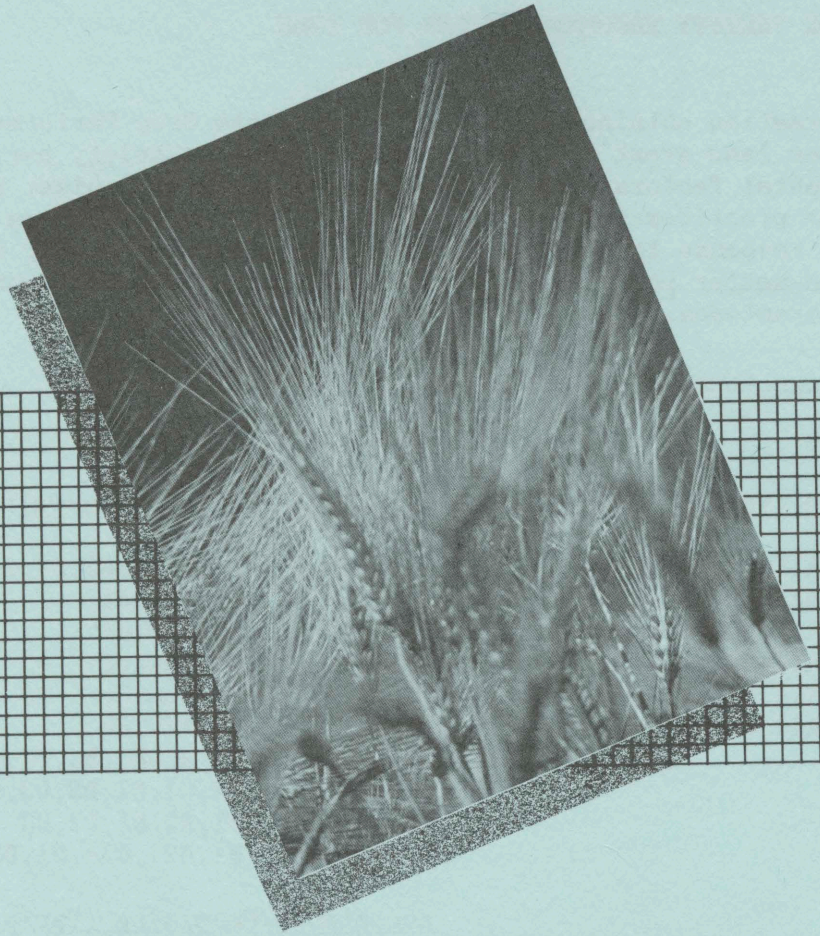
1988

1988 Variety Recommendations : Small Grains and Flax

Cooperative Extension, South Dakota State University



EC 774

1988 variety recommendations (1987 crop performance results)

small grains and flax

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

SMALL GRAIN AND FLAX VARIETY RECOMMENDATIONS FOR 1988

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 colleges in the Midwest. Variety performance is dependent on genetics and environment. Environmental factors such as temperature, moisture, plant pests, soil fertility, soil type, and the farmer's 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 variety-by-environmental interactions.

Spring Wheat

Recommended (Variety-area)

Alex	Statewide
Angus +	B2,C1,D1,D2,D3
Butte 86	Statewide
Guard @	Statewide
Len	Statewide
Marshall @	Statewide
Norseman @	East River Counties
Stoa	Statewide
2369 @	Statewide

Acceptable/Promising (Variety-area)

Celtic	Statewide
Norak	Statewide
Shield ~	Statewide

Durum Wheat

Recommended (Variety-area)

Crosby	All durum areas
Edmore	All durum areas
Rugby	All durum areas
Vic	All durum areas
Ward	All durum areas
Monroe	All durum areas

Oats

Recommended (Variety-area)

Burnett	A,B1,B2,B3,B4,C1,C2,C3,D4
Don	Statewide
Hytest	Statewide
Kelly	Statewide
Lancer	**Statewide
Moore	Statewide
Ogle	B1,B2,B3,B4,C2,C3,D4
Sandy	B2,C1,D1,D2,D3,E
Steele	B1,B3,D1,D2,D3
Wright @	B1,B2+,C1+,D1,D2,D3

Acceptable/Promising (Variety-area)

Benson @	A,B1,B2,B3,B4,C1,C2,D2,D3,D4
Hazel	Statewide
Lyon	B1,B2+,B3+,C1+,D1,D2,D3
Porter @	B1,B2,B3,D4
Starter	Statewide

1987 SOUTH DAKOTA TEST RESULTS, CHARACTERISTICS, AND YIELD AVERAGES-- SMALL GRAINS AND FLAX VARIETIES

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

Important factors in variety selection include yield, 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 quality may be more profitable for a producer 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 front cover) are made annually by the Plant Science Department Variety Recommendation Committee. Recommendations for a given crop may vary from one crop adaptation area to another. Crop adaptation areas (see map) are based on soil type, elevation, temperature, and rainfall. Varieties are recommended on the basis of growing season, average rainfall, disease frequency, and farming practices that are common to a given crop adaptation area. In many cases, farm location and management skills in one adaptation area may resemble those in another area. Keep this in mind when considering these recommendations. A variety, either public or private, must be evaluated according to the minimum requirements listed in Table 1 before it is eligible for the recommended list.

Varieties are classified as "recommended," or "acceptable/promising." Varieties listed as "recommended" have exhibited a high level of performance. Those listed as "acceptable/promising" have either 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 only been tested for a 2-year period and therefore do not have to meet the full minimum requirements that are needed for the recommended list as indicated in Table 1.

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

VARIETY DESCRIPTION

Descriptive data for all varieties (see table of characteristics) are evaluated annually by the Variety Recommendation Committee. Such 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. Since disease resistance may change from year to year, disease information is based on the most recent growing season in which data are available. In addition, days from planting to heading are given for the most recent growing season. Comments regarding the production aspects of some varieties are listed under Additional Variety Comments in the back of this publication.

YIELD

All yield information is obtained from the South Dakota Crop Performance Testing Program. One-year yields for varieties tested are included for each test location. In addition, 3-year averages are also included where varieties have been tested for 3 or more years. All yields, test averages, and test LSD values located at the bottom of each location are rounded off to the nearest whole number or bushel per acre.

It is important to note that test averages and LSD values indicated below each location column were calculated from all test data. The data obtained from each location included both released varieties and experimental lines presently under test. Therefore, the test average for a location will likely not equal the average of the varieties alone, because the averages of the experimental lines were also included when the test average was calculated. Likewise, the appropriate LSD value calculated from the location data also is based upon both varieties and experimental lines. The variety and experimental line yields were included in location yield averages and LSD value calculations because the results better reflect how released varieties perform with one another and with new experimental lines which may be released in the near future.

Yield comparisons should be made on only 3-year averages or on only 1-year averages. You should not compare a 1-year average of a variety at one location with a 3-year average of that variety at another location.

When evaluating varieties keep in mind that you should try to determine the average performance of a variety over many tests. This average performance is really called "yield stability." A variety which exhibits good yield stability is a variety which may or may not be the best yielder at all locations, but does rank high in yield potential at several locations. For example, a variety which ranks in the top yielding group over many locations exhibits good yield stability. One that is in the top yielding group at two locations and in the lower yielding group at several other locations

exhibits poor yield stability. To evaluate the yield potential among the different varieties tested, you can use the test LSD value. The test LSD refers to the least significant difference or simply, the smallest difference in yield between two varieties or experimental lines that will enable you to say one variety or experimental line is better than another. 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 similar in yield.

The test LSD value can also be used to determine the top yielding group for each location. For example, at each location the variety or experimental line with the highest numerical yield is identified using 1- or 3-year averages. The appropriate test LSD value for that location is then subtracted from the highest yielding variety or experimental line average. Varieties having an average yield which is equal to or less than this value (highest yield average minus (-) test LSD) are not in the top yielding group at that location. In contrast, however, varieties having averages which are greater than this value (highest yield average minus (-) test LSD) are in the top yield group at that location. For example, the top yielding spring wheat variety at Watertown for the last 3 years is Shield with an average yield of 52 bu/A. If we subtract seven (7) bu/A (the test LSD value) from 52 we obtain a value of 45. Therefore, all varieties listed in that column which have a yield of more than 45 bushels are in the top yielding group relative to the top yielder, Shield. Likewise, any variety that yields 45 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 group within a location has already been identified with an asterisk (*).

