

South Dakota State University

Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange

SDSU Extension Circulars

SDSU Extension

12-1992

Small Grains, 1993 Variety Recommendations (1992 Crop Performance Results)

Robert G. Hall

Clair Stymiest

Harry A. Geise

Paul D. Evenson

Follow this and additional works at: https://openprairie.sdstate.edu/extension_circ

SDSU LIBRARY - BROOKINGS, SD



3 1574 50092 5158

EC 774

Small Grains

SDSU LIBRARY

DEC 9 1992

STATE DOCUMENT

1993 Variety Recommendations (1992 Crop Performance Results)



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

lower level
30.732
3087.17
#774

Small Grain Variety Recommendations for 1993

These recommendations are based on data and information obtained from the South Dakota Crop Performance Testing Program and regional nurseries maintained by other land-grant universities in the upper Midwest. Variety performance is dependent on genetics and environment. Environmental factors such as temperature, moisture, plant pests, soil fertility, soil type, and the producers own management practices influence variety performance. Farmers should note that the performance of recommended varieties in response to environmental conditions is generally better than the performance of other varieties. However, the better performance of the recommended variety cannot be guaranteed due to complex varietal responses to environmental conditions.

Spring Wheat

Recommended: (Variety-area)

Butte 86	Statewide
Guard @	Statewide
Prospect	Statewide
Sharp	Statewide
Stoa	Statewide
2375 ~ @	Statewide

Acceptable/Promising: (Variety-area)

Amidon	1,4*,6,7
Bergen @	1,2,4*,6,7
Nordic @	Statewide
2371 ~ @	1,2,7

Durum Wheat

Recommended: (Variety-area)

Fjord @	All durum areas
Monroe	All durum areas
Renville	All durum areas
Vic	All durum areas
Ward	All durum areas

Oats

Recommended: (Variety-area)

Don	Statewide
Settler	Statewide
Troy	1,2,4*,6,7
Valley	1,2,4*

Acceptable/Promising: (Variety-area)

Hazel	Statewide
Hyttest \$	1**,4**,5,6,7
Newdak	1,2
Premier	Statewide

~ 2375 and 2371 are owned by the North Dakota State University Research Foundation (NDSURF). Seed of this variety is available for increase and sale as a class of certified seed through an agreement between NDSURF and the South Dakota Foundation Seed Stocks Division at SDSU.

@ U.S. Plant Variety Protection applied for and/or received; seed sales of these varieties are restricted to classes of certified seed.

* Northern half of crop adaptation area.

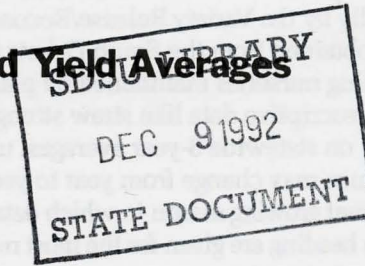
** Western half of crop adaptation area.

\$ Hyttest is susceptible to BYD virus (red leaf).

SMALL GRAINS

1992 South Dakota Test Results, Characteristics, and Yield Averages

Robert G. Hall, Extension agronomist - crops
Clair Stymiest, Extension agronomist - crops
Harry A. Geise, assistant professor - crop testing
Paul D. Evenson, statistician



Successful crop production depends to a large degree on selecting the best varieties for a particular area. This publication contains variety recommendations, descriptions, and yield data for small grains.

Important 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 for the producer in some instances than the highest yielding variety.

Disease resistance information is based on reactions to present and prevalent races of a disease. Disease resistance is not absolute and may change as new races of a disease develop over time.

Variety Recommendations

Variety recommendations (inside cover pages) are made annually by the Plant Science Department Variety Release/Recommendation Committee. Recommendations for a given crop may vary from one crop adaptation area to another. Crop adaptation areas (see map, page 5) 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 given crop adaptation area.

A variety, either public or private, must be evaluated according to the minimum requirements listed in the first table on page 5 before it is eligible to be considered for the "recommended" list. In addition, a variety must meet the minimum criteria of 2 years and 6 location-years in South Dakota's crop performance testing trials and regional breeding trials before it is eligible for "acceptable/promising" list.

Varieties are classified as "recommended" or "acceptable/promising." Varieties listed as "recommended" have consistently exhibited a high level of agronomic performance. Those listed as "acceptable/promising" have performed well but do not merit the "recommended" list or are new varieties which have shown a high performance potential but have undergone limited testing. In the case of the "acceptable/promising" list, the varieties may have been only tested for a 2-year period and, therefore, have not met the minimum requirements needed for the recommended list as indicated in the second table on page 5.

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

How to Use Small Grain Performance Information

Information presented in this bulletin may be useful in selecting small grain varieties for production in South Dakota. A suggested sequence for evaluating information in this bulletin is as follows:

First, check the variety-area designations for the "recommended," "acceptable," and "promising" lists on the inside front and backcovers of this bulletin. Cross reference these variety-area designations with the crop adaptation area map of South Dakota. **Identify varieties which are suggested for your specific adaptation area.**

Note that the crop adaptation area map for South Dakota has been revised. The Variety Release/Recommendation Committee felt a revised map was necessary to give crop producers a more realistic view of the various crop adaptation areas within the state. Changes in farming practices and an expanded informational data base of such factors as soil types, rainfall patterns, and temperatures made the committee realize there are really fewer but larger crop adaptation areas compared to the older crop adaptation map.

Second, **evaluate the varieties you have identified for your area for desirable characteristics.** Descriptive data for all varieties (see table of characteristics) are evaluated annually by the Variety Release/Recommendation Committee. This information is obtained from the South Dakota Crop Performance Testing Program, from breeding nurseries maintained by plant breeders, and from plant pathologists. Descriptive data like straw strength, protein, height, and test weight are based on statewide 3-year averages, unless otherwise noted. Since disease resistance may change from year to year, disease information is based on the most recent growing season in which data is available. In addition, days from planting to heading are given for the most recent growing season.

35679055
Third, after identifying desirable varieties for your adaptation area **evaluate each for yield performance.** Yields are obtained from the South Dakota Crop Performance Testing Program. Both one- and three-year yields for all varieties tested are included for each test location if a given variety has been tested for three or more years. All yields, test averages, and test least-significant-difference (LSD) values located at the bottom of each location yield column are rounded to the nearest tenth of a bushel per acre.

Test averages, LSD values, and coefficient of variation (CV) values indicated below each location column were calculated from all test data. The data obtained from each location includes both released varieties and experimental lines presently under test. Therefore, the test average for a location yield column may not equal the average of the varieties alone. Likewise, the appropriate LSD value obtained from the location data is also based on both varieties and experimental lines. Variety and experimental line yields are included in location yield averages and LSD values for a major reason: the results better reflect how released varieties perform with one another and with new experimental lines which may be released in the near future.

Compare yields either on 3-year averages or on 1-year averages only. Do not compare a 1-year average of a variety at one location with a 3-year average of that variety at another location.

Before you attempt to evaluate varietal performance at one or more locations, determine whether the yield test at a given location is valid. The CV value listed below each LSD value at the bottom of each yield column is a measure of experimental error. **Yield tests with a CV value of 16% or higher are considered to contain too much experimental error to make a valid interpretation of the yield results. In this publication, test sites having a CV value greater than 16% are not included in the calculations for yield stability which is discussed later. In addition, the top yielding varieties for that location are not indicated in the table because the validity of the yield differences among**

the varieties at that location are uncertain because of the high level of experimental error.

To evaluate the yielding potential among the different varieties, use the test LSD value. The LSD value enables you to determine if one variety really out yields another variety. If the yield difference between two varieties is greater than the test LSD, the varieties differ in yield. If the yield difference is equal to or less than the test LSD, the varieties are not statistically different in yield.

The test LSD value also can be used to determine the top yielding group for each location. For example, at each location the variety with the highest numerical yield is identified using 1- or 3-year averages. The appropriate 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 yielding group at that location. For example, the top yielding spring wheat variety at Brookings for the last 3 years is 2375 with an average yield of 50.8 bu/A. If we subtract 5.8 bu/A (the test LSD value) from 50.8 we obtain a value of 45.0. Therefore, all varieties listed in that column having a yield of more than 45.0 bushels are in the top yielding group relative to the top yielder, 2375. Likewise, any variety yielding 45.0 bushels or less is not in the top yielding group. For convenience, the top yielding groups for all locations have been determined and **the top yielding varieties within a location have been identified with an asterisk(*)**.

Sometimes a test LSD value is not given and the designation NS (non-significant) is indicated. This means that variety yield differences could not be detected statistically. Therefore, all the varieties have a similar yielding potential for the location and time period indicated and are considered to be in the top yielding group.

When evaluating yield performance, remember that environmental conditions at a given test location seldom repeat themselves from year to year. Therefore, look at as much yield data from as many trial locations and years as possible. Do this by using 3-year averages to compare the yielding potential among varieties.

Look at the performance or "yield stability" of a variety over several locations. A simple way to evaluate "yield stability" is to see how often a variety is in the top yield group over all test locations. For convenience, the top yield percentage or the percentage of locations where a variety is in the top yield group has been calculated. **The top yield percentage for each variety is given in the characteristics table for the spring seeded small grains.**

A variety exhibiting a relatively high top yield percentage 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 or performance. In contrast, a variety with a top yield percentage of 30% or less exhibits a much lower yield stability.

Generally, varieties having a top yield percentage of 50% or more have the ability to adapt to greater differences in environmental conditions across many locations compared to varieties with a lower top yield percentage.

