3879	36+	.	34+	.	35	.	49	.	43	.
SD 3851	38+	.	37+	.	38	.	47	.	29	.
SD 3941	38+	.	33	.	36	.	47	.	29	.
Ada (0)	33	.	32	.	33	.	47	.	0	.
SD 4001	35	.	29	.	32	.	46	.	0	.
CS3100L~W (6)	32	.	27	.	30	.	45	.	14	.
Kelby (2)	32	.	33	.	33	.	45	.	0	.
CS3100Q~W (3)	37	.	27	.	32	.	44	.	14	.
Banton (1)	32	.	32	.	32	.	44	.	0	.
SD 3927	36	.	32	.	34	.	44	.	0	.
SD 4002	32	.	29	.	31	.	44	.	0	.
Chamberlin (0)	31	.	28	.	30	.	39	.	0	.
SD 3934	31	.	26	.	29	.	37	.	37	.
Test avg. :	35	32	32	40						
High avg. :	40	36	37	44						
Low avg. :	30	28	25	30						
# Lsd (.05) :	4	4	3	3						
## TPG-value :	36	32	34	41						
### C.V. :	8	10	8	7						

* Heading, the relative days to heading, compared to the variety - Briggs.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

** Frequency or percent of all test locations that a variety was in the TPG for yield.

Table 2a. HRS wheat averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT)- South Dakota East River locations for 2006.

Variety (Hdg.)* - by state BW avg.	Location Avg. - BW, HT, LDG									East Avg. - BW, HT, LDG, PRT			
	Brookings			South Shore			Spink Co.						
	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	PRT %
SD 3927	64+	33	1+	62+	30	1+	59	33	1+	62	31	1	16.4
SD 3941	63+	34	1+	62+	32	1+	60	33	1+	62	31	1	15.6
Chamberlin (0)	63+	31	1+	62+	29	1+	59	30	1+	61	29	1	16.8
Glenn (3)	64+	32	1+	62+	32	1+	60	35	1+	62	32	1	15.5
SD 3860	64+	35	1+	61+	33	1+	57	35	1+	62	33	1	14.8
SD 3851	63+	34	1+	61+	32	1+	60	35	1+	62	31	1	15.5
Trooper (-1)	63+	30	1+	60	27	1+	60	30	1+	62	28	1	15.0
SD 3942	63+	31	1+	61+	29	1+	60	30	1+	62	29	1	14.8
Banton (1)	62	32	1+	61+	30	1+	59	34	1+	61	30	1	16.2
SD 3879	63+	36	1+	59	33	1+	60	37	1+	62	34	1	15.5
Forge (-1)	65+	33	1+	61+	31	1+	59	34	1+	61	31	1	14.7
Freyr (1)	62	34	1+	61+	32	1+	60	34	1+	61	33	1	15.5
Ada (0)	63+	31	1+	60	29	1+	60	31	1+	61	30	1	15.9
SD 3943	63+	32	1+	61+	30	1+	61	32	1+	62	30	1	14.9
SD 4001	64+	34	1+	61+	30	1+	59	33	1+	61	31	1	15.0
Kelby (2)	63+	27	1+	63+	27	1+	57	29	1+	61	27	1	16.4
Ulen (2)	62	34	1+	59	33	1+	60	33	1+	61	32	1	15.9
Granite (5)	64+	32	1+	60	29	1+	59	32	1+	61	30	1	16.2
CS3100Q~W (3)	63+	36	1+	60	31	1+	59	36	1+	61	33	1	14.8
Howard (4)	63+	33	1+	59	33	1+	59	33	1+	61	33	1	15.1
SD 4002	64+	33	1+	61+	30	1+	58	32	1+	61	30	1	14.6
Granger (0)	62	35	1+	60	33	1+	58	37	1+	61	34	1	15.5
Alsen (4)	61	33	1+	60	31	1+	60	32	1+	61	31	1	15.9
Briggs (0)	62	33	1+	59	30	1+	59	33	1+	61	30	1	15.9
Reeder (3)	62	32	1+	59	31	1+	58	34	1+	60	32	1	15.3
Russ (2)	62	35	1+	60	34	1+	57	35	1+	60	33	1	15.5
Oxen (2)	62	32	1+	60	30	1+	58	32	1+	60	30	1	15.4
Steele-ND (3)	62	34	1+	60	33	1+	58	34	1+	60	33	1	15.5
SD 3934	62	34	1+	60	32	1+	57	35	1+	60	33	1	15.3
Knudson (2)	62	30	1+	60	29	1+	58	32	1+	60	29	1	15.3
Walworth (0)	62	33	1+	59	30	1+	57	33	1+	60	31	1	15.8
Chris,CK (3)	62	37	1+	59	35	1+	57	42	1+	60	37	1	15.7
Traverse (0)	61	35	1+	59	33	1+	58	35	1+	60	33	1	14.9
SD 3868	61	36	1+	58	33	1+	58	36	1+	60	33	1	14.7
SD 3870	61	35	1+	58	32	1+	59	36	1+	60	32	1	14.8
CS3100L~W (6)	62	29	1+	58	26	1+	56	27	1+	60	27	1	13.9
Test avg. :	63	33	1	60	31	1	59	33	1				
High avg. :	65	37	1	63	35	1	61	42	2				
Low avg. :	61	27	1	58	26	1	56	27	1				
# Lsd(.05) :	2	1	0	2	1	0	2	2	1				
## TPG-value :	63	.	1	61	.	1	59	.	2				
### C.V. :	2	3	0	2	3	0	3	4	8				

* Heading, the relative days to heading, compared to the variety - Briggs.

** Lodging score: 0= all plants erect, 3= 50% of plants lodged at 45º-angle, 5= all plants flat.

Lsd, the amount two values in a column must differ to be significantly different.

^ Variable differences within a column are non-significant (NS) at the .05 level of probability.

Table 2b. HRS wheat averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT)- South Dakota East River locations (Continued).

Variety (Hdg.)* - by state BW avg.	Location Avg.- BW, HT, LDG						East Avg. - BW, HT, LDG, PRT				State Avg. - BW, HT, LDG, PRT			
	Selby			Brown Co.										
	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	PRT %	BW lb	HT in	LDG **	PRT %
SD 3927	62+	31	1+	64+	27	1+	62	31	1	16.4	62	30	1	15.7
SD 3941	62+	30	1+	64+	26	1+	62	31	1	15.6	62	30	1	15.1
Chamberlin (0)	61+	29	1+	63+	25	1+	61	29	1	16.8	61	28	1	16.6
Glenn (3)	62+	32	1+	62+	29	1+	62	32	1	15.5	61	31	1	15.2
SD 3860	62+	32	1+	64+	30	1+	62	33	1	14.8	61	32	1	14.4
SD 3851	62+	29	1+	62+	27	1+	62	31	1	15.5	61	31	1	14.8
Trooper (-1)	62+	28	1+	63+	24	1+	62	28	1	15	61	27	1	15.0
SD 3942	62+	29	1+	63+	26	1+	62	29	1	14.8	61	28	1	14.3
Banton (1)	62+	30	1+	62+	27	1+	61	30	1	16.2	61	30	1	15.6
SD 3879	62+	33	1+	64+	30	1+	62	34	1	15.5	61	33	1	15.1
Forge (-1)	62+	31	1+	60	26	1+	61	31	1	14.7	61	30	1	14.4
Freyr (1)	62+	34	1+	62+	30	1+	61	33	1	15.5	61	31	1	15.0
Ada (0)	62+	30	1+	63+	29	1+	61	30	1	15.9	61	29	1	15.6
SD 3943	62+	29	1+	62+	25	1+	62	30	1	14.9	60	29	1	14.7
SD 4001	61+	29	1+	62+	28	1+	61	31	1	15	60	30	1	15.3
Kelby (2)	62+	29	1+	61	24	1+	61	27	1	16.4	60	26	1	16.1
Ulen (2)	62+	33	1+	61	28	1+	61	32	1	15.9	60	31	1	15.5
Granite (5)	62+	32	1+	62+	26	1+	61	30	1	16.2	60	28	1	16.2
CS3100Q~W (3)	61+	32	1+	64+	31	1+	61	33	1	14.8	60	32	1	14.8
Howard (4)	61+	33	1+	64+	32	1+	61	33	1	15.1	60	31	1	14.6
SD 4002	60	29	1+	62+	28	1+	61	30	1	14.6	60	30	1	14.4
Granger (0)	62+	34	1+	62+	30	1+	61	34	1	15.5	60	32	1	14.8
Alsen (4)	62+	32	1+	61	28	1+	61	31	1	15.9	60	30	1	15.8
Briggs (0)	61+	31	1+	63+	26	1+	61	30	1	15.9	60	30	1	15.1
Reeder (3)	62+	32	1+	62+	29	1+	60	32	1	15.3	60	30	1	14.8
Russ (2)	60	34	1+	63+	30	1+	60	33	1	15.5	60	32	1	15.2
Oxen (2)	62+	31	1+	58	27	1+	60	30	1	15.4	60	29	1	15.2
Steele-ND (3)	61+	33	1+	61	30	1+	60	33	1	15.5	60	31	1	15.4
SD 3934	62+	33	1+	60	30	1+	60	33	1	15.3	60	32	1	15.0
Knudson (2)	61+	29	1+	58	26	1+	60	29	1	15.3	59	28	1	15.1
Walworth (0)	61+	31	1+	61	27	1+	60	31	1	15.8	59	30	1	15.2
Chris,CK (3)	59	37	1+	63+	36	2	60	37	1	15.7	59	36	1	15.6
Traverse (0)	59	33	1+	61	28	1+	60	33	1	14.9	59	32	1	14.3
SD 3868	59	30	1+	62+	30	1+	60	33	1	14.7	59	32	1	14.3
SD 3870	59	31	1+	62+	29	1+	60	32	1	14.8	59	31	1	14.6
CS3100L~W (6)	60	26	1+	64+	24	1+	60	27	1	13.9	.	25	1	14.3
Test avg. :	61	31	1	62	28	1								
High avg. :	62	37	1	64	36	1								
Low avg. :	59	26	1	58	24	1								
# Lsd(.05) :	1	2	0	2	2	1								
## TPG-value :	61	.	1	62	.	1								
### C.V. :	0	4	0	3	6	9								

* Heading, the relative days to heading, compared to the variety - Briggs.

