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1965 Small Grain Variety Trials

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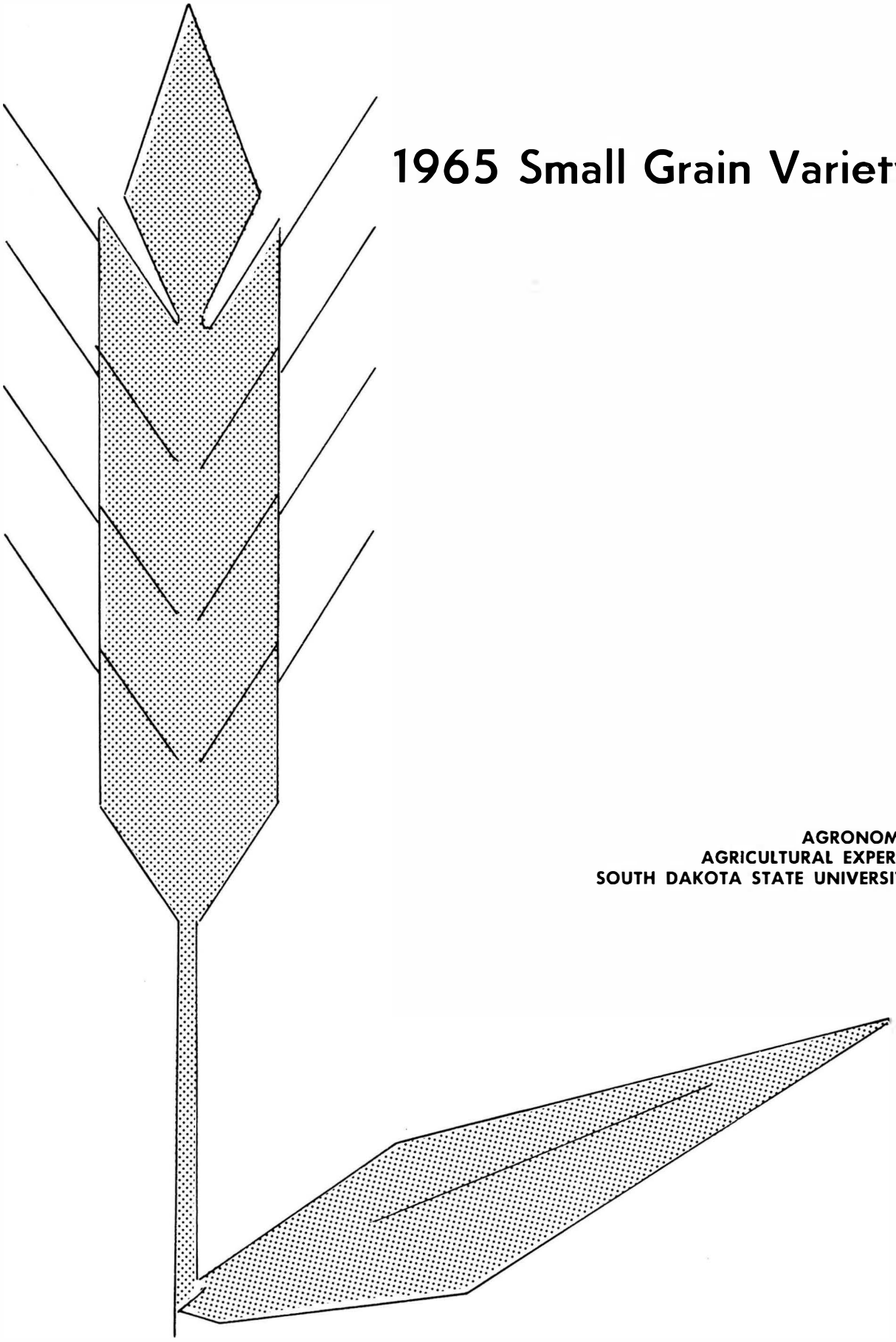

1965 Small Grain Variety Trials

AGRONOMY DEPARTMENT
AGRICULTURAL EXPERIMENT STATION
SOUTH DAKOTA STATE UNIVERSITY, BROOKINGS

LOCATION OF SMALL GRAIN TABLES

South Dakota Standard Variety Small Grain Trials
1961-1965

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Varieties of small grains currently grown by farmers, newer releases not widely in use, and experimental strains being evaluated for possible limited release were in the performance trials during 1965. Wet spring conditions limited the number of locations to only six. The trials were under the supervision of the Crop Performance Testing Activity, Agricultural Experiment Station. Grain yields, test weights, available five-year averages and selected agronomic data are reported in this circular.

Location of Trials

Testing only at Brookings would be an insufficient guide to varietal performance over the state. Hence, testing is also conducted at substations and with cooperators. The locations and dates of seeding and harvesting are listed in Table 1. Tests of soil samples taken at seeding time are presented in Table 2. Irrigated and dryland trials were also planned at Newell but excessive rainfall during the planting season prevented seeding the trials.

Weather and Climatic Conditions

Late spring snowfall and wet ground delayed seeding in many areas of South Dakota. Seeding was made as soon as feasible at all locations, except Wall. The Wall site had been ready earlier but conflicts prevented planting on that date. Seeding was delayed until mid-May after heavy snows which covered much of western South Dakota had melted away.

Rainfall was adequate at all locations for rapid germination. Growth was slow due to continued lower temperatures.

Temperatures were not extremely high during the major part of the early growing season and lush growth was common to all trials. Extreme temperatures did not occur until after much of the grain had headed and moisture was generally abundant. The cool spring temperatures and ample rainfall favored development of the rusts,

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The generous assistance of R. S. Albrechtsen, P. B. Price and D. G. Wells is gratefully acknowledged. The efforts of substation supervisors Albert Dittman, Jake Fredrikson, Harry Geise, Frank Holmes, Quentin Kingsley, Herb Lund and Lenis Nelson need commendation. The assistance of Lavon Schearer, farmer-cooperator, is also greatly appreciated.

TABLE 1. LOCATION OF TRIALS AND DATES OF SEEDING AND HARVESTING OF BARLEY, FLAX, OATS, WHEAT AND RYE TRIALS, 1965

County	Location and Post Office	Date Seeded	Date Harvested
	Barley		
Hyde	Central Substation, Highmore	April 15	July 20
Clay	Southeast Research Farm, Beresford	April 16	July 16
Brookings	Agronomy Farm, Brookings	April 20	July 21
Codington	Northeast Research Farm, Watertown	April 28	July 27
McPherson	North Central Substation, Eureka	May 4	July 29
Pennington	Lavon Schearer, Wall	May 12	August 4
	Flax		
Codington	Northeast Research Farm, Watertown	April 28	August 10
Brookings	Agronomy Farm, Brookings	May 1	As ready
Hyde	Central Substation, Highmore	May 6	August 12
	Oats		
Hyde	Central Substation, Highmore	April 15	July 20 & 23
Clay	Southeast Research Farm, Beresford	April 16	July 19
Brookings	Agronomy Farm, Brookings	April 20	As ready
Codington	Northeast Research Farm, Watertown	April 28	August 5
McPherson	North Central Substation, Eureka	May 4	July 29 & Aug 9
Pennington	Lavon Schearer, Wall	May 12	Aug. 4 & 13
	Spring Wheat and Durum		
Hyde	Central Substation, Highmore	April 15	July 26
Clay	Southeast Research Farm, Beresford	April 16	July 19
Brookings	Agronomy Farm, Brookings	April 20	As ready
Codington	Northeast Research Farm, Watertown	April 28	August 10
McPherson	North Central Substation, Eureka	May 4	August 9
Pennington	Lavon Schearer, Wall	May 12	August 13
	Winter Wheat and Rye		
Hyde	Central Substation, Highmore	Sept. 14	July 20
Clay	Southeast Research Farm, Beresford	Sept. 18	July 16
Brookings	Agronomy Farm, Brookings		------

TABLE 2. SOIL TEST RESULTS AT SEEDING TIME OF SMALL GRAIN TRIAL FIELDS, 1965

County	Percent Organic Matter	P	K	pH	Soil Classification
		Lbs./Acre			
Hyde	3.6	140	533	6.0	Williams loam
Clay	2.7	38	499	6.0	Kranzburg silty clay loam
Codington	3.4	48	128	6.3	Kranzburg silt loam
McPherson	3.5	43	533+	6.9	Williams loam
Pennington	2.0	35	521	7.1	Morton silt loam

especially in western areas of the state. This proved especially destructive to some of the older, early, but highly susceptible spring and winter wheat varieties that still are widely grown in that area.