In some cases, a test LSD value is not given and the designation NS (non-significant) is indicated. This means that variety yield differences could not be determined. Therefore, all the varieties have a similar yielding potential for the location and time period indicated. In such cases, all varieties could be considered to be in the top yielding group. When considering variety performance remember that it is almost impossible to repeat environmental conditions of a test in future years; that is why you should look at as many trials or test locations as possible. Crop producers should examine yield data over as many test locations and years as is possible. As a minimum, comparisons in yielding potential among varieties should be done by using 3-year averages.

ORIGIN OF VARIETIES TESTED

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

Canada--CAN	Montana--MT
Colorado--CO	Missouri--MO
Illinois--IL	Nebraska--NE
Indiana--IN	North Dakota--ND
Iowa--IA	South Dakota--SD
Kansas--KS	Texas--TX
Minnesota--MN	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. An entry fee was charged for each private variety entered in the Crop Performance Testing Program. In most cases, the company which released a variety also entered the variety in the test trials. The abbreviations for these companies include:

BARI--Busch Agricultural Resources, Inc.
Cargill--CAR
Causmex Corp.--CAMEX
Hybri-Tech--HYT
Northrup King--NK
Nickerson American Plant Breeders-- NAPB
Pioneer Hi-Bred Int'l., Inc.--PIO
Rohm and Haas Co.--RHS
Western Plant Breeders--WPB

In some cases, however, some grain varieties were developed by one company and exclusive marketing rights were 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:

Seed Tec Int'l--HW 1035, Laker, Big Horn, Apex 83, Norak
Sexauer--Challenger
Cenex--Success
Agripro--Hawk, Ram, Thunderbird, Telemark, Nordic, Celtic, Fjord, Stockholm
Discount Farm Center, Inc., Watertown, SD--Norseman

The Variety Recommendation Committee consists of the Plant Science Department head; Extension agronomists and plant pathologists; plant breeders; research agronomists and plant pathologists; and representatives from the State Seed Laboratory, Seed Certification Service, and the Foundation Seed Stocks Division.

The efforts of K.K. Kirby, K.M. Seller, R. Schut, and L. Edler at Brookings and B.E. Jacobson at Rapid City in obtaining the small grain data is gratefully acknowledged. Inclusion of the flax data was made possible through the efforts of Dr. C. Lay, K. Grady, and J. Johnson.

The cooperation and resources of the following farm cooperators is gratefully acknowledged:

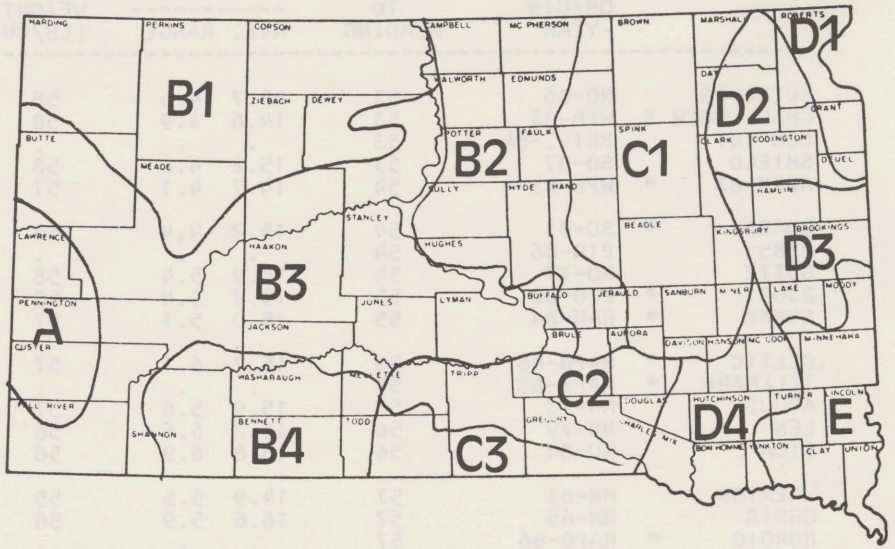
S. Anderson (Presho), G. Brockmueller (Freeman), P. Borgman (White Lake), D. Geise (Selby), G. Hawk (Plainview), M. and D. Johnson (Pierpont), K. Kinckler (Onida), T. Komes (Bear Butte), G. Nies (Martin), R. Rix (Groton), R. Renner (Wall), R. Rosenow (Ralph), K. Vojta (Selby), G. Wunder (Bison), and M. Wyly (Ft. Pierre).

Table 1. Minimum criteria needed to make recommended list in this publication.

Trait	Crop					
	HRS Wheat	Durum Wheat	HRW Wheat	Oats	Barley	Flax
Yield	3/15[a]	3/12	3/15	3/15	3/12	3/9
Test Weight	3/15	3/12	3/15	3/15	3/12	---
Height	3/15	3/12	3/15	3/15	3/12	WA
Protein	3/15	3/12	3/15	---	3/12	---
Heading Date (flowering)	3/6	3/6	3/6	3/6	3/6	WA
Quality Data	2/4[b]	WA	WA	WA	WA	3/9[c]
Moisture	---	---	---	---	---	---
Maturity	---	---	---	---	---	---
Disease Reaction	A	A	A	A	A	A
Lodging	WA	WA	WA	WA	WA	WA
Unique[d] Characteristics	WA	WA	WA	WA	WA	WA

A = annually
WA = when available
a = 3 = years and 15 = location - years
b = milling and baking parameters
c = oil content and iodine number
d = includes any production or marketing characteristics, either positive or negative, which may effect a variety's production in South Dakota, i.e. insect resistance and irrigation potential.

CROP ADAPTATION AREAS



A Black Hills
B1 Northwestern Tableland
B2 North Central Glacial Upland
B3 Pierre Plain
B4 Southwestern Tableland
C1 Northern James Valley
C2 South Central Upland
C3 South Central Tableland
D1 Northeast Lowland
D2 Northern Prairie Coteau
D3 Central Prairie Coteau
D4 Southern James Flatland
E Southeast Prairie Upland

CHARACTERISTICS OF SPRING WHEAT VARIETIES

VARIETY		ORIGIN -YEAR	1987 DAYS- PLANTING TO HEADING	STATE-WIDE AVERAGES PROTEIN (%) AVE.	PROTEIN (%) RANGE	TEST WEIGHT (LB/BU)	HEIGHT (IN.)	85-87 YIELD (BU/AC)	1987 YIELD (BU/AC)	STRAW STRENGTH	DISEASE RESISTANCE LEAF RUST	DISEASE RESISTANCE STEM RUST
BUTTE 86		ND-86	53	15.7	4.6	58	32	41	41	FAIR	MR	R
CHALLENGER	*	WPB-83	53	14.6	3.9	58	28	38	36	GOOD	R	R
LEO 747		PRIV.-84	53	.	.	.	.	.	37	GOOD	MS/S	MS
SHIELD		SD-87	53	15.2	4.8	58	33	39	34	GOOD	R	MR
APEX-83	*	WPB-83	54	14.7	4.1	57	28	37	35	GOOD	R	R
GUARD	*	SD-83	54	15.2	4.4	58	29	40	39	GOOD	R	R
2385		PIO-86	54	.	.	.	.	.	34	GOOD	R	MR
BUTTE		ND-77	54	14.9	5.4	58	33	37	38	FAIR	MS/S	R
2369	*	PIO-82	55	15.2	5.4	58	29	38	36	GOOD	MR	R
NORAK	*	R&H-84	55	15.0	5.1	57	28	39	36	GOOD	R	R
CELTIC	*	NAPB-86	56	15.7	6.1	57	30	39	36	GOOD	R	R
TELEMARK	*	NAPB-86	56	.	.	.	.	.	37	GOOD	R	R
ANGUS		MN-78	56	15.9	5.6	57	29	35	32	GOOD	R	R
LEN		ND-79	56	16.2	5.6	56	29	35	32	GOOD	R	R
STOA		ND-84	56	15.8	6.9	56	33	41	40	FAIR	R	R
WHEATON		MN-83	57	14.9	5.5	55	27	38	37	GOOD	R	R
CHRIS		MN-65	57	16.6	5.9	56	35	31	29	POOR	MR	R
NORDIC	*	NAPB-86	57	.	.	.	.	.	38	GOOD	MR	R
MARSHALL	*	MN-82	57	15.1	6.3	56	27	39	40	GOOD	MR	R
NORSEMAN	*	NAPB-85	57	15.8	7.1	54	27	39	38	GOOD	R	X
ALEX		ND-81	57	16.3	5.9	57	34	35	31	POOR	R	MR
SUCCESS	*	NAPB-84	58	15.7	6.4	54	29	35	33	POOR	MR	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.