** Lodging score: 0= all plants erect, 3= 50% of plants lodged at 45º-angle, 5= all plants flat.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

^ Variable differences within a column are non-significant (NS) at the .05 level of probability.

Table 2c. HRS wheat averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT)- South Dakota West River locations for 2006.

Variety (Hdg.)* - by state BW avg.	Location Avg. - BW, HT, LDG						West Avg. - BW, HT, LDG, PRT				State Avg. - BW, HT, LDG, PRT			
	Wall			Ralph										
	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	PRT %	BW lb	HT in	LDG **	PRT %
SD 3927	.	27	1+	60	33	1+	60	30	0	13.9	62	30	1	15.7
SD 3941	.	26	1+	60	32	1+	60	29	0	13.9	62	30	1	15.1
Chamberlin (0)	.	24	1+	61	27	1+	61	25	0	16	61	28	1	16.6
Glenn (3)	.	27	1+	56	33	1+	56	30	0	14.3	61	31	1	15.2
SD 3860	.	27	1+	59	34	1+	59	30	0	13.5	61	32	1	14.4
SD 3851	.	28	1+	58	33	1+	58	30	0	13.2	61	31	1	14.8
Trooper (-1)	.	22	1+	57	26	1+	57	24	0	14.8	61	27	1	15.0
SD 3942	.	24	1+	56	31	1+	56	27	0	12.9	61	28	1	14.3
Banton (1)	.	26	1+	59	30	1+	59	28	0	14.2	61	30	1	15.6
SD 3879	.	27	1+	57	34	1+	57	30	0	14.1	61	33	1	15.1
Forge (-1)	.	27	1+	57	31	1+	57	29	0	13.6	61	30	1	14.4
Freyr (1)	.	26	1+	58	29	1+	58	27	0	14	61	31	1	15.0
Ada (0)	.	26	1+	57	28	1+	57	27	0	14.8	61	29	1	15.6
SD 3943	.	25	1+	55	31	1+	55	28	0	14.1	60	29	1	14.7
SD 4001	.	28	1+	56	31	1+	56	29	0	15.9	60	30	1	15.3
Kelby (2)	.	23	1+	58	26	1+	58	24	0	15.4	60	26	1	16.1
Ulen (2)	.	26	1+	58	31	1+	58	28	0	14.4	60	31	1	15.5
Granite (5)	.	22	1+	56	24	1+	56	23	0	16.3	60	28	1	16.2
CS3100Q~W (3)	.	25	1+	55	31	1+	55	28	0	15	60	32	1	14.8
Howard (4)	.	27	1+	56	30	1+	56	28	0	13.5	60	31	1	14.6
SD 4002	.	26	1+	56	30	1+	56	28	0	13.8	60	30	1	14.4
Granger (0)	.	26	1+	57	33	1+	57	30	0	13.2	60	32	1	14.8
Alsen (4)	.	24	1+	57	30	1+	57	27	0	15.5	60	30	1	15.8
Briggs (0)	.	26	1+	56	32	1+	56	29	0	13.1	60	30	1	15.1
Reeder (3)	.	25	1+	57	28	1+	57	26	0	13.8	60	30	1	14.8
Russ (2)	.	26	1+	58	33	1+	58	29	0	14.6	60	32	1	15.2
Oxen (2)	.	25	1+	58	28	1+	58	26	0	14.7	60	29	1	15.2
Steele-ND (3)	.	26	1+	56	31	1+	56	28	0	15	60	31	1	15.4
SD 3934	.	26	1+	57	31	1+	57	28	0	14.2	60	32	1	15.0
Knudson (2)	.	24	1+	58	28	1+	58	26	0	14.4	59	28	1	15.1
Walworth (0)	.	25	1+	56	31	1+	56	28	0	13.6	59	30	1	15.2
Chris,CK (3)	.	28	1+	55	35	1+	55	32	0	15.2	59	36	1	15.6
Traverse (0)	.	26	1+	55	33	1+	55	29	0	13	59	32	1	14.3
SD 3868	.	26	1+	54	32	1+	54	29	0	13.3	59	32	1	14.3
SD 3870	.	27	1+	53	32	1+	53	29	0	14.1	59	31	1	14.6
CS3100L~W (6)	.	20	1+	.	22	1+	.	21	0	15.3	.	25	1	14.3
Test avg. :	.	25	1	57	30	1								
High avg. :	.	28	1	61	35	1								
Low avg. :	.	20	1	53	22	1								
# Lsd(.05) :	.	2	0	2	2	0								
## TPG-value :	.	.	1	59	.	1								
### C.V. :	.	4	0	3	5	0								

* Heading, the relative days to heading, compared to the variety - Briggs.

** Lodging score: 0= all plants erect, 3= 50% of plants lodged at 45º-angle, 5= all plants flat.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

^ Variable differences within a column are non-significant (NS) at the .05 level of probability.

Table 3. Origin, variety traits, and disease reactions for HRS wheat entries tested in 2006.

Variety	Origin	(Hdg.)*	Ldg Res	Rust			Fusarium Head Blight	PVP** Status
				Stripe	Stem	Leaf		
Forge	SD-97	-1	G#	MS+	MR+	MS+	MS+~	Yes
Trooper	WPB-04	-1	G	MS	R	MR	MS~	Yes
Traverse	SD-06	0	G	MR	R	MR	MR~	Yes*
Briggs	SD-02	0	G	MR	R	MR	M~	Yes
Chamberlin	WPB-06	0	G	-	R	MS	MS	***
Granger	SD-04	0	G	MR	R	MR	M~	Yes
Walworth	SD-01	0	G	S	R	MS	M~	Yes
Ada	MN-06	0	G	-	R	R	MS~	***
Banton	SS-04	1	VG	-	-	MR	M~	***
Freyr	AW-05	1	G	R	MR	MR	MR~	Yes
Knudson	AW-01	2	G	MS	R	MR	MS~	Yes
Oxen	SD-96	2	G	MR	R	MS	MS~	Yes
Russ	SD-95	2	G	MR	R	MS	MS~	Yes
Ulen	MN-04	2	G	-	R	MR	MS	Yes
Kelby	AW-06	2	VG	-	MR	R	MR	***
Chris,CK	MN-65	3	P	-	R	MS	S	No
CS3100Q~W	MS-	3	G	-	-	-	MR	***
Glenn	ND-05	3	G	MR	R	R	MR~	***
Reeder	ND-99	3	VG	MR	R	MS	MS~	Yes
Steele-ND	ND-04	3	G	MR	MR	R	MR~	Yes
Alsen	ND-00	4	G	R	R	MS	MR~	Yes
Howard	ND-06	4	G	-	R	R	MR~	No
Granite	WPB-02	5	G	MS	MS	S	S~	Yes
CS3100L~W	MS-	6	G	-	-	-	MS~	***
Experimental lines:								
SD 3851	SD-	-	-	-	-	-	-	-
SD 3860	SD-	-	-	-	-	-	-	-
SD 3868	SD-	-	-	-	-	-	-	-
SD 3870	SD-	-	-	-	-	-	-	-
SD 3879	SD-	-	-	-	-	-	-	-
SD 3927	SD-	-	-	-	-	-	-	-
SD 3934	SD-	-	-	-	-	-	-	-
SD 3941	SD-	-	-	-	-	-	-	-
SD 3942	SD-	-	-	-	-	-	-	-
SD 3943	SD-	-	-	-	-	-	-	-
SD 4001	SD-	-	-	-	-	-	-	-
SD 4002	SD-	-	-	-	-	-	-	-

* Heading, the relative difference in days to heading, compared to Briggs.

E= excellent, G= good, VG= very good, F= fair, P= poor.

+ R= resistant, MR= moderately resist., MS= mod. susceptible, S= susc., VS= very susc..

~ Indicates variety exhibits a consistent tolerance to head blight in grain yield and quality.

** Plant variety protection (PVP), title V, certification option - to be sold by variety name only as a class of certified seed.

*** PVP application pending or anticipated.

Table 4a. Oat yield results - South Dakota East River locations, 2004-2006.

