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Small Grains and Field Peas: 2006 Variety Recommendations (2005 Crop Performance Results)

Cooperative Extension Service, South Dakota State University

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Revised
Annually

Small Grains and Field Peas

2006 Variety Recommendations
(2005 Crop Performance Results)

Spring Wheat
Oats
Barley
Winter Wheat
Field Peas

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

This report is available on the World-Wide-Web at http://plantsci.sdstate.edu/varietytrials/vartrial.html

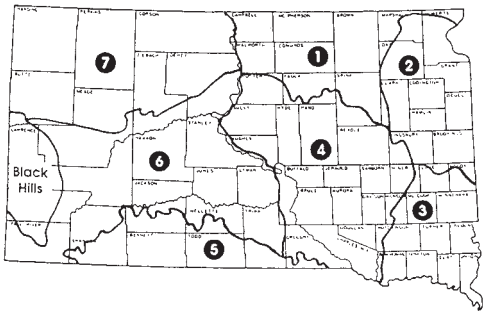
Small Grain Variety Recommendations for 2006

Recommendations are based on data obtained from the South Dakota State University 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. The performance of recommended varieties in response to environmental conditions is generally better than the performance 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 the crop adaptation area (CAA) where they are most suited are listed below:

SPRING WHEAT

Recommended		***Acceptable/Promising***	
Variety	*CAA*	*Variety*	*CAA*
Briggs @	Statewide	Alsen @	1,2,7
Forge @	Statewide	Norpro @	1,2,7
Granger @	Statewide	Oxen @	Statewide
Knudson @	Statewide	Reeder @	5,6,7
Russ @	Statewide		
Steele-ND @	Statewide		

Crop Adaptation Areas for South Dakota
(revised 1992)



OATS

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

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	Traditional	Statewide
		Valier @ - feed	6,7

American Malting Barley Association approved malting varieties for South Dakota for 2005:

Conlon	*Legacy*
Drummond	*Morex*
Excel	*Robust*
Foster	*Tradition*
Lacey	

WINTER WHEAT

Recommended		***Acceptable/Promising***	
Variety	*CAA*	*Variety*	*CAA*
Arapahoe @	1*,3,4*,5,6,7*	Alliance @	3,4*,5,6
Expedition @	1*,4,5,6,7*	Wahoo @	3,4*,5,6
Harding @	1*,2*,4,7		
Jagalene @	5,6,7*		
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.*

Small Grains and Field Peas

2005 South Dakota Test Results
Variety Traits, and Yield Averages

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Variety selection is a fundamental management 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 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 an important factor; however, a variety with good disease resistance, straw strength, and high grain quality may be more profitable in some cases than a variety with the highest yield.

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 to the various diseases every year and not assume the variety response to given diseases 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. CAAs (see map) are based on soil type, elevation, temperature, and rainfall. Varieties are recommended on the basis of growing season, average rainfall, disease frequency, and farming practices common to a 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 that do not meet the 3-year criterion (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 you can be assured of the genetic purity of the variety purchased.

How to use this information

Use this report to select small grain varieties for South Dakota:

1. **Check the variety-crop adaptation area (CAA)** designations for the "Recommended" and "Acceptable/Promising" lists on the preceding pages. 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 (traits 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. Disease resistance continually changes; therefore, new information is reported as it becomes available. To evaluate maturity compare the relative maturity (heading) rating of each variety to the reference variety given. Fusarium head blight tolerance ratings for hard red spring wheat are also given. Note that the head blight ratings show **there is presently no variety resistance to Fusarium**. It does, however, indicate that some varieties are more tolerant of the disease 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/A).

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

The location test-trial yield average, high yield average, low yield average, LSD value, and yield value required to qualify for the top-performance group for yield and the test-trial coefficient of variation (CV) value are listed below each location yield column. These statistics are calculated from data that includes both released varieties and newer experimental lines included 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 listed at the bottom of each yield column is a measure of experimental error. Yield tests with a CV of 20% or higher contain higher amounts of experimental error than tests with a CV of 10% or less. **Test sites with a CV greater than 20% 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 20%**.

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 also can 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 reported test 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 2005 was the experimental line SD 3687 that yielded 59 bu/A (table 1a). Subtracting 6 bu/A (the rounded-off LSD value) from the highest yield entry of 59 bu/A equals 53 bu/A. All varieties listed in that column yielding more than 53 bushels are in the top-yield group. However, since the LSD values and reported yield averages are rounded-off to the nearest whole bushel we can say that 53 bu/A can also be included in the top-yield group. Therefore, due to rounding-off of yield average to the nearest bushel, all varieties at Brookings with a 2005 yield average of 53 bu/A are included in the TPG for yield.

As was illustrated in the case of yield, the TPG of varieties for a given performance variable can be determined 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 score 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 or by adding the LSD value from the lowest numerical lodging score value in order to obtain a maximum TPG value.

This is necessary if a maximum yield, bushel weight, and height value or a minimum lodging score value are to be identified for each variable column. For example, at Brookings the TPG value of 53 bu/A for yield in 2005 has already been identified. Likewise, at Brookings the TPG for lodging score can be identified by adding the lodging score LSD of 1 to the lowest numerical lodging score value of 1. The maximum TPG value is 2 (1 + 1 = 2). In this case all varieties with a lodging score of 2 or less are in the TPG for lodging performance (table 2a).

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, in the paragraph above, 6 bu/A per acre is the column LSD value and 53 bu/A is the TPG value.

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, a 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 20%) 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-1c, for oats in table 4a-4c, and for barley in table 7a-7c.

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 1 year. Also, the top-yield frequency for field peas was not calculated because there were only four locations.

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 percentage of 50% or more exhibits good yield stability. In contrast, a top-yield percentage of 20% or less indicates low yield stability.

Varieties with a high top-yield percentage 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 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; whereas the coleoptile length for the varieties Wahoo, Jagalene, Expedition, Nekota, Arapahoe, Trego~W, Alliance, Millennium, and Wesley are shorter compared to Harding. Note the coleoptile length for Wendy is the shortest of the entries and may exhibit poor emergence if planted as deep as the longer coleoptile varieties like Tandem or Crimson.

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
Westbred, LLC., WB
North Star Genetics, NSG

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; West River plots measure 5 feet by 25 feet. 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 East and West River locations. East River plots were fertilized with 60 lb/A of 18-46-0 (10.8 lb N and 27.6 lb phosphorus 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/A of 10-34-0 (6.6 lb nitrogen and 24 lb phosphorus per acre) at seeding. Post-emergence applications of 0.10 oz/A of Ally herbicide 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 per square foot with inoculated seed and received 3 oz/A of Pursuit pre-emergence at West River locations, 2.8 oz/A Spartan plus 4 oz/A Sencor pre-emergence, and .75 pt/A Poast post-emergence at Selby, and 4 oz/A Spartan pre-emergence and 1.5 pt/A Poast post-emergence at South Shore.

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 pure live seeds per square foot compared to rates of 22 pure live seeds per 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 per acre, respectively.

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

Performance trial highlights

General. The agronomic performance of all the small crops in year 2005 was lower than for 2004. Yield averages for this year were generally the results of either low rainfall or poorly distributed rainfall or the result of the many small grain diseases that were important this year.

Wheat was affected by Fusarium head blight (scab), stripe rust, leaf rust, and bacterial leaf blight. Oats had no major disease problems, and yield reductions were likely the result of either seasonal moisture distribution or high temperatures during grain fill. Barley was affected to some degree by bacterial blight, and field peas were affected to some degree by either inadequate seasonal moisture or powdery mildew. The winter wheat trial at Selby was abandoned due to poor spring stand, and all the small grain trials at Bison were hailed out a few days before harvest.

Table Comments. Tables 1a-1c, 4a-4b, 5a-5c, 7a-7c, 10a-10c, and 13a-13b are first sorted (high to low) by statewide 3-year and then sorted (high to low) by statewide 2005 yield averages. Likewise, tables 2a-2c, 6a-6b, 8a-8c, 11a-11c, and 14a-14b are sorted (high to low) by statewide 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 the 2005 year average.

You are encouraged to first evaluate variety yield performance by looking at the 3-year averages. Then evaluate how the varieties performed by looking at the 2005 yield averages. In some cases, varieties that were only tested in 2005 produced the highest numerical yields for year 2005. However, remember to look at the same 2005 yield column for varieties tested for 3 years that produced yield averages that were not significantly different from the highest numerical yields. In summary, 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 2005.

HRS wheat (Tables 1a – 2c). The top performing entries for yield for the past 3 years (2003-05) by variety and top yield frequency were Briggs, Granger, Steele-ND, and Knudson at 100%; Norpro at 88%; Walworth, Forge, Ulen, Oxen, and Alsen at 75%, Oklee at 63%, and Dapps at 50% (tables 1b and 1c) of all test locations.

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 2005 were the varieties or experimental lines SD 3868 at 88%; SD 3687 at 75%; SD 3851 and SD3860 at 50%; Briggs, Granger, Steele-ND, SD 3854, SD 3870, Freyr, and MN 00261-4 at 38% of the test locations.

The top bushel weight entries (based on statewide averages in tables 2b and 2c) included SD 3851 at 61 lb; and Banton, MN 00261-4, Oklee, and Ingot at 60 lb for year 2005.

The check variety Chris (37 inches) tended to be the tallest variety across all locations in 2005 followed by the entries Ingot, SD 3870, Granger, SD 3875, SD 3897, and Dapps at 35 inches tall in 2005 (Tables 2b and 2c) .

The top protein entries on a statewide average included Granite and Dapps at 16.3% protein content.

Oats (Tables 4a – 5c). The top performing entries for yield for the past 3 years (2003-05) by variety and top yield frequency were HiFi, Morton, Jerry, and Don at 100%; and Loyal and Reeves at 86% (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 86% of the test locations during the past 3-year period.

The top-performing entries for yield in 2005 were the varieties or experimental lines SD 020701 at 86%; SD 021021 and SD 011315-15 at 71%; SD 020883 and Morraine at 57%; and HiFi, Jerry, Don, SD 020536, SD 011315-61, SD 96024A-21, and SD 366-36 at 43% of the test locations.

In 2005, on a statewide basis, the hull-less entries Buff, Paul, and Stark at 42, 41, and 39 lb, respectively, had the best bushel weight average or test weight across all locations. Among the standard hulled entries, Hytest at 37 lb followed by SD 020883, Beach, SD 020536, Reeves, and SD 366-15 at 35 lb were the highest in bushel weight. In contrast the entries Drumlin, Morton, SD 011315-15, and Morraine had the lowest statewide bushel weight average among the standard hulled varieties (tables 5b).

Among the entries tested, SD 366-36 and Morton at 36 inches were the tallest and Buff and SD 020883 were the shortest in height in 2005 (table 5b). In 2005, all entries experienced some degree of lodging with 50% of the plants within a plot exhibiting lodging scores of 3 (lodging at a 45^{o} angle) to 4 (severe lodging) across the state (table 5b).

The hull-less variety Paul and the standard variety Hytest exhibited the highest grain protein levels of 17.7 and 17.3%, respectively (table 5b).

Barley (Tables 7a – 8c). Top performing entries for yield for the past 3 years (2003-05) by variety and top-yield frequency were Eslick at 100%; Haxby at 86%; Excel and Valier at 71%; Lacey at 57%; and Conlon at 43% (table 7b). 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

43% of the test locations during the past 3-year period.

The top-performing entries for yield in 2005 were Eslick, Haxby, and Tradition at 71%; and Lacey at 57% of the test locations. The two-row varieties Haxby, Valier, and Conlon tested 1 to 3 lb higher in bushel weight than the other varieties across locations (tables 8b and 8c). In contrast, the varieties Excel, Stellar-ND, and Legacy exhibited the lowest bushel weight averages across the state (tables 8b and 8c).

Robust, Tradition, Drummond, and Legacy tended to be the tallest varieties across all locations statewide (tables 8b and 8c). As indicated in table 8b and 8c, the lodging scores for Haxby and Conlon were higher than for the other entries tested in 2005.

Grain protein content ranged from only about 14 to 15% on a statewide basis. However, at the East River locations (table 8b) protein ranged 1% from about 12.7 to 13.7%; while at the West River locations (table 8c) protein levels were higher and ranged from about 16.6 to 18.2%.