Look for varieties with a relatively high top yield percentage.

Test Trial Methods

Origin of Varieties Tested

The public varieties tested were released from various Agricultural Experiment Stations. Abbreviations for each station include:

Canada--Can	Minnesota--MN	North Dakota--ND
Illinois--IL	Montana--MT	South Dakota--SD
Indiana--IN	Nebraska--NE	Texas--TX
Iowa--IA		Wisconsin--WI

Many public varieties were jointly developed and released by experiment stations and the U.S. Department of Agriculture. The private varieties tested were released by commercial companies. In most cases, the company which released a variety also entered the variety in the test trials. The abbreviations for these companies include:

AgriPro Biosciences, Inc.--ABI
Busch Agricultural Resources, Inc.--BARI
Hybri-Tech--HYT
Nickerson American Plant Breeders--NAPB
Rohm and Haas Co.--RHS
SunSeed Genetics Inc.--SGI

In some cases, however, grain varieties were developed by one company and exclusive marketing rights were given or sold to another company. In such cases the marketing company entered the variety for testing. Such varieties and the companies which market them (Company-Variety) are listed below:

AgriPro--Abilene, Thunderbird, Bergen, Dalen, Krona, Nordic, Fjord, Stockholm. Nutrigold--B1602, B1603.

North Dakota State University Research Foundation (NDSURF)--2371, 2375.

Methods Used in the Trials

A random, complete block design was used in all trials. Plots were harvested with either a Wintersteiger or Hege small plot combine. Plot size differed between the East River and West River locations. East River plots were 5 feet wide and either 9.5 or 14 feet long compared to West River plots of either 4 or 5 feet wide and 25 feet long. Plots consisted of drill strips with 7 or 8-inch spacings at East River locations and 10-inch spacings at West River locations. Test trial locations and seeding dates are listed in the second table on page 5. Yield means were generated from three replications at all locations. High CV values at the following test sites indicate a high level of experimental error:

Bison - HR spring wheat and durum wheat
Dakota Lakes, Bison, Martin, Ralph, and Oelrichs - winter wheat
Brookings - triticale

Therefore, do not use these crop and location test sites to evaluate variety yield differences. The spring wheat at Bison was affected by a grain drill break down during seeding. The winter wheat yields at Dakota Lakes, Bison, Martin, Ralph, and Oelrichs were affected by the hard freeze during late May which left many sterile heads in the winter wheat crop.

The fertility and weed control program also differed between the East and West River locations. At East River sites the plots were fertilized with 60 lbs per acre of 18-46-0 down the seed tube at seeding. Postemergence applications of 1 to 1.5 pints of Bronate were applied at the 3 to 5 leaf stage, depending on the severity of the weed problem. At West River sites plots were fertilized with a liquid starter fertilizer consisting of 11 pounds of nitrogen and 40 pounds of phosphorous at seeding. Post-emergence applications of 0.10 oz. of Ally herbicide per acre plus 6 oz. active ingredient per acre of 2,4-D (wheat) and 1 pint of Bronate (oats and barley) were applied at the 3 to 5 leaf stage.

Since seed size can vary greatly among varieties, a seedcount was conducted on each entry and all seeding rates were adjusted accordingly. At East River locations the adjusted seeding rates were 28 pure live seeds per square foot compared to rates of 22 pure live seeds per square foot at West River locations. Under good seedbed preparation and favorable conditions, these adjusted seeding rates generally will result in seedling densities of about 25 and 20 plants per square foot at the East and West River locations, respectively. This generally results in a final stand of about 1.1 million and 870,000 plants per acre, respectively. If a poor seedbed exists at planting, it is suggested that growers increase the spring grain seeding rate to 32 and 25 seeds per square foot at the East and West River locations, respectively. If planting is delayed until May 1 or later, increase the seeding rates to 35 and 28 seeds per square foot at the East and West River locations, respectively.

Performance Trial Results

General Comments

1992 was a banner year for spring-seeded small grain production and a very poor year on average for winter wheat production. A hard freeze in late May severely reduced seed yield on much of the winter wheat crop in the prime winter wheat areas by interrupting pollination and fertilization which resulted in sterile heads. Beginning in mid-June timely moisture and below average temperatures extending into July and August helped to boost spring-seeded small grain yields. The yield boost was primarily the result of additional tillers which produced well filled heads. Throughout the state yields in excess of 60 bushels per acre for hard red spring wheat, 50 bushels per acre for durum wheat, and 100 bushels per acre for oats and barley were common. **1992 was a good example for illustrating (except for the winter wheat freeze problem) that small grains are cool season crops.**

HRS Wheat

The top yielding varieties for 1992, as indicated by their top yield percentage or percentage of locations in which they are in the top yielding group across all test locations, are Amidon, Krona, Nordic, 2375, Sharp, and Butte 86. These varieties had a top yield percentage of 67%, 67%, 58%, 58%, 50%, and 50%, respectively. The top yield percentages in the characteristics table also indicates the **top yielding varieties over the latest three-year period are Prospect, 2375, Sharp, Stoa, Butte 86, Nordic, Guard, 2371, Amidon, Bergen, and Grandin.** The top yield percentages of these varieties ranged from a high of 92% for Prospect and 2375 down to 50% for Grandin. This means that Prospect at 92% was almost always in the top yielding group while Grandin at 50% was in the top yielding group at half of the test locations. Any variety with a top yield percentage of 50% or higher is defined as having good "yield stability." A variety with good yield stability will have a wider range of adaptation compared to varieties with a low top yield percentage or low "yield stability." Varieties which exhibit a top yield percentage of 50% or higher will reduce a growers risk of yield reductions as a result of variations in the environment.

Durum Wheat

In 1992 all of the durum varieties tested exhibited good "yield stability" as indicated by the top yield percentages of 67% to 89%. In addition, the three-year top yield percentages are consistently high (100%) because at all locations (except Day Co.) the test trial has not been able to detect variety yield differences. Although some durum varieties appear to yield better than others in any one year, they all yield similarly when averaged over a longer three-year period.

Oats

The top yielding oat varieties for 1992 are Newdak, Prairie, Troy, and Horicon. The top yield percentages for these varieties are 92%, 77%, 77%, and 54% respectively. Based on three-year averages, **the top performing oat varieties are Newdak, Horicon, Valley, Ogle, Troy, Dane, Settler, Don, Hamilton, Premier, Hazel, and Porter.** The top yield percentages for these varieties ranged from a high of 92% for Newdak to 54% for Hamilton, Premier, and Porter. Of these varieties Dane, Hamilton, Ogle, Newdak, Horicon, Troy, and Porter tend to have a lower relative test weight. However, Newdak and Troy, when grown in their more specific northeastern area of adaptation, generally exhibit a higher test weight than indicated by the average across all locations as shown in the oat table of characteristics.

Barley

The top performing varieties for 1992 are Excel, Stark, B1602, Hazen, Robust, and Gallatin. The top yield percentages for these varieties are 100%, 82%, 82%, 73%, 73%, and 64%. Over the longer three-year term, all the varieties exhibited top yield percentages of 80% or higher. Stark, a two-row feed barley, on average, is the top yielding variety across all locations. Among the approved malting varieties, Robust and the newer Excel exhibited a top yield percentage of 80% or higher when averaged over three-years at all locations.

Spring Triticale

In 1992 Marval is the best performing triticale with a top yield percentage of 88%. Over the longer three-year term, all varieties tested exhibited a top yield percentage of 50% or higher.

HRW Wheat

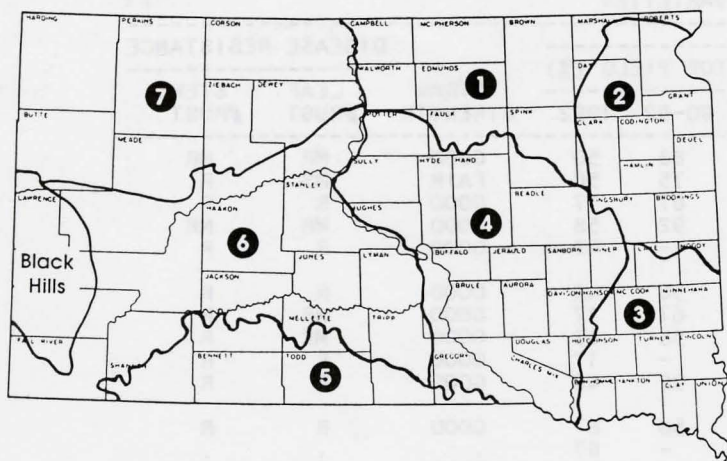
In 1992 the top performing varieties are difficult to determine since the hard freeze in late May resulted in several locations having a high level of experimental error. Therefore, it is suggested that you evaluate varieties using three-year averages and exclude the 1992 averages. Using three-year averages, the top performing varieties include Abilene, Arapahoe, Brule, Centura, Quantum 542 & 562, Rose, Seward, Siouxland, Siouxland 89, Tam 107, and Thunderbird.

Winter Rye

The winter rye test is limited with only one test location at Brookings. The top yielding varieties were Prima, Musketeer, and Danko. Over the long term the rye test trial has not been able to detect significant yield differences among the varieties tested.

Crop Adaptation Areas for South Dakota

(revised 1992)



MINIMUM CRITERIA NEEDED FOR THE RECOMMENDED LIST IN THIS PUBLICATION.