Variety (Hdg.)* - by 3-yr then 2006 state average	Location Yield Avg. (BU/A at 13% moist.)								East Yield Avg. (BU/A)		State Yield Avg. (Bu/A)		State Yield Freq. ** (%)	
	Brookings		So. Shore		Beresford		Brown Co.							
	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr
HiFi (8)	129	143+	112	143+	137	131+	112+	128+	111	136	100	119	17	100
Stallion (8)	136+	132+	120	131+	139	139+	96	118+	111	130	100	115	17	100
Morton (7)	117	130+	112	138+	132	127+	97	115+	104	128	94	113	0	100
Loyal (8)	124	133+	112	127+	130	125+	99	108+	105	123	94	109	0	100
Jerry (5)	111	120	114	118	103	121+	50	100+	87	115	80	103	0	60
Don (1)	105	115	110	116	103	113	53	98	86	111	79	99	17	0
Reeves (2)	101	110	106	113	99	111	48	96	80	108	74	95	0	20
Hytest (4)	91	102	100	107	85	86	71	95	80	98	73	88	0	20
Buff, Hls (3)	88	96	91	102	79	92	48	73	70	91	64	81	0	0
Stark, Hls (6)	76	86	70	95	48	79	70	80	61	85	54	74	0	0
Paul, Hls (7)	78	83	77	92	75	70	77	83	70	82	63	72	0	0
SD 011315-15	142+	.	130+	.	137	.	103+	.	117	.	106	.	83	.
SD 030324	140+	.	123	.	151+	.	116+	.	119	.	106	.	50	.
SD 020701	125	.	125+	.	144+	.	92	.	111	.	101	.	67	.
SD 021021	124	.	124+	.	137	.	103+	.	111	.	101	.	50	.
SD 030888	140+	.	132+	.	144+	.	75	.	112	.	101	.	67	.
SD 020536	123	.	115	.	146+	.	102+	.	111	.	100	.	50	.
Baker (4)	125	.	118	.	131	.	98	.	108	.	98	.	33	.
Beach (6)	127	.	118	.	123	.	100+	.	107	.	97	.	50	.
SD 031128	118	.	128+	.	125	.	62	.	99	.	91	.	34	.
Maida (7)	114	.	110	.	124	.	78	.	97	.	88	.	17	.
SD 020883	93	.	112	.	117	.	49	.	86	.	79	.	17	.
GG-304	94	.	96	.	63	.	69	.	76	.	69	.	0	.
Test avg.:	115	114	112	117	117	109	83	99						
High avg. :	142	143	132	143	151	139	118	128						
Low avg. :	76	83	70	92	48	70	48	73						
# Lsd(.05) :	9	20	8	16	11	24	18	29						
## TPG-value :	133	123	124	127	140	115	100	99						
### C.V. :	5	8	5	7	7	12	15	10						

* Heading, the relative days to heading, compared to the variety - Don.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

** Frequency or percent of all test locations that a variety was in the TPG for yield.

Table 4b. Oat yield results - South Dakota West River Locations, 2004-2006.

Variety (Hdg.)*- by 3-yr then 2006 state averages	Location Yield Avg. (BU/A at 13% moist.)				West Yield Avg. (BU/A)		State Yield Avg. (Bu/A)		State Yield Freq. ** (%)	
	Wall		Okaton							
	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr
HiFi (8)	66	52+	41	.	54	.	100	119	17	100
Stallion (8)	65	53+	42	.	54	.	100	115	17	100
Morton (7)	62	53+	41	.	52	.	94	113	0	100
Loyal (8)	62	50+	37	.	50	.	94	109	0	100
Jerry (5)	58	55+	41	.	50	.	80	103	0	60
Don (1)	59	52+	46+	.	53	.	79	99	17	0
Reeves (2)	47	46+	40	.	44	.	74	95	0	20
Hytest (4)	51	49+	38	.	45	.	73	88	0	20
Buff, Hls (3)	46	40	32	.	39	.	64	81	0	0
Stark, Hls (6)	40	30	18	.	29	.	54	74	0	0
Paul, Hls (7)	44	30	27	.	36	.	63	72	0	0
SD 011315-15	73+	.	48+	.	61	.	106	.	83	.
SD 030324	66	.	42	.	54	.	106	.	50	.
SD 020701	70+	.	52+	.	61	.	101	.	67	.
SD 021021	67	.	52+	.	60	.	101	.	50	.
SD 030888	67	.	49+	.	58	.	101	.	67	.
SD 020536	67	.	48+	.	58	.	100	.	50	.
Baker (4)	70+	.	44+	.	57	.	98	.	34	.
Beach (6)	68+	.	44+	.	56	.	97	.	50	.
SD 031128	62	.	48	.	55	.	91	.	17	.
Maida (7)	58	.	45+	.	52	.	88	.	17	.
SD 020883	60	.	45+	.	53	.	79	.	17	.
GG-304	58	.	34	.	46	.	69	.	0	.
Test avg. :	61	46	42	.						
High avg. :	73	55	52	.						
Low avg. :	40	30	18	.						
# Lsd (.05) :	5	10	8	.						
## TPG-value :	68	45	44	.						
### C.V. :	6	15	14	.						

* Heading, the relative days to heading, compared to the variety - Don.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

** Frequency or percent of all test locations that a variety was in the TPG for yield.

Table 5a. Oat averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT) - South Dakota East River locations for 2006.

Variety (Hdg.)* - by state BW avg.	Location Avg. - BW, HT, LDG												East Avg. - BW, HT, LDG, PRT				State Avg. - BW, HT, LDG, PRT			
	Brookings			South Shore			Beresford			Brown Co.										
	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	PRT %	BW lb	HT in	LDG **	PRT %
Buff, Hls (3)	45+	35	1+	42+	33	1+	46+	35	1+	44+	27	1+	44	31	1	18.2	44	29	1	18.2
Paul, Hls (7)	42	42	2+	41+	37	1+	42	38	1+	46+	32	1+	42	35	1	18.2	42	33	1	18.2
Stark, Hls (6)	41	42	1+	41+	37	1+	40	38	1+	42	32	1+	40	35	1	17.8	40	34	1	17.8
Hytest (4)	39	42	3	41+	40	3	41	40	1+	39	36	1+	40	37	1	19.5	39	36	1	19.5
Beach (6)	38	42	2+	43+	39	2+	40	40	1+	39	33	1+	40	36	1	15.5	39	34	1	15.5
Stallion (8)	39	42	2+	40	37	2+	41	40	1+	39	33	1+	40	36	1	17.2	39	34	1	17.2
SD 030888	40	33	2+	38	31	1+	40	32	1+	38	27	1+	39	29	1	15.9	38	27	1	15.9
SD 020536	38	39	2+	37	33	3	40	34	1+	39	29	1+	39	32	1	16.2	38	30	1	16.2
SD 020883	39	37	2+	38	35	2+	38	34	1+	36	29	1+	38	32	1	17.2	38	31	1	17.2
Loyal (8)	38	41	2+	40	38	3	40	38	1+	38	34	1+	39	36	1	17.8	38	34	1	17.8
SD 031128	38	39	1+	38	37	1+	39	36	1+	35	29	1+	38	34	1	16.3	37	32	1	16.3
SD 020701	36	40	2+	39	36	3	39	37	1+	37	33	1+	38	34	1	16.5	37	33	1	16.5
SD 011315-15	36	41	2+	36	36	2+	39	37	1+	39	30	1+	38	34	1	15.5	37	32	1	15.5
Jerry (5)	38	40	2+	36	38	2+	39	37	1+	34	31	1+	37	34	1	16.6	37	32	1	16.6
Morton (7)	38	43	1+	38	37	1+	38	40	1+	37	35	1+	37	36	1	16.5	37	34	1	16.5
Reeves (2)	37	39	2+	38	37	3	38	38	1+	33	32	1+	37	35	1	16.1	36	33	1	16.1
SD 030324	34	42	2+	38	38	3	40	38	1+	38	33	1+	37	36	1	16.3	36	34	1	16.3
Maida (7)	36	42	2+	38	37	2+	36	40	1+	37	32	1+	37	36	1	17.4	36	34	1	17.4
SD 021021	37	37	1+	37	34	1+	38	35	1+	38	30	1+	36	32	1	17.6	36	30	1	17.6
HiFi (8)	36	42	1+	36	36	1+	38	37	1+	36	32	1+	36	35	1	15.6	36	33	1	15.6
Don (1)	36	32	2+	36	32	1+	37	32	1+	34	26	1+	36	29	1	15.6	36	28	1	15.6
Baker (4)	34	38	1+	36	35	1+	38	36	1+	35	31	1+	36	33	1	15.9	35	32	1	15.9
GG-304	29	25	1+	28	23	1+	31	24	1+	34	20	1+	31	22	1	16.1	30	21	1	16.1
Test avg. :	37	39	2	38	35	2	39	36	1	38	30	1								
High avg. :	45	43	3	43	40	3	46	40	1	46	36	1								
Low avg. :	29	25	1	28	23	1	31	24	1	33	20	1								
# Lsd(.05) :	2	2	1	2	2	1	2	2	0	3	3	0								
## TPG-value :	43	.	2	41	.	2	44	.	1	43	.	1								
### C.V. :	4	3	35	4	3	26	4	3	0	5	7	0								

* Heading, the relative days to heading, compared to the variety - Don.

** Lodging score: 0= all plants erect, 3= 50% of plants lodged at 45º-angle, 5= all plants flat.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

^ Variable differences within a column are non-significant (NS) at the .05 level of probability.

Table 5b. Oat averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT)- South Dakota West River locations for 2006.