HRW wheat (Tables 10a – 12). Top performing entries for yield for the past 3 years (2003-05) by variety and statewide yield average (tables 10b and 10c) include the 14 3-year entries with a yield of 51 bu/A or higher. The top-performing entries for yield in 2005 were the varieties or experimental lines that yielded 51 bu/A which included NE01643, Millennium, SD 96240-3-1, SD 97059-2, Hatcher, Wahoo, SD01W064, SD97538, and Overley.

Millennium, SD97059-2, Wahoo, Jerry, Jagalene, SD 97380-2, and SD97W609 tended to exhibit the highest yield averages for both 2005 and the longer 3-year period (2003-2005).

In 2005 and based on statewide averages, bushel weight averages for Tandem, Millennium, NE01643, SD01W064, and Overley tended to be highest while Harry was lowest in bushel weight.

The varieties or experimental lines Jerry, Crimson, Harding, and SD00032 tended to be the tallest while Wendy, NE99533-4, SD97W609, and Hatcher tended to be the shortest entries, based on statewide averages (tables 11b and 11c).

Grain protein content ranged from a low of about 11.5 for Alliance to a high of about 13.7% for SD00032 on a state-wide basis. However, at West River locations (table 11b) the protein levels were higher and ranged from a low of about 11.7 for SD01W064, Hatcher, Alliance, and Harry to a high of about 13.6% or higher for SD00032, Overley, Crimson, and Jerry. In contrast, at the East River locations (table 8c) protein levels were slightly lower than the statewide averages and ranged from a low of about 10.8% for Alliance to a high of about 13.0% or higher for Wesley, SD00032, and Overley.

Field Pea (Tables 13a – 15c) Top-performing entries for yield for 2005 by variety and test location were SW Salute and Cooper at South Shore; and CDC Mozart, Cooper, SW-Salute, Marquee, SW-Midas, and Stratus at Selby (table 14a). When averaged over both East River locations (table 14a), Cooper and SW-Salute tended to be the best yielding varieties.

Top-performing varieties for yield at West River locations were SD-Admiral, SW-Midas, Eclipse, Cooper, SW-Salute, CDC Mozart, Integra, Tudor, Majoret, CEB4133, Camry, Topeka, Cruiser, and PRO 011-3172 at Wall; and SW-Salute, Tudor, DS-Admiral, Cooper, Marquee, and Stratus at Hayes for year 2005. When averaged over both West River locations (table 13b), DS-Admiral, SW-Salute at 27 bu; Cooper and Tudor at 26 bu; and SW-Midas, Marquee, Eclipse, and Stratus at 24 bu/A tended to be the best yielding varieties. These same varieties tended to be the best yielding varieties on a statewide basis (table 13b).

Twelve varieties exhibited bushel weights of 65 lb or higher at South Shore and 18 varieties at Selby weighed 62 lb or higher to qualify for the top-performance group for bushel weight. Wall was the only West River location with enough bushel weight measurements to calculate a location average. At Wall 18 varieties weighed 60 lb or higher and qualified for the top-performance group for bushel weight.

Protein levels in the grain were determined for the South Shore and Selby locations only. At both locations each of the four plots was sub-sampled for grain. The grain was combined and a composite sample was obtained and measured for protein content. Since only one protein determination was made at each location, the average of both locations is reported. The East River protein levels ranged from a low of about 23.2% for SW-Midas to a high of about 27.2% or higher for Integra and Grande.

Lodging information was only collected for the two West River locations. In general, the forage types like Arvika, Forager, Journey, and 40-10 Magda tended to lodge more than the grain types, as expected. In addition, the grain type variety Topeka tended to lodge more than the other grain type varieties.

Variety Release/Recommendation Committee

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Table A. Minimum criteria required for the recommended list in this publication.

	Crop			
Trait	**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. 2005 Small grain and field pea seeding dates by crop and location.

	Crops				
Location	**HRS Wheat**	**Oats**	**Barley**	**HRW Wheat**	**Field Pea**
Beresford	-	April 6	-	-	
Bison	Abandoned	Abandoned	Abandoned	Abandoned	
Brookings	April 9	April 9	April 9	September 30	
Brown Co.	April 7	April 7	April 7	-	
Pierre-DL	-	-	-	September 17	
Hayes	-	-	-	September 28	April 28
Highmore	-	-	-	September 29	
Kennebec	-	-	-	September 17	
Martin	-	-	-	September 27	
Miller	April 4	April 4	April 4	-	
Oelrichs	-	-	-	September 27	
Platte	-	-	-	September 20	
Ralph	April 14	April 14	April 14	-	
Selby	April 19	April 19	April 19	Abandoned	April 15
South Shore	April 19	April 19	April 19	Abandoned	April 12
Spink Co.	April 1	-	-	-	
Sturgis	-	-	-	September 16	
Tripp Co.	-	-	-	September 20	
Wall	April 6	April 6	April 6	September 17	April 14

Table 1a. Hard red spring yield results - South Dakota East River locations, 2003-2005.

Variety (Hdg.)* - by 3-yr then year 2005 state yield averages	Location Yield Averages (Bu/A) at 13% moist.							
	Brookings		South Shore		Miller		Spink Co.	
	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr
Briggs (0)	50	57+	55	56+	35	42+	65+	66+
Granger (0)	51	56+	57	56+	37	39+	59	63+
Steele-ND (3)	49	56+	57	56+	34	42+	63+	64+
Knudson (2)	47	56+	56	54+	34	39+	62+	66+
Walworth (0)	47	55+	48	48	35	41+	53	58
Forge (-1)	51	54+	47	48	34	41+	49	58
Russ (2)	52	56+	47	49+	36	43+	54	60+
Ulen (2)	40	50+	47	51+	32	38	61	62+
Norpro (3)	45	51+	46	47	32	40+	56	59+
Oxen (2)	41	47	42	47	36	43+	49	59+
Oklee (2)	39	47	56	53+	33	38	59	60+
Reeder (3)	49	52+	37	46	34	41+	47	57
Dapps (2)	45	53+	50	48	31	36	60	59+
Alsen (4)	38	45	48	51+	32	39+	53	60+
Granite (5)	43	50+	38	44	31	37	48	57
Ingot (-1)	45	48+	40	44	33	38	44	50
Chris,CK (3)	38	39	36	38	29	32	42	45
SD 3687	59+	.	60+	.	42+	.	61	.
SD 3868	49	.	62+	.	41+	.	67+	.
SD 3851	51	.	60+	.	38	.	58	.
SD 3854	48	.	57	.	38	.	58	.
ND 800	48	.	56	.	33	.	61	.
SD 3860	54+	.	46	.	41+	.	60	.
SD 3870	40	.	60+	.	37	.	56	.
SD 3879	50	.	53	.	39+	.	60	.
SD 3899	53+	.	58+	.	34	.	56	.
Freyr (1)	46	.	52	.	35	.	62+	.
Glenn (3)	39	.	55	.	31	.	64+	.
SD 3875	48	.	56	.	35	.	57	.
SD 3889	44	.	63+	.	35	.	57	.
MN 00261-4	48	.	54	.	35	.	64+	.
Banton (1)	49	.	50	.	32	.	58	.
SD 3880	48	.	49	.	35	.	57	.
SD 3888	43	.	62+	.	34	.	53	.
Mercury (5)	49	.	48	.	32	.	57	.
Trooper (-1)	48	.	45	.	35	.	59	.
SD 3882	45	.	53	.	33	.	57	.
SD 3897	41	.	54	.	33	.	53	.
SD 3900	50	.	47	.	32	.	52	.
Dandy (5)	46	.	41	.	35	.	51	.
Express	39	.	38	.	34	.	48	.
Test avg. :	46	51	51	49	35	39	56	59
High avg. :	59	57	63	56	42	43	67	66
Low avg. :	38	39	36	38	29	32	42	45
# Lsd (.05) :	6	9	5	7	3	4	5	7
## TPG-value :	53	48	58	49	39	39	62	59
### C.V. :	9	8	7	6	7	7	7	7

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

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 1b. Hard red spring yield results - South Dakota East River locations, 2003-2005 (Continued).

Variety (Hdg.)* - by 3-yr then year 2005 state yield averages	Location Yield Averages (Bu/A) at				East River Yield Averages (Bu/A)		State Yield Averages (Bu/A)		State Top-Yield Frequency ** (%)	
	Selby		Brown Co.							
	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr
Briggs (0)	43	52+	62+	63+	52	56	46	51	38	100
Granger (0)	45+	51+	60	62+	52	55	47	50	38	100
Steele-ND (3)	43	50+	58	62+	51	55	46	50	38	100
Knudson (2)	39	48+	59	63+	50	54	44	49	25	100
Walworth (0)	38	50+	57	57+	46	52	42	48	13	75
Forge (-1)	38	50+	54	57+	46	51	42	48	25	75
Russ (2)	40	47+	55	58+	47	52	42	48	13	100
Ulen (2)	38	46+	52	59+	45	51	41	47	13	75
Norpro (3)	37	48+	63+	62+	47	51	40	47	13	88
Oxen (2)	35	44+	56	60+	43	50	40	47	25	75
Oklee (2)	41	46+	54	58+	47	50	42	46	13	63
Reeder (3)	30	44+	55	57+	42	50	39	46	13	75
Dapps (2)	35	44+	52	56	46	49	41	45	0	50
Alsen (4)	37	42	51	58+	43	49	39	45	13	75
Granite (5)	34	46+	45	55	40	48	36	45	0	25
Ingot (-1)	33	42	48	52	41	46	38	43	13	25
Chris,CK (3)	26	35	42	43	36	39	32	36	0	0
SD 3687	49+	.	62+	.	56	.	49	.	75	.
SD 3868	47	.	65+	.	55	.	49	.	88	.
SD 3851	45+	.	60	.	52	.	47	.	50	.
SD 3854	40	.	61+	.	50	.	46	.	38	.
ND 800	43	.	63+	.	51	.	45	.	25	.
SD 3860	36	.	57	.	49	.	45	.	50	.
SD 3870	44	.	57	.	49	.	45	.	38	.
SD 3879	38	.	59	.	50	.	45	.	13	.
SD 3899	43	.	59	.	51	.	45	.	25	.
Freyr (1)	37	.	60	.	49	.	45	.	38	.
Glenn (3)	43	.	58	.	48	.	44	.	25	.
SD 3875	39	.	61+	.	49	.	44	.	25	.
SD 3889	43	.	51	.	49	.	44	.	25	.
MN 00261-4	39	.	64+	.	51	.	44	.	38	.
Banton (1)	36	.	57	.	47	.	43	.	25	.
SD 3880	39	.	57	.	48	.	43	.	25	.
SD 3888	41	.	52	.	48	.	43	.	13	.
Mercury (5)	42	.	62+	.	48	.	43	.	13	.
Trooper (-1)	40	.	59	.	48	.	43	.	13	.
SD 3882	39	.	56	.	47	.	42	.	0	.
SD 3897	38	.	52	.	45	.	41	.	0	.
SD 3900	40	.	53	.	46	.	41	.	13	.
Dandy (5)	38	.	49	.	43	.	39	.	0	.
Express	33	.	46	.	40	.	37	.	13	.
Test avg. :	39	46	56	58						
High avg. :	49	52	65	63						
Low avg. :	26	35	42	43						
# Lsd (.05) :	4	8	4	6						
## TPG-value :	45	44	61	57						
### C.V. :	7	7	5	6						

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

** Percentage of test locations where a variety was in the top-yield group.

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 1c. Hard red spring wheat yield results - South Dakota West River locations, 2003-3005.