TRAIT	CROP				
	HRS WHEAT	DURUM WHEAT	OATS	BARLEY	HRW WHEAT
YIELD, HEIGHT & TEST WEIGHT	3/15*	3/12	3/15	3/12	3/15
PROTEIN	3/15	3/12	----	3/12	3/15
HEADING DATE	3/6	3/6	3/6	3/6	3/6
QUALITY DATA	2/4#	WA	WA	WA	WA
DISEASE REACTION	A	A	A	A	A
LODGING	WA	WA	WA	WA	WA
UNIQUE \$ CHARACTERISTICS	WA	WA	WA	WA	WA

A - ANNUALLY WA = WHEN AVAILABLE
 * - 3 YEARS/15 LOCATION-YEARS
 # = MILLING AND BAKING
 \$ = INCLUDES PRODUCTION OR MARKETING CHARACTERISTICS WHICH EFFECT PRODUCTION IN SOUTH DAKOTA.

The Variety Release/Recommendation Committee . . .

consists of the Plant Science Department head, two extension agronomists, a plant pathologist, and the managers of the Seed Certification Service and the Foundation Seed Stocks Division.

The efforts of K. Kirby, R. Schut, L. Hall, B. Farber and D. Huber of Brookings and B. Swan of Rapid City in obtaining the small grain data and Donna Peterson of Arlington in typing the text of this publication are gratefully acknowledged.

The cooperation and resources . . .

of the following farm cooperators are gratefully acknowledged:

- | | |
|---------------------------|-----------------------|
| G. Brockmueller (Freeman) | R. Rix (Groton) |
| B. Hohback (Plankinton) | R. Renner (Wall) |
| D. Geisel (Selby) | R. Rosenow (Ralph) |
| M. Stiegelmeier (Selby) | G. Wunder (Bison) |
| D. Johnson (Day Co.) | R. Root (Winner) |
| K. Kinckler (Onida) | D. Reaser (Oelrichs) |
| T. Komes (Bear Butte) | R. Hanson (Frankfort) |
| G. Nies (Martin) | R. Wilson (Okaton) |

SPRING SMALL GRAIN SEEDING DATES AT VARIOUS LOCATIONS IN SOUTH DAKOTA.

LOCATION	CROP				
	HRS WHEAT	DURUM	OATS	BARLEY	TRITICALE
	DATE				
GROTON	APRIL 8		APRIL 2	APRIL 8	
DAY CO.					
SELBY	APRIL 2		APRIL 7	APRIL 8	
HIGHMORE	APRIL 2	APRIL 2		APRIL 2	
SPINK CO.	APRIL 27	APRIL 27			APRIL 27
BROOKINGS	APRIL 14	APRIL 27	APRIL 27	APRIL 27	APRIL 27
WATERTOWN	APRIL 9				
AURORA CO.	MARCH 31		MARCH 31	MARCH 31	
FREEMAN	MARCH 31		MARCH 31	MARCH 31	
BERESFORD	MARCH 30		MARCH 30	MARCH 30	
BISON	APRIL 15				
RALPH	APRIL 22				
BEAR BUTTE	APRIL 9				
WALL	APRIL 16				
MARTIN	APRIL 8				

Characteristics / Spring Wheat

CHARACTERISTICS OF SPRING WHEAT VARIETIES

VARIETY	ORIGIN -YEAR	1992 DAYS TO HEADING	STATE-WIDE AVERAGES							DISEASE RESISTANCE		
			PROTEIN (%)	BUSHEL WEIGHT (LBS)	HT. (IN.)	YIELD (BU/AC)		TOP YIELD (%)		STRAW STRENGTH	LEAF #RUST	STEM #RUST
						90-92	1992	90-92	1992			
SHARP	SD-90	63	14.8	58.8	33	40.1	47.4	83	50	GOOD	MR	MR
BUTTE 86	ND-86	63	14.4	57.4	33	39.1	46.9	75	50	FAIR	MS	R
GUARD*	SD-83	63	14.3	57.4	29	37.7	44.6	67	17	GOOD	R	R
2375*	PI0-88	63	14.7	58.9	31	41.5	49.2	92	58	GOOD	MR	MR
DALEN*	ABI-91	63	.	.	.	.	48.0	-	42	GOOD	R	R
GRANDIN	ND-89	64	14.8	56.1	31	37.7	46.9	50	42	GOOD	R	R
2371*	PI0-90	65	14.9	55.6	29	39.2	46.4	67	17	GOOD	MR	R
BERGEN*	ABI-91	65	14.3	56.2	27	38.8	48.3	58	33	GOOD	MR	R
NORM*	MN-92	65	.	.	.	.	46.4	-	17	GOOD	R	R
PROSPECT	SD-88	65	14.6	56.7	30	40.4	49.4	92	42	GOOD	R	R
AMIDON	ND-88	66	14.5	55.0	34	37.3	50.8	58	67	GOOD	R	R
KRONA*	ABI-92	67	.	.	.	.	52.3	-	67	.	.	.
STOA	ND-84	67	14.6	55.6	34	38.5	47.9	83	42	FAIR	R	R
CHRIS	MN-65	67	15.2	55.0	35	29.0	37.4	33	0	POOR	MR	R
GUS	ND-89	67	15.3	55.7	31	35.6	42.0	42	8	GOOD	R	R
VANCE*	MN-89	67	14.9	54.4	29	34.7	48.0	33	17	GOOD	R	R
NORDIC*	NAPB-86	67	13.5	56.4	30	40.3	49.6	75	58	GOOD	MS	R

* PLANT VARIETY PROTECTION - TO BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED.
 # S = SUSCEPTIBLE, MS = MODERATELY SUSCEPTIBLE, MR = MODERATELY RESISTANT, R = RESISTANT.

Yields / Spring Wheat

SPRING WHEAT ONE- AND THREE- YEAR AVERAGE YIELDS AT VARIOUS LOCATIONS IN SOUTH DAKOTA.

VARIETY	LOCATION															
	BROOKINGS		WATERTOWN		BERESFORD		HIGHMORE		SPINK CO.		SELBY		AURORA CO.		GROTON	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR
	BU/AC															
AMIDON	64.1	40.1	60.0*	46.0	45.8*	28.0	41.2*	34.7*	51.3*	39.4*	57.9	53.3*	41.1*	27.7	75.7*	59.6*
BERGEN	64.1	44.1	54.3	46.8	43.6	31.5	35.0	36.4*	42.6	40.6*	62.3	58.4*	38.1*	30.2	65.4	59.1*
BUTTE 86	64.7*	44.6	64.7*	52.0*	47.5*	36.5*	28.9	34.3*	32.9	37.1*	60.4	57.9*	41.5*	30.2	58.6	56.9*
CHRIS	44.3	28.8	45.8	32.7	32.2	20.7	25.8	28.5*	34.8	30.2*	49.3	42.8	28.1	23.2	43.6	40.4
DALEN	65.0*	.	58.9*	.	49.6*	.	30.5	.	41.3	.	57.7	.	40.4*	.	63.9	.
GRANDIN	65.3*	43.7	53.2	46.4	46.2*	30.8	32.1	35.4*	39.3	37.1*	60.0	56.8*	41.2*	29.8	58.8	53.2
GUARD	57.9	41.3	53.1	45.8	45.3*	36.1*	32.2	35.8*	36.9	36.5*	55.5	54.7*	35.7	32.0*	53.8	51.5
GUS	55.3	38.3	48.7	42.1	45.1*	31.1	26.0	32.8*	33.0	36.4*	52.5	53.4*	35.2	29.8	52.6	52.5
KRONA	65.0*	.	57.1	.	48.3*	.	41.0*	.	50.2*	.	67.0*	.	38.4*	.	67.4	.
NORDIC	62.9	44.4	58.8*	47.5	46.6*	35.6*	36.6	38.8*	48.0*	44.8*	64.7*	57.5*	37.2	36.1*	68.8*	61.4*
NORM	64.3	.	61.6*	.	43.1	.	32.7	.	41.5	.	57.9	.	35.6	.	59.9	.
PROSPECT	62.5	46.0*	61.4*	49.9	45.7*	35.6*	31.8	36.7*	45.3	40.0*	60.9	57.9*	42.3*	33.3*	62.1	59.0*
SHARP	68.2*	45.8*	60.2*	49.7	50.2*	38.0*	27.7	36.6*	37.9	39.5*	57.4	54.0*	41.4*	33.9*	64.5	58.7*
STOA	67.2*	43.6	54.5	48.3	47.8*	33.9*	33.7	35.3*	36.1	36.6*	55.0	55.0*	38.5*	32.1*	60.1	55.2*
VANCE	64.3	39.7	53.8	39.8	42.2	25.8	33.0	33.3*	43.3	37.3*	60.8	51.1	36.9	27.7	63.1	51.2
2371	57.6	44.1	53.8	46.1	42.9	34.6*	30.1	35.4*	38.9	37.0*	58.9	53.2*	38.1*	34.2*	58.9	52.8
2375	70.6*	50.8*	66.1*	56.1*	43.8*	39.7*	31.7	37.3*	48.9*	42.1*	57.7	57.5*	39.5*	33.4*	62.3	59.9*
LOCATION:																
TEST AVERAGE-	63.2**	42.5	57.8	46.4	45.5	32.9	32.1	35.1	40.7	38.1	58.8	54.5	38.3	31.0	60.9	55.1
TEST LSD(5%)-	5.9\$	5.8	8.6	6.1	6.6	6.3	4.6	NSS\$	5.1	NS	3.6	5.5	5.0	5.6	7.5	7.7
TEST C.V.	5.7#	6.9	9.1	8.3	8.9	10.2	8.7	7.3	7.7	8.1	3.8	6.2	8.0	10.6	7.5	7.5

* A TOP-YIELDING VARIETY - SEE YIELD COMMENTS FOR EXPLANATION.
 ** TEST AVERAGE-OF ALL ENTRIES; HOWEVER, ONLY VARIETIES ARE REPORTED.
 \$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
 \$\$ NS- INDICATES YIELD DIFFERENCES WITHIN A COLUMN ARE NOT SIGNIFICANT.
 # TEST C.V. - A MEASURE OF EXPERIMENTAL ERROR; IF THIS VALUE EXCEEDS 16.0% DATA SHOULD NOT BE USED IN MAKING VARIETY SELECTION DECISIONS.