Variety (Hdg.)* - by state BW avg.	Location Avg. - BW, HT, LDG						West Avg. - BW, HT, LDG, PRT				State Avg. - BW, HT, LDG, PRT			
	Wall			Okaton										
	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	PRT %	BW lb	HT in	LDG **	PRT %
Buff, Hls (3)	44+	24	1+	43+	22	1+	44	23	1	.	44	29	1	18.2
Paul, Hls (7)	41+	28	1+	41+	24	1+	41	26	1	.	42	33	1	18.2
Stark, Hls (6)	38	29	1+	.	24	1+	.	27	1	.	40	34	1	17.8
Hytest (4)	38	30	1+	37	26	1+	38	28	1	.	39	36	1	19.5
Beach (6)	39	28	1+	36	23	1+	38	26	1	.	39	34	1	15.5
Stallion (8)	39	27	1+	35	24	1+	37	25	1	.	39	34	1	17.2
SD 030888	39	23	1+	36	19	1+	38	21	1	.	38	27	1	15.9
SD 020536	39	25	1+	36	21	1+	38	23	1	.	38	30	1	16.2
SD 020883	40	26	1+	38	24	1+	39	25	1	.	38	31	1	17.2
Loyal (8)	37	27	1+	34	23	1+	35	25	1	.	38	34	1	17.8
SD 031128	38	28	1+	36	24	1+	37	26	1	.	37	32	1	16.3
SD 020701	38	26	1+	34	24	1+	36	25	1	.	37	33	1	16.5
SD 011315-15	38	26	1+	32	21	1+	35	24	1	.	37	32	1	15.5
Jerry (5)	37	26	1+	35	24	1+	36	25	1	.	37	32	1	16.6
Morton (7)	37	28	1+	32	25	1+	35	26	1	.	37	34	1	16.5
Reeves (2)	37	27	1+	36	27	1+	36	27	1	.	36	33	1	16.1
SD 030324	36	28	1+	32	24	1+	34	26	1	.	36	34	1	16.3
Maida (7)	36	28	1+	33	24	1+	35	26	1	.	36	34	1	17.4
SD 021021	32	24	1+	35	22	1+	33	23	1	.	36	30	1	17.6
HiFi (8)	36	26	1+	32	24	1+	34	25	1	.	36	33	1	15.6
Don (1)	36	23	1+	34	22	1+	35	22	1	.	36	28	1	15.6
Baker (4)	35	26	1+	32	24	1+	34	25	1	.	35	32	1	15.9
GG-304	32	18	1+	27	15	1+	29	16	1	.	30	21	1	16.1
Test avg. :	37	26	1	35	23	1								
High avg. :	44	30	1	43	27	1								
Low avg. :	32	18	1	27	15	1								
# Lsd (.05) :	3	2	0	2	2	0								
## TPG-value :	41	.	1	41	.	1								
### C.V. :	6	5	0	3	6	0								

* Heading, the relative days to heading, compared to the variety - Don.

** Lodging score: 0= all plants erect, 3= 50% of plants lodged at 45º-angle, 5= all plants flat.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

^ Variable differences within a column are non-significant (NS) at the .05 level of probability.

Table 6. Origin, variety traits, and disease reactions for oat entries tested in 2006.

Variety	Origin	(Hdg.)*	Ldg	Grain	Smut	Rust		Red	PVP**
			Res	Color		Stem	Crown	Leaf	Status
Don	IL-85	1	Good	White	R	MS	S	MR	No
Reeves	SD-02	2	Good	White	MR	S	MS	MS	No
Hytest	SD-86	4	Good	Lt.Cream	MR	MS	S	S	No
Baker	IA-	4	Good	White	-	-	MS	MS	Yes#
Jerry	ND-94	5	Good	White	MS	MS	S	MS	Yes
Beach	ND-04	6	Good	White	R	S	MS	MS	No
Maida	ND-06	7	Good	White	-	-	-	-	No
Morton	ND-01	7	Good	White	R	MR	R	MS	Yes
HiFi	ND-01	8	Good	White	MR	R	MR	MS	Yes
Loyal	SD-00	8	Good	White	R	S	MR	S	No
Stallion	SD-06	8	Good	White	S	S	MR	MR	***
Hull-less types:									
Buff, Hls	SD-02	3	Good	Hulless	R	S	MS	MR	No
Stark, Hls	ND-04	6	Good	Hulless	-	MR	MS	S	***
Paul, Hls	ND-94	7	Good	Hulless	MS	MR	MS	S	Yes
Experimental lines:									
SD 020883	SD-	-	-	-	-	-	-	-	-
SD 030888	SD-	-	-	-	-	-	-	-	-
SD 031128	SD-	-	-	-	-	-	-	-	-
GG-304	GM-	-	-	-	-	-	-	-	-
ND 961161	ND-	-	-	-	-	-	-	-	-
SD 011315-15	SD-	-	-	-	-	-	-	-	-
SD 021021	SD-	-	-	-	-	-	-	-	-
SD 020536	SD-	-	-	-	-	-	-	-	-
SD 020701	SD-	-	-	-	-	-	-	-	-
SD 030324	SD-	-	-	-	-	-	-	-	-

* Heading, the relative difference in days to heading, compared to Don.

Special licensing agreement required.

+ R= resistant, MR= moderately resist., MS= mod. susceptible, S= susc., VS= very susc..

** Plant variety protection (PVP), title V, certification option - to be sold byvariety name only as a class of certified seed.

*** PVP application pending or anticipated.

Table 7a. Barley yield results- South Dakota East River locations, 2004-2006.

Variety (Hdg.)* - by 3-yr then 2006 state avg.	Location Yield Avg. (BU/A at 13% moist.)						East Yield Avg. (BU/A)	
	Brookings		South Shore		Miller			
	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr
Eslick (3)	96+	97+	78	94+	56+	72+	81	88
Haxby (2)	86	87	90+	99+	42	69+	78	84
Lacey (0)	77	84	78	91+	51+	62	68	81
Excel (3)	82	86	75	87	44	63+	70	81
Tradition (0)	62	77	76	92+	37	59	62	78
Drummond (2)	69	76	77	88	36	56	65	77
Legacy (3)	78	81	72	88	40	57	64	78
Conlon (0)	61	68	82	90	54+	65+	66	74
Stellar-ND (2)	74	81	69	84	38	55	61	75
Robust (3)	68	76	71	77	36	51	59	69
Rawson (2)	81	.	84+	.	50+	.	73	.
Meresse~ (2)	55	.	59	.	36	.	55	.
Pronghorn~ (3)	52	.	54	.	41	.	52	.
Stanuwax~ (1)	54	.	58	.	37	.	50	.
Test avg. :	71	81	73	89	43	61		
High avg. :	96	97	90	99	56	72		
Low avg. :	52	68	54	77	36	51		
# Lsd(.05) :	7	9	7	8	7	9		
## TPG-value :	89	88	83	91	49	63		
### C.V. :	6	9	7	7	11	8		

* Heading, the relative days to heading, compared to the variety - Lacey.

~ Hull-less type, used in food.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

Table 7b. Barley yield results- South Dakota East River locations, 2004-2006 (Continued).

Variety (Hdg.)* - by 3-yr then 2006 state avg.	Location Yield Avg. (BU/A at 13% moist.)				East Yield Avg. (BU/A)		State Yield Avg. (BU/A)		State Top-Yield Freq. ** (%)	
	Selby		Brown Co.							
	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr
Eslick (3)	95+	90+	81+	88+	81	88	71	77	83	100
Haxby (2)	94+	83+	79+	81+	78	84	71	75	67	83
Lacey (0)	72	82+	64	87+	68	81	62	71	17	50
Excel (3)	77	83+	72+	86+	70	81	61	71	34	67
Tradition (0)	71	78+	65	84+	62	78	55	69	0	50
Drummond (2)	73	82+	68	81+	65	77	58	68	0	33
Legacy (3)	73	77+	57	85	64	78	57	68	0	17
Conlon (0)	70	69	65	80+	66	74	60	65	17	50
Stellar-ND (2)	63	77+	63	79+	61	75	53	65	0	33
Robust (3)	53	65	68	75	59	69	52	61	0	17
Rawson (2)	74	.	74+	.	73	.	66	.	67	.
Meresse~ (2)	60	.	63	.	55	.	50	.	0	.
Pronghorn~ (3)	52	.	60	.	52	.	45	.	0	.
Stanuwax~ (1)	49	.	52	.	50	.	45	.	0	.
Test avg. :	70	79	67	83						
High avg. :	95	90	81	88						
Low avg. :	49	65	52	75						
# Lsd(.05) :	9	14	10	12						
## TPG-value :	86	76	71	76						
### C.V. :	9	8	11	8						

* Heading, the relative days to heading, compared to the variety - Lacey.

~ Hull-less type, used for food.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

** Frequency or percent of all test locations that a variety was in the TPG for yield.

Table 7c. Barley yield results- South Dakota West River locations, 2004-2006.

Variety (Hdg.)* - by 3-yr then 2006 state avg.	Location Yield Avg. (BU/A at 13% moist.)		West Yield Avg. (BU/A)		State Yield Avg. (BU/A)		State Top-Yield Freq. ** (%)	
	Wall							
	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr
Eslick (3)	56+	48+	56	48	71	77	83	100
Haxby (2)	56+	50+	56	50	71	75	67	83
Lacey (0)	49	42	49	42	62	71	17	50
Excel (3)	52+	45+	52	45	61	71	34	67
Tradition (0)	43	39	43	39	55	69	0	50
Drummond (2)	48	42	48	42	58	68	0	33
Legacy (3)	49	41	49	41	57	68	0	17
Conlon (0)	53	49+	53	49	60	65	17	50
Stellar-ND (2)	42	36	42	36	53	65	0	33
Robust (3)	45	43+	45	43	52	61	0	17
Rawson (2)	53+	.	53	.	66	.	67	.
Meresse~ (2)	40	.	40	.	50	.	0	.
Pronghorn~ (3)	35	.	35	.	45	.	0	.
Stanuwax~ (1)	35	.	35	.	45	.	0	.
Test avg. :	47	44						
High avg. :	56	50						
Low avg. :	35	36						
# Lsd (.05) :	4	7						
## TPG-value :	52	43						
### C.V. :	6	12						

* Heading, the relative days to heading, compared to the variety - Lacey.

~ Hull-less type, used for food.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

** Frequency or percent of all test locations that a variety was in the TPG for yield.

Table 8a. Barley averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT)- South Dakota East River locations for 2006.