Variety (Hdg.)* - by 3-yr then year 2005 state yield averages	Location Yield Averages (Bu/a) at				West River Yield Averages (Bu/A)		State Yield Averages (Bu/A)		State Top-Yield Frequency ** (%)	
	Wall		Ralph							
	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr
Briggs (0)	29+	32+	31	39+	30	36	46	51	38	100
Granger (0)	31+	34+	34+	39+	33	37	47	50	38	100
Steele-ND (3)	29+	33+	32+	40+	31	37	46	50	38	100
Knudson (2)	27+	28+	31	38+	29	33	44	49	25	100
Walworth (0)	28+	34+	30	38+	29	36	42	48	13	75
Forge (-1)	28+	34+	34+	42+	31	38	42	48	25	75
Russ (2)	23	32+	32+	40+	28	36	42	48	13	100
Ulen (2)	27+	31+	30	35	29	33	41	47	13	75
Norpro (3)	15	29+	29	39+	22	34	40	47	13	88
Oxen (2)	28+	34+	32+	38+	30	36	40	47	25	75
Oklee (2)	25	30+	32+	34	29	32	42	46	13	63
Reeder (3)	31+	34+	31	39+	31	37	39	46	13	75
Dapps (2)	25	30+	26	33	26	32	41	45	0	50
Alsen (4)	22	29+	33+	39+	28	34	39	45	13	75
Granite (5)	19	30+	29	37	24	34	36	45	0	25
Ingot (-1)	30+	32+	31	35	31	34	38	43	13	25
Chris,CK (3)	20	28+	23	30	22	29	32	36	0	0
SD 3687	24	.	34+	.	29	.	49	.	75	.
SD 3868	28+	.	35+	.	32	.	49	.	88	.
SD 3851	26+	.	35+	.	31	.	47	.	50	.
SD 3854	31+	.	35+	.	33	.	46	.	38	.
ND 800	24	.	34+	.	29	.	45	.	25	.
SD 3860	32+	.	33+	.	33	.	45	.	50	.
SD 3870	28+	.	34+	.	31	.	45	.	38	.
SD 3879	26+	.	31	.	29	.	45	.	13	.
SD 3899	23	.	31	.	27	.	45	.	25	.
Freyr (1)	28+	.	36+	.	32	.	45	.	38	.
Glenn (3)	28+	.	31	.	30	.	44	.	25	.
SD 3875	27+	.	31	.	29	.	44	.	25	.
SD 3889	24	.	33+	.	29	.	44	.	25	.
MN 00261-4	19	.	32+	.	26	.	44	.	38	.
Banton (1)	28	.	32+	.	30	.	43	.	25	.
SD 3880	29	.	32+	.	31	.	43	.	25	.
SD 3888	25	.	30	.	28	.	43	.	13	.
Mercury (5)	24	.	31	.	28	.	43	.	13	.
Trooper (-1)	22	.	33+	.	28	.	43	.	13	.
SD 3882	24	.	31	.	28	.	42	.	0	.
SD 3897	25	.	30	.	28	.	41	.	0	.
SD 3900	27+	.	27	.	27	.	41	.	13	.
Dandy (5)	21	.	31	.	26	.	39	.	0	.
Express	24	.	35+	.	30	.	37	.	13	.
Test avg. :	26	31	32	37						
High avg. :	32	34	36	42						
Low avg. :	15	28	23	30						
# Lsd (.05) :	6	6	4	4						
## TPG-value :	26	28	32	38						
### C.V. :	16	11	8	11						

** Percentage of test locations where a variety was in the top-yield group.

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 2a. Hard red spring wheat averages for bushel weight (BW), height (HT), lodging (LDG) and grain protein (PRT)- South Dakota East River locations for 2005.

Variety (Hdg.)* - by state BW average	Location Averages - BW, HT, LDG											
	Brookings			South Shore			Miller			Spink Co.		
	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**
SD 3851	61+	35+	4	60+	37+	3	60+	29	2+	60+	30	2+
Banton (1)	59+	36+	2+	56	36+	2+	60+	28	1+	60+	29	1+
MN 00261-4	58	33	2+	56	35	3	61+	29	1+	60+	31	2+
Oklee (2)	59+	33	4	58+	33	3	58	28	1+	60+	29	1+
Ingot (-1)	+	37+	3	57	35	3	59+	29	2+	58	34	2+
Glenn (3)	59+	36+	3	59+	35	3	60+	29	1+	59+	31	1+
SD 3854	59+	34	3	58+	38+	3	60+	32+	2+	58	32	2+
SD 3870	58	36+	4	57	38+	3	59+	32+	2+	58	33	2+
Steele-ND (3)	57	34	3	57	35	3	59+	30	1+	59+	31	1+
Freyr (1)	59+	33	3	56	33	3	58	29	1+	58	32	2+
Granite (5)	60+	31	2+	54	34	1+	60+	28	1+	58	29	1+
Alsen (4)	59+	35+	2+	55	35	3	60+	29	1+	59+	30	1+
ND 800	58	34	2+	55	35	3	58	29	1+	59+	31	1+
Granger (0)	58	38+	3	56	38+	3	58	31+	2+	58	33	2+
SD 3880	58	37+	3	56	35	3	58	28	1+	59+	31	2+
Knudson (2)	59+	32	3	56	35	3	58	26	1+	59+	28	2+
SD 3875	59+	36+	3	57	36+	3	58	32+	2+	58	34	2+
SD 3888	56	38+	3	58+	36+	3	58	30	2+	58	31	2+
Ulen (2)	57	33	3	56	34	3	58	29	2+	59+	31	2+
SD 3879	58	35+	3	56	36+	3	58	31+	2+	59+	31	2+
SD 3889	56	37+	3	57	35	3	58	30	2+	57	31	2+
Briggs (0)	59+	35+	3	56	35	3	55	30	2+	57	31	1+
Dandy (5)	59+	36+	1+	54	37+	2+	58	32+	1+	56	31	1+
SD 3882	59+	35+	3	56	37+	3	58	31+	1+	58	33	1+
SD 3897	58	38+	3	55	36+	3	57	32+	1+	57	33	2+
Mercury (5)	56	29	3	56	33	1+	57	25	1+	58	27	1+
SD 3899	59+	36+	3	55	37+	3	56	30	2+	57	32	2+
SD 3868	58	33	3	57	37+	3	57	31+	2+	57	32	2+
Dapps (2)	57	38+	2	55	36+	2+	59+	31+	1+	57	33	1+
Walworth (0)	58	36+	3	53	34	3	57	30	3	58	32	2+
Forge (-1)	58	37+	3	55	36+	3	59+	30	2+	53	31	2+
SD 3860	58	37+	3	53	37+	3	58	31+	2+	57	32	2+
Trooper (-1)	58	31	1+	54	31	1+	57	26	1+	56	27	1+
Norpro (3)	58	31	2+	52	32	2+	57	28	1+	57	28	1+
SD 3687	57	38+	3	55	36+	3	59+	32+	1+	55	32	2+
Chris,CK (3)	57	38+	3	54	39+	3	56	33+	3	55	37+	3
Reeder (3)	56	33	2+	49	34	2+	58	29	1+	55	31	1+
Russ (2)	57	37+	3	53	35	3	55	32+	1+	55	32	2+
SD 3900	57	35+	4	54	36+	3	56	30	1+	55	31	1+
Oxen (2)	56	31	4	51	33	3	56	27	1+	55	28	2+
Express	57	27	2+	50	33	1+	56	23	1+	55	24	1+
Test avg. :	58	35	3	55	35	3	58	29	1	57	31	2
High avg. :	61	38	4	60	39	3	61	33	3	60	37	3
Low avg. :	56	27	1	49	31	1	55	23	1	53	24	1
# Lsd (.05) :	2	3	1	2	3	1	2	2	1	1	1	1
## TPG-value :	59	35	2	58	36	2	59	31	2	59	36	2
### C.V. :	3	7	22	3	6	16	2	5	26	2	3	25

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

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

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 2b. Hard red spring 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 average	Location Averages- BW, HT, LDG						East River Averages - BW, HT, LDG			State Averages - BW, HT, LDG, PRT			
	Selby			Brown Co.									
	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**	PRT %
SD 3851	59+	32	2+	63+	34	3	61	33	3	61	33	2	14.4
Banton (1)	60+	31	1+	60	33	1+	59	32	1	60	32	1	15.1
MN 00261-4	57	32	1+	62+	33	2+	59	32	2	60	32	2	15.4
Oklee (2)	58	30	1+	60	33	2+	59	31	2	60	31	2	15.2
Ingot (-1)	58	34	2+	59	38+	3	58	34	2	59	35	2	14.1
Glenn (3)	58	33	1+	59	35	2+	59	33	2	59	33	2	15.4
SD 3854	57	33	2+	60	34	3	59	34	2	59	34	2	13.9
SD 3870	58	35	2+	60	36+	3	58	35	3	59	35	2	15.0
Steele-ND (3)	57	32	2+	60	36+	3	58	33	2	59	33	2	15.4
Freyr (1)	57	31	1+	59	34	2+	58	32	2	59	32	2	14.6
Granite (5)	57	30	1+	58	31	1+	58	30	1	59	30	1	16.3
Alsen (4)	55	31	1+	60	33	2+	58	32	1	59	32	1	15.5
ND 800	57	33	1+	62+	36+	2+	58	33	2	59	33	2	15.2
Granger (0)	57	37	2+	60	37+	3	58	36	2	59	35	2	14.6
SD 3880	58	31	2+	58	34	3	58	33	2	59	33	2	13.7
Knudson (2)	57	28	1+	58	34	3	58	30	2	59	30	2	14.2
SD 3875	57	35	2+	59	35	3	58	35	2	58	35	2	14.7
SD 3888	57	33	1+	59	36+	3	58	34	2	58	34	2	14.4
Ulen (2)	58	31	1+	57	35	3	58	32	2	58	32	2	15.1
SD 3879	57	31	2+	58	35	3	58	33	2	58	33	2	14.3
SD 3889	57	33	1+	60	34	3	58	33	2	58	34	2	14.9
Briggs (0)	58	32	1+	60	34	3	58	33	2	58	33	2	15.0
Dandy (5)	55	32	1+	60	35	2+	57	34	1	58	33	1	14.8
SD 3882	57	34	1+	58	35	2+	58	34	2	58	34	2	14.9
SD 3897	56	36+	2+	59	36+	2+	57	35	2	58	35	2	15.1
Mercury (5)	56	28	1+	60	32	2+	57	29	2	58	29	1	14.5
SD 3899	56	33	2+	59	37+	3	57	34	3	58	34	2	14.9
SD 3868	56	32	2+	58	36+	2+	57	33	2	58	34	2	14.0
Dapps (2)	56	35	1+	57	36+	2+	57	35	2	57	35	1	16.3
Walworth (0)	56	32	2+	59	36+	3	57	33	3	57	33	2	14.4
Forge (-1)	55	34	2+	61+	35	3	57	34	2	57	34	2	14.2
SD 3860	56	36+	1+	58	34	2+	57	34	2	57	34	2	13.2
Trooper (-1)	56	27	1+	59	31	2+	57	29	1	57	29	1	14.2
Norpro (3)	55	30	1+	58	31	1+	56	30	1	57	30	1	14.8
SD 3687	54	34	1+	58	33	3	56	34	2	57	34	2	14.3
Chris,CK (3)	54	39+	2+	57	38+	3	56	37	3	56	37	2	15.1
Reeder (3)	54	31	1+	58	35	2+	55	32	2	56	32	1	14.5
Russ (2)	54	34	1+	57	34	3	55	34	2	56	34	2	14.5
SD 3900	55	32	1+	57	34	2+	56	33	2	56	33	2	14.9
Oxen (2)	54	30	1+	58	34	2+	55	30	2	56	30	2	14.5
Express	54	25	1+	56	29	1+	55	27	1	56	27	1	15.3
Test avg. :	56	32	1	59	34	2							
High avg. :	60	39	2	63	38	3							
Low avg. :	54	25	1	56	29	1							
# Lsd (.05) :	1	3	NS^	2	2	1							
## TPG-value :	59	36	2	61	36	2							
### C.V. :	1	6	27	3	4	19							

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

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

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

^ Values within a column do not differ significantly (.05 level of probability).

Table 2c. Hard red spring wheat averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT) - South Dakota West River locations for 2005.