** ADDITIONAL VARIETY COMMENTS ARE LOCATED IN THE BACK OF THIS PUBLICATION **

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

	LOCATION															
	BROOKINGS		WATERTOWN		BERESFORD		HIGHMORE		WALL		REDFIELD		BISON		MARTIN	
	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR
VARIETY	BU/AC															
ALEX	48	46*	38	42	22	41	29*	29	10	27	23	39	34	30	29	28
ANGUS	46	44*	43	42	37	43	32*	35*	8	29	24	37	28	26	27	29
APEX-83	43	46*	37	40	29	43	33*	34	21	30	21	37	45*	37*	36*	32*
BUTTE	56	47*	43	43	38	42	38*	35*	16	27	28	42	42	36*	37*	31
BUTTE 86	61*	53*	49*	50*	39	45*	42*	40*	24*	34*	30*	45*	43	38*	38*	36*
CELTIC	61*	49*	49*	45	37	46*	34*	37*	13	31*	27	42	30	29	33	32*
CHALLENGER	45	47*	40	44	30	45*	33*	34	20	30	25	40	45*	36*	38*	33*
CHRIS	39	39*	38	38	26	37	27*	25	14	26	22	32	31	27	26	26
GUARD	55	53*	46	48*	39	48*	35*	35*	23*	33*	28	41	44*	37*	37*	35*
LEN	49	45*	43	42	38	44	28*	30	10	27	22	38	28	28	33	31
LEO 747	49	.	50*	.	34	.	32*	.	20	.	26	.	42	.	34	.
MARSHALL	62*	51*	51*	47*	45*	46*	33*	32	12	31*	26	43	34	30	32	33*
NORAK	42	46*	43	46*	30	45*	32*	33	18	30	29	41	42	37*	31	31
NORDIC	58*	.	54*	.	44*	.	25*	.	9	.	25	.	28	.	34	.
NORSEMAN	57*	53*	52*	49*	40	45*	37*	35*	12	28	26	42	37	34	30	31
SHIELD	57*	53*	42	52*	37	51*	30*	36*	21	33*	22	46*	42	35	20	29
STOA	65*	54*	53*	49*	43*	51*	39*	34	14	32*	29	47*	35	31	39*	36*
SUCCESS	55	42*	47	47*	36	47*	26*	30	17	27	16	35	27	28	24	27
TELEMARK	51	.	46	.	39	.	31*	.	12	.	30*	.	34	.	36*	.
WHEATON	52	48*	50*	47*	35	46*	39*	33	13	28	28	44*	37	32	33	33*
2369	53	51*	52*	49*	36	47*	38*	35*	12	29	25	39	35	33	31	29
2385	48	.	37	.	27	.	28*	.	21	.	28	.	42	.	30	.
LOCATION:																
TEST AVERAGE-	52**	48	46	46	36	45	34	34	16	30	27	41	38	33	33	32
TEST LSD(5%)-	8$	NS#	7	7	5	7	NS	6	5	6	4	5	5	4	5	6

* A VARIETY IN THE TOP YIELDING GROUP WITHIN A LOCATION - SEE YIELD COMMENTS FOR EXPLANATION.
** TEST AVERAGE-INCLUDES ALL VARIETIES AND EXPERIMENTAL LINES; HOWEVER ONLY VARIETIES ARE REPORTED IN THE TABLE.
$ TEST LSD(5%)-SEE YIELD COMMENTS FOR EXPLANATION.
# NS-INDICATES YIELD DIFFERENCES AMONG VARIETIES WITHIN A LOCATION WERE NONSIGNIFICANT.

(CONTINUED)

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

	LOCATION									
	SELBY		AURORA CO.		GROTON		RALPH		BEAR BUTTE	
	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR
VARIETY	BU/AC									
ALEX	32	36	38	.	42	46	29*	34*	32	26
ANGUS	30	34	36	.	46	48	23	30*	32	29
APEX-83	33	37*	38	.	52	49	22	29*	42*	35*
BUTTE	34	40*	38	.	58*	49	26	28*	41*	30
BUTTE 86	37	42*	46*	.	58*	54*	29*	31*	40*	32
CELTIC	32	37*	41	.	51	51*	26	33*	40*	35*
CHALLENGER	34	38*	39	.	55*	51*	25	29*	37*	34*
CHRIS	30	31	33	.	37	38	26	26*	31	27
GUARD	40*	40*	47*	.	53	51*	28	30*	34	31
LEN	28	35	38	.	46	45	26	31*	30	28
LEO 747	34	.	41	.	54	.	24	.	39*	.
MARSHALL	36	38*	44*	.	58*	51*	28	36*	36*	28
NORAK	41*	42*	43	.	51	53*	24	29*	36*	36*
NORDIC	33	.	48*	.	54	.	29*	.	44*	.
NORSEMAN	32	38*	44*	.	60*	54*	28	34*	33	31
SHIELD	34	39*	32	.	38	44	28	27*	44*	36*
STOA	38*	41*	44*	.	62*	56*	29*	34*	36*	32
SUCCESS	26	34	38	.	49	49	26	32*	34	29
TELEMARK	37	.	52*	.	53	.	26	.	28	.
WHEATON	35	37*	43	.	55*	49	25	30*	33	32
2369	34	39*	37	.	55*	50*	25	30*	38*	30
2385	34	.	42	.	45	.	19	.	35	.
LOCATION:										
TEST AVERAGE-	35**	38	41	.	53	50	27	31	36	32
TEST LSD(5%)-	5$	6	8	.	10	7	4	NS#	9	6

* A VARIETY IN THE TOP YIELDING GROUP WITHIN A LOCATION- SEE YIELD COMMENTS FOR EXPLANATION.
** TEST AVERAGE- INCLUDES ALL VARIETIES AND EXPERIMENTAL LINES TESTED; HOWEVER, ONLY VARIETIES ARE REPORTED IN THE TABLE.
$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
# NS- INDICATES YIELD DIFFERENCES AMONG VARIETIES WITHIN A LOCATION WERE NONSIGNIFICANT.

CHARACTERISTICS OF DURUM WHEAT VARIETIES.

VARIETY	ORIGIN -YEAR	1987 DAYS- PLANTING TO HEADING	STATE-WIDE AVERAGES PROTEIN (%) AVE.	PROTEIN (%) RANGE	TEST WEIGHT (LB/BU)	HEIGHT (IN.)	85-87 YIELD (BU/AC)	1987 YIELD (BU/AC)	STRAW STRENGTH	QUALITY	DISEASE RESISTANCE LEAF RUST	DISEASE RESISTANCE STEM RUST
MONROE	ND-84	55	16.6	4.3	57	34	38	38	GOOD	STRONG GLUTEN	R#	R#
CROSBY	ND-76	56	17.4	5.2	57	35	37	38	FAIR	SATISFACTORY	R	R
STOCKHOLM*	NAPB-86	56	.	.	.	.	.	40	GOOD	STRONG GLUTEN	R	R
FJORD *	NAPB-86	57	.	.	.	.	.	38	GOOD	STRONG GLUTEN	R	R
EDMORE	ND-78	57	17.3	4.4	58	35	35	35	GOOD	STRONG GLUTEN	MR	R
WARD	ND-72	58	17.1	4.8	58	35	37	37	GOOD	SATISFACTORY	R	R
RUGBY	ND-73	58	17.5	5.3	58	34	37	38	GOOD	SATISFACTORY	MR	R
LAKER *	WPB-84	58	16.2	2.1	56	30	35	32	GOOD	SATISFACTORY	MR	R
VIC	ND-79	58	16.9	3.0	58	34	36	35	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.