Variety (Hdg.)* - by state BW avg.	Location Avg. - BW, HT, LDG									East Avg. - BW, HT, LDG, PRT			
	Brookings			South Shore			Miller						
	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	PRT %
Stanuwax~ (1)	51	29	1+	53+	29	1+	57+	22	1+	54	25	1	15.8
Meresse~ (2)	55+	26	1+	51+	24	1+	56+	17	1+	55	22	1	17.3
Haxby (2)	51	29	1+	51+	29	1+	50	18	2	51	25	1	13.6
Eslick (3)	51	29	1+	47	28	1+	51	20	2	51	25	2	13.3
Conlon (0)	49	28	3	44	27	3	50	19	3	49	24	2	13.7
Pronghorn~ (3)	48	29	2	45	26	2	53	20	3	50	25	2	15.9
Rawson (2)	49	30	1+	46	31	1+	50	20	1+	49	26	1	14.3
Tradition (0)	49	32	1+	47	32	1+	48	21	1+	48	27	1	14.2
Robust (3)	49	34	1+	46	32	3	47	21	1+	48	27	2	14.2
Lacey (0)	48	31	1+	46	30	3	49	21	1+	48	26	2	14.3
Drummond (2)	48	33	1+	47	32	2	46	19	1+	47	27	1	14.7
Excel (3)	48	32	1+	46	31	3	49	19	1+	48	26	2	13.8
Legacy (3)	48	34	1+	44	32	3	48	18	1+	47	26	2	14.3
Stellar-ND (2)	47	31	1+	45	30	2	48	19	1+	47	25	1	14.4
Test avg. :	49	30	1	47	29	2	50	19	1				
High avg. :	55	34	3	53	32	3	57	22	3				
Low avg. :	47	26	1	44	24	1	46	17	1				
# Lsd(.05) :	2	2	0	3	1	0	1	2	1				
## TPG-value :	53	.	1	50	.	1	56	.	1				
### C.V. :	2	4	16	4	3	20	2	7	28				

* Heading, the relative days to heading, compared to the variety - Lacey.

** Lodging score: 0= all plants erect, 3= 50% of plants lodged at 45º-angle, 5= all plants flat.

~ Hull-less type, used for food.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

Table 8b. Barley averages for bushel weight (BW), height (HT), lodging (LDG), grain protein (PRT)- South Dakota East River locations (Continued).

Variety (Hdg.)* - by state BW avg.	Location Avg. - BW, HT, LDG						East Avg. - BW, HT, LDG, PRT				State Avg. - BW, HT, LDG, PRT			
	Selby			Brown Co.										
	BW lb	HT in	LDG **	BW lb	HT in	LDG **	BW lb	HT in	LDG **	PRT %	BW lb	HT in	LDG **	PRT %
Stanuwax~ (1)	58+	25	2	53	22	1+	54	25	1	15.8	54	24	1	15.3
Meresse~ (2)	58+	23	2	56+	21	1+	55	22	1	17.3	53	22	1	16.3
Haxby (2)	53	26	2	51	24	1+	51	25	1	13.6	50	24	1	13.1
Eslick (3)	53	26	3	52	22	1+	51	25	2	13.3	49	24	1	12.6
Conlon (0)	53	24	3	49	23	1+	49	24	2	13.7	48	24	2	13.3
Pronghorn~ (3)	52	28	3	52	23	1+	50	25	2	15.9	48	24	2	15.4
Rawson (2)	50	25	1+	49	24	1+	49	26	1	14.3	47	25	1	13.8
Tradition (0)	51	27	2	47	23	1+	48	27	1	14.2	47	26	1	13.7
Robust (3)	51	26	2	49	24	1+	48	27	2	14.2	46	26	1	13.7
Lacey (0)	52	24	2	46	23	1+	48	26	2	14.3	46	25	1	13.7
Drummond (2)	50	28	2	46	22	1+	47	27	1	14.7	46	26	1	14.1
Excel (3)	51	25	2	48	22	1+	48	26	2	13.8	46	25	1	13.3
Legacy (3)	51	26	2	46	22	1+	47	26	2	14.3	46	25	1	13.7
Stellar-ND (2)	49	25	2	46	21	1+	47	25	1	14.4	45	25	1	13.7
Test avg. :	52	25	2	49	22	1								
High avg. :	58	28	3	56	24	1								
Low avg. :	49	23	1	46	21	1								
# Lsd(.05) :	2	2	1	2	2	0								
## TPG-value :	56	.	1	54	.	1								
### C.V. :	2	5	19	3	7	0								

* Heading, the relative days to heading, compared to the variety - Lacey.

** Lodging score: 0= all plants erect, 3= 50% of plants lodged at 45º-angle, 5= all plants flat.

~ Hull-less type, used for food.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

^ Variable differences within a column are non-significant (NS) at the .05 level of probability.

Table 8c. Barley averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT)- South Dakota West River locations for 2006.

Variety (Hdg.)* - by state BW avg.	Location Avg. - BW, HT, LDG			West Avg. - BW, HT, LDG, PRT				State Avg. - BW, HT, LDG, PRT			
	Wall										
	BW lb	HT in	LDG	BW lb	HT in	LDG	PRT %	BW lb	HT in	LDG	PRT %
Stanuwax~ (1)	53+	20	1+	53	20	1	12.7	54	24	1	15.3
Meresse~ (2)	51	18	1+	51	18	1	11.2	53	22	1	16.3
Haxby (2)	49	21	1+	49	21	1	10.7	50	24	1	13.1
Eslick (3)	47	20	1+	47	20	1	9.4	49	24	1	12.6
Conlon (0)	48	20	1+	48	20	1	11.3	48	24	2	13.3
Pronghorn~ (3)	46	21	1+	46	21	1	12.8	48	24	2	15.4
Rawson (2)	46	22	1+	46	22	1	11.4	47	25	1	13.8
Tradition (0)	47	22	1+	47	22	1	11.1	47	26	1	13.7
Robust (3)	45	22	1+	45	22	1	11.2	46	26	1	13.7
Lacey (0)	45	22	1+	45	22	1	10.6	46	25	1	13.7
Drummond (2)	47	22	1+	47	22	1	11.4	46	26	1	14.1
Excel (3)	44	22	1+	44	22	1	10.3	46	25	1	13.3
Legacy (3)	44	21	1+	44	21	1	11.0	46	25	1	13.7
Stellar-ND (2)	44	22	1+	44	22	1	10.2	45	25	1	13.7
Test avg. :	47	21	1								
High avg. :	53	22	1								
Low avg. :	44	18	1								
# Lsd (.05) :	1	2	NS^								
## TPG-value :	52	.	1								
### C.V. :	2	5	0								

* Heading, the relative days to heading, compared to the variety - Lacey.

~ Hull-less type, used for food.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

^ Variable differences within a column are non-significant (NS) at the .05 level of probability.

Table 9. Origin, variety traits, and disease reactions for barley entries tested in 2006.

Variety	Origin	(Hdg.)*	Ldg	Grain	Awn##	Loose	Stem	Blotch+		PVP**
			Res	Use	Texture	Smut	Rust	Spot	Net	Status
Two-row types:										
Conlon	ND-96	0	G	Malt	SS	S	S	MS	MR	Yes
Haxby	MT-02	2	F	Feed	R	S	-	-	-	No
Rawson	ND-05	2	F	Feed	SR	S	S	R	MS	No
Eslick	MT-04	3	F	Feed	R	S	-	-	-	***
Six-row types:										
Lacey	MN-00	0	G	Malt	S	S	S	MR	S	Yes
Tradition	BARI-03	0	F	Malt	S	S	S	MR	S	Yes
Stellar-ND	ND-05	2	G	~	SS	S	S	MR	MS	Yes
Drummond	ND-00	2	VG	Malt	SS	S	S	R	MS	Yes
Excel	MN-90	3	VG	Malt	S	S	S	MR	S	Yes
Robust	MN-83	3	G	Malt	S	S	S	MR	S	Yes
Legacy	BARI-00	3	G	Malt	S	S	S	MR	S	Yes
Hull-less types:										
Stanuwax~	WPB	1	G	Food	-	-	-	-	-	Yes
Meresse~	WPB	2	G	Food	-	-	-	-	-	Yes
Pronghorn~	WPB	3	F	Food	-	VS	MS	MS	S	Yes

* Heading, the relative difference in days to heading, compared to Lacey.

~ Hull-less type, used for food.

E= excellent, G= good, VG= very good, F= fair, P= poor.

S= smooth,SS= semi-smooth, SR= semi-rough and R= rough texture.

+ R= resistant, MR= moderately resist., MS= mod. susceptible, S= susc., VS= very susc..

** Plant variety protection (PVP), title V, certification option - to be sold by variety name only as a class of certified seed.

*** PVP application pending or anticipated.

Table 10a. Hard red and white wheat yield results - South Dakota West River locations, 2004-2006.