Variety (Hdg.)* - by state BW average	Location Averages - BW, HT, LDG						West River Averages - BW, HT, LDG			State Averages - BW, HT, LDG, PRT			
	Wall			Ralph									
	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**	PRT %
SD 3851	.	37	1+	65+	32	1+	65	34	1	61	33	2	14.4
Banton (1)	.	34	1+	64+	30	1+	64	32	1	60	32	1	15.1
MN 00261-4	.	31	1+	63+	31	1+	63	31	1	60	32	2	15.4
Oklee (2)	.	33	1+	64+	30	1+	64	31	1	60	31	2	15.2
Ingot (-1)	.	37	1+	65+	35+	1+	65	36	1	59	35	2	14.1
Glenn (3)	.	35	1+	60	33	1+	60	34	1	59	33	2	15.4
SD 3854	.	35	1+	62	34+	1+	62	35	1	59	34	2	13.9
SD 3870	.	37	1+	62	36+	1+	62	37	1	59	35	2	15.0
Steele-ND (3)	.	34	1+	64+	32	1+	64	33	1	59	33	2	15.4
Freyr (1)	.	32	1+	64+	33	1+	64	33	1	59	32	2	14.6
Granite (5)	.	30	1+	64+	30	1+	64	30	1	59	30	1	16.3
Alsen (4)	.	32	1+	63+	31	1+	63	31	1	59	32	1	15.5
ND 800	.	33	1+	62	31	1+	62	32	1	59	33	2	15.2
Granger (0)	.	35	1+	63+	34+	1+	63	35	1	59	35	2	14.6
SD 3880	.	34	1+	63+	33	1+	63	33	1	59	33	2	13.7
Knudson (2)	.	30	1+	64+	28	1+	64	29	1	59	30	2	14.2
SD 3875	.	36	1+	61	34+	1+	61	35	1	58	35	2	14.7
SD 3888	.	38+	1+	62	32	1+	62	35	1	58	34	2	14.4
Ulen (2)	.	33	1+	64+	30	1+	64	32	1	58	32	2	15.1
SD 3879	.	34	1+	62	33	1+	62	34	1	58	33	2	14.3
SD 3889	.	37	1+	61	33	1+	61	35	1	58	34	2	14.9
Briggs (0)	.	37	1+	61	32	1+	61	34	1	58	33	2	15.0
Dandy (5)	.	34	1+	63+	32	1+	63	33	1	58	33	1	14.8
SD 3882	.	35	1+	60	34+	1+	60	35	1	58	34	2	14.9
SD 3897	.	38+	1+	62	35+	1+	62	37	1	58	35	2	15.1
Mercury (5)	.	29	1+	62	27	1+	62	28	1	58	29	1	14.5
SD 3899	.	37	1+	61	34+	1+	61	36	1	58	34	2	14.9
SD 3868	.	36	1+	60	33	1+	60	35	1	58	34	2	14.0
Dapps (2)	.	36	1+	61	35+	1+	61	36	1	57	35	1	16.3
Walworth (0)	.	33	1+	61	31	1+	61	32	1	57	33	2	14.4
Forge (-1)	.	39+	1+	62	33	1+	62	36	1	57	34	2	14.2
SD 3860	.	33	1+	62	36+	1+	62	34	1	57	34	2	13.2
Trooper (-1)	.	29	1+	60	27	1+	60	28	1	57	29	1	14.2
Norpro (3)	.	29	1+	63	29	1+	63	29	1	57	30	1	14.8
SD 3687	.	35	1+	59	34+	1+	59	35	1	57	34	2	14.3
Chris,CK (3)	.	38+	1+	61	36+	1+	61	37	1	56	37	2	15.1
Reeder (3)	.	32	1+	62	30	1+	62	31	1	56	32	1	14.5
Russ (2)	.	35	1+	61	34+	1+	61	34	1	56	34	2	14.5
SD 3900	.	34	1+	58	31	1+	58	33	1	56	33	2	14.9
Oxen (2)	.	32	1+	60	29	1+	60	31	1	56	30	2	14.5
Express	.	28	1+	61	25	1+	61	26	1	56	27	1	15.3
Test avg. :	.	34	1	62	32	1							
High avg. :	.	39	1	65	36	1							
Low avg. :	.	28	1	58	25	1							
# Lsd (.05) :	.	1	0	2	2	0							
## TPG-value :	.	38	1	63	34	1							
### C.V. :	.	3	0	3	4	0							

* Heading, the relative difference in 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 values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 3. Origin, variety traits, and disease reactions for hard red spring wheat entries tested in 2005.

Variety	Origin	Traits		Disease Reactions				PVP** Status
				Rust+			Fusarium Head	
		(Hdg.)*	Ldg# Res	Stripe	Stem	Leaf	Blight+	
Forge	SD-97	-1	G	MS	MR	MS	MS~	Yes
Ingot	SD-98	-1	G	MR	R	MS	M~	Yes
Trooper	WPB-04	-1	G	MS	R	MR	MS~	Yes
Briggs	SD-02	0	G	MR	R	MR	M~	Yes
Granger	SD-04	0	G	MR	R	MR	M~	Yes
Walworth	SD-01	0	G	S	R	MS	M~	Yes
Banton	SS-04	1	VG	-	-	MR	-	***
Freyr	AW-05	1	G	R	MR	MR	MR~	Yes
Dapps	ND-03	2	VG	MR	R	MR	MS	Yes
Knudson	AW-01	2	G	MS	R	MR	MS~	Yes
Oklee	MN-03	2	-	R	R	MR	MR	***
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	-
Chris,CK	MN-65	3	P	-	R	MS	S	No
Glenn	ND-05	3	G	MR	R	R	MR~	***
Norpro	AW-00	3	VG	MR	R	MR	MS	Yes
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
Dandy	NSG-99	5	VG	MR	-	S	MS	Yes
Granite	WPB-02	5	G	MS	MS	S	S~	Yes
Mercury	NSG-99	5	VG	-	R	MS	S	Yes
Express	WPB-88	-	G	MR	R	MS	-	Yes
Experimental lines:								
SD 3687	SD-	-	-	-	-	-	-	-
SD 3851	SD-	-	-	-	-	-	-	-
SD 3854	SD-	-	-	-	-	-	-	-
SD 3875	SD-	-	-	-	-	-	-	-
SD 3870	SD-	-	-	-	-	-	-	-
SD 3879	SD-	-	-	-	-	-	-	-
SD 3880	SD-	-	-	-	-	-	-	-
SD 3882	SD-	-	-	-	-	-	-	-
SD 3888	SD-	-	-	-	-	-	-	-
SD 3889	SD-	-	-	-	-	-	-	-
SD 3897	SD-	-	-	-	-	-	-	-
SD 3899	SD-	-	-	-	-	-	-	-
SD 3900	SD-	-	-	-	-	-	-	-
SD 3860	SD-	-	-	-	-	-	-	-
SD 3868	SD-	-	-	-	-	-	-	-
MN 00261-4	MN-	-	-	-	-	-	-	-
ND 800	ND-	-	-	-	-	-	-	-

* 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 - Four South Dakota East River locations, 2003-2005.

Variety (Hdg.)* - by 3-yr then 2005 year state yield averages	Location Yield Averages (BU/A) at 13% moist.							
	Brookings		South Shore		Beresford		Brown Co.	
	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr
HiFi (8)	125+	143+	147+	129+	96	119+	123+	126+
Morton (7)	97	128+	137+	131+	87	114+	108	113+
Jerry (5)	110	125+	89	112+	105+	123+	123+	118+
Loyal (8)	112	135+	114	117+	101	114+	96	110+
Don (1)	121+	122+	100	115+	82	111+	129+	113+
Reeves (2)	108	117	97	110+	87	109+	126+	104+
Hytest (4)	91	110	90	102	60	84	101	92
Buff Hls (3)	87	100	84	96	84	93	96	79
Paul Hls (7)	65	86	84	81	58	65	83	71
SD 021021	124+	.	132	.	120+	.	127+	.
SD 011315-15	126+	.	132	.	94	.	122+	.
SD 020701	116+	.	139+	.	108+	.	130+	.
SD 020883	122+	.	125	.	106+	.	133+	.
SD 020536	110	.	130	.	103+	.	131+	.
Morraine (2)	129+	.	115	.	105+	.	132+	.
SD 011315-61	115+	.	127	.	89	.	120	.
SD 96024A-21	125+	.	120	.	90	.	130+	.
SD 366-36	98	.	125	.	105+	.	116	.
Drumlin (7)	93	.	136+	.	97	.	122+	.
Beach (6)	100	.	119	.	97	.	124+	.
SD 011315-59	99	.	120	.	83	.	109	.
SD 366-15	82	.	117	.	94	.	115	.
Stark Hls (6)	64	.	85	.	78	.	77	.
Test avg.:	105	118	116	110	93	104	116	103
High avg. :	129	143	147	131	120	123	133	126
Low avg. :	64	86	84	81	58	65	77	71
# Lsd (.05) :	15	22	13	27	18	18	12	23
## TPG-value :	114	121	134	104	102	105	121	103
### C.V. :	10	7	8	7	14	11	7	8

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

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 4b. Oat yield results - Two South Dakota East River and one West River locations, 2003-2005 (Continued).

Variety (Hdg.)* - by 3-yr then year 2005 state yield averages	Location Yield Averages (BU/A) at 13% moist.						State Yield Averages (Bu/A)		State Yield Frequency ** (%)	
	Miller		Wall		Selby					
	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr
HiFi (8)	91	86+	27	56+	104	114+	102	110	43	100
Morton (7)	102	89+	41+	57+	103	109+	96	106	29	100
Jerry (5)	97	85+	48+	63+	100	110+	96	105	43	100
Loyal (8)	108+	82+	33	53	101	103+	95	102	14	86
Don (1)	99	80+	45+	58+	101	102+	97	100	43	100
Reeves (2)	85	77+	39+	55+	88	97+	90	96	29	86
Hytest (4)	77	76+	46+	56+	77	85	77	86	14	29
Buff Hls (3)	56	69+	28	47	77	88	73	82	0	14
Paul Hls (7)	60	59	19	33	66	71	62	67	0	0
SD 021021	102	.	36+	.	116+	.	108	.	71	.
SD 011315-15	113+	.	36+	.	116+	.	106	.	71	.
SD 020701	102	.	39+	.	107+	.	106	.	86	.
SD 020883	92	.	50+	.	98	.	104	.	57	.
SD 020536	100	.	30	.	113	.	102	.	43	.
Morraine (2)	80	.	46+	.	94	.	100	.	57	.
SD 011315-61	104+	.	30	.	105+	.	99	.	43	.
SD 96024A-21	94	.	41+	.	96	.	99	.	43	.
SD 366-36	97	.	40+	.	105+	.	98	.	43	.
Drumlin (7)	100	.	33	.	104	.	98	.	29	.
Beach (6)	96	.	34	.	98	.	95	.	14	.
SD 011315-59	98	.	34	.	100	.	92	.	0	.
SD 366-15	86	.	34	.	105+	.	90	.	14	.
Stark Hls (6)	63	.	15	.	56	.	63	.	0	.
Test avg. :	91	78	36	53	97	98				
High avg. :	113	89	50	63	116	114				
Low avg. :	56	59	15	33	56	71				
# Lsd (.05) :	10	22	14	9	11	18				
## TPG-value :	103	67	36	54	105	96				
### C.V. :	8	10	27	13	8	6				

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

** Percentage of test locations where a variety was in the top-yield group.

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 5a. Oat averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT) - Four South Dakota East River locations for 2005.