The absence of extremely warm temperatures together with adequate rainfall combined to produce exceptionally high yields. A word of caution is necessary at this point. The yields produced in 1965 are atypical of the performance of the later maturing entries in the southern, central and western areas of the state where early and mid-season varieties are considered most likely to produce a satisfactory yield in most years. The yields of these more adapted entries were creditable this year but some suffered because of diseases, lodging and other shortcomings. When conditions are warmer and drier these deficiencies are not as noticeable and a satisfactory yield can be achieved under less favorable conditions. Freezing temperatures were reported late into May but frost damage, if any, was negligible except to rye.

Rank growth was common in all trials and lodging occurred in varying amounts in all trials, except at Eureka. Weather data from all locations except Wall are reported in Table 3. Precipitation at the Wall site was escessive and some erosion occurred. The cooperator recorded an unofficial 33 inches of moisture from April through small grain harvest.

Planting and Harvest Procedure

Field preparations, adequate fertility levels and a rotation sequence are the same each year at each station in accordance with practices established some time ago. The trial at Wall was on fallow land plowed from sod four years previously. The trials at each site were seeded in a randomized block design of four replications. The plots were 14 feet long and of four rows one foot apart. Two center rows, trimmed of border effect to 12 feet in length, were harvested for yield determinations. A small National mower, equipped with catching hopper, was used to cut the grain. Any lodged grain was gleaned from the harvested area before the sample was bagged. The samples were returned to the Main Station, dried and stored in a pole shed until threshed with a Vogel-type nursery thresher. Following threshing the samples were cleaned, weighed for yield determination, and bushel weights recorded.

TABLE 3. TEMPERATURE AND PRECIPITATION DATA FOR THE 1965 SMALL GRAIN GROWING SEASON OF SOUTH DAKOTA

Location	Month	Temperature			Precipitation		
		Mean Average	Departure from Normal	Ave. Departure	Monthly Total	Departure from Normal	Total Departure
		degrees F.				inches	
Brookings*	April	41.9	-3.3		3.40	1.63	
1 E	May	56.9	-0.7		5.06	2.27	
	June	65.1	-2.0		4.04	0.09	
	July	69.7	-3.5		0.89	-1.26	
	Aug.	67.2	-4.0	-2.7	1.20	-1.77	-0.96
Last freeze May 28- 30°					14.59		
NE Farm	April	40.4	-2.8		2.89	0.83	
15 N	May	54.9	-1.1		6.08	3.21	
Watertown	June	62.6	-3.1		3.66	-0.04	
	July	69.3	-3.0		2.34	-0.33	
	Aug.	67.0	-3.2	-2.6	2.63	-0.15	3.52
Last freeze May 29- 27°					15.85		
Centerville*	April	49.6			2.92		
6 SE	May	63.8			6.02		
	June	69.8			6.87		
	July	72.9			2.99		
	Aug.	71.3			3.06		
Last freeze May 28- 32°					21.86		
Highmore*	April	45.9	0.5		3.28	1.54	
1 W	May	58.9	1.7		5.12	2.79	
	June	66.6	-0.2		3.50	-0.04	
	July	73.6	-0.9		1.72	-0.26	
	Aug.	72.1	-0.7	-0.1	1.08	-0.96	3.07
Last freeze May 28- 27°					14.70		
Eureka*	April	42.4	-1.2		2.38	1.03	
	May	55.5	-0.6		4.74	2.15	
	June	63.7	-1.3		1.25	-2.38	
	July	71.2	-1.2		1.19	-1.26	
	Aug.	69.1	-1.6		2.10	-0.31	-0.77
Last freeze May 28- 29°					11.66		

*These are based upon reports of Monthly Climatological Data, U. S. Dept. of Commerce, Office of State Climatologist, State University, Brookings, South Dakota 57007

Measurements of Performance

The yield reported for each entry in the trials is the average obtained from grain weights of all replications, expressed as bushels per acre. Entries of equal potential may have yielded differently because of variations in stand, slope or unequal soil fertility. Mathematical determinations have been made to ascertain whether yield differences were caused by variations in environment or were true varietal differences.

If the trial means were found not to have statistical significance a notation, N.S. is shown. When the trial was found to have statistically significant differences between mean yields, an additional test, Duncan's Multiple Range Test, was run to show individual comparisons between means.

As an example of Duncan's test, note in Table 4 that the varieties accompanied by the same lower case letter under the column, Statistical Significance, are statistically alike for yield. In the instance of this table, under prevailing environmental conditions during 1965, CI 13949, CI 13655 and all entries in descending order through CI 13779 and Lakota were not statistically different from each other in yield. The above example holds true for all tables having significant differences in 1965 yields.

Discussion of Results

The 1965 results and available five-year averages are presented in tables following this text. A truer indication of a varieties' capabilities under seasonal variations are obtained from the 1961-65 averages than from results of a single year.

Oats: The newer varieties released in recent years require adequate soil fertility. The results reported in this circular are from conditions of adequate soil fertility. Specific varieties might react differently if soil fertility levels are low. Yield is but one of several factors to consider. Maturity, heat tolerance, disease reaction and kernel types play important roles also. Even though some varieties yield quite well, the test weight may not be highest.

The cooler temperatures and more than adequate precipitation at the trial sites throughout most of the small grain growing season favored the mid-season and late oat varieties. The mid-season and late varieties are usually safely grown only in the east-central and northeastern areas of the state at the higher elevations. Usually early to mid-season varieties are most generally favored in the central and western areas. The further west the earlier the variety that should be grown, except in the areas around the Black Hills.

Use of the single year 1965 results as a long-time guide would be misleading. Varieties should be under test several years to adequately relate a truer picture of their performance in the extremely variable climatic environments of South Dakota. Some of the source of variability can be removed if proper cultural and fertility methods are practiced and maintained. For example, if good weed control and high soil fertility are maintained, the bad effects of the vicissitudes of climate are minimized.

Barley: The excellent small grain growing season of 1965 favored the newer malting varieties, Larker, Traill and Trophy and the feed barley, Liberty. A newly released barley, Dickson, did very well in 1965.

Flax: Of the five rust resistant varieties recommended for the flax producing areas of the state, Windom and Summit were most productive in 1965. Other experimental entries were superior or equal to them in yield but evaluation is still underway.

Rye: Excellent rye yields were obtained in 1965. Because Pierre rye is earlier the upper tip of the heads suffered from a late spring frost at Highmore. The varieties Elk and Von Lochow do not have the winterhardiness of Antelope, Caribou or Pierre.