Variety (Hdg.)* - by 3-yr then 2006 state yield avg.	Location Yield Avg. (BU/A) at 13% moist.										West Yield Avg. (BU/A)		State Yield Avg. (BU/A)	
	Wall		Martin		Sturgis		Oelrichs		Winner					
	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr
Wahoo (3)	47+	53+	41	.	36+	30+	61+	.	35	46+	44	43	49	54
Millennium (4)	42+	49+	39	.	32+	32+	55	.	31	46+	40	42	46	54
SD97059-2	45+	50+	39	.	30	27	45	.	31	48+	38	42	45	54
Darrell (4)	41+	49+	47+	.	39+	32+	57+	.	37	49+	44	43	49	53
Harding (5)	43+	49+	37	.	33+	28+	52	.	37	48+	40	42	46	52
Jerry (6)	40+	50+	42	.	30	26	54	.	29	39	39	38	45	52
Alliance (2)	46+	48+	40	.	33+	30+	54	.	41+	47+	43	42	49	51
Arapahoe (3)	43+	43	44+	.	30	26	53	.	35	44	41	38	48	50
Jagalene (3)	42+	47+	38	.	38+	31+	59+	.	41+	52+	44	43	47	50
Wesley (2)	45+	45	46+	.	34+	29+	53	.	34	39	42	38	49	49
Trego~W (3)	40+	42	52+	.	36+	32+	54	.	38	50+	44	41	49	49
Alice (0)	46+	45	47+	.	37+	27	53	.	39	47+	44	40	48	49
Wendy~W (-1)	47+	46+	47+	.	33+	27	49	.	38	47+	43	40	47	49
Tandem (4)	44+	46+	41	.	35+	29+	52	.	37	44	42	40	46	49
Expedition (0)	46+	45	41	.	33+	28+	59+	.	37	40	43	38	49	48
Nekota (2)	34	42	38	.	33+	29+	54	.	37	43	39	38	47	48
Crimson (5)	35	44	41	.	33+	27	53	.	37	41	40	37	46	47
NuDakota~W (2)	47+	.	48+	.	31	.	60+	.	37	.	45	.	52	.
Hatcher (2)	40+	.	48+	.	38+	.	64+	.	38	.	46	.	51	.
SD01058	44+	.	49+	.	35+	.	56	.	40+	.	45	.	50	.
SD98W175-1	43+	.	45+	.	33+	.	58+	.	45+	.	45	.	50	.
Harry (5)	46+	.	41	.	36+	.	63+	.	39	.	45	.	49	.
NuFrontier~W (5)	46+	.	44+	.	35+	.	58+	.	38	.	44	.	48	.
SD02279	49+	.	39	.	31	.	52	.	36	.	41	.	48	.
SD96240-3-1	46+	.	38	.	28	.	47	.	38	.	39	.	47	.
Overland	45+	.	41	.	28	.	52	.	38	.	41	.	46	.
SD02480	45+	.	40	.	26	.	53	.	39	.	41	.	46	.
SD01W064	45+	.	43+	.	30	.	47	.	39	.	41	.	45	.
SD01122	44+	.	42	.	29	.	53	.	28	.	39	.	44	.
Overley (0)	47+	.	41	.	29	.	55	.	30	.	40	.	44	.
Test avg. :	44	47	43	.	33	29	54	.	37	45				
High avg. :	49	53	52	.	39	32	64	.	45	52				
Low avg. :	34	42	37	.	26	26	45	.	28	39				
# Lsd (.05) :	9	7	9	.	7	4	7	.	5	7				
## TPG-value :	40	46	43	.	32	28	57	.	40	45				
### C.V. :	12	12	13	.	13	15	8	.	9	11				

* Heading, the relative days to heading, compared to the variety - Expedition.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

Table 10b. Hard red and white wheat yield results - South Dakota East River locations, 2004-2006.

Variety (Hdg.)* - by 3-yr then 2006 state yield avg.	Location Yield Avg. (BU/A) 13% moist.				East Yield Avg. (BU/A)		State Yield Avg. (BU/A)	
	Brookings		Highmore					
	2006	3-Yr	2006	3-Yr	2006	3-Yr	2006	3-Yr
Wahoo (3)	78+	73+	44+	69+	61	71	49	54
Millennium (4)	79+	77+	42	66+	61	72	46	54
SD97059-2	82+	76+	41	70+	62	73	45	54
Darrell (4)	83+	67	42	66+	63	67	49	53
Harding (5)	71	69	49+	67+	60	68	46	52
Jerry (6)	80+	80+	42	66+	61	73	45	52
Alliance (2)	83+	65	48+	67+	66	66	49	51
Arapahoe (3)	86+	69	45+	67+	66	68	48	50
Jagalene (3)	67	56	44+	63+	56	60	47	50
Wesley (2)	80+	69	52+	64+	66	67	49	49
Trego~W (3)	75	57	51+	62+	63	60	49	49
Alice (0)	70	62	46+	63+	58	63	48	49
Wendy~W (-1)	80+	67	34	60	57	64	47	49
Tandem (4)	71	63	45+	63+	58	63	46	49
Expedition (0)	86+	70+	40	59	63	65	49	48
Nekota (2)	76	61	54+	63+	65	62	47	48
Crimson (5)	75	61	46+	62+	61	62	46	47
NuDakota~W (2)	89+	.	49+	.	69	.	52	.
Hatcher (2)	80+	.	46+	.	63	.	51	.
SD01058	77+	.	50+	.	64	.	50	.
SD98W175-1	80+	.	44+	.	62	.	50	.
Harry (5)	76	.	45+	.	61	.	49	.
NuFrontier~W (5)	67	.	50+	.	59	.	48	.
SD02279	73	.	54+	.	64	.	48	.
SD96240-3-1	84+	.	46+	.	65	.	47	.
Overland	85+	.	32	.	59	.	46	.
SD02480	76	.	41	.	59	.	46	.
SD01W064	73	.	37	.	55	.	45	.
SD01122	60	.	52+	.	56	.	44	.
Overley (0)	82+	.	26	.	54	.	44	.
Test avg. :	77	67	45	65				
High avg. :	89	80	54	70				
Low avg. :	60	56	26	59				
# Lsd (.05) :	11	10	12	8				
## TPG-value :	77	70	44	62				
### C.V. :	8	13	13	7				

* Heading, the relative days to heading, compared to the variety - Expedition.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

Table 11a. Hard red and white wheat averages for bushel weight (BW), height (HT), and grain protein (PRT)- South Dakota West River locations for 2006.

Variety (Hdg.)* - by state BW avg.	Location Avg.- BW and HT										West Avg.- BW, HT, PRT			State Avg.- BW, HT, PRT		
	Wall		Martin		Sturgis		Oelrichs		Winner							
	BW lb	HT in	BW lb	HT in	BW lb	HT in	BW lb	HT in	BW lb	HT in	BW lb	HT in	PRT %	BW lb	HT in	PRT %
SD98W175-1	62+	25	65+	28	65+	22	63+	28	58+	20	63	25	13.9	62	27	13.5
Jagalene (3)	62+	20	62	25	67+	23	62+	31	59+	20	62	24	14.0	62	26	13.6
SD02480	61+	23	64+	25	67+	20	62+	27	57+	20	62	23	14.3	62	26	13.7
SD01W064	63+	26	64+	28	63	25	60	30	58+	22	62	26	13.7	62	28	12.8
NuFrontier~W (5)	61+	24	63+	27	64	23	62+	29	58+	20	61	25	13.5	61	27	13.4
Darrell (4)	61+	29	62	29	66+	25	61	30	58+	22	62	27	14.5	61	29	13.9
Crimson (5)	59	26	62	28	63	26	64+	30	57+	24	61	27	14.7	61	29	14.5
Tandem (4)	62+	26	61	27	63	25	62+	31	57+	22	61	26	14.3	61	29	14.1
SD02279	61+	28	63+	28	64	26	61	31	55	24	61	27	14.6	61	30	14.4
SD01058	61+	31	63+	27	64	24	61	31	58+	24	61	27	14.0	61	30	13.9
Alice (0)	61+	21	64+	25	64	22	59	27	56+	21	61	23	14.1	61	25	13.5
Overley (0)	61+	23	63+	27	64	21	59	31	58+	22	61	25	14.9	61	27	14.4
Nekota (2)	59	17	61	24	64	22	61	28	56+	23	60	23	14.5	61	25	14.2
Trego~W (3)	61+	18	60	26	62	21	61	27	57+	19	60	22	13.8	61	25	13.0
Wendy~W (-1)	61+	21	64+	24	64	20	59	26	56+	18	61	22	13.8	60	24	13.8
Millennium (4)	61+	24	63+	28	64	24	60	30	53	23	60	26	14.7	60	29	13.9
Arapahoe (3)	60	25	61	28	64	24	61	31	55	22	60	26	14.8	60	29	14.3
Harding (5)	60	28	61	28	64	27	60	31	56+	20	60	27	14.9	60	30	14.5
Hatcher (2)	61+	21	62	25	64	21	62+	29	54	18	60	23	13.8	60	25	13.8
Expedition (0)	60	23	62	25	63	23	59	30	58+	20	60	24	13.8	60	27	13.9
SD01122	62+	29	61	27	63	24	62+	30	53	23	60	27	15.1	60	29	14.5
Overland	61+	29	61	27	63	22	59	29	56+	21	60	25	13.8	60	28	13.0
Jerry (6)	60	25	62	28	63	25	62+	31	54	23	60	26	15.4	60	30	14.9
SD97059-2	61+	27	61	26	63	25	59	29	56+	22	60	26	15.2	60	28	14.2
SD96240-3-1	60	24	61	25	62	22	59	28	56+	21	60	24	14.4	60	27	13.9
Alliance (2)	59	24	60	24	65	21	57	28	55	22	59	24	12.0	60	26	11.9
NuDakota~W (2)	58	22	61	24	63	20	59	27	54	18	59	22	13.7	59	24	13.6
Wahoo (3)	59	25	60	26	63	24	58	29	55	20	59	25	14.2	59	27	13.6
Wesley (2)	58	21	60	25	62	20	58	28	52	18	58	22	15.0	59	25	14.5
Harry (5)	58	23	58	26	62	24	59	31	52	21	58	25	13.8	58	27	13.2
Test avg. :	60	.	62	26	64	23	60	29	56	.						
High avg. :	63	.	65	29	67	27	64	31	59	.						
Low avg. :	58	.	58	24	62	20	57	26	52	.						
# Lsd (.05) :	2	.	2	3	2	2	2	2	3	.						
## TPG-value :	61	.	63	.	65	.	62	.	56	.						
### C.V. :	2	.	2	7	2	4	2	4	3	.						