Variety (Hdg.)* - by state BW average	Location Averages - BW, HT, LDG											
	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**
Buff Hls (3)	45+	38	3+	42+	41	5	39	41	3+	41+	40	3+
Paul Hls (7)	42	42+	2+	41+	42	5	41+	42	3+	42+	44+	3+
Stark Hls (6)	40	43+	2+	39	43	5	35	45+	3+	41+	43	3+
Hytest (4)	38	43+	3+	37	42	5	34	46+	3+	37	45+	3+
SD 020883	37	41+	3+	37	40	5	32	41	3+	36	37	2+
Beach (6)	38	41+	3+	34	43	5	33	45+	2+	39	45+	3+
SD 020536	38	39	3+	34	41	5	33	43+	3+	38	39	3+
Reeves (2)	37	41+	5	35	42	5	33	42	4	36	41	3+
SD 366-15	37	41+	5	34	44+	5	32	43+	4	38	42	4
SD 021021	37	39	3+	34	42	5	31	39	2+	38	38	3+
SD 366-36	37	44+	5	34	43	5	34	46+	4	37	45+	3+
SD 011315-59	36	41+	3+	33	43	5	29	41	3+	35	41	3+
SD 020701	36	40	4	34	42	5	31	42	3+	38	40	4
Don (1)	35	37	4	33	40	5	33	40	4	34	34	3+
Jerry (5)	35	42+	5	32	43	5	32	42	3+	36	40	3+
SD 96024A-21	36	42+	4	33	43	5	33	42	3+	34	40	3+
Loyal (8)	36	43+	4	32	44+	5	33	44+	3+	36	43	4
HiFi (8)	36	39	2	35	43	5	32	41	3+	37	41	3+
SD 011315-61	36	43+	4	35	43	5	31	42	3+	37	43	4
Drumlin (7)	35	38	3+	33	42	5	30	42	3+	36	39	3+
Morton (7)	34	45+	2+	35	46+	4	30	43+	3+	38	46+	3+
SD 011315-15	36	40	4	31	42	5	30	40	3+	35	40	4
Morraine (2)	35	43+	3+	33	44+	5	30	43+	2+	34	41	3+
Test avg. :	37	41	3	35	42	5	33	42	3	37	41	3
High avg. :	45	45	5	42	46	5	41	46	4	42	46	4
Low avg. :	34	37	2	31	40	4	29	39	2	34	34	2
# Lsd (.05) :	2	4	1	2	2	NS^	1	3	1	1	2	1
## TPG-value :	43	41	3	40	44	.	40	43	3	41	44	3
### C.V. :	3	7	20	4	4	5	3	5	18	2	4	12

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

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

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

^ Values within a column do not differ significantly (.05 level of probability).

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

Variety (Hdg.)* - by state BW average	Location Averages - BW, HT, LDG									State Averages - BW, HT, LDG, PRT			
	Miller			Wall			Selby						
	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**	PRT %
Buff Hls (3)	45+	34	2+	.	.	.	40+	35	1+	42	32	3	16.4
Paul Hls (7)	41	40+	3+	.	.	.	37	39	1+	41	35	3	17.7
Stark Hls (6)	43	39+	3+	.	.	.	38	40+	1+	39	36	3	16.1
Hytest (4)	40	37	3+	33+	.	.	37	38	3	37	35	3	17.3
SD 020883	38	32	4	32+	.	.	37	33	2+	35	31	3	14.9
Beach (6)	40	37	3+	28	.	.	36	40+	2+	35	35	3	15.1
SD 020536	40	35	5	28	.	.	36	35	4	35	33	4	15.9
Reeves (2)	38	36	4	30	.	.	37	37	3	35	34	4	16.2
SD 366-15	40	37	4	25	.	.	36	38	3	35	35	4	16.5
SD 021021	38	33	4	28	.	.	36	37	2+	34	32	3	16.8
SD 366-36	39	37	4	25	.	.	35	39	3	34	36	4	16.2
SD 011315-59	37	35	3+	.	.	.	34	38	3	34	34	3	15.3
SD 020701	39	35	4	25	.	.	35	37	3	34	33	4	15.4
Don (1)	37	29	3+	31+	.	.	35	30	1+	34	29	3	14.6
Jerry (5)	38	36	3+	29	.	.	36	38	2+	34	34	3	15.5
SD 96024A-21	37	34	4	29	.	.	34	36	4	34	33	4	14.7
Loyal (8)	38	38+	4	26	.	.	33	39	2+	34	35	4	16.3
HiFi (8)	36	36	4	27	.	.	33	37	1+	34	34	3	15.2
SD 011315-61	39	38+	4	24	.	.	34	39	3	34	35	4	14.4
Drumlin (7)	37	35	3+	26	.	.	34	35	2+	33	33	3	15.4
Morton (7)	37	39+	3+	25	.	.	32	42+	3	33	36	3	15.9
SD 011315-15	38	37	4	25	.	.	34	40+	3	33	34	4	14.6
Morraine (2)	36	37	3+	26	.	.	34	37	3	33	34	3	15.1
Test avg. :	39	36	3	27	.	.	35	37	2				
High avg. :	45	40	5	33	.	.	40	42	4				
Low avg. :	36	29	2	24	.	.	32	30	1				
# Lsd (.05) :	1	2	1	2	.	.	1	2	1				
## TPG-value :	44	38	3	31	.	.	39	40	2				
### C.V. :	2	5	16	6	.	.	3	5	24				

* Heading, the relative difference in 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 values in a column must differ to be significantly different.

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 6. Origin, variety traits, and disease reactions for oat entries tested in 2005.

Variety (Hdg.)*	Origin	Traits			Disease Reactions				PVP** Status
		(Hdg.)*	Ldg Res	Grain Color	Smut+	Rust Stem+	Rust Crown	Red Leaf+	
Don	IL-85	1	Good	White	R	MS	S	MR	No
Reeves	SD-02	2	Good	White	MR	S	MS	MS	No
Morraine	WI-01	2	Good	Yellow	R	MR	R	MS	Yes
Hytest	SD-86	4	Good	Lt.Crea	MR	MS	S	S	No
Jerry	ND-94	5	Good	White	MS	MS	S	MS	Yes
Morton	ND-01	7	Good	White	R	MR	R	MS	Yes
Drumlin	WI-03	7	Poor	Yellow	R	MR	R	MR	Yes
Beach	ND-04	6	Good	White	R	S	MS	MS	***
Loyal	SD-00	8	Good	White	R	S	MR	S	No
HiFi	ND-01	8	Good	White	MR	R	MR	MS	Yes
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 96024A-21	SD-	-	-	-	-	-	-	-	-
SD 020883	SD-	-	-	-	-	-	-	-	-
SD 011315-15	SD-	-	-	-	-	-	-	-	-
SD 011315-59	SD-	-	-	-	-	-	-	-	-
SD 011315-61	SD-	-	-	-	-	-	-	-	-
SD 020536	SD-	-	-	-	-	-	-	-	-
SD 020701	SD-	-	-	-	-	-	-	-	-
SD 021021	SD-	-	-	-	-	-	-	-	-
SD 366-15	SD-	-	-	-	-	-	-	-	-
SD 366-36	SD-	-	-	-	-	-	-	-	-

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

+ 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, 2003-2005.

Variety (Hdg.)* - by 3-yr then year 2005 state yield averages	Location Yield Averages (BU/A) 13% moist.					
	Brookings		South Shore		Miller	
	2005	3-Yr	2005	3-Yr	2005	3-Yr
Eslick (3)	83+	104+	89	96+	63+	68+
Haxby (2)	82+	96+	96+	98+	69+	72+
Lacey (0)	79+	90	91+	90+	50	60
Excel (3)	76+	95+	83	84	54	63
Valier (4)	75	95+	87	91+	50	62
Drummond (2)	75	84	88	87	47	59
Stellar-ND (2)	70	90	88	82	44	55
Conlon (0)	61	70	85	91+	60	60
Robust (3)	68	88	76	78	41	54
Tradition (0)	80+	.	92+	.	55	.
Legacy (3)	69	.	82	.	42	.
Test avg. :	74	90	87	89	52	61
High avg. :	83	104	96	98	69	72
Low avg. :	61	70	76	78	41	54
# Lsd (.05) :	7	11	6	9	7	8
## TPG-value :	76	93	90	89	62	64
### C.V. :	7	10	5	5	9	8

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

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 7b. Barley yield results - South Dakota East River locations, 2003-2005 (Continued).

Variety (Hdg.)* - by 3-yr then year 2005 state yield averages	Location Yield Averages (BU/A) 13% moist.				East River Yield Averages (BU/A)		State Yield Averages (BU/A)		State Top-Yield Frequency ** (%)	
	Selby		Brown Co.							
	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr
Eslick (3)	80+	95+	75	87+	78	90	69	80	71	100
Haxby (2)	78+	89+	73	80	80	87	70	77	71	86
Lacey (0)	79+	93+	85+	94+	77	85	66	75	57	57
Excel (3)	74	93+	80+	88+	73	85	64	74	29	71
Valier (4)	67	87+	66	81	69	83	62	74	14	71
Drummond (2)	78+	90+	76	81	73	80	63	70	14	29
Stellar-ND (2)	71	90+	74	85	69	80	60	70	0	29
Conlon (0)	63	78	78+	79	69	76	56	66	33	43
Robust (3)	67	75	66	78	64	75	55	65	0	14
Tradition (0)	75+	.	83+	.	77	.	67	.	71	.
Legacy (3)	71	.	81+	.	69	.	60	.	14	.
Test avg. :	73	88	76	84						
High avg. :	80	95	85	94						
# Lsd (.05) :	5	11	8	8						
## TPG-value :	75	84	77	86						
### C.V. :	5	6	7	7						

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

** Percentage of test locations where a variety was in the top-yield group.

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 7c. Barley yield results - South Dakota West River locations, 2003-2005.

Variety (Hdg.)* - by 3-yr then year 2005 state yield averages	Location Yield Averages (BU/A) 13%				West River Yield Averages (BU/A)		State Yield Averages (BU/A)		State Top-Yield Frequency ** (%)	
	Wall		Ralph							
	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr
Eslick (3)	33+	49+	60+	58+	47	54	69	80	71	100
Haxby (2)	30	51+	59+	50+	45	51	70	77	71	86
Lacey (0)	26	43	55	52+	41	48	66	75	57	57
Excel (3)	25	44+	56	54+	41	49	64	74	29	71
Valier (4)	30	47+	59+	56+	45	52	62	74	14	71
Drummond (2)	25	43	51	48+	38	46	63	70	14	29
Stellar-ND (2)	18	38	53	48+	36	43	60	70	0	29
Conlon (0)	40+	50+	6~	35+	23	43	56	66	33	43
Robust (3)	23	42	47	42+	35	42	55	65	0	14
Tradition (0)	18	.	63+	.	41	.	67	.	71	.
Legacy (3)	21	42	54	56+	38	49	60	.	14	.
Test avg. :	26	45	51	50						
High avg. :	40	51	63	58						
Low avg. :	18	38	6	35						
# Lsd (.05) :	8	7	6	NS^						
## TPG-value :	32	44	57	35						
### C.V. :	21	13	8	11						

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

** Percentage of test locations where a variety was in the top-yield group.

~ All four plots of this variety was partially eaten by raccoons prior to harvest.

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

^ Values within a column do not differ significantly (.05 level of probability).

Table 8a. Barley averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT) - South Dakota East River locations for 2005.

Variety (Hdg.)* - by state BW average	Location Averages - BW, HT, LDG								
	Brookings			South Shore			Miller		
	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**
Haxby (2)	51+	33	4	51+	33	4	50+	26+	3
Valier (4)	49	31	3	51+	32	4	48+	27+	1+
Conlon (0)	47	33	3	51+	32	5	47	27+	4
Tradition (0)	46	35+	3	49+	35+	5	46	27+	2+
Lacey (0)	48	34+	2+	49+	35	4	44	25+	1+
Eslick (3)	49	30	3	48	32	5	46	25+	2+
Drummond (2)	46	35+	2+	48	35+	4	43	26+	1+
Robust (3)	47	36+	3	49+	37+	4	44	28+	2+
Excel (3)	46	34+	3	47	35+	4	43	26+	1+
Stellar-ND (2)	46	32	1+	47	33	4	42	25+	1+
Legacy (3)	45	35+	3	45	35+	5	41	27+	1+
Test avg. :	47	33	3	49	34	4	45	26	2
High avg. :	51	36	4	51	37	5	50	28	4
Low avg. :	45	30	1	45	32	4	41	25	1
# Lsd (.05) :	1	2	1	2	2	NS^	2	NS^	1
## TPG-value :	50	34	2	49	35	.	48	25	2
### C.V. :	2	5	23	2	5	13	2	9	21

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

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

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

^ Values within a column do not differ significantly (.05 level of probability).