Durum: Lakota and Wells have been the most desirable durum wheats in the area of the state producing durum. A new release, Stewart 63, was grown in 1965. It did not yield as well as either of the others and is extremely rank of growth, lodging more readily.

Spring Wheat: Several newer wheat varieties have done quite well in the past two years of atypical South Dakota climatic conditions. Over the past five year period the three varieties Crim, Pembina and Selkirk have been most productive, especially in the eastern half of the state. Rushmore, in spite of its deficiencies, has done well in the western area of the state. Lee has been severely damaged by the prevalent races of rust and losses have been heavy. It has been removed from the 1966 list of recommended varieties. Justin performed very well in the northwestern counties.

Winter Wheat: Gage, Omaha and Scout have satisfactory performance records in the south central area of the state. In the extreme southern portions of the state, Ottawa has been quite satisfactory. Lancer has done very well in much of the winter wheat area and the new South Dakota release, Hume, has survived in the areas where winterkilling is most severe among other varieties.

TABLE 4. STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS, AGRONOMY FARM, BROOKINGS, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
CI13949					48.5		59.0	a
CI13655				32.8	47.2		62.0	ab
Chris			23.4	32.7	46.7		60.0	abc
Wells	25.0	24.5	20.9	27.0	45.7	28.6	61.0	abc
CI13779					45.3		60.5	abc
Lakota					44.1		58.0	abc
CI13586			18.3	26.5	43.4		60.5	bcd
Stewart 63					43.1		62.5	bcd
CI13947					42.3		61.5	cde
CI13773					38.5		62.0	def
Manitou					37.0		58.5	efg
Crim	26.2	12.4	14.5	24.7	36.3	22.8	58.5	fg
Justin	22.4	17.6	8.3	18.8	35.3	20.5	58.0	fg
Pembina	27.4	22.0	13.5	17.1	34.2	22.8	58.5	fg
Selkirk	30.7	22.3	11.9	21.1	33.3	23.9	56.5	fgh
Rushmore	20.9	17.5	12.7	21.6	32.0	20.9	59.0	ghi
Lee	23.1	21.5	10.0	19.5	28.4	20.5	55.0	hi
Thatcher	17.5	15.0	10.3	18.6	27.2	17.7	57.5	i
Canthatch	22.2	16.4	10.4	19.0	27.0	19.0	57.5	i
			Mean yield		38.7			

TABLE 5. STANDARD VARIETY BARLEY TRIALS, AGRONOMY FARM, BROOKINGS, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
Traill	64.2	49.6	53.5	50.4	82.3	60.0	52.5	a
Dickson					80.4		51.0	a
Parkland	63.5	39.0	43.8	51.5	76.2	54.8	51.0	ab
Larker	69.0	53.1	54.8	53.6	76.1	61.3	51.5	ab
Liberty	64.0	51.9	63.4	55.7	76.1	62.2	49.5	ab
Betzes	47.3	32.1	45.5	46.1	75.5	49.3	51.0	ab
Husky	51.2	45.6	48.6	49.3	75.5	54.0	49.0	ab
Trophy	69.7	38.9	48.8	48.5	74.9	56.2	51.0	ab
Swan		41.9	48.3	51.6	74.0		50.5	abc
Custer	58.7	46.5	48.4	41.6	70.6	53.2	47.5	bcd
Otis		46.6	50.3	41.9	68.2		51.0	bcd
Odessa	46.7	38.4	53.5	47.6	67.9	50.8	50.5	bcd
Plains		48.6	46.0	48.3	63.6		49.5	cde
Feebar	38.7	50.9	44.6	42.5	62.1	47.8	46.0	de
Spartan	38.5	40.8	47.8	41.0	56.7	45.0	51.0	e
			Mean yield		72.0			

TABLE 6. STANDARD VARIETY OAT TRIALS, AGRONOMY FARM, BROOKINGS, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
CI7978				76.3	134.2		37.5	a
Garry	111.7	59.5	43.4	80.6	127.2	84.5	34.0	ab
Brave				72.1	126.7		37.0	abc
Rodney	103.9	63.4	40.8	70.7	124.0	80.6	36.5	abcd
Garland		94.7	52.1	75.8	121.8		37.5	abcde
Coachman			36.9	76.5	112.3		37.0	bcdef
Dupree	101.4	69.5	42.6	79.2	111.1	80.8	35.5	cdef
Dodge	86.5	74.6	56.8	66.5	109.9	78.9	37.5	defg
Burnett	113.8	72.1	45.5	77.8	108.9	83.6	37.5	defgh
Andrew	89.0	70.3	40.8	70.7	108.9	75.9	35.5	defgh
Tyler				72.6	107.6		35.0	defghi
Portage	107.4	62.4	61.4	80.5	105.1	83.4	34.5	efghi
Goodfield	96.4	73.8	42.1	65.6	104.4	76.6	37.5	fghi
Clintland 64				76.9	103.9		36.5	fghi
CI8178					101.1		36.0	fghi
Minhafer	98.2	92.3	55.9	65.5	100.3	82.4	33.5	fghi
Neal		78.5	35.3	64.1	97.2		35.5	fghij
Ortley	106.4	73.4	29.6	83.1	93.4	77.2	34.5	ghij
Nodaway	98.9	69.2	33.6	63.6	91.8	71.4	36.0	hij
Mo.0-205	98.6	65.7	37.9	81.8	91.6	75.1	35.5	hij
Putnam 61	96.1	81.9		64.3	91.3		36.5	ij
Clintford				67.3	90.3		37.5	ij
Lodi			43.4	78.8	90.3		36.5	ij
Tippecanoe				68.7	81.7		33.0	jk
Bonkee			35.5	71.3	80.6		35.5	jk
Santee				67.0	66.5		34.0	kl
Peterson 100					60.1		35.0	l
			Mean yield		101.6			

TABLE 7. STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS, NORTHEAST RESEARCH FARMS, WATERTOWN UNIT, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
CI13949					49.8		59.0	a
CI13655				33.5	48.8		61.5	a
Chris			17.0	32.3	44.5		59.5	b
CI13773					42.9		61.5	bc
CI13586			11.4	28.8	42.0		59.0	bcd
CI13779					42.0		56.5	bcd
Lakota	30.5	41.2	9.9	29.8	41.4	30.5	54.5	cde
Wells	32.5	38.3	7.6	33.5	39.4	30.2	57.5	def
Manitou					38.0		58.0	efg
CI13947					35.3		56.5	fg
Stewart 63					35.0		59.5	g
Pembina	26.4	21.4	13.7	23.2	29.1	22.8	54.0	h
Justin	25.8	18.8	6.2	24.0	28.8	20.7	56.0	h
Crim	25.4	18.0	6.9	29.1	28.0	21.5	55.0	h
Selkirk	25.8	22.4	8.6	24.8	26.4	21.6	52.5	hi
Rushmore	22.0	20.7	9.5	27.6	24.1	20.8	55.0	ij
Lee	21.6	18.8	6.6	23.0	21.3	18.3	48.5	jk
Canthatch	17.5	16.4	6.9	26.1	18.6	17.1	52.5	k
Thatcher	17.2	14.1	7.0	23.8	18.0	16.0	51.0	k
			Mean Yield		34.4			