** ADDITIONAL VARIETY COMMENTS ARE LOCATED IN THE BACK OF THIS PUBLICATION **

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

	LOCATION															
	BROOKINGS		WATERTOWN		DAY CO.		WALL		BISON		SELBY		GROTON		RALPH	
	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR
VARIETY	BU/AC															
CROSBY	55*	47*	55*	46*	47*	38*	10*	28*	30*	31*	27	32*	58*	47*	30*	31*
EDMORE	51	44*	51*	45*	44*	41*	7	28*	21	25*	27	31*	55*	45*	28*	29*
FJORD	49	.	56*	.	50*	.	10*	.	28*	.	32*	.	62*	.	27*	.
LAKER	43	42*	45*	42*	47*	39*	7	27*	22	27*	22	33*	43*	41*	30*	32*
MONROE	52*	47*	54*	48*	48*	39*	8	30*	32*	31*	33*	36*	60*	46*	28*	32*
RUGBY	59*	49*	59*	50*	42*	36*	9	28*	30*	30*	31*	35*	57*	47*	30*	31*
STOCKHOLM	57*	.	59*	.	53*	.	11*	.	26*	.	31*	.	49*	.	32*	.
VIC	53*	44*	50*	44*	48*	39*	4	27*	22	27*	26	33*	58*	45*	25*	31*
WARD	51	46*	52*	46*	45*	39*	8	28*	29*	30*	29	34*	58*	47*	29*	31*
LOCATION:																
TEST AVERAGE-	52**	45	52	46	46	39	8	28	27	29	28	33	57	46	28	31
TEST LSD(5%)-	8$	NS#	NS	NS	NS	NS	2	NS	7	NS	4	NS	NS	NS	NS	NS

* A VARIETY IN THE TOP YIELDING GROUP WITHIN A LOCATION - SEE YIELD COMMENTS FOR EXPLANATION.
** TEST AVERAGE-INCLUDES ALL VARIETIES AND EXPERIMENTAL LINES; HOWEVER ONLY VARIETIES ARE REPORTED IN THE TABLE.
$ TEST LSD(5%)-SEE YIELD COMMENTS FOR EXPLANATION.
# NS-INDICATES YIELD DIFFERENCES AMONG VARIETIES WITHIN A LOCATION WERE NONSIGNIFICANT.

(CONTINUED)

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

	- LOCATION-	
	BEAR BUTTE	
	87	3-YR
VARIETY-	-- BU/AC --	
CROSBY	27*	28*
EDMORE	34*	31*
FJORD	30*	.
LAKER	31*	28*
MONROE	30*	34*
RUGBY	25*	29*
STOCKHOLM	41*	.
VIC	29*	31*
WARD	30*	31*

LOCATION:
TEST AVERAGE- 29** 30
TEST LSD(5%)- NS#,$ NS

* A VARIETY IN THE TOP YIELDING GROUP WITHIN A LOCATION- SEE YIELD COMMENTS FOR EXPLANATION.
** TEST AVERAGE- INCLUDES ALL VARIETIES AND EXPERIMENTAL LINES TESTED; HOWEVER, ONLY VARIETIES ARE REPORTED.
$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
# NS- INDICATES YIELD DIFFERENCES AMONG VARIETIES WITHIN A LOCATION WERE NONSIGNIFICANT.

CHARACTERISTICS OF SPRING OAT VARIETIES

VARIETY	ORIGIN -YEAR	1987 DAYS- PLANTING TO HEADING	STATE-WIDE AVERAGES PROTEIN (%) AVE.	RANGE	TEST WEIGHT (LB/BU)	HEIGHT (IN.)	85-87 YIELD (BU/AC)	1987 YIELD (BU/AC)	STRAW STRENGTH	GRAIN COLOR	DISEASE RESISTANCE SMUT	STEM RUST	CROWN RUST
WEBSTER	IA-84	55	16.3	5.2	33	31	80	88	GOOD	YELLOW	MS#	S#	MR#
STARTER *	MN-86	55	18.4	6.7	37	32	81	86	STRONG	YELLOW	R	S	R
NODAWAY 70	MO-69	55	15.8	5.1	36	34	66	72	POOR	WHITE	R	S	S
KELLY	SD-84	55	17.5	4.0	36	33	72	74	FAIR	WHITE	MR	S	MR
DON	IL-85	56	16.6	6.3	35	30	88	94	GOOD	WHITE	R	S	R
PRESTON	MN-82	56	20.2	4.8	35	32	75	78	FAIR	IVORY	MS	S	R
BURNETT	IA-56	56	15.2	8.8	35	34	75	85	POOR	IVORY	MR	S	S
OTEE	IL-73	56	18.6	8.6	35	32	71	81	FAIR	IVORY	MR	MS	S
OGLE	IL-80	57	14.5	7.9	32	31	86	103	GOOD	YELLOW	MS	S	MS
LANCER	SD-79	57	16.4	7.8	34	32	76	81	GOOD	WHITE	MR	MR	S
HAZEL	IL-85	57	15.5	6.5	35	30	87	93	STRONG	WHITE	S	S	R
HYTEST	SD-86	58	17.1	6.0	38	36	77	80	GOOD	LT. CREAM	MR	S	MR
BENSON *	MN-79	59	16.8	6.6	34	35	75	81	FAIR	WHITE	R	S	MR
LYON	MN-77	59	17.5	8.9	33	37	71	74	GOOD	WHITE	R	MR	S
WRIGHT *	WI-76	59	17.9	7.7	36	36	78	86	FAIR	IVORY	R	MR	MR
STEELE	ND-84	60	18.4	7.0	33	35	80	83	GOOD	LT. TAN	MS	R	R
MOORE	MN-79	60	16.7	10	34	35	79	84	GOOD	WHITE	R	R	MR
MONIDA	MT-84	60	.	.	.	.	.	112	GOOD	WHITE		S	S
SANDY	SD-86	60	16.1	9.3	35	36	77	79	STRONG	LT. CREAM	MR	S	MR
PROAT *	MN-85	61	19.4	9.0	34	34	77	85	GOOD	LT. TAN	R	S	R
PORTER *	IN-82	62	17.5	13	33	32	81	96	GOOD	LT. TAN	R	S	S

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** ADDITIONAL VARIETY COMMENTS ARE LOCATED IN THE BACK OF THIS PUBLICATION **

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

	LOCATION															
	BROOKINGS		WATERTOWN		BERESFORD		HIGHMORE		WALL		BISON		MARTIN		SELBY	
	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR
VARIETY	BU/AC															
BENSON	121	95	103	91*	48	68	50	69*	88*	90*	94	72	101	76	76	47*
BURNETT	112	82	99	87*	52	62	58*	67*	91*	94*	109	78*	95	74	86	52*
DON	138*	126*	127*	117*	99*	107*	64*	72*	76	88*	113*	78*	92	83	81	50*
HAZEL	148*	129*	114	107*	84	102*	59*	73*	82	90*	110	76	100	82	79	55*
HYTEST	97	93	106	102*	52	74	58*	65	78	89*	94	71	90	73	75	49*
KELLY	103	95	76	89*	39	71	50	63	63	81*	95	67	81	67	77	46*
LANCER	100	92	91	92*	56	74	49	68*	80	88*	100	74	96	74	75	48*
LYON	89	84	83	84*	40	64	49	64	70	82*	104	72	93	67	74	46*
MONIDA	.	.	.	.	.	.	.	.	108*	.	136*	.	142*	.	.	.
MOORE	108	100	87	94*	57	79	56	68*	80	86*	111	77*	106	77	79	51*
NODAWAY 70	102	80	76	69	32	55	50	58	63	81*	103	72	71	64	72	44*
OGLE	142*	97	133*	105*	114*	94*	67*	73*	77	90*	110	84*	94	81	93*	59*
OTEE	123	87	100	81*	74	75	54	61	63	78*	87	68	78	68	70	45*
PORTER	142*	98	113	92*	74	79	66*	76*	101*	95*	117*	76	123	92*	92*	55*
PRESTON	117	106	97	96*	79	85	47	57	68	85*	93	70	70	62	72	48*
PROAT	116	106	99	98*	64	84	60*	69*	94*	85*	93	67	99	75	80	49*
SANDY	100	98	88	97*	47	72	50	65	70	83*	113	74	103	74	79	50*
STARTER	126	115*	101	96*	83	96*	59*	66	83*	87*	112	80*	86	72	75	51*
STEELE	112	113*	89	105*	64	89*	60*	72*	75	85*	105	72	110	77	79	46*
WEBSTER	123	105	99	93*	79	88*	52	67	74	84*	117*	85*	85	72	76	50*
WRIGHT	118	100	105	96*	66	82	56	69*	74	85*	99	73	97	71	76	51*
LOCATION:																
TEST AVERAGE-	117**	99	102	95	67	80	57	67	77	87	106	75	98	76	80	50
TEST LSD(5%)-	16$	18	14	NS#	15	22	10	9	25	NS	23	9	11	6	6	NS

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(CONTINUED)