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

Variety (Hdg.)* - by state BW average	Location Averages - BW, HT, LDG						East River Averages - BW, HT, LDG, PRT				State Averages - BW, HT, LDG, PRT			
	Selby			Brown Co.										
	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**	PRT %	Buwt	HT in	LDG**	PRT %
Haxby (2)	49+	29+	2+	48+	35+	4	50	31	3	12.8	49	31	3	14.1
Valier (4)	48+	27+	2+	47+	32	3+	49	30	2	13.7	48	30	2	15.0
Conlon (0)	46	26	3+	49+	33+	3+	48	30	3	13.2	47	30	3	14.4
Tradition (0)	47+	29+	2+	46	35+	3+	47	32	3	12.8	46	32	2	14.0
Lacey (0)	48+	28+	2+	46	32	2+	47	31	2	12.8	46	31	2	14.1
Eslick (3)	47+	29+	2+	46	35+	3+	47	30	3	12.7	46	30	2	14.1
Drummond (2)	48+	30+	2+	45	34+	2+	46	32	2	12.9	46	32	2	14.1
Robust (3)	47+	28+	3+	44	35+	3+	46	33	3	13.4	45	33	2	14.3
Excel (3)	47+	28+	3+	44	33+	3+	45	31	3	12.7	44	31	2	14.0
Stellar-ND (2)	46	28+	2+	44	33+	3+	45	30	2	12.7	44	31	2	14.0
Legacy (3)	46	30+	3+	44	34+	3+	44	32	3	12.9	43	32	2	14.4
Test avg. :	47	28	2	46	33	3								
High avg. :	49	30	3	49	35	4								
Low avg. :	46	26	2	44	32	2								
# Lsd (.05) :	2	3	NS^	2	2	1								
## TPG-value :	47	27	3	47	33	3								
### C.V. :	3	7	26	4	4	17								

* Heading, the relative difference in 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.

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

^ Values within a column do not differ significantly (.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 2005.

Variety (Hdg.)* - by state BW average	Location Yield Averages - BW, HT, LDG						Western Yield Averages - BW, HT, LDG, PRT				State Yield Averages - 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 %
Haxby (2)	43+	33	1+	47+	.	1+	45	33	1	17.4	49	31	3	14.1
Valier (4)	42+	30	1+	48+	.	1+	45	30	1	18.2	48	30	2	15.0
Conlon (0)	44+	33	1+	.	.	1+	44	33	1	17.4	47	30	3	14.4
Tradition (0)	41+	35+	1+	47+	.	1+	44	35	1	17.0	46	32	2	14.0
Lacey (0)	41+	33	1+	47+	.	1+	44	33	1	17.2	46	31	2	14.1
Eslick (3)	40+	32	1+	45	.	1+	42	32	1	17.7	46	30	2	14.1
Drummond (2)	42+	36+	1+	46	.	1+	44	36	1	17.0	46	32	2	14.1
Robust (3)	38	36+	1+	46	.	1+	42	36	1	16.6	45	33	2	14.3
Excel (3)	37	33	1+	45	.	1+	41	33	1	17.3	44	31	2	14.0
Stellar-ND (2)	37	35+	1+	45	.	1+	41	35	1	17.3	44	31	2	14.0
Legacy (3)	38	35+	1+	43	.	1+	40	35	1	18.1	43	32	2	14.4
Test avg. :	40	34	1	46	.	1								
High avg. :	44	36	1	48	.	1								
Low avg. :	37	30	1	43	.	1								
# Lsd (.05) :	4	2	0	1	.	0								
## TPG-value :	40	34	1	47	.	1								
### C.V. :	7	5	0	2		0								

* Heading, the relative difference in 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.

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 9. Origin, variety traits, and disease reactions for oat entries tested in 2005.

		Traits				Disease Reactions				
			Ldg #	Grain	Awn##	Loose	Stem	Blot+		PVP**
Variety	Origin	(Hdg.)*	Res	Use	Texture	Smut+	Rust+	Spot	Net	Status
Conlon	ND-96	0	G	Malt	SS	S	S	MS	MR	Yes
Haxby	MT-02	2	F	Feed	R	S	-	-	-	No
Eslick	MT-04	3	F	Feed	R	S	-	-	-	***
Valier	MT-99	4	F	Feed	R	S	-	-	-	Yes
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	***
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

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

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

S= smooth and SS= semi-smooth 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 certified seed.

*** PVP application pending or anticipated.

Table 10a. Hard Red Winter Wheat yield results - South Dakota West River locations, 2003-2005.

Variety (Hdg.)* - by 3-yr then year 2005 state yield averages	Location Yield Averages (BU/A) at 13% moist.							
	Wall		Hayes		Sturgis		Kennebec	
	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr
Millennium (4)	56+	48+	65	.	33+	36+	65+	.
SD97059-2	51	49+	52	.	28	32+	57	.
Wahoo (3)	54+	50+	60	.	29	34+	58	.
SD97538	53	49+	52	.	31	35+	55	.
SD98102	56+	50+	46	.	30	35+	48	.
Jerry (6)	54+	50+	56	.	24	30+	58	.
Jagalene (3)	47	45+	61	.	28	34+	64+	.
SD97380-2	54+	45+	61	.	30	33+	57	.
Harding (5)	46	47+	56	.	25	30+	52	.
SD97W609	48	44+	64	.	26	31+	57	.
Arapahoe (3)	45	41	61	.	29	31+	52	.
Wesley (2)	43	45+	62	.	27	31+	61+	.
Alliance (2)	52	47+	57	.	28	34+	57	.
Wendy~W (-1)	45	44+	53	.	29	32+	58	.
Tandem (4)	43	45+	67	.	29	32+	61+	.
Trego~W (3)	50	41	57	.	31	35+	55	.
Crimson (5)	46	46+	54	.	26	30+	56	.
Nekota (2)	46	44+	43	.	30	33+	45	.
Expedition (0)	42	43+	67	.	29	32+	60	.
NE01643	51	.	69	.	27	.	70+	.
SD96240-3-1	48	.	66	.	31	.	69+	.
Hatcher (2)	48	.	59	.	36+	.	63+	.
SD01W064	64+	.	56	.	29	.	57	.
Overley (0)	40	.	79+	.	29	.	68+	.
SD01122	44	.	49	.	26	.	55	.
Harry (5)	41	.	54	.	29	.	50	.
SD00032	42	.	66	.	26	.	56	.
NE99533-4	46	.	51	.	33+	.	59	.
SD01104	45	.	50	.	30	.	55	.
SD00W024	42	.	39	.	22	.	45	.
Test avg. :	48	46	58	.	29	33	57	.
High avg. :	64	50	79	.	36	36	70	.
Low avg. :	40	41	39	.	22	30	45	.
# Lsd (.05) :	10	7	8	.	3	NS^	9	.
## TPG-value :	54	43	71	.	33	30	61	.
### C.V. :	15	12	9	.	8	12	11	.

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

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

^ Values within a column do not differ significantly (.05 level of probability).

Table 10b. Hard Red Winter Wheat yield results - South Dakota West River locations (Continued).

Variety (Hdg.)* - by 3-yr then year 2005 state yield averages	Location Yield Averages (BU/A) at 13% moist.						West River Yield Averages (BU/A)		State Yield Averages (BU/A)	
	Martin		Oelrichs		Tripp Co.					
	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr
Millennium (4)	65+	.	48	.	49	51+	54	45	56	56
SD97059-2	59	.	52	.	57+	52+	51	44	54	56
Wahoo (3)	64	.	50	.	49	50+	52	45	53	55
SD97538	59	.	52	.	48	51+	50	45	51	55
SD98102	55	.	50	.	58+	52+	49	46	50	55
Jerry (6)	60	.	55+	.	46	44	50	41	52	54
Jagalene (3)	72+	.	48	.	52+	53+	53	44	52	53
SD97380-2	58	.	52	.	52+	49+	52	42	52	53
Harding (5)	55	.	49	.	52+	48+	48	42	49	53
SD97W609	66+	.	50	.	56+	51+	52	42	51	52
Arapahoe (3)	57	.	46	.	48	47+	48	40	51	51
Wesley (2)	68+	.	41	.	43	42	49	39	50	51
Alliance (2)	60	.	50	.	48	47+	50	43	50	51
Wendy~W (-1)	58	.	47	.	51	50+	49	42	50	51
Tandem (4)	59	.	47	.	48	47+	51	41	50	50
Trego~W (3)	59	.	50	.	52+	51+	51	42	49	50
Crimson (5)	53	.	51	.	48	44	48	40	49	50
Nekota (2)	43	.	46	.	45	47+	43	41	44	50
Expedition (0)	66+	.	50	.	43	43	51	39	50	49
NE01643	67+	.	49	.	51	.	55	.	57	.
SD96240-3-1	71+	.	61+	.	54+	.	57	.	55	.
Hatcher (2)	72+	.	62+	.	50	.	56	.	54	.
SD01W064	63	.	53	.	60+	.	55	.	52	.
Overley (0)	67+	.	41	.	43	.	52	.	51	.
SD01122	55	.	54	.	54+	.	48	.	50	.
Harry (5)	58	.	58+	.	46	.	48	.	48	.
SD00032	62	.	44	.	48	.	49	.	48	.
NE99533-4	61	.	42	.	48	.	49	.	48	.
SD01104	56	.	53	.	48	.	48	.	47	.
SD00W024	43	.	51	.	51	.	42	.	44	.
Test avg. :	60	.	50	.	50	48				
High avg. :	72	.	62	.	60	53				
Low avg. :	43	.	41	.	43	42				
# Lsd (.05) :	7	.	7	.	8	7				
## TPG-value :	65	.	55	.	52	46				
### C.V. :	8	.	10	.	11	10				

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

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 10c. Hard Red Winter Wheat yield results - South Dakota East River locations, 2003-2005.

Variety (Hdg.)* - by 3-yr then year 2005 state yield averages	Location Yield Averages (BU/A) 13% moist.								East River Yield Averages (BU/A)		State Yield Averages (BU/A)	
	Brookings		Highmore		Platte		Pierre					
	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr	2005	3-Yr
Millennium (4)	54+	82+	71+	67+	47+	59+	68+	51+	60	65	56	56
SD97059-2	49+	82+	73+	70+	38	54+	74+	54+	59	65	54	56
Wahoo (3)	43	76+	72+	69+	41	56+	64	51+	55	63	53	55
SD97538	39	76+	66	65+	35	54+	67+	53+	52	62	51	55
SD98102	30	68	67	66+	49+	63+	64	51+	53	62	50	55
Jerry (6)	53+	82+	66	67+	40	53	64	49+	56	63	52	54
Jagalene (3)	20	64	62	64+	42	54+	74+	55+	50	59	52	53
SD97380-2	48+	76+	69+	67+	37	52	56	49+	53	61	52	53
Harding (5)	43	75+	66	65+	37	55+	62	49+	52	61	49	53
SD97W609	31	67	68+	64+	33	55+	62	50+	49	59	51	52
Arapahoe (3)	47	70	71+	67+	36	51	66	50+	55	60	51	51
Wesley (2)	35	71	62	63	39	55+	64	49+	50	60	50	51
Alliance (2)	32	62	68+	64+	39	53	64	51+	51	58	50	51
Wendy~W (-1)	38	71	68+	62	26	49	77+	52+	52	59	50	51
Tandem (4)	36	65	64	63	40	51	55	48+	49	57	50	50
Trego~W (3)	20	59	63	61	32	51	66	50+	45	55	49	50
Crimson (5)	33	66	66	60	41	51	62	52+	51	57	49	50
Nekota (2)	26	64	58	60	38	53	59	48+	45	56	44	50
Expedition (0)	35	68	66	60	32	51	64	49+	49	57	50	49
NE01643	53+	.	70+	.	45+	.	75+	.	61	.	57	.
SD96240-3-1	40	.	68+	.	36	.	63	.	52	.	55	.
Hatcher (2)	27	.	72+	.	34	.	68+	.	50	.	54	.
SD01W064	26	.	62	.	42	.	65	.	49	.	52	.
Overley (0)	32	.	60	.	30	.	67+	.	47	.	51	.
SD01122	42	.	67	.	40	.	61	.	53	.	50	.
Harry (5)	32	.	65	.	28	.	64	.	47	.	48	.
SD00032	43	.	51	.	39	.	55	.	47	.	48	.
NE99533-4	24	.	62	.	36	.	69+	.	48	.	48	.
SD01104	32	.	52	.	33	.	59	.	44	.	47	.
SD00W024	37	.	61	.	38	.	56	.	48	.	44	.
Test avg. :	37	71	65	64	37	54	64	51				
High avg. :	54	82	73	70	49	63	77	55				
Low avg. :	20	59	51	60	26	49	55	48				
# Lsd (.05) :	6	10	5	6	6	9	10	NS^				
## TPG-value :	48	72	68	64	43	54	67	48				
### C.V. :	11	12	6	7	12	11	11	14				

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

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

TPG-value, the minimum value required for the top performance group for yield. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

^ Values within a column do not differ significantly (.05 level of probability).