(continued)

Yields / Spring Wheat continued . . .

SPRING WHEAT ONE- AND THREE- YEAR AVERAGE YIELDS AT VARIOUS LOCATIONS IN SOUTH DAKOTA.

VARIETY	LOCATION							
	WALL		BISON		RALPH		BEAR BUTTE	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR
AMIDON	56.1*	34.3*	36.2	31.8*	56.5*	42.4	24.3	24.8*
BERGEN	66.0*	38.9*	19.1	26.4*	55.2*	42.5	34.2*	27.3*
BUTTE 86	60.0*	39.1*	22.3	26.2*	49.8	42.2	31.4*	27.5*
CHRIS	45.0	26.8*	31.9	25.7*	47.7	33.7	19.9	18.9
DALEN	62.1*	.	25.1	.	54.6	.	27.2	.
GRANDIN	57.5*	36.4*	31.5	29.1*	55.2*	44.0*	22.5	22.9
GUARD	57.1*	37.1*	25.1	27.5*	53.3	42.4	29.3	28.2*
GUS	51.6	33.4*	34.1	30.4*	49.1	41.1	20.5	22.5
KRONA	64.5*	.	46.5	.	63.5*	.	18.2	.
NORDIC	61.1*	36.5*	35.9	32.6*	62.7*	48.2*	13.2	19.4
NORM	41.8	.	32.6	.	53.5	.	32.1*	.
PROSPECT	59.7*	39.0*	36.3	32.6*	60.2*	45.6*	24.4	25.6*
SHARP	56.3*	37.5*	23.3	27.9*	49.7	39.3	31.8*	29.8*
STOA	57.3*	35.7*	38.8	31.9*	58.7*	44.9*	27.3	25.3*
VANCE	61.5*	32.8*	35.7	29.1*	57.6*	41.8	23.9	21.3
2371	66.5*	38.8*	30.0	29.2*	54.6	43.2	26.7	24.8*
2375	61.0*	38.0*	27.7	28.6*	56.1*	43.1	24.4	27.2*
LOCATION:								
TEST AVERAGE-	58.2**	36.1	31.8	29.3	54.7	42.5	24.9	24.6
TEST LSD(5%)-	13.3\$	NS\$\$	13.7	NS	8.6	4.6	4.7	5.2
TEST C.V.	14.0#	12.9	26.2	11.0	9.6	9.1	11.6	9.6

* A TOP-YIELDING VARIETY - SEE YIELD COMMENTS FOR EXPLANATION.
 ** TEST AVERAGE-OF ALL ENTRIES; HOWEVER, ONLY VARIETIES ARE REPORTED.
 \$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
 \$\$ NS- INDICATES YIELD DIFFERENCES WITHIN A COLUMN ARE NOT SIGNIFICANT.
 # TEST C.V. - A MEASURE OF EXPERIMENTAL ERROR; IF THIS VALUE EXCEEDS 16.0% DATA SHOULD NOT BE USED IN MAKING VARIETY SELECTION DECISIONS.

Characteristics / Durum Wheat

CHARACTERISTICS OF DURUM WHEAT VARIETIES

VARIETY	ORIGIN -YEAR	1992 DAYS TO HEADING	STATE-WIDE AVERAGES							DISEASE RESISTANCE			
			PROTEIN (%)	BUSHEL WEIGHT (LBS)	HT. (IN.)	YIELD (BU/AC)		TOP YIELD (%)		STRAW STRENGTH	QUALITY	LEAF #RUST	STEM #RUST
						90-92	1992	90-92	1992				
MONROE	ND-84	62	13.4	57.3	33	38.4	40.9	100	67	GOOD	STRONG GLUTEN	R	R
WARD	ND-72	64	13.4	58.0	34	40.4	47.1	100	89	GOOD	SATISFACTORY	R	R
FJORD*	NAPB-86	64	13.2	58.6	34	37.6	42.5	100	67	GOOD	STRONG GLUTEN	R	R
RENVILLE	ND-88	64	13.4	56.6	34	39.4	44.7	100	78	GOOD	STRONG GLUTEN	R	R
VIC	ND-79	64	13.1	57.8	34	38.9	42.3	100	67	GOOD	STRONG GLUTEN	R	R
STOCKHOLM*	NAPB-86	65	13.0	55.6	26	35.8	38.0	88	44	GOOD	STRONG GLUTEN	R	R

* PLANT VARIETY PROTECTION - TO BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED.

S = SUSCEPTIBLE, MS = MODERATELY SUSCEPTIBLE, MR = MODERATELY RESISTANT, R = RESISTANT.

Yields / Durum Wheat

DURUM WHEAT ONE- AND THREE- YEAR AVERAGE YIELDS AT VARIOUS LOCATIONS IN SOUTH DAKOTA.

VARIETY	----- LOCATION -----											
	BROOKINGS		WATERTOWN		DAY CO.		SPINK CO.		SELBY		GROTON	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR
----- BU/AC -----												
FJORD	57.2*	38.7*	45.9	43.3*	50.3*	46.2*	37.8*	36.3*	53.0	49.5*	54.4*	53.1*
MONROE	61.2*	43.6*	41.5	43.5*	49.2*	47.2*	34.4*	34.9*	49.9	52.6*	53.8*	51.5*
RENVILLE	48.4	37.3*	49.6*	44.6*	53.0*	48.5*	45.0*	40.8*	61.3*	55.4*	55.6*	56.5*
STOCKHOLM	38.3	33.6*	33.7	36.8*	41.9	40.1	38.5*	37.9*	50.5	50.8*	53.2*	53.5*
VIC	58.0*	42.9*	43.5	44.9*	51.6*	48.8*	41.0*	40.5*	52.3	52.8*	54.6*	54.8*
WARD	62.9*	44.5*	52.9*	48.2*	53.9*	50.7*	43.6*	40.0*	55.4	51.5*	58.4*	54.4*
LOCATION:												
TEST AVERAGE-	54.3**	40.1	44.5	43.6	50.0	46.9	40.0	38.4	53.7	52.1	55.0	54.0
TEST LSD(5%)-	11.4\$	NS\$\$	6.0	NS	5.2	6.1	NS	NS	4.3	NS	NS	NS
TEST C.V.	11.6#	10.1	7.3	5.9	5.7	6.0	10.1	10.3	4.4	7.8	7.7	7.3

VARIETY	----- LOCATION -----							
	WALL		BISON		RALPH		BEAR BUTTE	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR
----- BU/AC -----								
FJORD	49.3*	31.0*	9.1*	19.9*	50.4*	39.7*	17.8	.
MONROE	49.1*	32.1*	9.1*	21.0*	46.8*	39.1*	14.1	.
RENVILLE	54.1*	31.3*	15.5*	23.5*	53.2*	41.3*	11.1	.
STOCKHOLM	55.4*	31.5*	15.5*	22.2*	47.4*	38.7*	5.6	.
VIC	51.8*	30.8*	13.0*	20.3*	49.5*	38.6*	8.2	.
WARD	55.2*	32.5*	19.4*	23.8*	49.1*	39.6*	20.4*	.
LOCATION:								
TEST AVERAGE-	52.5**	31.5	13.6	21.8	49.1	39.4	12.8	.
TEST LSD(5%)-	NS\$\$	NS	NS	NS	NS	NS	2.4\$	.
TEST C.V.	10.6#	12.0	56.0	28.4	5.7	6.8	10.5	.

* A TOP-YIELDING VARIETY - SEE YIELD COMMENTS FOR EXPLANATION.
 ** TEST AVERAGE-OF ALL ENTRIES; HOWEVER, ONLY VARIETIES ARE REPORTED.
 \$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
 \$\$ NS- INDICATES YIELD DIFFERENCES WITHIN A COLUMN ARE NOT SIGNIFICANT.
 # TEST C.V. - A MEASURE OF EXPERIMENTAL ERROR; IF THIS VALUE EXCEEDS 16.0% DATA SHOULD NOT BE USED IN MAKING VARIETY SELECTION DECISIONS.