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

	LOCATION									
	AURORA CO.		GROTON		RALPH		BEAR BUTTE		FREEMAN	
	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR
VARIETY	BU/AC									
BENSON	79	.	115	103	72	56*	70	.	52	70
BURNETT	97	.	116	107*	71	56*	66	.	62	70
DON	96	.	143*	114*	58	52	89	.	63	87*
HAZEL	97	.	121	109*	67	49	85	.	71	86*
HYTEST	82	.	124	106*	60	51	68	.	64	76*
KELLY	88	.	100	97	50	42	80	.	63	74
LANCER	98	.	113	104*	62	49	86	.	59	72
LYON	73	.	93	97	69	55*	76	.	57	70
MONIDA	.	.	.	.	87*	.	88	.	.	.
MOORE	82	.	132*	117*	63	56*	82	.	60	78*
NODAWAY 70	84	.	88	90	44	39	89	.	65	62
OGLE	128*	.	133*	117*	68	57*	97*	.	79*	79*
OTEE	94	.	120	93	55	43	84	.	64	71
PORTER	84	.	118	110*	81*	61*	84	.	58	71
PRESTON	84	.	114	98	51	43	71	.	64	71
PROAT	87	.	126*	105*	66	49	70	.	60	71
SANDY	71	.	107	113*	73	59*	73	.	56	73
STARTER	84	.	105	99	55	47	84	.	65	77*
STEELE	81	.	102	104*	78	55*	70	.	56	74
WEBSTER	98	.	136*	109*	57	46	90*	.	69	78*
WRIGHT	85	.	132*	112*	72	52	77	.	59	72
LOCATION:										
TEST AVERAGE-	90**	.	121	105	67	52	81	.	63	74
TEST LSD(5%)-	12$	.	29	14	9	9	13	.	7	11

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CHARACTERISTICS OF SPRING BARLEY VARIETIES

VARIETY	ORIGIN -YEAR	1987 DAYS- PLANTING TO HEADING	STATE-WIDE AVERAGES: PROTEIN (%) AVE.	PROTEIN (%) RANGE	TEST WEIGHT (LB/AC)	HEIGHT (IN.)	85-87 YIELD (BU/AC)	1987 YIELD (BU/AC)	STRAW STRENGTH	GRAIN TYPE	AWN TYPE	ROW TYPE	DISEASE RESISTANCE: SMUT	STEM RUST	LEAF SPOT
PRIMUS II	SD-66	52	13.0	3.6	47	29	63	56	FAIR	FEED	SMOOTH	6	S#	R#	S#
BOWMAN	ND-84	55	13.1	5.4	50	29	74	69	GOOD	FEED	SMOOTH	2	S	R	MR
GLENN	ND-78	56	13.6	4.2	45	29	63	57	FAIR	MALT	ROUGH	6	S	R	MR
AZURE	ND-82	56	13.1	4.2	45	31	68	62	FAIR	FEED	SMOOTH	6	S	R	MR
HAZEN	ND-84	57	13.2	4.0	46	30	68	64	GOOD	FEED	SMOOTH	6	S	S	R
MOREX	ND-78	57	13.1	5.6	46	31	64	57	FAIR	MALT	SMOOTH	6	S	R	R
ROBUST *	MN-83	57	13.2	7.2	47	30	67	61	GOOD	MALT	SMOOTH	6	S	R	R
GALLATIN	MT-87	58	.	.	.	.	.	70	FAIR	FEED	ROUGH	2	S	.	MR
LEWIS	MT-85	59	.	.	.	.	.	66	FAIR	FEED	ROUGH	2	S	.	MS

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

	LOCATION: BROOKINGS		WATERTOWN		HIGHMORE		WALL		BISON		MARTIN		SELBY		AURORA CO.	
VARIETY	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR
	BU/AC															
AZURE	67*	75*	65*	77*	57*	58*	45	67*	83*	55*	53	56	69*	38*	60	.
BOWMAN	72*	75*	67*	72*	70*	66*	59*	77*	88*	62*	70*	65*	58	39*	73*	.
GALLATIN	71*	.	67*	.	67*	.	55*	.	87*	.	81*	.	73*	.	73*	.
GLENN	67*	72*	53	67*	60*	59*	40	59	71*	51	60	55	60	35#	54	.
HAZEN	74*	78*	63*	72*	61*	61*	44	66*	82*	52	67*	61*	69*	38*	67*	.
LEWIS	66*	.	59	.	69*	.	53*	.	85*	.	72*	.	63	.	72*	.
MOREX	51	61	52	62	45	51	45	59	77*	50	62	54	59	37*	54	.
PRIMUS II	73*	76*	48	62	52	49	44	59	77*	49	51	53	58	33*	48	.
ROBUST	74*	79*	61*	70*	61*	54	39	64	78*	51	59	53	63	36*	57	.
LOCATION:																
TEST AVERAGE-	68**	74	59	69	60	57	47	64	81	53	64	57	64	36	62	.
TEST LSD(5%)-	12$	9	8	10	14	10	8	11	NS#	8	17	9	8	NS	7	.

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$ TEST LSD(5%)-SEE YIELD COMMENTS FOR EXPLANATION.
\# NS-INDICATES YIELD DIFFERENCES AMONG VARIETIES WITHIN A LOCATION WERE NONSIGNIFICANT.

(CONTINUED)

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

	LOCATION					
	GROTON		RALPH		BEAR BUTTE	
	87	3-YR	87	3-YR	87	3-YR
VARIETY	BU/AC					
AZURE	75*	82*	49	41*	60*	51*
BOWMAN	61*	81*	65*	51*	78*	64*
GALLATIN	65*	.	70*	.	65*	.
GLENN	48*	67	52	40*	58*	.
HAZEN	54*	74*	58	47*	62*	56*
LEWIS	54*	.	62*	.	68*	.
MOREX	54*	71	60	46*	62*	50*
PRIMUS II	53*	68	47	42*	65*	59*
ROBUST	60*	77*	52	43*	61*	55*
LOCATION:						
TEST AVERAGE-	58**	74	57	44	64	56
TEST LSD(5%)-	NS#,$	9	9	NS	NS	NS

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

NS- INDICATES YIELD DIFFERENCES AMONG VARIETIES WITHIN A LOCATION WERE NONSIGNIFICANT.

CHARACTERISTICS OF FLAX VARIETIES.

VARIETY	ORIGIN -YEAR	RELATIVE TIME IN FLOWERING (DAYS)	SEED SIZE	--- COLOR --- FLOWER	SEED	STATE-WIDE AVERAGES 1986 OIL CONTENT (%)	HEIGHT (IN.)	1985-87 YIELD (BU/AC)	1987 YIELD (BU/AC)	DISEASE RESISTANCE WILT	RUST
CULBERT	MN-75	0	MED-SM	BLUE	BROWN	37.3	21	31	29	MR#	R#
CULBERT 79	SD-79	0	MED-SM	BLUE	BROWN	37.0	20	31	27	MR	R
LINOTT	CAN-66	0	SMALL	BLUE	BROWN	36.9	20	30	24	MS	R
WISHEK	ND-79	0	MEDIUM	BLUE	BROWN	37.0	20	30	26	MS	R
CLARK	SD-83	1	MEDIUM	BLUE	BROWN	37.0	20	31	25	MR	R
VERNE	MN-87	1	--	BLUE	BROWN	37.7	21	32	27	R	R
VIMY	CAN-86	1	--	BLUE	BROWN	36.8	21	31	27	--	R
LINTON	ND-85	2	MEDIUM	BLUE	BROWN	37.2	21	31	25	R	R
NORLIN	CAN-83	2	MEDIUM	BLUE	BROWN	36.9	21	31	25	MS	R
NORMAN	CAN-84	3	MED-SM	BLUE	BROWN	38.7	21	31	26	MR	R
FLOR	ND-81	3	MEDIUM	BLUE	BROWN	36.9	21	32	26	MS	R
RAHAB	SD-85	4	MEDIUM	BLUE	BROWN	38.5	21	32	26	MR	R
DUFFERIN	CAN-75	5	MED-SM	BLUE	BROWN	38.1	21	33	30	R	R
MCGREGOR	CAN-82	6	MEDIUM	BLUE	BROWN	38.3	23	33	26	MR	R

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** ADDITIONAL VARIETY COMMENTS ARE LOCATED IN THE BACK OF THIS PUBLICATION **