TABLE 8. STANDARD VARIETY BARLEY TRIALS, NORTHEAST RESEARCH FARMS, WATERTOWN UNIT, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
Trophy	45.5	47.2	26.8	48.8	74.3	48.5	45.5	a
Dickson					73.7		46.0	a
Parkland	37.4	44.0	30.4	44.3	73.1	45.8	48.0	ab
Liberty	41.6	38.2	37.9	54.9	70.1	48.4	47.0	abc
Larker	42.7	51.8	31.6	50.3	67.8	48.8	47.5	abcd
Betzes	40.3	43.7	34.0	47.8	66.9	46.5	47.5	abcd
Traill	41.8	48.8	25.6	47.8	65.5	45.9	45.5	abcd
Custer		36.4	31.6	41.8	64.6		44.0	abcd
Plains		38.1	34.0	43.5	62.7		46.0	bcd
Otis		41.3	28.3	45.1	59.4		46.5	cd
Spartan		38.9	30.3	40.3	59.3		48.5	d
Feebar		41.9	29.7	42.7	58.8		44.5	d
			Mean Yield		68.4			

TABLE 9. STANDARD VARIETY OAT TRIALS, NORTHEAST RESEARCH FARMS, WATERTOWN UNIT, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
CI7978				79.8	124.6		36.5	a
Santee				68.9	122.8		36.0	ab
Clintland 64				80.1	121.9		36.0	abc
CI8178					121.4		34.0	abcd
Garland		91.0	61.3	71.9	120.4		37.5	abcd
Tyler				68.6	119.9		34.5	abcde
Brave				75.5	118.5		35.0	abcdef
Putnam 61	84.1			67.3	117.7		36.0	abcdefg
Dupree		76.5	55.4	74.7	115.0		36.0	abcdefgh
Mo.0-205	99.3	73.1	57.5	74.1	113.2	83.4	37.0	abcdefghi
Bonkee			53.9	63.5	112.1		37.5	abcdefghij
Dodge	91.0	88.2	52.3	71.0	111.9	82.9	35.0	abcdefghij
Neal			52.6	61.7	111.8		34.5	abcdefghij
Coachman			55.5	69.7	110.4		34.0	bcdefghij
Minhafer	89.8	93.6	61.9	72.3	109.8	85.5	36.0	bcdefghij
Portage	95.5	88.8	54.2	71.0	109.3	83.8	34.0	bcdefghij
Nodaway	92.4	72.0	55.5	71.5	109.2	80.1	38.0	bcdefghij
Peterson 100					107.7		36.5	cdefghij
Tippecanoe				67.6	106.3		36.0	defghijk
Goodfield			42.9		104.9		38.0	efghijk
Burnett	92.5	65.9	56.9	73.5	104.9	78.7	34.5	efghijk
Garry	94.9	60.0	44.2	67.0	102.8	73.8	30.0	fghijk
Ortley	91.0	76.9	46.2	78.5	102.1	78.9	34.0	ghijk
Clintford				74.7	100.8		36.0	hijk
Rodney	88.7	70.0	40.6	58.3	98.5	71.2	29.0	ijk
Lodi			59.2	69.0	96.0		32.0	jk
Andrew	96.9	61.0	52.2	78.2	90.2	75.7	34.5	k
			Mean Yield		110.5			

TABLE 10. STANDARD VARIETY SPRING WHEAT TRIALS, SOUTHEAST RESEARCH FARM, BERESFORD, 1960-1965

Variety	1960	1962	1963	1964	1965	1960-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
CI13949					45.2		58.0	a
CI13655				26.4	42.0		60.5	ab
CI13779					40.6		56.0	bc
CI13773					38.2		59.0	bcd
Manitou					36.9		56.5	cde
Chris			16.8	27.1	34.7		59.0	def
CI13586			16.8	24.4	34.3		57.5	def
Pembina	35.1	7.3	11.4	17.5	33.8	21.0	54.0	def
CI13947					32.3		57.5	efg
Crim		8.5	12.0	21.4	30.9		54.0	fg
Rushmore	28.2	8.1	11.8	19.4	27.3	19.0	57.0	gh
Lee	22.9	6.9	8.7	17.4	24.6	16.1	52.0	hi
Selkirk	28.8	5.7	10.5	18.2	23.7	17.4	52.0	hi
Canthatch	25.1	6.5	10.4	18.5	23.5	16.8	56.0	hi
Thatcher	25.0	6.5	10.3	19.0	21.8	16.5	54.0	i
Justin		4.5	8.7	17.0	20.7		52.5	i
			Mean Yield		31.9			

TABLE 11. STANDARD VARIETY BARLEY TRIALS, SOUTHEAST RESEARCH FARM, BERESFORD, 1961-1965

Variety	1961	1962	1963	1964	1965	1962-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
Dickson					70.8		51.5	a
Larker		31.6	23.9	42.1	68.5	41.5	49.0	ab
Traill		26.3	32.3	41.5	67.1	41.8	51.0	abc
Plains	34.7	21.5	21.3	34.8	64.6	35.6	48.0	abcd
Trophy		24.8	20.5	37.9	63.0	36.6	49.0	abcd
Otis	23.1	17.7	17.0	36.4	62.2	33.3	49.0	abcde
Liberty	35.5	42.3	34.8	41.5	61.9	45.1	48.5	bcde
Betzes	22.4	11.8	18.9	41.3	60.3	33.1	51.5	bcde
Parkland		15.4	17.1	37.0	58.6	32.0	50.5	cde
Custer		20.2	11.9	32.9	56.6	30.4	43.0	de
Feebar		18.0	20.7	29.7	56.5	31.2	46.5	de
Spartan	24.4	14.4	18.0	31.2	52.8	29.1	51.0	e
			Mean Yield		61.9			

TABLE 12. STANDARD VARIETY OAT TRIALS, SOUTHEAST RESEARCH FARM, BERESFORD, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
Garland		37.3	45.1	47.8	101.3		36.0	a
Dodge		44.1	53.4	48.6	95.5		36.5	ab
Clintford				42.3	92.8		38.0	abc
CI7978				56.7	92.0		36.0	abc
Clintland 64				46.4	90.8		35.0	bcd
Minhafer	56.2	53.9	50.2	47.0	90.0	59.5	33.5	bcd
Burnett	45.5	34.8	50.2	54.4	87.8	54.5	35.0	bcd
Neal			43.6	47.6	87.3		33.5	bcd
Tyler				46.1	87.2		33.0	bcd
Garry	55.2	45.1	38.0	58.8	87.0	56.8	33.5	bcd
Santee				45.3	85.7		33.5	bcde
Brave				45.6	85.6		32.5	bcde
Coachman			50.0	46.1	85.4		34.5	bcdef
Nodaway	45.1	32.8	49.6	47.5	84.7	51.9	34.5	cdef
Putnam 61				39.8	84.1		34.0	cdef
Mo.0-205	56.5	39.0	52.4	56.5	83.6	57.6	33.5	cdef
CI8178					83.6		33.0	cdef
Andrew	65.5	43.7	56.8	44.0	82.7	58.5	33.5	cdefg
Dupree		56.8	56.7	58.3	82.6		32.0	cdefg
Goodfield	43.8		49.9	49.8	82.4		35.5	cdefg
Lodi			38.3	56.7	81.9		33.0	cdefg
Tippecanoe				49.6	80.2		36.5	defg
Peterson 100					79.4		35.0	defg
Bonkee			40.7	42.9	74.9		36.0	efg
Portage	54.0	50.9	53.1	52.5	74.4	57.0	32.0	efg
Ortley		48.4	51.2	61.1	73.3		34.0	fg
Rodney		38.9	44.7	55.0	71.2		31.5	g
			Mean Yield		84.7			