Characteristics / Spring Oat

CHARACTERISTICS OF SPRING OAT VARIETIES

VARIETY	ORIGIN -YEAR	1992 DAYS TO HEADING	STATE-WIDE AVERAGES							DISEASE RESISTANCE					
			PROTEIN (%)	BUSHEL WEIGHT (LBS)	HT. (IN.)	YIELD (BU/AC)		TOP YIELD (%)		STRAW STRENGTH	GRAIN COLOR	#SMUT	STEM #RUST	CROWN #RUST	RED ##LEAF
						90-92	1992	90-92	1992						
SHELDON DON	IA- IL-85	59 61	.	.	.	.	116	-	8	.	.	.	.
PRAIRIE STARTER*	WI-92 MN-86	61 62	19.0	34.4	31	92.9	113	62	0	GOOD	WHITE	R	MS	R	MR
DANE	WI-90	62	17.5	31.6	33	97.0	126	69	31	GOOD	YELLOW	R	MR	MR	R
HAMILTON KELLY	IA-88 SD-84	62 62	18.1	32.1	33	90.9	113	54	0	STRONG	YELLOW	.	S	S	MS
PREMIER*	MN-90	63	18.6	36.2	34	90.0	112	54	8	STRONG	YELLOW	MR	MS	MS	MS
ARMOR HAZEL	OH-91 IL-85	63 63	.	.	.	.	128	-	23	STRONG	WHITE	.	S	S	R
BURNETT OGLE	IA-56 IL-80	63 64	17.7	34.0	36	79.4	115	38	8	POOR	IVORY	MR	S	S	S
NEWDAK*	ND-90	64	18.0	31.5	33	97.9	128	77	23	GOOD	YELLOW	MS	S	MS	R
HORICON*	WI-89	64	17.7	31.7	34	105.0	144	92	92	GOOD	WHITE	.	MR	MS	R
SETTLER	SD-89	64	19.8	32.2	34	103.0	136	85	54	GOOD	DARK	MS	S	MR	MR
HYTEST TROY	SD-86 SD-91	64 66	18.0	34.2	35	94.1	122	69	15	GOOD	WHITE	MR	S	MR	MR
MOORE VALLEY	MN-79 ND-88	66 66	19.9	36.7	38	80.4	115	38	0	GOOD	LT. CREAM	MR	MS	MS	MS
PORTER*	IN-82	67	19.9	32.5	37	97.1	137	77	77	FAIR	WHITE	R	S	R	MR
			19.2	32.1	37	86.4	128	38	23	GOOD	WHITE	R	MR	MR	S
			18.8	33.6	32	98.5	136	85	38	GOOD	IVORY	.	R	MS	MR
			19.9	32.4	34	96.1	134	54	38	GOOD	LT. TAN	R	S	S	R

* PLANT VARIETY PROTECTION - TO BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED.
 # S = SUSCEPTIBLE, MS = MODERATELY SUSCEPTIBLE, MR = MODERATELY RESISTANT, R = RESISTANT.

Yields / Spring Oat

SPRING OAT ONE- AND THREE- YEAR AVERAGE YIELDS AT VARIOUS LOCATIONS IN SOUTH DAKOTA.

VARIETY	----- LOCATION -----															
	BROOKINGS		WATERTOWN		BERESFORD		HIGHMORE		SELBY		AURORA CO.		GROTON		FREEMAN	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR
	----- BU/AC -----															
ARMOR	122.4	.	159.0	.	103.3	.	85.6	.	133.8	.	82.1	.	114.3	.	103.5	.
BURNETT	91.7	60.1	147.8	110.6	96.8	67.3	82.2	81.2*	120.7	103.6	79.0	62.8	121.9	107.1	94.7	57.0*
DANE	150.0	112.9*	166.4*	134.6*	115.1*	94.5*	85.9	90.7*	122.0	113.8	78.9	80.5*	150.7*	127.8	101.2	75.4*
DON	123.6	110.4*	138.9	123.1	105.7	98.1*	60.6	83.4*	119.5	118.7	75.2	86.5*	119.1	127.0	101.1	79.0*
HAMILTON	106.1	90.8	137.5	115.9	100.8	87.6*	68.4	83.1*	122.0	116.3	82.6	77.6*	115.8	113.3	107.1	80.5*
HAZEL	125.3	105.3	140.6	121.5	109.2	95.6*	61.0	81.8*	111.9	116.4	75.0	84.0*	110.8	114.5	98.6	78.1*
HORICON	160.9*	130.5*	173.5*	141.4*	110.9	93.2*	92.1	90.2*	130.1	126.7	96.4*	86.3*	127.7	130.1*	113.1*	80.2*
HYTEST	114.8	74.4	144.1	107.0	93.7	68.6	84.7	80.1*	108.2	98.8	77.5	64.6	131.3	113.1	100.5	61.8*
KELLY	96.1	61.0	133.6	94.1	89.7	65.3	67.0	69.3*	102.2	93.3	72.6	59.1	121.2	100.7	80.8	60.6*
MOORE	133.3	83.6	150.6	115.1	88.4	60.8	103.6*	83.5*	135.1	116.2	89.1	61.9	129.3	123.4	101.4	53.2*
NEWDAK	166.8*	121.9*	169.1*	136.1*	123.0*	98.5*	112.4*	103.1*	152.6*	141.1*	94.1*	84.4*	151.5*	143.7*	115.1*	78.8*
OGLE	124.5	106.8	159.8*	129.7*	105.6	90.3*	79.9	87.3*	130.5	126.5	88.4	81.1*	139.0*	131.4*	109.3	76.3*
PORTER	127.0	103.2	161.5*	130.5*	106.7	86.1	105.7*	91.5*	131.1	123.1	88.1	77.6*	132.3	128.6	107.4	66.6*
PRAIRIE	118.3	.	161.1*	.	120.3*	.	86.8	.	148.6*	.	97.5*	.	129.6	.	119.2*	.
PREMIER	120.1	103.0	127.8	112.8	113.1	90.5*	78.1	81.9*	109.2	115.3	80.6	81.0*	118.7	121.2	91.3	71.3*
SETTLER	130.9	112.6*	134.2	122.1	118.3*	96.4*	86.1	84.2*	132.8	120.7	87.5	81.1*	143.9*	131.2*	97.1	75.4*
SHELDON	104.2	.	146.4	.	101.6	.	63.0	.	110.5	.	79.7	.	120.7	.	101.7	.
STARTER	105.8	84.7	145.4	107.5	103.1	85.2	63.6	75.1*	108.3	104.0	66.4	70.1*	118.7	113.0	89.6	65.9*
TROY	118.4	102.2	163.5*	134.4*	124.8*	89.8*	93.5	86.5*	143.9*	126.8	96.5*	80.9*	140.9*	134.4*	115.2*	65.7*
VALLEY	168.9*	121.5*	152.1	133.5*	104.9	84.5	109.9*	92.4*	144.4*	129.8*	89.1	86.5*	156.2*	145.9*	106.0	66.6*
LOCATION:	-----															
TEST AVERAGE-	125.1**	99.1	150.8	121.8	107.2	85.4	83.0	85.0	125.6	117.1	83.4	76.8	129.6	123.9	102.8	70.1
TEST LSD(5%)-	13.1\$	23.3	13.7	17.5	11.0	11.6	9.9	NS\$\$	10.9	13.7	7.6	18.4	23.4	15.9	9.8	NS
TEST C.V.	6.4#	6.2	5.5	4.5	6.2	6.0	7.3	6.0	5.3	7.1	5.5	10.4	11.0	7.4	5.3	9.8

* A TOP-YIELDING VARIETY - SEE YIELD COMMENTS FOR EXPLANATION.
 ** TEST AVERAGE-OF ALL ENTRIES; HOWEVER, ONLY VARIETIES ARE REPORTED.
 \$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
 \$\$ NS- INDICATES YIELD DIFFERENCES WITHIN A COLUMN ARE NOT SIGNIFICANT.
 # TEST C.V. - A MEASURE OF EXPERIMENTAL ERROR; IF THIS VALUE EXCEEDS 16.0% DATA SHOULD NOT BE USED IN MAKING VARIETY SELECTION DECISIONS.

(continued)

Yields / Spring Oat continued . . .

SPRING OAT ONE- AND THREE- YEAR AVERAGE YIELDS AT VARIOUS LOCATIONS IN SOUTH DAKOTA.

VARIETY	LOCATION									
	WALL		BISON		MARTIN		RALPH		BEAR BUTTE	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR
	BU/AC									
ARMOR	187.8*	.	128.0	.	161.0	.	155.6*	.	122.8*	.
BURNETT	144.6	89.0*	124.0	78.7	154.8	82.6*	147.2*	87.1	90.8	56.3*
DANE	160.1	102.4*	119.2	81.4*	146.9	89.5*	151.7*	92.9	95.2	64.8*
DON	163.4	102.7*	101.5	74.4	135.5	84.8*	115.7	79.0	106.6	66.0*
HAMILTON	165.7	103.6*	124.2	79.5	134.4	86.0*	122.8	84.2	88.1	63.0*
HAZEL	146.9	96.1*	111.1	75.7	138.3	84.2*	126.6	82.3	103.8	62.6*
HORICON	183.0*	107.5*	146.8*	91.3*	159.1	93.5*	163.2*	97.6*	113.7	69.0*
HYTEST	154.9	94.5*	129.0	82.4*	140.2	77.2*	128.5	80.8	92.9	55.7*
KELLY	144.5	86.0*	104.5	67.9	130.8	79.4*	122.1	71.7	74.9	52.6*
MOORE	171.6	97.3*	149.2*	91.1*	156.6	86.4*	152.9*	87.3	97.2	63.0*
NEWDAK	177.7*	106.2*	159.5*	97.1*	170.6*	97.7*	175.7*	112.2*	109.5	68.7*
OGLE	176.4	105.2*	126.2	85.8*	159.1	92.7*	165.9*	97.6*	103.8	67.4*
PORTER	165.1	98.0*	162.0*	98.6*	161.7	88.8*	169.5*	93.3	120.1*	67.5*
PRAIRIE	176.7*	.	149.2*	.	171.6*	.	171.5*	.	140.2*	.
PREMIER	144.9	99.9	111.9	78.3	132.4	86.5*	147.4*	88.9	82.8	60.1*
SETTLER	151.3	98.7*	126.5	86.1*	137.6	82.2*	138.7	89.7	94.8	62.6*
SHELDON	146.4	.	118.5	.	152.9	.	154.3*	.	106.2	.
STARTER	138.5	94.6*	123.3	81.1	127.7	76.8*	117.6	76.1	92.4	61.6*
TROY	199.2*	109.6*	148.4*	96.1*	174.3*	94.1*	139.1	85.7	120.5*	71.4*
VALLEY	171.0	105.1*	131.8	89.5*	159.6	86.5*	163.7*	96.9*	112.5	63.5*
LOCATION:										
TEST AVERAGE-162.0**	99.8	127.2	84.4	149.5	86.4	144.7	88.4	100.6	63.3	
TEST LSD(5%)- 22.6\$	NS\$\$	21.1	17.4	12.0	NS	36.0	17.4	20.4	NS	
TEST C.V.	8.5#	8.2	10.1	10.1	4.9	9.7	15.1	12.9	12.3	12.2

* A TOP-YIELDING VARIETY - SEE YIELD COMMENTS FOR EXPLANATION.