* Heading, the relative days to heading, compared to the variety - Expedition.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

Table 11b. Hard red and white wheat averages for bushel weight (BW), height (HT), and grain protein (PRT)- South Dakota East River locations for 2006.

Variety (Hdg.)* - by state BW avg.	Location Averages- BW, HT, LDG				East River Averages- BW, HT, LDG, PRT			State Averages- BW, HT, LDG, PRT		
	Brookings		Highmore							
	BW lb	HT in	BW lb	HT in	BW lb	HT in	PRT %	BW lb	HT in	PRT %
SD98W175-1	61+	37	61+	.	61	.	13.1	62	27	13.5
Jagalene (3)	60	35	62+	.	61	.	13.1	62	26	13.6
SD02480	61+	38	60+	.	61	.	13.2	62	26	13.7
SD01W064	60	39	62+	.	61	.	11.8	62	28	12.8
NuFrontier~W (5)	63+	37	60+	.	61	.	13.3	61	27	13.4
Darrell (4)	61+	41	60+	.	61	.	13.3	61	29	13.9
Crimson (5)	62+	42	62+	.	62	.	14.3	61	29	14.5
Tandem (4)	61+	43	62+	.	61	.	14.0	61	29	14.1
SD02279	61+	45	62+	.	62	.	14.2	61	30	14.4
SD01058	60	41	60+	.	60	.	13.9	61	30	13.9
Alice (0)	61+	34	61+	.	61	.	13.0	61	25	13.5
Overley (0)	62+	38	60+	.	61	.	13.8	61	27	14.4
Nekota (2)	62+	37	61+	.	61	.	13.9	61	25	14.2
Trego~W (3)	61+	38	61+	.	61	.	12.3	61	25	13.0
Wendy~W (-1)	61+	34	58	.	60	.	13.8	60	24	13.8
Millennium (4)	60	48	61+	.	61	.	13.2	60	29	13.9
Arapahoe (3)	62+	42	60+	.	61	.	13.8	60	29	14.3
Harding (5)	61+	43	60+	.	60	.	14.1	60	30	14.5
Hatcher (2)	61+	36	59	.	60	.	13.8	60	25	13.8
Expedition (0)	61+	42	60+	.	61	.	14.1	60	27	13.9
SD01122	60	43	60+	.	60	.	14.0	60	29	14.5
Overland	61+	42	61+	.	61	.	12.2	60	28	13.0
Jerry (6)	60	48	60+	.	60	.	14.4	60	30	14.9
SD97059-2	60	41	60+	.	60	.	13.2	60	28	14.2
SD96240-3-1	60	39	59	.	60	.	13.4	60	27	13.9
Alliance (2)	61+	40	60+	.	60	.	11.8	60	26	11.9
NuDakota~W (2)	61+	35	59	.	60	.	13.5	59	24	13.6
Wahoo (3)	59	41	59	.	59	.	13.0	59	27	13.6
Wesley (2)	60	37	60+	.	60	.	14.0	59	25	14.5
Harry (5)	58	38	57	.	57	.	12.6	58	27	13.2
Test avg. :	61	40	60	.						
High avg. :	63	48	62	.						
Low avg. :	58	34	57	.						
# Lsd (.05) :	2	.	2	.						
## TPG-value :	61	.	60	.						
### C.V. :	2	.	1	.						

* Heading, the relative days to heading, compared to the variety - Expedition.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

Table 12. Origin, variety traits, and disease reactions for winter wheat entries tested for 2006.

Variety	Origin	(Hdg.)*	Ldg Res	End-use	Winter Hardy	Cole-optile	Wheat Steak	Tan-spot	Rust			PVP
				Qlty	Rtg	Pct##	Mo-saic		Rust Stripe	Rust Leaf	Rust Stem	
Wendy~W	SD-04	-1	E	GN	E	67	MS	R	MR	MS	MR	Yes
Alice	SD-06	0	G	EB	F	78	MR	MS	-	MS	MR	***
Expedition	SD-02	0	F	GB	G-E	88	S	MS	MS	MS	R	Yes
Overley	KS-03	0	E	EB	P	-	MR	MR	R	R	R	Yes
Alliance	NE-93	2	G	AB	G	76	MS	VS	MR	S	MS	Yes
Nekota	NE/SD-94	2	G	GB	G	87	MS	MR	S	S	MR	No
Wesley	NE-98	2	E	GB	G-E	79	S	MR	MR	MS	R	No
Hatcher	CO-04	2	G	GB	-	-	S	-	MS	MS	MR	Yes
NuDakota~W	AW-06	2	G	AB	-	.	MR	MR	R	R	R	***
Arapahoe	NE-88	3	F	GB	G-E	83	S	S	MS	MR	MR	Yes
Trego~W	KS-99	3	F-G	AB	F-G	80	S	MS	S	MS	R	Yes
Wahoo	NE/WY-01	3	G	GB	G	91	S	-	MR	S	R	Yes
Jagalene	AW-02	3	E	AB	G	92	MS	MR	MR	MR	MR	Yes
Darrell	SD-06	4	G	EB	G	89	MR	MS	-	MS	R	***
Millennium	NE-99	4	G	AB	F-G	78	S	MS	MR	MS	MR	Yes
Tandem	SD-97	4	F-G	EB	G	112	S	S	MR	S	MR	Yes
Crimson	SD-97	5	G	GB	G-E	110	MR	R	MR	S	MS	Yes
Harding	SD-99	5	F-G	AB	E	100	MR	MR	MS	MR	MR	Yes
Harry	NE-02	5	G	AB	G	-	S	-	-	MR	MR	No
NuFrontier~W	GM-00	5	F	EB	F	.	S	-	-	MS	MR-MS	Yes
Overland	NE-06	5	G	AB	-	88	-	-	S	MR	MR	***
Jerry	ND-01	6	F	GB	E	92	MS	-	MR	S	R	No
Exp. lines:												
SD01122	-	-	-	-	-	.	-	-	-	-	-	-
SD96240-3-1	-	-	-	-	-	.	-	-	-	-	-	-
SD97059-2	-	-	-	-	-	.	-	-	-	-	-	-
SD01W064	-	-	-	-	-	.	-	-	-	-	-	-
SD01058	-	-	-	-	-	.	-	-	-	-	-	-
SD02279	-	-	-	-	-	.	-	-	-	-	-	-
SD02480	-	-	-	-	-	.	-	-	-	-	-	-
SD98W175-1	-	-	-	-	-	.	-	-	-	-	-	-

* Heading, the relative difference in days to heading, compared to Expedition.

~ W, Hard white wheat variety.

E= exc., A= accept., F= fair, G= good, P= poor, B= baking, N=noodles.

Percent of Harding (3-1/4" long).

+ R= resistant, MR= moderately resist., MS= mod. susceptible, S= susc., VS= very susc..

** Plant variety protection (PVP), title V, certification option - to be sold by variety name only as a class of certified seed.

*** PVP application pending or anticipated.

Table 13a. Field pea yield results at one east South Dakota location for 2006.

Variety (Mat.)* - by 2006 state yield avg.	Location Yield Avg. (Bu/A) 13% moist.	East Yield Avg. (Bu/A)	State Yield Avg. (BuA)
	Beresford		
	2006	2006	2006
Polstead (M)	79+	79	43
Cooper (L)	76+	76	42
Stratus (M)	77+	77	41
Tudor (M)	74+	74	39
Camry (M)	64	64	38
SW Midas (E)	68	68	38
CDC Mozart (M)	72+	72	37
SW Salute (E)	70	70	37
Topeka (E)	67	67	37
Eclipse (M)	67	67	37
SW Cabot (E)	64	64	36
SW Capri (E)	66	66	36
Fusion (M)	66	66	36
Tamora (L)	63	63	35
Grande (M)	60	60	34
DS-Admiral (E)	62	62	34
CEB 1093 (M)	64	64	34
Aragorn (M)	62	62	33
SW Marquee (E)	68	68	33
AP-18 (M)	60	60	32
Cruiser (M)	56	56	31
Integra (E)	54	54	31
Carneval (M)	54	54	31
CDC Striker (M)	59	59	28
K2 (M)	45	45	26
Majoret (E)	39	39	25
Test avg. :	64		
High avg. :	79		
Low avg. :	39		
# Lsd (.05) :	7		
## TPG-value :	72		
### C.V. :	8		

* Early- E, medium- M, or late- L maturity.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

Table 13b. Field pea yield results at two west South Dakota locations, 2006.

Variety (Mat.)* - by 2006 state yield avg.	Location Yield Avg. (Bu/A at 13% moist.)		West Yield Avg. (Bu/A)	State Yield Avg. (Bu/A)
	Wall	Hayes		
	2006	2006	2006	2006
Polstead (M)	33+	18+	26	43
Cooper (L)	33+	17+	25	42
Stratus (M)	30+	16+	23	41
Tudor (M)	28	15	22	39
Camry (M)	32+	17+	25	38
SW Midas (E)	30+	16+	23	38
CDC Mozart (M)	25	14	20	37
SW Salute (E)	26	15	21	37
Topeka (E)	30+	15	23	37
Eclipse (M)	28	16+	22	37
SW Cabot (E)	27	16+	22	36
SW Capri (E)	24	17+	21	36
Fusion (M)	27	14	21	36
Tamora (L)	28	14	21	35
Grande (M)	26	16+	21	34
DS-Admiral (E)	26	15	21	34
CEB 1093 (M)	26	13	20	34
Aragorn (M)	23	14	19	33
SW Marquee (E)	19	13	16	33
AP-18 (M)	21	14	18	32
Cruiser (M)	24	13	19	31
Integra (E)	26	13	20	31
Carneval (M)	23	15	19	31
CDC Striker (M)	16	10	13	28
K2 (M)	22	12	17	26
Majoret (E)	22	13	18	25
Test avg. :	26	15		
High avg. :	33	18		
Low avg. :	16	10		
# Lsd (.05) :	3	2		
## TPG-value :	30	16		
### C.V. :	9	9		

* Early- E, medium- M, or late- L maturity.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top-performance group (TPG) for yield.