TABLE 13. STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
CI13655				30.4	47.1		60.0	a
Lakota	14.2	47.1	21.3	29.6	46.1	31.6	57.5	ab
CI13586			16.7	26.3	44.3		58.0	abc
CI13949					41.6		59.0	abcd
CI13773					41.4		59.0	abcd
Manitou					40.1		58.0	abcd
CI13779					39.9		58.0	abcd
Wells	14.5	52.4	22.8	27.5	38.4	31.1	59.5	bcd
CI13947					37.7		56.0	cd
Justin	16.2	37.4	13.4	23.8	37.1	25.6	57.0	cde
Stewart 63					35.3		60.0	de
Chris			19.2	28.1	35.1		59.0	def
Pembina	17.6	39.6	15.0	23.4	35.1	26.1	57.0	def
Lee	16.4	37.2	16.7	20.3	35.1	25.1	56.0	def
Selkirk	18.5	37.6	11.5	26.4	34.0	25.6	54.0	def
Crim	18.2	33.8	14.2	24.0	33.7	24.8	57.5	def
Rushmore	17.8	30.9	14.7	25.3	33.2	24.4	58.0	def
Canthatch	18.1	26.1	14.6	24.9	28.1	22.4	57.5	ef
Thatcher	17.1	27.0	12.6	22.9	26.0	21.1	56.0	f
			Mean Yield		37.3			

TABLE 14. STANDARD VARIETY BARLEY TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
Dickson					90.4		48.0	a
Traill	22.2	69.4	41.3	41.5	87.7	52.4	49.0	ab
Betzes	20.0	43.0	37.4	35.6	87.0	44.6	51.0	ab
Larker	24.0	52.7	43.1	39.1	84.4	48.7	51.0	abc
Liberty	28.7	54.0	37.5	32.9	81.9	47.0	48.0	abc
Parkland	24.4	57.7	44.0	37.7	79.0	48.6	49.0	bcd
Trophy	21.7	61.3	45.1	38.6	76.6	48.7	48.0	bcde
Custer	35.7	67.0	36.8	27.5	74.6	48.3	45.5	cde
Otis		53.0	45.1	28.1	74.0		48.0	cde
Feebar	19.0	42.0	36.9	27.6	68.5	38.8	46.0	def
Plains	20.9	50.8	32.4	29.3	65.7	39.8	47.0	ef
Spartan		43.8	33.9	30.5	59.7		52.0	f
			Mean Yield		77.4			

TABLE 15. STANDARD VARIETY OAT TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1961-65

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yield, bushels per acre							
Garland		110.4	38.4	45.4	108.6		34.5	a
CI7978				47.7	106.1		33.0	ab
Garry	35.5	86.0	35.6	61.4	103.3	64.4	30.5	abc
Brave				60.8	98.7		35.5	abcd
Mo.0-205	41.5	88.7	51.1	60.3	97.2	67.8	35.5	abcd
Dodge	27.6	96.2	41.9	41.0	93.5	60.0	34.5	bcde
Lodi			39.2	59.5	92.2		30.0	bcdef
Goodfield					91.9		35.0	bcdef
Portage			41.9	53.9	90.7		34.0	bcdefg
Andrew	39.0	84.2	48.9	51.8	89.0	62.6	34.5	cdefgh
Putnam 61				43.1	88.0		32.0	cdefghi
Nodaway	46.4	88.3	29.0	39.7	87.8	58.2	35.5	cdefghi
Dupree	40.6	87.6	49.5	58.8	87.2	64.7	32.5	cdefghi
CI8178					85.8		33.0	defghij
Burnett	47.1	98.8	50.4	52.6	85.6	66.9	34.5	defghij
Tyler				49.0	83.1		32.0	defghijk
Coachman			41.4	50.3	80.1		35.5	efghijk
Ortley	33.3	106.9	38.5	50.4	76.6	61.3	33.0	efghijk
Neal		112.1	47.8	47.3	76.5		33.0	efghijk
Rodney		91.2	36.2	59.5	75.8		31.0	fghijk
Minhafer	44.8	112.7	39.2	47.4	75.5	63.9	30.0	fghijk
Bonkee			40.1	44.6	74.4		34.5	ghijk
Clintland 64				45.1	74.0		30.5	ghijk
Peterson 100					72.2		31.5	hijk
Clintford				40.8	70.4		34.5	ijk
Tippecanoe				44.7	68.0		31.0	jk
Santee				51.0	66.3		32.0	k
			Mean Yield		85.1			

TABLE 16. STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS, NORTH CENTRAL SUBSTATION, EUREKA, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
CI13949					40.0		57.0	a
CI13773					37.0		60.5	ab
Lakota	11.5	30.6	15.6	50.1	37.0	29.0	54.5	ab
CI13655				40.1	36.1		60.5	abc
Wells	6.8	27.2	17.4	48.6	35.8	27.2	57.5	abc
CI13947					35.7		54.5	abc
CI13779					34.8		55.0	abc
Stewart 63					34.1		60.0	bcd
Manitou					32.7		56.5	bcde
Chris			17.8	42.6	31.6		58.0	bcde
CI13586			17.9	45.4	31.6		57.5	bcde
Pembina	25.2	30.9	16.6	33.6	31.2	27.5	54.0	cde
Crim	23.5	23.4	12.3	39.7	30.4	25.9	55.0	cdef
Selkirk	19.3	29.0	13.8	31.0	27.9	24.2	51.0	defg
Rushmore	23.5	24.5	16.4	32.4	27.6	24.9	56.0	efg
Justin	28.1	24.3	14.7	35.8	24.3	25.4	55.5	fg
Canthatch	32.1	21.8	16.5	32.6	22.7	25.1	54.0	gh
Thatcher	28.1	25.7	15.7	32.5	21.7	24.7	52.0	gh
Lee	26.0	26.6	13.7	27.9	17.2	22.3	47.0	h
			Mean Yield		31.0			

TABLE 17. STANDARD VARIETY BARLEY TRIALS, NORTH CENTRAL SUBSTATION, EUREKA, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
Liberty	26.5	46.5	52.1	57.7	83.6	53.3	49.5	a
Larker	26.6	57.9	51.6	71.5	78.0	57.1	51.0	ab
Custer	24.4	36.1	50.5	48.2	77.8	47.4	48.0	ab
Parkland		35.6	49.1	51.9	77.1		48.5	abc
Trophy	26.6	33.3	40.9	55.5	76.5	46.6	47.0	abc
Traill	24.3	33.4	43.8	65.6	73.3	48.1	47.5	abcd
Dickson					72.1		48.0	abcde
Plains	17.6	37.1	40.4	56.5	71.9	44.7	50.0	abcde
Feebar	17.7	35.3	37.8	43.9	67.7	40.5	44.5	bcde
Otis		40.1	55.1	46.6	64.7		47.0	cde
Betzes	27.3	34.5	45.0	49.9	60.4	43.4	44.0	de
Spartan		37.8	43.7	52.3	58.7		49.5	e
			Mean Yield		71.8			