** TEST AVERAGE-OF ALL ENTRIES; HOWEVER, ONLY VARIETIES ARE REPORTED.

\$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.

\$\$ NS- INDICATES YIELD DIFFERENCES WITHIN A COLUMN ARE NOT SIGNIFICANT.

TEST C.V. - A MEASURE OF EXPERIMENTAL ERROR; IF THIS VALUE EXCEEDS 16.0% DATA SHOULD NOT BE USED IN MAKING VARIETY SELECTION DECISIONS.

Characteristics / Spring Barley

CHARACTERISTICS OF SPRING BARLEY VARIETIES

VARIETY	ORIGIN -YEAR	1992 DAYS TO HEADING	STATE-WIDE AVERAGES							TYPE			DISEASE RESISTANCE			
			PROTEIN (%)	BUSHEL WEIGHT (LBS)	HT. (IN.)	YIELD (BU/AC)		TOP YIELD (%)		STRAW STRENGTH	GRAIN	AWN	ROW	#SMUT	STEM #RUST	LEAF #SPOT
						90-92	1992	90-92	1992							
BOWMAN	ND-84	61	12.0	48.8	30	65.2	84.5	80	36	GOOD	FEED	SEMI-SMOOTH	2	S	S	MR
STARK	ND-91	62	11.5	48.6	31	70.9	93.3	100	82	GOOD	FEED	SEMI-SMOOTH	2	S	S	MR
B1603*	BAR I-90	62	.	.	.	.	89.3	-	45	GOOD	MALT	ROUGH	6	S	S	.
MOREX	MN-78	62	11.8	44.0	33	57.9	84.9	70	27	FAIR	MALT	SMOOTH	6	S	S	R
GALLATIN	MT-87	62	11.7	46.7	31	67.6	91.6	100	64	FAIR	FEED	ROUGH	2	S	S	MR
B1602*	BAR I-88	63	11.8	43.8	32	64.5	96.7	80	82	GOOD	MALT	ROUGH	6	S	S	MR
HAZEN	ND-84	63	11.8	44.0	32	68.2	96.3	80	73	GOOD	FEED	SEMI-SMOOTH	6	S	S	R
ROBUST*	MN-83	63	11.7	45.6	32	66.3	97.6	80	73	GOOD	MALT	SMOOTH	6	S	S	R
EXCEL*	MN-90	63	11.7	44.1	30	68.6	100.0	90	100	GOOD	MALT	SMOOTH	6	S	S	R

* PLANT VARIETY PROTECTION - TO BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED.

S = SUSCEPTIBLE, MS = MODERATELY SUSCEPTIBLE, MR = MODERATELY RESISTANT, R = RESISTANT.

Yields / Spring Barley

SPRING BARLEY ONE- AND THREE- YEAR AVERAGE YIELDS AT VARIOUS LOCATIONS IN SOUTH DAKOTA.

VARIETY	LOCATION											
	BROOKINGS		WATERTOWN		HIGHMORE		SELBY		AURORA CO.		GROTON	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR
	BU/AC											
BOWMAN	88.2	53.2	92.1	73.2*	68.9	49.6	94.4*	88.5*	66.0*	52.5*	76.6	76.5*
B1602	103.3*	61.7*	114.9*	80.5*	96.5*	65.9*	85.8	76.3	65.6*	49.4*	99.0*	79.8*
B1603	99.9*	.	106.7	.	71.3	.	91.8	.	58.5*	.	98.1*	.
EXCEL	106.7*	67.0*	118.7*	81.0*	88.7*	66.9*	101.7*	83.9	64.0*	52.1*	107.5*	85.5*
GALLATIN	93.9	62.5*	92.7	72.1*	83.6*	67.1*	93.6*	87.6*	72.3*	54.0*	79.0	70.1*
HAZEN	108.8*	68.5*	115.0*	81.2*	86.8*	65.2*	93.3	83.5	68.4*	53.8*	106.3*	87.6*
MOREX	93.7	52.8	96.6	67.0*	77.8	56.2*	81.5	67.5	65.0*	48.1*	89.4	71.4*
ROBUST	109.7*	67.2*	107.7	77.1*	95.9*	65.1*	89.2	77.1	65.7*	51.4*	103.0*	85.3*
STARK	99.6*	64.8*	112.9*	85.8*	90.0*	68.2*	97.4*	93.3*	68.7*	54.9*	94.0*	84.1*
LOCATION:												
TEST AVERAGE-	101.2**	62.2	107.9	77.2	84.6	63.0	93.1	82.2	65.7	52.0	97.0	80.0
TEST LSD(5%)-	12.2\$	9.0	12.7	NS\$\$	15.8	12.1	9.6	8.8	NS	NS	13.9	NS
TEST C.V.	7.1#	6.5	7.0	6.2	11.0	7.1	6.1	5.0	6.4	11.0	8.5	7.5

VARIETY	LOCATION									
	WALL		BISON		MARTIN		RALPH		BEAR BUTTE	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR
	BU/AC									
BOWMAN	107.6	75.7*	86.4	65.5*	96.4*	.	87.5*	71.1*	65.3	54.8*
B1602	103.4	63.6	121.0*	70.9*	101.6*	.	98.8*	68.8*	74.2*	46.9*
B1603	94.7	.	102.6	.	105.7*	.	95.2*	.	57.7	.
EXCEL	111.4*	69.2*	127.6*	77.3*	111.5*	.	93.0*	67.2*	71.8*	51.2*
GALLATIN	124.7*	77.3*	92.8	67.2*	96.7*	.	98.1*	77.2*	80.1*	55.1*
HAZEN	95.8	64.5	123.0*	74.7*	105.9*	.	91.8*	71.0*	64.6	46.7*
MOREX	97.6	64.0	92.2	58.9*	88.0*	.	83.8*	59.8*	68.4	46.5*
ROBUST	106.4	65.7	129.5*	76.2*	94.2*	.	95.1*	70.2*	76.9*	49.8*
STARK	108.7	75.5*	84.0	61.6*	95.5*	.	104.0*	75.2*	71.8*	52.6*
LOCATION:										
TEST AVERAGE-	105.9**	69.4	109.1	69.0	99.9	.	95.8	70.1	69.8	50.5
TEST LSD(5%)-	15.1\$	9.2	25.8	NS\$\$	NS	.	NS	NS	10.1	NS
TEST C.V.	8.4#	7.6	14.0	11.1	13.3	.	10.0	11.6	8.6	7.1

* A TOP-YIELDING VARIETY - SEE YIELD COMMENTS FOR EXPLANATION.
 ** TEST AVERAGE-OF ALL ENTRIES; HOWEVER, ONLY VARIETIES ARE REPORTED.
 \$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
 # TEST C.V. - A MEASURE OF EXPERIMENTAL ERROR; IF THIS VALUE EXCEEDS 16.0% DATA SHOULD NOT BE USED IN MAKING VARIETY SELECTION DECISIONS.

Characteristics / Spring Triticale

CHARACTERISTICS OF SPRING TRITICALE VARIETIES

VARIETY	ORIGIN -YEAR	1992 DAYS TO HEADING	STATE-WIDE AVERAGES						DISEASE RESISTANCE			
			PROTEIN (%)	BUSHEL WEIGHT (LBS)	HT. (IN.)	YIELD (BU/AC)		TOP YIELD (%)		STRAW STRENGTH	LEAF #RUST	STEM #RUST
						90-92	1992	90-92	1992			
KRAMER	ND-83	62	13.6	45.1	34	43.7	46.2	88	63	GOOD	MS	R
MARVAL	SD-86	62	14.2	43.9	39	43.8	49.0	100	88	GOOD	MR	R
T. VICTORIA*	SGI-	63	13.6	46.6	36	37.9	43.7	50	63	.	.	.

* PLANT VARIETY PROTECTION - TO BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED.
S = SUSCEPTIBLE, MS = MODERATELY SUSCEPTIBLE, MR = MODERATELY RESISTANT, R = RESISTANT.

Yields / Spring Triticale

SPRING TRITICALE ONE- AND THREE- YEAR AVERAGE YIELDS AT VARIOUS LOCATIONS IN SOUTH DAKOTA.