FLAX ONE- AND THREE- YEAR AVERAGE YIELDS IN SOUTH DAKOTA

	LOCATION							
	BROOKINGS		WATERTOWN		REDFIELD		SELBY	
	87	3-YR	87	3-YR	87	3-YR	87	3-YR
VARIETY	BU/AC							
CLARK	31*	32*	25*	31*	24*	37*	21*	24*
CULBERT	37*	35*	25*	30*	26*	37*	28*	24*
CULBERT 79	35*	32*	25*	31*	22*	37*	24*	23*
DUFFERIN	33*	34*	32*	34*	29*	39*	25*	25*
FLOR	33*	34*	30*	32*	20*	38*	23*	23*
LINOTT	30*	31*	26*	28*	21*	37*	17*	22*
LINTON	28*	31*	26*	32*	23*	36*	23*	24*
MCGREGOR	33*	34*	28*	33*	24*	41*	19*	23*
NORLIN	36*	33*	25*	29*	19*	36*	20*	24*
NORMAN	30*	33*	29*	33*	21*	35*	23*	24*
RAHAB	36*	35*	27*	33*	22*	38*	20*	24*
WISHEK	34*	32*	26*	31*	25*	35*	20*	24*
VERNE	30*	33*	26*	32*	27*	40*	25*	25*
VIMY	32*	32*	26*	26*	27*	38*	24*	27*
LOCATION:								
TEST AVERAGE-	33**	33	27	31	24	37	22	24
TEST LSD(5%)-	NS#,$	NS	NS	NS	NS	NS	NS	NS

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CHARACTERISTICS OF WINTER WHEAT VARIETIES

VARIETY	ORIGIN -YEAR	1987 DAYS-JANUARY 1 TO HEADING	STATE-WIDE AVERAGES: PROTEIN (%) AVE.	PROTEIN (%) RANGE	TEST WEIGHT (LB/BU)	HEIGHT (IN.)	85-87 YIELD (BU/AC)	1987 YIELD (BU/AC)	STRAW STRENGTH	MIL-ING	WINTER HARDI-NESS	DISEASE RESISTANCE: STREAK MOSAIC	LEAF RUST	STEM RUST
TAM 107	TX-84	149	13.2	5.9	58	26	42	48	EXC.	ACC.**	FAIR	.	S#	MR#
ARKAN	KS-82	150	.	.	.	.	.	39	EXC.	???	FAIR-G	S#	MR	R
SIOUXLAND	NE-84	150	14.0	5.2	59	32	46	47	GOOD	GOOD	GOOD	S	MR	R
HW 1035	RHS-85	150	.	.	.	.	.	51	GOOD	GOOD	EXC.	MR	MS	MR
THUNDERBIRD *	NAPB-85	150	14.2	6.5	60	28	43	46	EXC.	ACC.	GOOD	.	MR	R
NORKAN	KS-86	150	.	.	.	.	.	46	GOOD	EXC.	FAIR	S	R	R
SAGE	KS-73	150	14.2	6.0	60	32	43	48	GOOD	GOOD	GOOD	MR	M	R
DODGE	KS-86	151	.	.	.	.	.	45	GOOD	EXC.	POOR	S	R	R
SCOUT 66	NE-66	151	13.8	6.0	59	33	43	50	FAIR	GOOD	FAIR	MR	S	MR
$QUANTUM 568*	HYT	151	13.8	4.7	59	29	49	54	GOOD	.	FAIR-G	.	.	.
$QUANTUM 554*	HYT	151	14.3	5.0	58	32	41	49	GOOD	.	FAIR-G	S	MS	S
CENTURA *	NE-83	151	13.8	5.3	59	31	44	50	GOOD	GOOD	GOOD	MS	MS	MR
BENNETT *	NE-76	151	14.6	5.1	59	29	41	45	EXC.	GOOD	GOOD	S	S	R
NELL	SD-81	151	14.3	6.1	59	31	41	43	GOOD	EXC.	GOOD	S	S	MR
$QUANTUM 562*	HYT	151	.	.	.	.	.	55	.	.	.	.	.	.
CENTURK 78 *	NE-78	152	13.5	5.3	59	31	44	48	GOOD	GOOD	GOOD	MS	S	R
COLT *	NE-83	152	14.0	6.7	58	26	43	49	EXC.	GOOD	FAIR	S	MR	R
RODEO *	RHS-	152	.	.	.	.	.	51	GOOD	.	FAIR-G	.	MR	MR
ABILENE *	NAPB-87	152	.	.	.	.	.	52	GOOD	GOOD	GOOD	.	R	R
CODY *	NE-86	152	.	.	.	.	.	51	GOOD	GOOD	GOOD	S	MR	MR
$BOUNTY 205	CAR-84	152	14.1	5.2	58	29	41	43	GOOD	ACC.	FAIR-G	.	MR	MR
$BOUNTY 301	CAR-83	152	14.2	3.9	58	29	39	41	GOOD	ACC.	FAIR-G	.	R	R
BRULE	NE-82	152	12.7	5.4	57	30	45	49	GOOD	GOOD	GOOD	MS	MR	MR
DAWN	SD-80	152	13.8	5.5	59	29	42	44	GOOD	GOOD	FAIR-G	MR	MS	R
REDLAND *	NE-86	153	.	.	.	.	.	49	GOOD	GOOD	GOOD	MR	MS	R
LANCOTA *	NE-75	153	.	.	.	.	.	41	GOOD	EXC.	GOOD	MR	R	R
RITA	SD-80	153	14.3	5.2	57	29	41	42	GOOD	GOOD	GOOD	S	MR	R
BIG HORN *	RH-84	153	14.2	6.2	57	28	41	50	GOOD	GOOD	GOOD-E	.	S	S
ROSE	SD-81	153	14.4	5.1	59	31	45	52	GOOD	EXC.	GOOD-E	S	S	MR
NORWIN	MT-85	153	.	.	.	.	.	45	EXC.	GOOD	EXC.	.	S	R
AGASSIZ	ND-83	154	14.3	6.7	59	37	41	46	POOR	GOOD	EXC.	.	S	MR
ROUGHRIDER	ND-76	154	13.9	6.7	59	34	42	44	POOR	GOOD	EXC.	S	S	MS
SEWARD	ND-87	.	.	.	.	.	.	.	GOOD	ACC.	EXC.	S	MS	MR

* PLANT VARIETY PROTECTION - TO BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED.
$ INDICATES THE VARIETY IS A HYBRID.
* ACC. = ACCEPTABLE, EXC. = EXCELLENT, ??? = QUESTIONABLE.
# S = SUSCEPTIBLE, MS = MODERATELY SUSCEPTIBLE, MR = MODERATELY RESISTANT, R = RESISTANT.

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

	LOCATION															
	HIGHMORE		PRESHO		DAY CO.		WALL		REDFIELD		BISON		FT. PIERRE		MARTIN	
	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR	87	3-YR
VARIETY	BU/AC															
ABILENE	54*	.	43*	.	42*	.	70*	.	67	.	47	.	50*	.	54*	.
AGASSIZ	44	38*	45*	30*	45*	50*	56	51*	60	57*	44	36*	43	.	40	33*
ARKAN	35	.	48*	.	34	.	57	.	46	.	37	.	44	.	32	.
BENNETT	43	38*	42	28*	33	40*	62	53*	57	53*	43	36*	42	.	45*	38*
BIG HORN	51*	41*	48*	31*	39	45*	64	49*	59	55*	45	39*	49*	.	49*	34*
BOUNTY 205	54*	43*	39	28*	41*	50*	62	52*	63	55*	36	34*	48	.	53*	45*
BOUNTY 301	38	41*	34	24*	39	48*	57	53*	57	56*	36	31	51*	.	47*	39*
BRULE	50*	46*	52*	35*	48*	53*	65	57*	65	64*	52*	41*	42	.	38	36*
CENTURA	57*	46*	51*	38*	39	46*	62	54*	64	61*	45	38*	53*	.	47*	37*
CENTURK 78	55*	48*	34	32*	41*	42*	65	57*	68	61*	56*	43*	51*	.	44*	36*
CODY	50*	.	51*	.	41*	.	70*	.	67	.	55*	.	47	.	40	.
COLT	49*	39*	44*	29*	38	42*	70*	56*	64	58*	46	41*	52*	.	52*	41*
DAWN	47	40*	45*	32*	36	48*	59	50*	58	57*	41	35*	48	.	51*	39*
DODGE	45	.	40	.	36	.	59	.	56	.	50*	.	44	.	45*	.
HW 1035	57*	.	36	.	42*	.	72*	67*	67	.	48*	.	45	.	50*	46*
LANCOTA	42	.	37	.	33	.	54	.	57	.	42	.	46	.	41	.
NELL	34	36*	44*	33*	32	40*	59	50*	58	60*	45	37*	45	.	38	34*
NORKAN	48*	.	41	.	38	.	58	.	60	.	53*	.	41	.	41	.
NORWIN	44	.	29	.	32	.	64	.	61	.	50*	.	38	.	40	.
QUANTUM 554	51*	.	45*	.	40	.	64	.	59	.	45	.	48	.	53*	.
QUANTUM 562	58*	.	45*	.	42*	.	71*	.	77*	.	53*	.	52*	.	52*	.
QUANTUM 568	56*	.	45*	.	44*	.	69*	.	76*	.	50*	.	56*	.	50*	.
REDLAND	54*	.	50*	.	41*	.	61	.	67	.	42	.	49*	.	47*	.
RITA	36	36*	43	29*	36	48*	59	49*	56	61*	35	34*	44	.	48*	37*
RODEO	55*	.	52*	.	37	.	65	.	63	.	54*	.	49*	.	47*	.
ROSE	52*	43*	47*	30*	41*	45*	65	55*	62	68*	53*	41*	45	.	46*	35*
ROUGHRIDER	44	41*	43	32*	26	41*	55	51*	54	61*	44	36*	43	.	36	33*
SAGE	52*	41*	40	30*	37	41*	65	55*	57	58*	50*	38*	40	.	49*	41*
SCOUT 66	50*	39*	46*	33*	41*	43*	63	54*	59	59*	48*	37*	50*	.	49*	38*
TAM 107	49*	42*	53*	39*	37	43*	65	54*	57	59*	44	37*	45	.	43	35*
THUNDERBIRD	52*	42*	46*	34*	33	43*	59	51*	56	57*	40	33*	49*	.	45*	42*
SIOUXLAND	51*	44*	45	32*	35	48*	70*	58*	61	60*	49*	42*	43	.	40	44*
LOCATION:																
TEST AVERAGE-	48**	41	44	32	38	45	63	53	61	60	46	37	46	.	45	38
TEST LSD(5%)-	11$	NS#	10	NS	8	NS	6	NS	6	NS	9	NS	7	.	10	NS