TABLE 18. STANDARD VARIETY OAT TRIALS, NORTH CENTRAL SUBSTATION, EUREKA, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
Garland		60.6	51.6	82.5	116.4		38.5	a
Dupree	38.5	47.4	35.4	92.7	112.8	65.4	37.0	ab
Burnett	35.8	56.6	53.6	109.2	112.1	73.5	38.0	abc
CI8178					111.9		37.0	abcd
Brave				99.9	108.1		38.0	abcde
CI7978				91.7	108.0		39.0	abcde
Andrew	33.4	57.0	47.8	89.8	106.8	66.7	37.0	abcdef
Mo.0-205	33.1	58.5	30.8	105.6	106.7	66.9	37.0	abcdef
Garry	29.5	54.2	25.7	102.3	105.7	63.5	33.0	bcdef
Putnam 61				83.4	105.3		39.5	bcdef
Neal		64.8	44.9	85.7	105.0		38.0	bcdef
Clintland 64				91.9	103.3		38.5	bcdefg
Coachman			53.0	95.9	102.7		37.0	bcdefg
Lodi			29.7	114.4	102.7		32.0	bcdefg
Clintford				85.9	102.1		40.0	cdefg
Minhafer	36.5	72.9	46.5	98.1	101.3	71.1	37.5	defg
Nodaway					100.7		39.5	efg
Portage			44.9	102.4	100.7		34.5	efg
Bonkee			32.6	92.1	100.6		39.0	efg
Tyler				90.7	99.8		37.5	efg
Dodge	23.7	50.6	47.7	84.4	99.5	61.2	38.0	efg
Tippecanoe				97.9	98.8		38.5	efg
Santee				79.6	98.2		38.0	efg
Peterson 100					98.1		37.0	efg
Ortley		76.2	42.7	120.8	97.5		35.0	efg
Rodney		54.7	34.1	112.9	96.3		32.0	fg
Goodfield					92.3		39.0	g
			Mean Yield		103.4			

TABLE 19. STANDARD VARIETY SPRING WHEAT TRIALS, WALL, SOUTH DAKOTA 1963-1965

Variety	1963*	1964*	1965	1963-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre					
CI13655		28.1	31.3		61.0	a
CI13586	13.5	25.9	28.9	22.8	58.5	ab
CI13947			26.1		58.0	bc
CI13949			26.0		58.5	bc
Chris	17.2	27.3	25.1	23.2	58.5	bcd
Manitou			23.1		57.5	cd
CI13779			22.5		57.0	cd
CI13773			21.0		60.0	de
Pembina	14.8	22.4	20.0	19.1	57.0	def
Crim	13.6	23.1	17.1	17.9	57.0	efg
Rushmore	18.6	27.9	15.7	20.7	57.0	fg
Selkirk	15.4	24.0	15.6	18.3	53.0	fg
Justin	14.8	28.1	13.2	18.7	55.0	gh
Canthatch	16.6	24.9	9.4	17.0	55.0	hi
Thatcher	15.5	23.0	7.1	15.2	49.0	i
Lee	11.8	20.6	6.2	12.9	37.0	i
		Mean Yield	19.3			

*Data for 1963 and 1964 from Cottonwood.

TABLE 20. STANDARD VARIETY BARLEY TRIALS, WALL, 1963-1965

Variety	1963*	1964*	1965	1963-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre					
Dickson			56.5		45.5	a
Larker	22.1	33.4	53.9	36.5	47.0	a
Liberty	20.9	13.5	53.4	29.3	47.0	a
Traill	25.8	22.4	51.9	33.4	45.0	a
Trophy	21.0	19.5	50.6	30.4	44.5	a
Parkland	21.0	12.6	48.7	27.4	46.5	ab
Plains	11.6	31.0	38.2	26.9	45.5	bc
Custer	18.5	36.4	36.8	30.6	40.5	c
Spartan	24.0	22.9	35.0	27.3	43.0	c
Feebar	17.3	18.9	32.9	23.0	43.0	c
Betzes	31.3	27.1	32.7	30.3	39.0	c
Otis	22.4	36.0	30.9	29.8	41.0	c
		Mean Yield	43.4			

*Data for 1963 and 1964 from Cottonwood.

TABLE 21. STANDARD VARIETY OAT TRIALS, WALL, 1963-1965

Variety	1963*	1964*	1965	1963-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre					
Mo.0-205	29.4	38.1	83.6	50.4	39.0	a
Lodi			80.7		39.0	ab
Clintford		40.1	78.9		41.5	abc
CI7978		36.4	77.7		40.0	abcd
Portage	32.0	33.6	77.7	47.8	39.0	abcd
Nodaway		27.0	77.5		40.0	abcd
Putnam 61		27.9	77.2		39.5	abcd
Tyler		46.9	76.6		38.0	abcde
Clintland 64		29.8	75.9		37.5	abcdef
Garland	31.8	42.0	75.6	49.8	39.0	abcdef
Santee		38.6	75.2		37.5	abcdef
Dupree	37.6	38.5	72.4	49.5	37.0	abcdefg
Peterson 100			71.6		38.5	abcdefg
Brave		43.0	70.8		36.5	abcdefg
Dodge	29.0	36.1	69.6	44.9	38.5	abcdefg
Garry			67.2		37.0	abcdefgh
Burnett	33.3	38.4	67.1	46.3	39.5	abcdefgh
Tippecanoe		39.2	65.0		38.5	bcdefgh
Ortley	30.4	32.1	64.4	42.3	38.0	bcdefgh
CI8178			63.8		37.5	bcdefgh
Bonkee	25.3	28.3	62.1	38.6	37.0	cdefgh
Goodfield			61.7		37.5	cdefgh
Coachman	32.5	34.2	59.5	42.0	39.5	defgh
Andrew	29.2	41.0	57.2	42.5	35.5	efgh
Neal	27.8	35.3	56.2	39.8	35.5	fgh
Minhafer	28.5	34.5	54.4	39.1	38.0	gh
Rodney			48.4		34.0	h
		Mean Yield	69.2			

*Data for 1963 and 1964 from Cottonwood.

TABLE 22. STANDARD VARIETY FLAX TRIALS, AGRONOMY FARM, BROOKINGS, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
CI1910				9.6	35.5		54.5	a
Caldwell			18.4	7.9	32.3		53.0	ab
Windom	29.6	9.1	19.2	15.1	32.1	21.0	54.5	ab
CI2292					32.1		52.5	ab
CI2290					30.9		53.0	bc
Redwood	29.2	5.8	14.9	13.4	30.2	18.7	53.0	bcd
Marine 62			18.7	13.4	30.0		54.0	bcd
CI1909				11.8	29.6		54.5	bcd
B-5128	28.0	4.6	13.2	15.7	29.4	18.2	52.5	bcd
Norland	27.3	4.0	12.7	12.8	28.4	17.0	53.0	bcd
Arny	25.3	11.5	22.0	14.9	27.0	20.1	52.0	cd
Summit	27.5	10.1	18.6	17.0	26.3	19.9	53.5	cd
CI2291					26.1		52.0	d
CI2426				14.1	26.1		52.0	d
			Mean Yield		29.5			

TABLE 23. STANDARD VARIETY FLAX TRIALS, NORTHEAST RESEARCH FARMS, WATERTOWN UNIT, 1961-1965

Variety	1961	1962*	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
Windom	19.2		15.8	23.3	33.8	23.0	54.5	a
Summit	21.3		16.4	24.0	32.9	23.6	53.5	ab
Caldwell			13.0	20.2	30.8		54.5	abc
CI1909				22.1	30.5		54.0	abc
CI2292					30.4		53.0	abc
Redwood	18.3		13.0	23.3	29.5	21.0	54.5	abcd
Arny	16.5		16.7	23.1	28.8	21.3	53.0	bcd
Marine 62			17.0	21.2	28.2		52.0	cd
CI1910				21.3	27.0		54.0	cd
CI2290					26.9		53.5	cd
Norland	18.7		12.6	18.6	26.5	19.1	53.0	cd
CI2291					24.8		52.5	d
CI2426				22.3	24.7		54.0	d
			Mean Yield		28.8			

*1962 crop lost because of excessive lodging, average is for a 4-year period.