VARIETY	LOCATION									
	BROOKINGS		WATERTOWN		DAY CO.		SELBY		GROTON	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR
	BU/AC									
KRAMER	41.5	37.4*	49.9*	47.9*	43.3	53.9*	48.8	47.4	46.1	60.3*
MARVAL	46.5	40.1*	53.4*	48.1*	51.4*	59.1*	57.1*	53.3*	56.3*	67.1*
T. VICTORIA	35.9	29.3	44.2*	38.5*	37.5	45.0	42.4	41.0	42.7	52.3
LOCATION:										
TEST AVERAGE-	41.3**	35.6	49.2	44.8	44.1	52.7	49.4	47.2	48.4	59.9
TEST LSD(5%)-	NS\$\$	2.9\$	NS	NS	7.1	9.0	7.5	3.1	3.8	10.5
TEST C.V.	20.7#	15.4	6.5	5.6	7.1	6.2	6.6	11.0	3.5	6.0

VARIETY	LOCATION							
	WALL		BISON		RALPH		BEAR BUTTE	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR
	BU/AC							
KRAMER	54.9*	37.7*	30.2*	33.1*	50.6*	42.7*	50.0*	.
MARVAL	55.1*	33.2*	39.5*	32.1*	55.4*	43.3*	25.8	.
T. VICTORIA	50.1*	31.4*	37.3*	30.6*	51.1*	43.7*	51.6*	.
LOCATION:								
TEST AVERAGE-	53.4**	34.1	35.7	31.9	52.4	43.2	42.5	.
TEST LSD(5%)-	NS\$\$	NS	NS	NS	NS	NS	9.0\$	.
TEST C.V.	7.6#	9.4	12.5	10.4	4.4	7.3	9.4	.

* A TOP-YIELDING VARIETY - SEE YIELD COMMENTS FOR EXPLANATION.
** TEST AVERAGE-OF ALL ENTRIES; HOWEVER, ONLY VARIETIES ARE REPORTED.
\$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
\$\$ NS- INDICATES YIELD DIFFERENCES WITHIN A COLUMN ARE NOT SIGNIFICANT.
TEST C.V. - A MEASURE OF EXPERIMENTAL ERROR; IF THIS VALUE EXCEEDS 16.0% DATA SHOULD NOT BE USED IN MAKING VARIETY SELECTION DECISIONS.

Characteristics / Winter Wheat

CHARACTERISTICS OF WINTER WHEAT VARIETIES

VARIETY	ORIGIN -YEAR	1992 DAYS- JANUARY 1 TO HEADING	PROTEIN (%)	STATE-WIDE AVERAGES				STRAW STRENGTH	MIL- LING	WINTER HARDI- NESS	DISEASE RESISTANCE		
				BUSHEL WEIGHT (LBS)	HT. (IN.)	YIELD (BU/AC)					STREAK #MOAIC	LEAF #RUST	STEM #RUST
TAM 107*	TX-84	146	13.4	57.3	29	45.3	41.6	EXC.	ACC.	FAIR-G	MR	S	MS
KARL*	KS-88	147	14.6	58.5	30	42.5	29.5	EXC.	EXC.	FAIR	MR	MR	MS
SCOUT 66	NE-66	147	13.5	59.4	36	44.7	44.3	FAIR	GOOD	FAIR-G	MR	S	MR
CENTURA*	NE-83	148	13.9	58.5	34	47.2	44.3	GOOD	GOOD	GOOD	MS	MS	MR
QUANTUM 549*\$	HYT-89	148	13.4	57.3	33	50.0	49.8	FAIR	.	GOOD	MR	MR	MR
QUANTUM 562*\$	HYT-86	148	14.0	57.3	31	49.1	48.3	GOOD	GOOD	FAIR-G	MR	MS	MR
RAWHIDE*	NE-91	148	.	.	.	.	37.4	GOOD	.	GOOD	S	S	MR
SAGE	KS-73	148	13.4	59.2	35	43.9	41.3	GOOD	GOOD	GOOD	MR	MR	R
THUNDERBIRD*	NAPB-85	148	13.6	59.4	32	44.7	40.6	EXC.	ACC.	GOOD	MS	S	R
ABILENE*	NAPB-87	149	13.6	59.6	29	46.3	39.8	GOOD	GOOD	FAIR-G	MR	S	MR
ARAPAHOE*	NE-88	149	13.8	57.7	33	47.8	41.9	GOOD	GOOD	GOOD	S	MR	MR
BRONCO*	NAPB-91	149	.	.	.	.	35.8	GOOD	GOOD	GOOD	MS	MR	R
DAWN	SD-80	149	13.5	58.2	32	45.5	41.8	GOOD	GOOD	FAIR-G	MR	MS	R
RIO BLANCO*&	NAPB-	149	.	.	.	.	30.6	.	.	.	.	.	.
SIOUXLAND*	NE-84	149	13.4	57.2	36	46.8	41.5	GOOD	ACC.	GOOD	S	S	R
SIOUXLAND89*	TX-90	149	13.1	58.5	36	47.9	44.7	GOOD	ACC.	GOOD	S	S	R
TAM 200	TX-87	149	14.6	58.9	28	43.1	38.7	GOOD	ACC.	POOR	MR	MS	MR
BRULE	NE-82	150	13.5	56.5	34	46.1	39.3	GOOD	GOOD	GOOD	MR	MS	R
LAMAR	CO-	150	.	.	.	.	40.7	.	.	.	.	.	.
REDLAND*	NE-86	150	13.5	56.7	33	47.2	40.4	GOOD	GOOD	GOOD	MR	MS	R
ROSE	SD-81	152	13.9	58.4	36	46.8	47.8	GOOD	EXC.	GOOD-E	S	S	MR
AGASSIZ	ND-83	153	13.3	58.1	42	42.0	47.3	FAIR	GOOD	EXC.	S	S	MR
NORSTAR	CAN-77	153	13.6	57.2	42	40.1	54.3	FAIR	GOOD	EXC.	S	S	S
ROUGH RIDER	ND-76	153	13.9	58.8	38	40.8	44.3	FAIR	GOOD	EXC.	S	S	MR
SEWARD	ND-87	153	13.9	56.7	38	44.9	46.6	GOOD	ACC.	GOOD-E	S	S	MR

* PLANT VARIETY PROTECTION - TO BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED.
 # S = SUSCEPTIBLE, MS = MODERATELY SUSCEPTIBLE, MR = MODERATELY RESISTANT, R = RESISTANT.
 \$ A HYBRID WHEAT; & A WHITE WHEAT

Yields / Winter Wheat

WINTER WHEAT ONE- AND THREE- YEAR AVERAGE YIELDS AT VARIOUS LOCATIONS IN SOUTH DAKOTA.

VARIETY	LOCATION							
	HIGHMORE		ONIDA		DAKOTA LAKES		TRIPP CO.	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR
	BU/AC							
ABILENE	26.8	53.1*	38.2	.	29.0	.	45.4	40.9*
AGASSIZ	33.0	43.9*	44.4	.	36.7	.	54.3	39.3*
ARAPAHOE	22.5	51.2*	40.0	.	34.1	.	56.7	49.2*
BRONCO	18.7	.	31.3	.	22.4	.	44.9	.
BRULE	24.1	51.9*	34.1	.	22.9	.	54.4	47.8*
CENTURA	38.3	52.5*	36.6	.	26.7	.	56.3	51.2*
DAWN	33.5	51.4*	36.0	.	37.7	.	50.4	44.8*
KARL	11.1	45.8*	29.6	.	13.7	.	37.2	42.4*
LAMAR	39.1	.	32.8	.	31.2	.	48.7	.
NORSTAR	42.3*	38.8*	54.2*	.	49.2	.	63.5*	40.3*
QUANTUM 549	40.3*	54.3*	56.9*	.	35.6	.	62.9*	51.6*
QUANTUM 562	40.1*	56.3*	58.2*	.	39.7	.	62.2*	47.7*
RAWHIDE	26.3	.	31.9	.	20.0	.	39.5	.
REDLAND	26.3	52.5*	37.0	.	29.6	.	53.6	47.8*
RIO BLANCO	12.2	.	26.5	.	17.1	.	41.2	.
ROSE	36.5	50.9*	51.0	.	50.0	.	66.5*	46.3*
ROUGH RIDER	29.3	41.6*	47.6	.	42.8	.	57.9	42.4*
SAGE	36.0	49.2*	34.0	.	31.5	.	51.0	45.4*
SCOUT 66	41.6*	46.7*	42.6	.	33.1	.	56.2	49.0*
SEWARD	39.2	50.7*	46.6	.	43.8	.	62.9*	46.3*
SIOUXLAND	38.4	55.2*	40.2	.	26.4	.	59.5*	53.8*
SIOUXLAND89	39.6*	56.5*	34.6	.	32.4	.	58.7*	50.9*
TAM 107	27.6	45.4*	32.5	.	28.3	.	48.3	42.5*
TAM 200	31.6	48.2*	24.6	.	24.3	.	45.5	43.9*
THUNDERBIRD	35.7	53.4*	31.7	.	25.6	.	51.6	48.0*
LOCATION:								
TEST AVERAGE-	32.7**	50.2	39.1	.	31.7	.	54.4	46.4
TEST LSD(5%)-	5.3\$	NS\$	6.6	.	9.0	.	7.9	NS
TEST C.V.	9.9#	7.3	10.4	.	17.6	.	9.0	12.6

* A TOP-YIELDING VARIETY - SEE YIELD COMMENTS FOR EXPLANATION.
 ** TEST AVERAGE-OF ALL ENTRIES; HOWEVER, ONLY VARIETIES ARE REPORTED.
 \$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
 \$\$ NS- INDICATES YIELD DIFFERENCES WITHIN A COLUMN ARE NOT SIGNIFICANT.
 # TEST C.V. - A MEASURE OF EXPERIMENTAL ERROR; IF THIS VALUE EXCEEDS 16.0% DATA SHOULD NOT BE USED IN MAKING VARIETY SELECTION DECISIONS.