* A VARIETY IN THE TOP YIELDING GROUP WITHIN A LOCATION - SEE YIELD COMMENTS FOR EXPLANATION.
** TEST AVERAGE-INCLUDES ALL VARIETIES AND EXPERIMENTAL LINES; HOWEVER ONLY VARIETIES ARE REPORTED IN THE TABLE.
$ TEST LSD(5%)-SEE YIELD COMMENTS FOR EXPLANATION.
# NS-INDICATES YIELD DIFFERENCES AMONG VARIETIES WITHIN A LOCATION WERE NONSIGNIFICANT.

(CONTINUED)

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

	LOCATION							
	ONIDA		RALPH		BEAR BUTTE		PLAINVIEW	
VARIETY	87	3-YR	87	3-YR	87	3-YR	87	3-YR
ABILENE	66*	.	43*	.	53*	.	37*	.
AGASSIZ	50	45*	47*	40*	50	42	26	27
ARKAN	38	.	33	.	39	.	25	.
BENNETT	51	42*	34	31*	50	47	35	42*
BIG HORN	55	45*	41	35*	60*	46	38*	29
BOUNTY 205	49	.	16	24*	38	.	20	.
BOUNTY 301	43	31	19	28*	48	.	20	.
BRULE	59*	44*	36	36*	45	46	31	39*
CENTURA	57	39	38	35*	55*	50*	31	36*
CENTURK 78	59*	43*	33	33*	56*	49*	18	32*
CODY	58*	.	45*	.	55*	.	36*	.
COLT	59*	44*	35	33*	52*	50*	29	39*
DAWN	49	40*	20	29*	45	44	27	36*
DODGE	50	.	33	.	57*	.	23	.
HW 1035	59*	.	43*	37*	59*	.	38*	.
LANCOTA	52	.	28	.	34	.	25	.
NELL	52	.	32	33*	45	46	35	35*
NORKAN	51	.	36	.	55*	.	23	.
NORSTAR	.	.	.	.	.	.	.	.
NORWIN	54	.	51*	.	47	.	25	.
QUANTUM 554	60*	.	34	.	52*	46	35	24
QUANTUM 562	69*	.	44*	.	57*	.	44*	.
QUANTUM 568	64*	.	48*	.	56*	50*	41*	39*
REDLAND	53	.	37	.	53*	.	30	.
RITA	44	41*	30	34*	44*	43	33	37*
RODEO	54	.	48*	.	59*	.	28	.
ROSE	59*	48*	48*	40*	61*	51*	40*	40*
ROUGHRIDER	48	42*	47*	39*	56*	48*	27	31
SAGE	54	44*	39	37*	58*	52*	31	39*
SCOUT 66	61*	46*	41	37*	54*	48*	36*	38*
SIOUXLAND	53	.	28	35*	60*	54*	32	43*
TAM 107	62*	42*	34	32*	52*	.	35	.
THUNDERBIRD	56	37	28	32*	55*	52*	29	39*
LOCATION:								
TEST AVERAGE-	54**	43	37	35	52	47	31	35
TEST LSD(5%)-	8$	9	9	NS#	9	7	9	12

* A VARIETY IN THE TOP YIELDING ROUP WITHIN A LOCATION- SEE YIELD COMMENTS FOR EXPLANATION.
** TEST AVERAGE- INCLUDES ALL VARIETIES AND EXPERIMENTAL LINES TESTED: HOWEVER, ONLY VARIETIES ARE REPORTED IN THE TABLE.
$ TEST LSD(5%)- SEED YIELD COMMENTS FOR EXPLANTATION.
# NS-INDICATES YIELD DIFFERENCES AMONG VARIETIES WITHIN A LOCATION WERE NONSIGNIFICANT.

CHARACTERISTICS OF WINTER RYE VARIETIES

VARIETY	ORIGIN -YEAR	STRAW STRENGTH	STATE-WIDE AVERAGES TEST WEIGHT (LB/BU)	HEIGHT (INCHES)	86-87 YIELD (BU/AC)	1987 YIELD (BU/AC)	WINTER HARDINESS
COUGAR	CAN-67	FAIR	54	65	51	41	GOOD
FREDERICK	SD-84	FAIR	55	70	52	41	EXCELLENT
MUSKETEER	CAN-80	FAIR	54	70	53	42	EXCELLENT
PRIMA	CAN-84	GOOD	54	69	51	43	GOOD
PUMA	CAN-72	FAIR	55	68	49	41	GOOD
RYMIN	MN-72	GOOD	55	68	56	45	GOOD

WINTER RYE ONE- AND TWO- YEAR AVERAGE YIELDS AT VARIOUS LOCATIONS IN SOUTH DAKOTA

	LOCATION					
	WATERTOWN		DAY CO.		REDFIELD	
	87	2-YR	87	2-YR	87	2-YR
VARIETY	BU/AC					
CHULIPAN	36*	.	29	44*	76*	76*
COUGAR	36*	.	27	41	60	63
FREDERICK	33*	.	28	43*	61	66
MUSKETEER	35*	.	33*	47*	57	62
PRIMA	36*	.	32*	44*	60	61
PUMA	32*	.	28	38	62	65
RYMIN	34*	.	35*	48*	65	70*
LOCATION:						
TEST AVERAGE-	35**	.	30	44	63	66
TEST LSD(5%)-	NS#,$	.	5	6	9	7

* A VARIETY IN THE TOP YIELDING GROUP WITHIN A LOCATION.
SEE YIELD COMMENTS FOR DEFINITION OF TOP YIELDING GROUP.
** TEST AVERAGE- INCLUDES ALL VARIETIES AND EXPERIMENTAL LINES TESTED; HOWEVER, ONLY VARIETIES ARE REPORTED.
$ TEST LSD(5%)- SEE YIELD COMMENTS FOR EXPLANATION.
# NS-INDICATES YIELD DIFFERENCES AMONG VARIETIES AT A GIVEN LOCATION WERE NONSIGNIFICANT.

ADDITIONAL COMMENTS--DURUM WHEAT

EDMORE--good straw strength and strong gluten; some resistance to Hessian fly.

VIC--good yield potential and straw strength; strong gluten; some resistance to Hessian fly.

LLOYD--a semidwarf with good straw strength and strong gluten; low test weight.

LAKER--a new late variety marketed by Seed Tec. Good yield potential.

MONROE--a new variety from North Dakota. Earliness should allow it to perform well in South Dakota. Similar to Vic.

FJORD--a new variety from NAPB and marketed by Agripro. A strong gluten type; performed well in 1987.

STOCKHOLM--a new semidwarf variety from NAPB and marketed by Agripro. A strong gluten type; performed well in 1987.