Insert in above table below Arny

B-5128	18.5	11.6	20.4	28.2	19.7	54.0	bcd

TABLE 24. STANDARD VARIETY FLAX TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
Marine 62			7.2	14.1	23.8		54.0	a
Summit	10.8	7.5	10.4	17.1	23.5	13.9	54.0	ab
CI2292					22.1		53.0	abc
CI1909				16.1	22.0		54.0	abc
CI2426				13.3	21.9		53.0	abc
CI1910				15.5	21.6		53.0	abcd
Windom	13.0	5.0	8.1	15.3	21.2	12.5	54.5	bcde
Redwood	8.9	6.0	9.1	11.1	21.0	11.2	53.0	cdef
Arny	9.5	9.7	9.3	12.6	20.2	12.3	53.5	cdef
B-5128	10.5	6.1	9.1	11.9	20.2	11.6	52.0	cdef
Caldwell			9.2	13.5	19.3		53.0	def
CI2290					18.9		54.0	efg
CI2291					18.4		54.0	fg
Norland	7.2	3.6	9.4	12.1	16.3	9.7	52.0	g
			Mean Yield		20.7			

TABLE 25. STANDARD VARIETY RYE TRIALS, SOUTHEAST RESEARCH FARM, BERESFORD, 1960-1965

Variety	1960	1962	1963	1964	1965	1960-65	% Stand	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre								
Pierre	23.0	13.7	24.6	33.7	53.6	29.7	85	56.0	a
Antelope	25.4	20.9	27.0	37.8	49.6	32.1	75	56.0	a
Caribou	25.5	15.1	27.8	39.8	49.4	31.5	80	56.5	a
Von Lochow					21.1		15	52.5	b
Elk	28.9	10.8	4.6	36.5	17.5	19.7	20	52.0	b
			Mean Yield		38.2				

TABLE 26. STANDARD VARIETY WINTER WHEAT TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1961-1965

Variety	1961	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre						
Lancer	7.6	30.5	21.7	39.7	24.9	60.5	a
Scout			27.1	35.4		59.0	ab
Hume	8.0	31.7	16.0	33.9	22.4	59.0	ab
Gage			27.4	29.2		57.5	bc
Winalta			18.3	25.7		58.0	bcd
Omaha	6.9	36.0	24.3	24.2	22.8	57.5	cde
Minter	22.2	23.5	15.3	22.8	20.9	57.5	cdef
Bison	2.9	30.8	21.8	21.6	19.2	54.0	defg
Rodco	1.8	36.3	23.7	20.0	20.4	53.0	defgh
Ottawa	8.5	40.5	25.6	17.8	23.1	55.0	efghi
Cheyenne	9.7	26.4	22.9	16.5	18.9	52.0	fghi
Nebred	12.2	28.9	22.2	15.7	19.7	52.5	ghi
Shoshoni			22.4	14.4		53.5	hi
Warrior	10.2	34.8	21.3	13.4	19.9	50.0	hi
Wichita	6.6	36.9	24.8	12.9	20.3	53.0	i
		Mean Yield		22.9			

TABLE 27. STANDARD VARIETY RYE TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1961-1965

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu	Statistical Significance
	Average Yields, bushels per acre							
Von Lochow					61.0		56.0	a
Elk	54.4	15.8	28.2	43.6	51.8	38.8	55.5	ab
Caribou	52.6	17.6	32.1	44.3	47.2	38.8	56.0	bc
Antelope	36.9	29.5	30.4	42.6	42.8	36.4	55.5	bc
Pierre	43.6	22.3	21.5	44.9	41.0*	34.7	56.5	c
			Mean Yield		48.8			

*Earliness of variety caused frost injury at flowering.

TABLE 28. SUPPLEMENTAL AGRONOMIC DATA FOR STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS AT BROOKINGS, SOUTH DAKOTA, 1965

Variety	one-half headed	height inches	Percent on 9/2 of lodging	Percent on 9/2 of shattering	Percent of diseases below Black chaff	Scab	Leaf* Rust	Stem* Rust
	June							
Canthatch	22	41	0	0	0	20	S-100	R-5
Chris	22	41	5	0	0	10	R-0	R-t
Crim	23	42	0	10	0	40	S-100	R-0
Justin	25	43	0	1	0	20	R-5	R-5
Lee	21	38	0	0	0	60	X-25	S-100
Manitou	21	41	0	1	0	5	R-1	R-0
Pembina	22	38	5	5	20	10	X-25	R-0
Rushmore	21	42	0	0	0	30	S-100	R-t
Selkirk	25	40	0	5	0	10	X-25	R-0
Thatcher	21	41	0	0	0	5	S-100	S-5
CI13586	24	45	5	0	0	5	R-0	R-0
CI13655	22	44	10	1	0	1	R-0	R-0
CI13779	23	43	0	80	0	5	R-0	R-0
CI13947	23	43	0	30	0	5	MR-10	R-0
CI13773	24	40	0	20	0	5	R-0	R-0
CI13949	21	44	0	10	0	1	R-5	R-0
Lakota	25	42	0	0	0	5	R-tr	MS-25
Wells	24	42	0	0	0	20	R-tr	R-2
Stewart 63	29	56	10	0	0	5	R-0	R-0

* S - Susceptible
X - Intermediate
R - Resistant

TABLE 29. SUPPLEMENTAL AGRONOMIC DATA FOR STANDARD VARIETY SPRING WHEAT AND DURUM TRIAL, HIGHMORE, 1965

Variety	Percent		
	Leaf Rust*	Stem Rust*	Lodging
Canthatch	S	MS-tr	0
Chris	R	R-0	20
Crim	S	R-0	5
Justin	MS	R-0	0
Lee	S	S-25	10
Manitou	R	R-0	0
Pembina	S	R-0	5
Rushmore	S	R-0	0
Selkirk	S	R-0	0
Thatcher	S	S-15	5
CI13586	R	R-0	5
CI13655	R	R-0	10
CI13779	R	R-0	10
CI13947	Mixed	R-0	5
CI13773	R	R-0	30
CI13949	R	R-0	50
Lakota			
Wells	R	R-0	5
Stewart 63	R	R-0	20

* S - Susceptible
  X - Intermediate
  R - Resistant

TABLE 30. WINTER WHEAT DRILL STRIP VARIETY TRIALS, SOUTH CENTRAL RESEARCH FARM, PRESHO, 1961-1965*

Variety	1961	1962	1963	1964	1965	1961-65	1965 Test Wt. lb/bu
	Average Yields, bushels per acre						
Northern:							
Minter	31.8	1.8	22.8	32.8	26.1	23.1	57.3
Winalta			38.5	36.5	19.3		55.0
Yogo	15.6	1.6	21.2	26.5	8.1	14.6	48.2
Central:							
Cheyenne	25.6	2.0	31.4	36.8	7.9	20.7	48.3
Gage				38.9	25.9		56.2
Lancer		20.9	35.4	35.8	30.7		58.8
Nebred	24.7	1.4	28.4	33.6	10.6	19.7	49.7
Omaha	45.0	6.6	35.0	34.0	20.3	28.2	55.5
Ottawa	33.8	18.0	39.2	39.3	12.8	28.6	53.5
Scout				41.2	23.2		57.0
Shoshoni				38.4	14.2		48.0
Hume	32.9	13.6	25.0	28.4	31.6	26.3	58.8
Warrior	30.2	4.0	36.4	43.6	10.5	24.9	48.0
Southern:							
Bison	16.8	4.9	21.4	35.4	7.7	17.2	45.3
Rodco		21.2	28.2	34.1	11.5		49.7
Wichita	24.4	7.1	23.2	36.7	12.5	20.8	51.3
L.S.D. .05	10.7	4.7	14.0	2.2	4.4		

* Data furnished by H. A. Geise, Supt. Yields are averages of three replications. Area harvested was 6 x 150 feet.