(continued)

Yields / Winter Wheat continued . . .

WINTER WHEAT ONE- AND THREE- YEAR AVERAGE YIELDS AT VARIOUS LOCATIONS IN SOUTH DAKOTA.

VARIETY	LOCATION											
	WALL		BISON		MARTIN		RALPH		BEAR BUTTE		OELRICHS	
	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR	92	3-YR
	BU/AC											
ABILENE	53.8*	56.4*	33.2	30.4	14.1	44.1*	49.6	.	52.3*	47.2*	55.5	63.6
AGASS IZ	63.8*	55.1*	37.2	27.5	24.2	35.4*	62.1	.	31.4	30.5	85.7	64.4
ARAPAHOE	61.2*	56.5*	34.0	30.9	13.4	44.5*	54.9	.	40.2	44.2*	62.1	64.1
BRONCO	57.9*	.	15.1	.	1.6	.	53.1	.	44.1	.	69.2	.
BRULE	55.6*	53.6*	22.6	24.9	13.4	44.0*	61.5	.	44.3	42.4*	59.7	62.3
CENTURA	61.5*	57.2*	31.2	31.0	10.1	41.7*	59.5	.	50.4*	44.3*	72.5	65.7
DAWN	52.6*	51.5*	18.6	24.7	12.6	40.6*	56.8	.	46.9*	39.5	73.0	64.4
KARL	54.2*	52.7*	14.7	21.7	11.9	45.8*	42.7	.	38.4	46.8*	41.2	53.9
LAMAR	64.3*	.	20.7	.	6.5	.	52.3	.	41.7	.	70.1	.
NORSTAR	68.1*	52.9*	50.8	30.4	35.9	36.6*	77.6	.	33.1	27.2	68.7	53.5
QUANTUM 549	66.8*	60.8*	41.4	33.7	23.9	47.3*	69.0	.	47.5*	41.5*	53.6	63.3
QUANTUM 562	61.6*	57.6*	35.4	29.3	21.9	48.4*	65.2	.	47.8*	45.0*	50.6	60.1
RAWHIDE	57.7*	.	17.0	.	11.6	.	55.2	.	46.7*	.	67.7	.
REDLAND	61.7*	56.6*	29.5	28.4	18.6	47.3*	45.3	.	44.1	42.5*	58.1	65.3
RIO BLANCO	51.8*	.	19.7	.	6.7	.	36.3	.	36.8	.	57.8	.
ROSE	61.2*	58.8*	37.7	.	20.4	39.2*	57.7	.	31.2	37.2	65.8	63.8
ROUGH RIDER	57.5*	50.2*	43.9	27.8	25.6	39.7*	63.7	.	28.0	29.5	46.3	48.1
SAGE	57.6*	52.7*	29.7	26.2	17.7	39.2*	52.6	.	42.2	44.2*	61.1	60.0
SCOUT 66	67.0*	62.1*	30.3	25.9	22.1	40.8*	39.4	.	46.0	42.5*	64.4	59.7
SEWARD	64.9*	55.0*	48.1	32.8	15.1	40.0*	58.0	.	32.7	34.7	54.3	54.9
SIOUXLAND	58.5*	54.8*	27.8	25.0	17.1	45.4*	54.6	.	45.7	44.1*	47.1	57.9
SIOUXLAND89	67.0*	59.7*	23.8	25.5	13.4	42.4*	59.5	.	48.5*	42.2*	69.1	65.5
TAM 107	67.8*	59.6*	23.8	21.3	7.1	41.4*	59.4	.	50.1*	48.4*	71.5	66.1
TAM 200	69.4*	57.7*	21.4	21.1	7.3	34.2*	32.9	.	51.6*	44.3*	78.5	68.8
THUNDERBIRD	65.4*	54.0*	28.6	26.3	8.3	38.9*	47.0	.	47.8*	42.7*	64.1	59.6
LOCATION:												
TEST AVERAGE-	62.8**	56.1	28.7	27.3	15.4	42.0	54.2	.	44.0	41.3	61.4	61.4
TEST LSD(5%)-	NSS\$	NS	9.9\$	NS	8.6	NS	14.9	.	6.0	7.0	NS	NS
TEST C.V.	9.9#	12.2	21.2	18.8	34.1	13.0	16.8	.	8.4	10.0	29.4	18.1

* A TOP-YIELDING VARIETY - SEE YIELD COMMENTS FOR EXPLANATION.
 ** TEST AVERAGE-OF ALL ENTRIES; HOWEVER, ONLY VARIETIES ARE REPORTED.
 \$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
 \$\$ NS- INDICATES YIELD DIFFERENCES WITHIN A COLUMN ARE NOT SIGNIFICANT.
 # TEST C.V. - A MEASURE OF EXPERIMENTAL ERROR; IF THIS VALUE EXCEEDS 16.0% DATA SHOULD NOT BE USED IN MAKING VARIETY SELECTION DECISIONS.

Characteristics / Winter Rye

CHARACTERISTICS OF WINTER RYE VARIETIES

VARIETY	ORIGIN -YEAR	RELATIVE HEADING (DAYS)	STATE-WIDE AVERAGES				STRAW STRENGTH	WINTER HARDINESS
			BUSHEL WEIGHT (LBS)	HEIGHT (IN.)	YIELD (BU/AC)			
					90-92	1992		
DACOLD	ND-89	0	.	.	72.4		GOOD	EXCELLENT
MUSKETEER	CAN-80	0	79.3	49	50.7	75.7	POOR	EXCELLENT
PRIMA	CAN-84	0	78.0	45	53.7	81.4	FAIR	POOR
RYMIN	MN-72	0	78.1	50	40.3	35.5	FAIR	POOR
DANKO	POL-	2	79.4	46	48.7	33.2	FAIR	POOR
KODIAK	CAN-71	3	74.4	50	37.8	48.9	FAIR	POOR

* PLANT VARIETY PROTECTION - TO BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED.
 # S = SUSCEPTIBLE, MS = MODERATELY SUSCEPTIBLE, MR = MODERATELY RESISTANT, R = RESISTANT.

Yields / Winter Rye

WINTER RYE ONE- AND THREE-YEAR AVERAGE YIELDS
 IN EASTERN SOUTH DAKOTA.

VARIETY	LOCATION	
	BROOKINGS	
	92	3-YR
	BU/AC	
DACOLD	72.4	.
DANKO	33.2	48.7*
KODIAK	48.9	37.8*
MUSKETEER	75.7	50.7*
PRIMA	81.4	53.7*
RYMIN	35.5	40.3*
LOCATION:		
TEST AVERAGE-	57.9**	46.3
TEST LSD(5%)-	12.4\$	NS\$\$
TEST C.V.	11.6#	13.4

* A TOP-YIELDING VARIETY - SEE YIELD COMMENTS FOR EXPLANATION.
 ** TEST AVERAGE-OF ALL ENTRIES; HOWEVER, ONLY VARIETIES ARE REPORTED.
 \$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
 \$\$ NS- INDICATES YIELD DIFFERENCES WITHIN A COLUMN ARE NOT SIGNIFICANT.
 # TEST C.V. - A MEASURE OF EXPERIMENTAL ERROR; IF THIS VALUE EXCEEDS
 16.0% DATA SHOULD NOT BE USED IN MAKING VARIETY SELECTION DECISIONS.

Small Grain Variety Recommendations for 1993 (continued)

Barley

Recommended:

(Variety-area)

Bowman	Statewide
Gallatin	Statewide
Excel @	1,2,4,6,7
Robust @	1,2,4,6,7
Stark	Statewide

Acceptable/Promising:

(Variety-area)

B1602 @	1,2,4,6,7
Hazen	1,2,4,6,7
Morex	1,2,4,6,7

(Excel, Morex and Robust -- malters approved by American Malting Barley Association.)

Winter Wheat

Recommended:

(Variety-area)

Abilene @	1*,3,4*,5,6
Arapahoe @	1*,3,4*,5,6,7*
Dawn	4*,5,6
Redland @	1*,3,4*,5,6,7*
Rose #	1*,2*,3**,4*,6,7
Seward	1*,2*,4*,6,7
Siouxland @	3,4*,5,6

Acceptable/Promising:

(Variety-area)

Brule	3,4*,5,6
Centura @	4*,5,6
Q549 @	1*,4*,5,6,7*
Q562 @\$	4*,5,6
Roughrider	1*,2*,4,7
Sage	4*,5,6
TAM 107 @\$	4*,5,6
Thunderbird @	4*,5,6

\$ Moderately susceptible to stem rust.

@ U.S. Plant Variety Protection applied for and/or certificate issued; seed sales of these varieties are restricted to classes of certified seed.

* Stubble planting only.

** Northern half of crop adaptation area.



Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA. Mylo A. Hellickson, Director of CES, SDSU, Brookings. Educational programs and materials offered without regard to age, race, color, religion, sex, handicap, or national origin. An Equal Opportunity Employer.

3,800 copies printed by CES at a cost of 47 cents each. October 1992.