Table 11a. Hard Red Winter Wheat averages for bushel weight (BW) and height (HT) - South Dakota West River locations for 2005.

Variety (Hdg.)* - by state BW average	Location Averages- BW, HT							
	Wall		Hayes		Sturgis		Kennebec	
	BW lb	HT in	BW lb	HT in	BW lb	HT in	BW lb	HT in
Tandem (4)	59+	29	63+	.	60	.	61+	.
Millennium (4)	58	25	62+	.	61+	.	62+	.
NE01643	58	28	63+	.	60	.	61+	.
SD01W064	61+	28	61	.	59	.	60+	.
Overley (0)	57	27	64+	.	63+	.	62+	.
Crimson (5)	59+	27	60	.	56	.	60+	.
Harding (5)	57	31	61	.	56	.	60+	.
SD00032	58	29	61	.	59	.	61+	.
Wendy~W (-1)	60+	21	58	.	62+	.	57	.
Jerry (6)	58	31	61	.	58	.	60+	.
Jagalene (3)	60+	25	59	.	61+	.	58	.
SD97W609	58	25	61	.	60	.	58	.
SD98102	59+	27	59	.	59	.	57	.
Expedition (0)	58	25	59	.	60	.	57	.
NE99533-4	59+	25	59	.	59	.	57	.
SD96240-3-1	56	28	59	.	59	.	59	.
SD00W024	58	27	55	.	55	.	59	.
SD97538	58	24	59	.	57	.	57	.
Trego~W (3)	61+	22	58	.	59	.	55	.
SD01122	58	28	58	.	58	.	59	.
Arapahoe (3)	56	27	59	.	60	.	56	.
Hatcher (2)	58	25	59	.	60	.	57	.
SD97380-2	57	26	59	.	59	.	55	.
SD97059-2	57	29	57	.	58	.	57	.
Nekota (2)	59+	26	56	.	61+	.	54	.
Alliance (2)	58	25	57	.	60	.	54	.
SD01104	57	29	55	.	59	.	56	.
Wesley (2)	57	26	57	.	58	.	55	.
Wahoo (3)	56	29	56	.	56	.	53	.
Harry (5)	55	27	54	.	56	.	53	.
Test avg. :	58	27	59	.	59	.	58	.
High avg. :	61	31	64	.	63	.	62	.
Low avg. :	55	21	54	.	55	.	53	.
# Lsd (.05) :	2	.	2	.	2	.	2	.
## TPG-value :	59	.	62	.	61	.	60	.
### C.V. :	2	.	3	.	2	.	3	.

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

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 11b. Hard Red Winter Wheat averages for bushel weight (BW), height (HT), and grain protein (PRT) - South Dakota West River locations (Continued).

Variety (Hdg.)* - by state BW average	Location Averages- BW and HT						West River Averages - BW, HT, PRT			State Averages - BW, HT, PRT		
	Martin		Oelrichs		Tripp Co.							
	BW lb	HT in	BW lb	HT in	BW lb	HT in	BW lb	HT in	PRT %	BW lb	HT in	PROT %
Tandem (4)	61+	.	62+	.	61+	31	61	30	13.1	60	34	12.9
Millennium (4)	61+	.	61+	.	61+	32	61	29	12.7	60	33	12.6
NE01643	60+	.	61+	.	60	32	60	30	12.6	60	34	12.6
SD01W064	61+	.	63+	.	62+	31	61	30	11.7	60	33	11.7
Overley (0)	61+	.	61+	.	61+	28	61	28	13.6	60	30	13.4
Crimson (5)	59	.	62+	.	62+	35	60	31	13.6	59	35	13.3
Harding (5)	60+	.	62+	.	61+	32	60	32	13.4	59	35	12.9
SD00032	61+	.	60	.	61+	33	60	31	13.9	59	35	13.7
Wendy~W (-1)	60+	.	62+	.	60	27	60	24	13.2	59	28	13.1
Jerry (6)	60+	.	61+	.	59	34	60	33	13.6	59	36	13.4
Jagalene (3)	62+	.	63+	.	63+	29	61	27	12.6	59	30	12.5
SD97W609	60+	.	62+	.	61+	28	60	27	12.6	59	29	12.6
SD98102	60+	.	60	.	62+	31	59	29	13.2	59	33	12.9
Expedition (0)	59	.	61+	.	60	27	59	26	12.8	59	30	12.7
NE99533-4	60+	.	62+	.	61+	26	60	26	13.3	58	28	13.2
SD96240-3-1	59	.	61+	.	60	30	59	29	13.1	58	31	12.9
SD00W024	59	.	63+	.	63+	31	59	29	13	58	34	12.8
SD97538	59	.	61+	.	61+	29	59	27	12.8	58	31	12.6
Trego~W (3)	57	.	62+	.	63+	27	59	25	12.7	58	30	12.6
SD01122	59	.	61+	.	60	31	59	30	13.2	58	34	13.0
Arapahoe (3)	56	.	59	.	60	31	58	29	13.2	58	33	12.9
Hatcher (2)	60+	.	61+	.	61+	28	59	27	11.7	58	29	11.8
SD97380-2	56	.	61+	.	59	27	58	27	12.9	58	32	12.8
SD97059-2	58	.	60	.	59	31	58	30	13	58	35	12.9
Nekota (2)	54	.	61+	.	60	29	58	28	12.4	57	30	12.4
Alliance (2)	56	.	61+	.	60	27	58	26	11.7	57	31	11.5
SD01104	57	.	61+	.	58	34	58	32	12.8	57	34	12.8
Wesley (2)	57	.	60	.	58	27	57	27	13.5	56	30	13.5
Wahoo (3)	55	.	59	.	59	29	56	29	12.8	56	32	12.8
Harry (5)	54	.	59	.	57	30	55	29	11.7	54	31	11.6
Test avg. :	59	.	61	.	60	30						
High avg. :	62	.	63	.	63	35						
Low avg. :	54	.	59	.	57	26						
# Lsd (.05) :	2	.	2	.	2	.						
## TPG-value :	60	.	61	.	61	.						
### C.V. :	2	.	2	.	2	.						

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

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 11c. Hard Red Winter Wheat averages for bushel weight (BW), height (HT), and grain protein (PRT) - South Dakota East River locations for 2005.

Variety (Hdg.)* - by state BW average	Location Averages- BW and HT								East River Averages - BW, HT, PRT			State Averages - BW, HT, PRT		
	Brookings		Highmore		Platte		Pierre							
	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 %
Tandem (4)	49	34+	63+	37	61+	.	61+	40	59	37	12.5	60	34	12.9
Millennium (4)	53+	35+	62+	36	61+	.	60	37	59	36	12.3	60	33	12.6
NE01643	52+	34+	61	38	61+	.	61+	40	59	37	12.5	60	34	12.6
SD01W064	46	33+	62+	37	61+	.	61+	38	57	36	11.5	60	33	11.7
Overley (0)	45	29	61	33	59	.	61+	33	57	32	13.1	60	30	13.4
Crimson (5)	49	34+	63+	36	62+	.	62+	42	59	37	12.2	59	35	13.3
Harding (5)	51+	35+	62+	38	61+	.	61+	40	59	38	11.6	59	35	12.9
SD00032	50+	35+	60	40	60	.	61+	40	58	38	13.2	59	35	13.7
Wendy~W (-1)	48	27	62+	31	60	.	62+	32	58	30	12.8	59	28	13.1
Jerry (6)	53+	35+	60	37	60	.	59	43	58	38	13	59	36	13.4
Jagalene (3)	41	29	61	33	60	.	62+	35	56	32	12.3	59	30	12.5
SD97W609	47	27	61	31	58	.	59	33	56	30	12.6	59	29	12.6
SD98102	48	33+	61	35	61+	.	60	37	57	35	12.1	59	33	12.9
Expedition (0)	48	30	62+	34	59	.	60	33	57	32	12.3	59	30	12.7
NE99533-4	43	28	61	30	60	.	60	33	56	30	12.9	58	28	13.2
SD96240-3-1	49	30	61	32	60	.	59	34	57	32	12.2	58	31	12.9
SD00W024	52+	34+	61	37	55	.	60	39	57	37	11.9	58	34	12.8
SD97538	49	33+	60	37	60	.	59	34	57	35	12.3	58	31	12.6
Trego~W (3)	41	29	61	34	61+	.	61+	37	56	33	12.5	58	30	12.6
SD01122	51+	35+	61	36	58	.	58	39	57	37	12.6	58	34	13.0
Arapahoe (3)	52+	32	61	36	59	.	59	38	58	35	12	58	33	12.9
Hatcher (2)	44	29	61	33	58	.	59	32	55	31	12.3	58	29	11.8
SD97380-2	50+	34+	61	37	59	.	59	38	57	36	12.6	58	32	12.8
SD97059-2	51+	34+	60	37	58	.	59	43	57	38	12.5	58	35	12.9
Nekota (2)	43	30	61	33	61+	.	61+	34	56	32	12.5	57	30	12.4
Alliance (2)	45	30	60	36	58	.	58	36	55	34	10.8	57	31	11.5
SD01104	48	33+	56	33	57	.	58	40	55	35	12.7	57	34	12.8
Wesley (2)	45	31	59	31	58	.	57	34	55	32	13.4	56	30	13.5
Wahoo (3)	48	33+	59	35	57	.	57	36	55	35	12.7	56	32	12.8
Harry (5)	43	32	56	34	55	.	56	34	53	33	11.3	54	31	11.6
Test avg. :	48	32	61	35	59	.	60	37						
High avg. :	53	35	63	40	62	.	62	43						
Low avg. :	41	27	56	30	55	.	56	32						
# Lsd (.05) :	3	2	1	.	1	.	1	.						
## TPG-value :	50	33	62	.	61	.	61	.						
### C.V. :	5	4	1	.	1	.	2	.						

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

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 12. Origin, variety traits, and disease reactions for winter wheat entries tested for 2005.

Variety	Origin	(Hdg.)*	Ldg Res	End-use Qlty	Winter Hardy Rtg	Cole-optile Pct##	Wheat Steak Mosaic	Tan-spot	Rust			PVP Status
									Stripe	Leaf	Stem	
Wendy~W	SD-04	-1	E	GN	E	67	MS	R	MR	MS	MR	***
Expedition	SD-02	0	F	EB	G-E	88	S	MS	MS	MS	R	Yes
Overley	KS-03	0	G	GB	F-G	.	MR	MR	.	R	MR	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	AB	G-E	79	S	MR	MR	MS	R	No
Hatcher	CO-04	2	F	EB	.	.	S	.	MR	MR	MR	.
Arapahoe	NE-88	3	F	GB	G-E	83	S	S	MS	MR	MR	Yes
Trego~W	KS-99	3	F-G	EB	F-G	80	S	MS	S	MR	R	Yes
Wahoo	NE/WY-01	3	G	.	G	91	S	.	MR	S	R	Yes
Jagalene	AW-02	3	E	.	G	92	MS	MR	MR	MR	MR	Yes
Millennium	NE-99	4	G	.	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-03	5	F	AB	.	.	S	.	.	MR	MR	.
Jerry	ND-01	6	F	GB	E	92	MS	.	MR	S	R	No
Experimental lines:												
NE99533-4	.	.	.	.	.	.	.	.	.	.	.	.
NE01643	.	.	.	.	.	.	.	.	.	.	.	.
SD00032	.	.	.	.	.	.	.	.	.	.	.	.
SD01104	.	.	.	.	.	.	.	.	.	.	.	.
SD01122	.	.	.	.	.	.	.	.	.	.	.	.
SD96240-3-1	.	.	.	.	.	.	.	.	.	.	.	.
SD97059-2	.	.	.	.	.	.	.	.	.	.	.	.
SD97380-2	.	.	.	.	.	.	.	.	.	.	.	.
SD97538	.	.	.	.	.	.	.	.	.	.	.	.
SD98102	.	.	.	.	.	.	.	.	.	.	.	.
SD97W609	.	.	.	.	.	.	.	.	.	.	.	.
SD00W024	.	.	.	.	.	.	.	.	.	.	.	.
SD01W064	.	.	.	.	.	.	.	.	.	.	.	.