ADDITIONAL COMMENTS--BARLEY

GLENN--an approved malting variety with good yield potential and better straw strength than Morex and Larker.

PRIMUS II--most popular feed variety in the state; smooth awn enhances suitability as a forage compared to other varieties.

BOWMAN--a two-row barley with a protein content similar to Primus II, slightly better test weight, and slightly shorter height than Primus II. A feed barley with excellent yield stability. Smooth awn enhances suitability as a forage.

MOREX--most popular malting variety in state; only fair straw strength; yields and kernel plumpness have been exceeded by newer varieties.

HAZEN--a new variety with a protein content and height similar to Larker; test weight slightly lower than Larker but similar to other new lines. A feed barley with good yield stability.

LARKER--a popular malting variety; only fair straw strength and yield potential.

GALLATIN--a two-row feed barley released from Montana in 1987. Good yield potential in western South Dakota.

LEWIS--a two-row feed barley released from Montana in 1983. Good yield potential in western South Dakota.

AZURE--a blue aluerone variety which greatly limits malting potential for South Dakota producers; good yield stabililty and good yield potential as a feed and forage barley.

ROBUST--a new malting barley with good yield potential and straw strength.

ADDITIONAL VARIETY COMMENTS--
HARD RED SPRING WHEAT

LEO 747--a private release of unknown origin; susceptible to both leaf and stem rust.

APEX 83--a new semidwarf variety marketed by Seed Tec, test weight about 1 lb lower than Butte; low protein content. Best adapted to western South Dakota.

BUTTE--excellent yield stability and good yield potential with a wide area of adaptation; lodging can occur due to weak straw strength; very hard threshing.

BUTTE 86--a new variety from North Dakota. When compared to Butte, it has better rust resistance, protein, and yield potential.

CHALLENGER--a new semidwarf variety marketed by Sexauer; test weight about 1 lb lower than Butte; low protein content.

CELTIC--a new variety from NAPB and marketed by Agripro. Good yield potential and protein levels. Compared to Guard, about 1 lb lower in test weight.

GUARD--resistant to Hessian fly; good yield potential and stability with a wide area of adaptation; medium-low protein.

ANGUS--intermediate yield potential compared to other varieties with good protein; popular in the north-central and central regions of the state.

LEN--a popular variety with good straw strength; a high quality wheat with high protein and a very good kernel type.

NORAK--marketed by Seed Tec, good straw strength with good yield potential and only fair milling and baking quality.

STOA--good yield potential and fair stability; straw strength is questionable but should be adequate for most areas; test weight about 2 lb lower than Butte, good protein; slightly taller than Butte.

2369--good yield potential and stability in eastern South Dakota; medium-low protein and good standability; a Pioneer Hi-Bred, International Inc. release.

2385--a new release from Pioneer Hi-Bred, Int'l., Inc. with early maturing, good protein but relatively low yield in 1987, the only year tested.

ALEX--medium yield potential; a beardless variety with medium straw strength but high protein content.

MARSHALL--excellent yield potential; yield stability adequate but late; low protein.

WHEATON--a new semidwarf variety with excellent yield potential; slightly earlier than many other varieties developed in Minnesota; low test weight and protein.

NORSEMAN--a new variety marketed by Discount Farm Center, Inc.; a late semidwarf. Appears to be best adapted to eastern South Dakota, but low test weight.

SUCCESS--a new variety marketed by Cenex; test weight lower than Butte.

NORDIC--a new variety from NAPB and marketed by Agripro; good yield potential and low protein.

TELEMARK--a new variety from NAPB and marketed by Agripro; good protein.

SHIELD--released from SDSU in 1987. About 1 to 2 days earlier than Guard. Excellent yield potential when harvested on time; but may shatter.

ADDITIONAL COMMENTS--OATS

KELLY--a new medium-tall early variety with white kernels and high test weight. Bred for early oat forage and for the race horse oat market.

PRESTON--an early variety with a high protein content and good potential for on-farm feed.

WEBSTER--a new early multiline blend variety; limited testing indicates good crown rust resistance.

NODAWAY 70--an early variety with plump, white kernels and high test weight; major weaknesses include poor straw strength and rust resistance.

BURNETT--a popular variety with large ivory kernels; poor straw strength and crown rust resistance.

DON--a new early white oat from Illinois. Exhibits a good yield test weight and good crown rust resistance.

HAZEL--a new white oat from Illinois with strong straw, and good combination of yield and test weight.

HYTEST--a new light cream colored oat from SDSU with a very high test weight potential.

LANCER--a good milling oat with high protein and good yield potential.

OGLE--excellent yield potential but low test weight; susceptible to crown rust; yellow kernels and medium maturity.

OTEE--a high protein variety with excellent feed potential.

BENSON--best adapted to northern parts of the state.

LYON--a tall, late variety with intermediate crown rust resistance.

WRIGHT--a tall, late variety with small tan kernels and very high test weight.

MONIDA--a new release from Montana and Idaho. Susceptibility to diseases may limit its production to western South Dakota where it has exhibited an excellent yield potential.

MOORE--a tall, late variety with good crown rust resistance; good forage oat potential and high yield potential.

SANDY--a new strong straw and light cream colored oat from SDSU.

STEELE--a new late variety with excellent crown rust resistance; good test weight and yield potential.

PORTER--a medium-late variety with good crown rust resistance and good yield potential; low protein content; straw strength is a problem under some high yield environments.

PROAT--a new variety from Minnesota; a medium-late variety with a high protein potential.

STARTER--a new oat from Minnesota; an early variety with strong straw and very good test weight. Susceptible to stem and crown rust.

ADDITIONAL COMMENTS--FLAX

CLARK--high yielding; rust resistant, medium-early. Medium in oil content; however the variety is low in iodine number. Better wilt tolerance than Wishek and Flor and moderate lodging resistance.

CULBERT 79--high oil selection from Culbert with resistance to rust and moderate resistance to wilt and pasmo.

DUFFERIN--medium-late variety with good yield potential, high oil content, and good oil quality. Resistant to rust and moderately resistant to wilt.

FLOR--medium-late variety with high yield potential and multiple gene resistance to present races of flax rust. Moderately susceptible to flax wilt.

NORLIN--medium-early variety with good yield potential and high oil content; moderately susceptible to wilt.

WISHEK--early variety with excellent yield. Resistant to rust; moderate susceptibility to wilt. Traces of yellow seed are common in this brown seeded variety.

McGREGOR--excellent yield record; however, this variety should be seeded early because of its late maturity.

RAHAB--a new variety from South Dakota; excellent yield record and oil content.

VIMY--a new variety from Canada; tall variety; susceptible to lodging.

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SMALL GRAIN AND FLAX VARIETY RECOMMENDATIONS FOR 1988 (continued)

Barley

Recommended (Variety-area)

Bowman	Statewide
Glenn	B1,B2,B3,C1+,D1,D2,D3
Hazen	B3,B4,C1,D1,D2,D3
Robust	B3,B4,C1,D1,D2,D3

Acceptable/Promising (Variety-area)

Azure ~~	B1,B2,B3
Morex	B2,C1,D1,D2,D3
Primus II	Statewide

(Glenn, Morex, Azure, and Robust are approved for malting)

Winter Wheat

Recommended (Variety-area)

Brule	B3,B4,C2,C3
Dawn	B3,B4,C2,C3
Rose	##Statewide
Sage	B1*,B3,B4,C2,C3
Siouxland @	B1*,B3,B4,C2,C3

Acceptable/Promising (Variety-area)

Agassiz	B1,B2,B3,C1,D1,D2,D3
Bounty 205	B4,C2,C3
Centura	B1*,B3,B4,C2,C3
Colt	B3,B4,C2,C3
Roughrider	B1,B2,C1,D1,D2,D3
Thunderbird	B1#,B3,B4,C2,C3

Flax

Recommended (Variety-area)

Clark	Flax areas
Dufferin	Flax areas
Flor	Flax areas
Linton	Flax areas
McGregor #	Flax areas
Norman #	Flax areas
Rahab	Flax areas
Verne	Flax areas

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* Southern counties of this area
\+ Northern counties of this area
@ U.S. Plant Variety Protection applied for and/or received; seed sales of these varieties are restricted to classes of certified seed.
\# Certified seed of these varieties can only be obtained from Canada.
~ May shatter if harvest is delayed.
** Not suggested for Deuel, Brookings, Moody, or Minnehaha counties.
Stubble planting only in B1,B2, C1,D1,D2.
~~ Recommended for feed barley because blue aluerone limits marketability as a malting variety.