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error, 15% or less is best.

Table 14a. Field pea averages for bushel weight (BW), height (HT), and lodging (LDG) at one east South Dakota location for 2006.

Variety (Mat.)* - by state BW avg.	Location Avg. - BW, HT, LDG			East Avg. - BW, HT, LDG, PRT				State Avg. - BW, HT, LDG		
	Beresford									
	BW lb	HT in	LDG**	BW lb	HT in	LDG**	PRT %	BW lb	HT in	LDG**
Aragorn (M)	65+	.	.	65	.	.	.	62	16	0
SW Midas (E)	63+	.	.	63	.	.	.	61	17	0
Topeka (E)	62+	.	.	62	.	.	.	61	15	0
SW Salute (E)	62+	.	.	62	.	.	.	60	17	0
CDC Mozart (M)	60+	.	.	60	.	.	.	60	14	0
SW Capri (E)	60+	.	.	60	.	.	.	60	18	0
Tudor (M)	61+	.	.	61	.	.	.	60	18	0
Cruiser (M)	59	.	.	59	.	.	.	59	18	0
CEB 1093 (M)	60	.	.	60	.	.	.	59	17	0
Polstead (M)	60	.	.	60	.	.	.	59	15	0
K2 (M)	58	.	.	58	.	.	.	59	16	0
Eclipse (M)	60+	.	.	60	.	.	.	59	14	0
Carneval (M)	60+	.	.	60	.	.	.	59	18	0
Fusion (M)	59	.	.	59	.	.	.	59	16	0
Camry (M)	58	.	.	58	.	.	.	59	13	0
DS-Admiral (E)	60+	.	.	60	.	.	.	59	17	0
Grande (M)	59	.	.	59	.	.	.	59	20	0
AP-18 (M)	58	.	.	58	.	.	.	59	17	0
Cooper (L)	59	.	.	59	.	.	.	58	17	0
Stratus (M)	58	.	.	58	.	.	.	58	13	0
SW Cabot (E)	57	.	.	57	.	.	.	58	15	0
Tamora (L)	56	.	.	56	.	.	.	57	17	0
Majoret (E)	56	.	.	56	.	.	.	57	18	0
Integra (E)	56	.	.	56	.	.	.	56	17	0
CDC Striker (M)	59	.	.	59	.	.	.	.	18	0
SW Marquee (E)	59	.	.	59	.	.	.	.	19	0
Test avg. :	59	.	.							
High avg. :	65	.	.							
Low avg. :	56	.	.							
# Lsd (.05) :	5	.	.							
## TPG-value :	60	.	.							
### C.V. :	6	.	.							

* Early- E, medium- M, or late- L maturity.

** Lodging scale: 0 = all plants erect, 3 = 50% lodged at 45º angle, 5 = all flat.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

Table 14b. Field pea averages for bushel weight (BW), height (HT), and lodging (LDG) at two west South Dakota locations for 2006.

Variety (Mat.)* - by state BW avg.	Location Avg. - BW, HT, LDG						Western Avg. - BW, HT, LDG			State Avg. - BW, HT, LDG		
	Wall			Hayes								
	BW lb	HT in	LDG	BW lb	HT in	LDG	BW lb	HT in	LDG	BW lb	HT in	LDG
Aragorn (M)	59+	18	0+	.	14	0+	.	16	0	62	16	.
SW Midas (E)	59+	19	0+	.	15	0+	.	17	0	61	17	.
Topeka (E)	60+	18	0+	.	13	0+	.	15	0	61	15	.
SW Salute (E)	59+	19	0+	.	16	0+	.	17	0	60	17	.
CDC Mozart (M)	61+	16	0+	.	13	0+	.	14	0	60	14	.
SW Capri (E)	60+	19	0+	.	16	0+	.	18	0	60	18	.
Tudor (M)	59+	19	0+	.	16	0+	.	18	0	60	18	.
Cruiser (M)	59+	20	0+	.	17	0+	.	18	0	59	18	.
CEB 1093 (M)	59+	20	0+	.	15	0+	.	17	0	59	17	.
Polstead (M)	58	17	0+	.	13	0+	.	15	0	59	15	.
K2 (M)	60+	18	0+	.	15	0+	.	16	0	59	16	.
Eclipse (M)	58	16	0+	.	12	0+	.	14	0	59	14	.
Carneval (M)	58	20	0+	.	17	0+	.	18	0	59	18	.
Fusion (M)	59+	18	0+	.	14	0+	.	16	0	59	16	.
Camry (M)	59+	15	0+	.	12	0+	.	13	0	59	13	.
DS-Admiral (E)	58	18	0+	.	16	0+	.	17	0	59	17	.
Grande (M)	59+	23	0+	.	16	0+	.	20	0	59	20	.
AP-18 (M)	59+	17	0+	.	17	0+	.	17	0	59	17	.
Cooper (L)	58	19	0+	.	14	0+	.	17	0	58	17	.
Stratus (M)	58	15	0+	.	12	0+	.	13	0	58	13	.
SW Cabot (E)	59+	18	0+	.	13	0+	.	15	0	58	15	.
Tamora (L)	58	19	0+	.	16	0+	.	17	0	57	17	.
Majoret (E)	58	20	0+	.	16	0+	.	18	0	57	18	.
Integra (E)	57	19	0+	.	14	0+	.	17	0	56	17	.
CDC Striker (M)	.	19	0+	.	17	0+	.	18	0	.	18	.
SW Marquee (E)	.	20	0+	.	17	0+	.	19	0	.	19	.
Test avg. :	59	18	0	.	15	0						
High avg. :	61	23	0	.	17	0						
Low avg. :	57	15	0	.	12	0						
# Lsd (.05) :	2	2	0	.	2	0						
## TPG-value :	59	.	0	.	.	0						
### C.V. :	2	8	0	.	12	0						

* Early- E, medium- M, or late- L maturity.

** Lodging scale: 0 = all plants erect, 3 = 50% lodged at 45º angle, 5 = all flat.

Lsd, the amount two values in a column must differ to be significantly different.

TPG-value, the minimum or maximum value required for the top-performance group (TPG).

A plus sign (+) indicates values within a column that qualify for the TPG.

Coef. of variation, a measure of trial experimental error.

^ Variable differences within a column are non-significant (NS) at the .05 level of probability.

Table 15. Origin, traits, and disease reactions for field pea entries tested in 2006.

Variety	Rel.* mat.	Seed color	Leaf# type	Ht.## (inch)	Lodging (0-10)~	Powdery mildew@	Mycos-phaerella blight@	Fusarium Wilt@	Seeds per lb	PVP$ or PBR Status
DS-Admiral	E	Yellow	SL	25	1	VG	F	F	2000	Yes
Aragorn	M	Green	SL	-	-	-	-	-	2200	
AP-18	M	Green	SL	22	1	-	-	-	2100	
SW Cabot	E	Yellow	SL	-	-	P	P	P	1900	
Camry	M	Green	SL	19	1	VG	F	F	2000	Yes
CEB 1093	M	Green	SL	-	-	-	-	-	1700	
SW Capri	E	Yellow	SL	-	-	P	F	P	2200	
Carneval	M	Yellow	SL	22	0	F	F	P	2100	Yes
Cooper	L	Green	SL	26	0	VG	F	F	1700	Yes
Cruiser	M	Green	SL	24	3	P	F	P	2200	
Eclipse	M	Yellow	SL	23	1	VG	F	F	1900	Yes
Fusion	M	Yellow	SL	-	-	-	-	-	2000	
Grande	M	Yellow	N	28	6	P	F	P	2300	Yes
Integra	E	Yellow	SL	25	1	P	P	F	1900	
K2	M	Green	SL	-	-	-	-	-	2200	
Majoret	E	Green	SL	24	1	P	F	P	2100	Yes
SW Marquee	E	Yellow	SL	26	0	-	-	-	2300	
SW Midas	E	Yellow	SL	24	0	VG	F	F	2200	Yes
CDC Mozart	M	Yellow	SL	22	4	VG	P	F	2100	
Polstead	M	Yellow	SL	-	-	-	-	-	1900	
SW Salute	E	Yellow	SL	26	3	VG	F	P	2000	Yes
Stratus	M	Green	SL	21	5	VG	F	P	1900	Yes
CDC Striker	M	Green	SL	-	-	F	F	G	1900	
Tamora	L	Green	SL	-	-	-	-	-	1700	
Topeka	E	Yellow	SL	21	6	VG	F	P	2100	Yes
Tudor	M	Yellow	SL	27	0	VG	P	F	1700	Yes

$ Plant variety protection (PVP, US) or Plant breeders rights (PBR, CAN) application is pending or anticipated.

* Early- E, medium- M, or late- L maturity.

Normal- N or semi-leafless- SL leaf type.

~ 1 = all plants erect, 3 = 50% lodged at 45º angle, 5 = all flat.

** Very good- VG, good- G, fair- F, poor- P disease resistance.