* 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 byvariety name only as a class of certified seed.

*** PVP application pending or anticipated.

Table 13a. Field pea yield results - South Dakota East River locations, 2005.

Variety (Mat.)* - by state yield average	Location Yield Averages (BU/A) at 13% moist.		East River Yield Averages (BU/A)	State Yield Averages (BU/A)
	South Shore	Selby		
SW Salute $ (E)	56+	53+	55	41
Cooper $ (L)	54+	54+	54	40
SW Midas $ (E)	48	52+	50	38
Tudor $ (M)	52+	48	50	38
CDC Mozart (M)	47	56+	52	38
Marquee (-)	50	53+	52	38
Eclipse $ (M)	51+	48	50	37
Stratus $ (M)	44	52+	48	36
DS-Admiral $ (E)	40	47	44	35
Integra (E)	43	49	46	35
Majoret $ (E)	47	45	46	35
SW Circus $ (E)	44	46	45	33
CEB4133 (-)	45	43	44	33
Cruiser (M)	46	41	44	33
Camry $ (M)	38	47	43	32
Topeka $ (E)	41	42	42	32
Grande $ (M)	46	40	43	30
Carneval $ (M)	40	40	40	30
AP-18 (-)	40	40	40	29
CDC Montero (M)	36	46	41	29
PRO 011-3172 (-)	34	34	34	28
Arvika (L)	.	29	.	.
Forager (-)	.	36	.	.
Journey (-)	.	33	.	.
40-10 Magda (L)	.	33	.	.
Test avg. :	45	44		
High avg. :	56	56		
Low avg. :	34	29		
# Lsd (.05) :	5	6		
## TPG-value :	51	50		
### C.V. :	8	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.

Bolded and red type indicates revision since initial printing in September 05.

Table 13b. Field pea yield results - South Dakota West River locations, 2005.

Variety (Mat.)* - by state yield average	Location Yield Averages (BU/A) at 13% moist.		West River Yield Averages (BU/A)	**State Yield Averages (BU/A)**
	Wall	Hayes		
SW Salute $ (E)	32+	21+	27	**41**
Cooper $ (L)	32+	19+	26	**40**
SW Midas $ (E)	33+	17	25	**38**
Tudor $ (M)	31+	21+	26	**38**
CDC Mozart (M)	32+	16	24	**38**
Marquee (-)	30+	19+	25	**38**
Eclipse $ (M)	33+	17	25	**37**
Stratus $ (M)	30+	19+	25	**36**
DS-Admiral $ (E)	34+	20+	27	**35**
Integra (E)	32+	16	24	**35**
Majoret $ (E)	31+	16	24	**35**
SW Circus $ (E)	27	16	22	**33**
CEB4133 (-)	31+	14	23	**33**
Cruiser (M)	30+	14	22	**33**
Camry $ (M)	30+	12	21	**32**
Topeka $ (E)	30+	15	23	**32**
Grande $ (M)	20	13	17	**30**
Carneval $ (M)	27	14	21	**30**
AP-18 (-)	24	13	19	**29**
CDC Montero (M)	23	12	18	**29**
PRO 011-3172 (-)	30+	12	21	**28**
Arvika (L)	21	13	17	**.**
Forager (-)	24	17	21	**.**
Journey (-)	21	13	17	**.**
40-10 Magda (L)	20	12	16	**.**
Test avg. :	28	16		
High avg. :	34	21		
Low avg. :	20	12		
# Lsd (.05) :	4	3		
## TPG-value :	30	18		
### C.V. :	11	12		

* 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.

Bolded and red type indicates revision since initial printing in September 05.

Table 14a. Field pea averages for bushel weight (BW), height (HT), lodging (LDG), and grain protein (PRT) - South Dakota East River locations.

Variety (Mat.)* - by state BW average	Location Averages - BW, HT, LDG						East River Averages - BW, HT, LDG, PRT				State Averages - BW, HT, LDG		
	South Shore			Selby									
	BW lb	HT in	LDG**	BW lb	HT in	LDG**	BW lb	HT in	LDG**	PRT %	BW lb	HT in	LDG**
Majoret $ (E)	67+	.	.	63+	.	.	65	.	.	26.8	64	21	2
CDC Mozart (M)	67+	.	.	63+	.	.	65	.	.	24.4	64	20	3
SW Circus $ (E)	65+	.	.	64+	.	.	65	.	.	24.5	63	20	1
Cruiser (M)	67+	.	.	62+	.	.	64	.	.	26.8	63	22	2
CDC Montero (M)	65+	.	.	64+	.	.	64	.	.	23.6	63	20	3
SW Midas $ (E)	65+	.	.	64+	.	.	64	.	.	23.2	63	22	1
Topeka $ (E)	64	.	.	64+	.	.	64	.	.	24.5	63	19	4
Eclipse $ (M)	65+	.	.	63+	.	.	64	.	.	25.8	63	19	1
AP-18	65+	.	.	62+	.	.	63	.	.	25.7	63	18	1
Marquee	64	.	.	64+	.	.	64	.	.	24.7	63	24	1
SW Salute $ (E)	65+	.	.	63+	.	.	64	.	.	25.5	63	24	2
CEB4133	65+	.	.	63+	.	.	64	.	.	24.8	63	21	2
Camry $ (M)	64	.	.	63+	.	.	64	.	.	24.7	63	16	1
Tudor $ (M)	65+	.	.	62+	.	.	63	.	.	24.9	62	24	1
DS-Admiral $ (E)	64	.	.	63+	.	.	64	.	.	24.0	62	23	2
PRO 011-3172	64	.	.	61	.	.	62	.	.	24.8	62	21	1
Carneval $ (M)	64	.	.	61	.	.	63	.	.	24.6	62	19	1
Iintegra (E)	64	.	.	61	.	.	63	.	.	27.2	62	22	2
Stratus $ (M)	64	.	.	62+	.	.	63	.	.	26.4	62	18	3
Cooper $ (L)	63	.	.	63+	.	.	63	.	.	24.8	61	23	1
Grande $ (M)	65+	.	.	63+	.	.	64	.	.	27.4	.	24	4
Arvika (L)	.	.	.	59	.	.	.	.	.	.	.	34	5
Forager	.	.	.	61	.	.	.	.	.	.	.	36	5
Journey	.	.	.	61	.	.	.	.	.	.	.	36	5
40-10 Magda (L)	.	.	.	59	.	.	.	.	.	.	.	33	5
Test avg. :	65	.	.	62	.	.							
High avg. :	67	.	.	64	.	.							
Low avg. :	63	.	.	59	.	.							
# Lsd (.05) :	2	.	.	2	.	.							
## TPG-value :	65	.	.	62	.	.							
### C.V. :	2	.	.	2	.	.							

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

** Lodging score: 1 = all plants erect, 3 = 50% of plants lodged at 45o-angle, 5 = all plants flat.

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 14b. Field pea averages for bushel weight (BW), height (HT), and lodging (LDG) - South Dakota West River locations for 2005.

Variety (Mat.)* - by state BW average	Location Yield Averages - BW, HT, LDG						Western Yield Averages - BW, HT, LDG			State Yield Averages - 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
Majoret $ (E)	61+	25	2+	.	18	2+	.	21	2	64	21	2
CDC Mozart (M)	61+	23	3	.	17	3	.	20	3	64	20	3
SW Circus $ (E)	60+	24	1+	.	17	1+	.	20	1	63	20	1
Cruiser (M)	61+	25	3	.	19	2+	.	22	2	63	22	2
CDC Montero (M)	61+	24	5	.	16	1+	.	20	3	63	20	3
SW Midas $ (E)	60+	27	1+	.	16	1+	.	22	1	63	22	1
Topeka $ (E)	60+	24	5	.	14	3	.	19	4	63	19	4
Eclipse $ (M)	60+	24	1+	.	14	2+	.	19	1	63	19	1
AP-18	61+	21	2+	.	15	1+	.	18	1	63	18	1
Marquee	60+	27	1+	.	21	1+	.	24	1	63	24	1
SW Salute $ (E)	60+	27	4	62+	21	1+	61	24	2	63	24	2
CEB4133	59	26	3	.	16	2+	.	21	2	63	21	2
Camry $ (M)	60+	18	1+	.	13	2+	.	16	1	63	16	1
Tudor $ (M)	60+	28	1+	.	20	1+	.	24	1	62	24	1
DS-Admiral $ (E)	60+	27	2+	61+	18	1+	60	23	2	62	23	2
PRO 011-3172	61+	25	1+	.	17	2+	.	21	1	62	21	1
Carneval $ (M)	60+	21	1+	.	17	1+	.	19	1	62	19	1
Iintegra (E)	60+	25	1+	.	19	2+	.	22	2	62	22	2
Stratus $ (M)	59	21	4	.	16	3	.	18	3	62	18	3
Cooper $ (L)	59	26	1+	60	20	1+	59	23	1	61	23	1
Grande $ (M)	.	25	5	.	23	3	.	24	4	.	24	4
Arvika (L)	.	42+	5	.	27+	5	.	34	5	.	34	5
Forager	59	41+	5	.	31+	5	.	36	5	.	36	5
Journey	59	42+	5	.	31+	5	.	36	5	.	36	5
40-10 Magda (L)	62+	37	5	.	29+	5	.	33	5	.	33	5
Test avg. :	60	27	3	61	19	2						
High avg. :	62	42	5	62	31	5						
Low avg. :	59	18	1	60	13	1						
# Lsd (.05) :	2	4	1	1	6	1						
## TPG-value :	60	38	2	61	25	2						
### C.V. :	2	8	28	1	15	21						

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

** Lodging score: 1 = all plants erect, 3 = 50% of plants lodged at 45o-angle, 5 = all plants flat.

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

TPG-value, the minimum value required for the top performance group for the variable measured. A plus sign (+) indicates values within a column that qualify for the top performance group.

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

Table 15. Origin, variety traits, and disease reactions for field pea entries tested in 2005.

Variety	Rel.* Mat.	Seed Color	Leaf # type	Vine ## Length	Lodging (1-5) ~	Powdery mildew **	Mycos-phaerella blight **	Fusariu Wilt **	Seed Size
Forage types:									
Arvika	L	Mottled	N	L	5	-	-	-	S
40-10 Magda	L	Mottled	N	VL	5	-	-	-	S
Grain types:									
DS-Admiral $	E	Yellow	SL	M	3	VG	F	F	M
SW Circus $	E	Yellow	SL	M	1	P	F	P	M
Integra	E	Yellow	SL	M	1	P	P	F	L
Majoret $	E	Green	SL	S	1	P	F	P	L
SW Midas $	E	Yellow	SL	M	1	VG	F	F	M
SW Salute $	E	Yellow	SL	M	1	VG	F	P	M
Topeka $	E	Yellow	SL	S	1	VG	F	P	M
Camry $	M	Green	SL	S	-	VG	F	F	L
Carneval $	M	Yellow	SL	M	1	F	F	P	M
Cruiser	M	Green	SL	M	1	P	F	P	M
Eclipse $	M	Yellow	SL	M	1	VG	F	F	L
Grande $	M	Yellow	N	L	-	P	F	P	M
CDC Montero	M	Green	SL	M	-	VG	F	F	M
CDC Mozart	M	Yellow	SL	S	1	VG	P	F	M
Stratus $	M	Green	SL	S	1	VG	F	P	L
Tudor $	M	Yellow	SL	M	-	VG	P	F	L
Cooper $	L	Green	SL	M	-	VG	F	F	L
Forage experimentals:									
Forager	-	Green	N	L	5	-	-	-	M
Journey	-	Green	N	L	5	-	-	-	S
Grain experimentals:									
AP-18	-	Green	SL	-	-	-	-	-	-
CEB4133	-	Yellow	SL		-	-	-	-	-
Marquee	-	Yellow	SL	-	-	-	-	-	-
PRO 011-3172	-	Green	SL	-	-	-	-	-	-

$ Plant breeders rights (PBR) application is pending or anticipated. Similar to plant variety (PVP) protection.

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

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

Short- S, medium- M, long- L, or very long- VL vine length.

~ 1 = all plants erect, 3 = lodging at 45-degree angle, 5 = all plants flat.

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

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

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