TABLE 31. SPRING SMALL GRAIN VARIETY TRIALS AT THE SOUTH CENTRAL RESEARCH FARM, PRESHO, 1964-1965*

Oats				Barley				Spring Wheat			
Variety	Test Wt lb/bu	1965 yield, B/A	1964-65 yield, B/A	Variety	Test Wt lb/bu	1965 yield, B/A	1964-65 yield, B/A	Variety	Test Wt lb/bu	1965 yield, B/A	1964-65 yield, B/A
Neal	34.7	63.4	57.3	Larker	44.0	76.8	47.2	CI13586	59.5	24.5	
Santee	37.7	54.3	49.2	Traill	44.0	74.5	46.4	Thatcher	52.0	9.4	
Minhafer	37.7	56.8	49.5	Liberty	46.0	82.1	49.6	Crim	58.0	22.4	15.3
Clintford	40.7	70.6		Trophy	43.0	77.6	46.2	BH632	57.0	21.8	
Rodney	37.5	70.2		Custer	42.5	68.6	44.4	Chris	58.5	28.6	18.7
Tippecanoe	38.0	66.6	61.2	Spartan	46.5	63.3	40.6	Marquis	53.2	8.5	
Mo.0-205	39.2	79.6	64.4	Plains	45.0	73.1	45.6	Selkirk	53.5	19.3	16.0
Burnett	37.5	78.9	69.5	Otis	46.0	72.6	49.6	Lee	49.5	9.6	6.6
Dodge	37.5	74.6	60.2					Spinkcota	54.2	9.6	
Bonkee	36.5	50.3		Average		73.6		Justin	56.0	20.4	13.4
Andrew	39.5	72.4	64.5	LSD .05		9.2		Pembina	54.7	20.1	13.2
Tyler	36.2	72.8						Rushmore	57.5	16.8	10.7
Clintland 64	36.5	53.9	44.7	Durum Wheat				BH631	57.2	22.6	
Coachman	38.5	71.3		Variety	Test Wt lb/bu	Yield, Bu/A 1965	1964-65	Manitou	57.2	18.5	
Brave	35.5	86.5									
Garry	35.7	82.5	64.4	Lakota	57.0	26.1	20.1				
Dupree	37.7	83.3	67.0	Wells	58.5	26.4	20.2				
Garland	39.5	78.9	63.1	Stewart 63	57.0	24.7					
Average		70.4		Average		25.7		Average		18.0	
LSD .05		10.4						LSD .05		6.2	

* Harvested area was 4 x 47 feet. Wheat and oat yields reported are an average of two replications. Spring barley is an average of three replications.

Data furnished through the courtesy of H. A. Geise. These data are included as a service to producers and are not part of the variety testing program.

TABLE 32. CHARACTERISTICS OF WHEAT VARIETIES TESTED OR BEING GROWN IN SOUTH DAKOTA

Variety	Parentage	Released	Maturity	Straw Strength	Plant Height	Milling & Baking Qualities	Yielding Ability	Disease Reaction: Leaf Rust	Stem Rust	Wheat Streak Mosaic	Winter Hardiness: SW	NW	SE	NE
Winter Wheat														
Bison	Chiefkan X Oro-Tenmarq	Kan. '56	M-early	Strong	S-MT	Excel.	High	S	S	Tol.	G	P	F	P
Cheyenne	Selected from Crimean, an introduction	Nebr. '33	M-late	Strong	S-MT	Excel.	High	S	S	S	G	F	G	P
Gage	Ponca x Mediterranean - Hope-Pawnee	Nebr. '63	Early	Strong	Short	Good	High	R	R	S	G	P	G	P
Hume	Sel. from Minter x Khar. x Nebred x Chey.etc.	S.D. '65	Medium	Strong	S-MT	Excel.	High	S	R	S	G	F	G	P
Lancer	Turkey-Cheyenne x Hope-Cheyenne$_2$	Nebr. '63	M-early	Strong	Short	Excel.	High	S	R	S	G	F	G	P
Minter	Minturki$_2$ x Hope	M.&S.D '48	Late	Poor	M-tall	Excel.	Good	S	R	S	G	F	G	F
Nebred	Selected from Turkey	Nebr. '38	Medium	Poor	S-MT	Excel.	Good	S	S	S	G	F	G	P
Omaha	Pawnee x Nebred	Nebr. '60	Early	Medium	Short	Good	High	S	S	S	G	P	G	P
Ottawa	(Med.-Hope x Pawnee)x(Oro-W38)	Kan. '60	Early	Strong	Short	Good	High	S	S	S	G	P	F	P
Pawnee	Kawvale x Tenmarq	Kan. '42	Early	Medium	Short	Good	Good	S	S	S	G	P	F	P
Scout	(Nebred-Hope-Turkey)x(Cheyenne-Ponca)	Nebr. '63	Early	Medium	Short	Excel.	High	S	R	Tol.	G	P	F	P
Shoshoni	Selected from Cheyenne	Wyo. '61	M-late	Strong	Short	Excel.	Good	S	S	S	G	F	F	P
Warrior	Pawnee x Cheyenne	Nebr. '60	M-early	Strong	Short	Excel.	High	S	S	S	G	F	G	P
Winalta	Minter x Wichita	Can. '61	Medium	Poor	M-tall	Excel.	Good	S	Mix	S	G	F	G	F
Spring Wheat														
Chris	Ftn-Thatcher^3 x(K58 x Nth)x Thatcher^2	Minn. '65	Medium	Medium	Tall	Excel.	High	R	R					
Crim	Klein Titan-Thatcher^3 x II-44-29-Tc^2	Minn. '63	Early	Fair	Short	Good	High	S	R					
Justin	[(That.x K.Farmer)x(LeexMida)] x Conley	N.D. '63	Medium	Good	Tall	Excel.	Good	S	R					
Manitou	(Tc^7-Ftn x Canthatch)x(Tc^6 x PI 170925)	Can. '65	M-early	Fair	S-MT	Good	High	R	R					
Pembina	Thatcher x (McMurachy-Exchange x Redman^3)	Can. '59	Early	Good	S-MT	Excel.	High	S	R					
Rushmore	Rival x Thatcher	S.D. '49	Early	Good	S-MT	Good	High	S	MR					
Selkirk	(McMurachy-Exchange) x Redman	Can. '55	M-early	Good	S-MT	Fair	Good	S	R					
Spinkcota	(Private breeder)Pres. Sel^2 x Red durum	S.D. '44	Early	Good	Tall	Poor	High	S	S					
Lee	Hope x Bobin^2-Gaza	Minn. '51	Early	Fair	Short	Good	Med.	S	S					
Durum														
Lakota	Sentry x (Ld 379-Ld 357)	N.D. '60	Early	Good	Short	Excel.	High	R	MR					
Wells	Sentry x (Ld 379-Ld 357)	N.D. '60	Early	Good	Short	Good	High	R	MR					
Langdon	[(Md x Ctn) x Kl J x Ld 308 x Sr x Ctn	N.D. '56	M-early	Fair	MT-T	Good	High	R	S					
Ramsey	Carleton x PI 94701	N.D. '56	Medium	Fair	Tall	Good	Fair	R	MS					
Stewart 63	Stewart^8 x St. 464	Can. '63	Late	Fair	Tall	Excel.	High	R	R					

Data furnished through courtesy of D. G. Wells Abbreviations Used: M-early, Medium early; M-late, Medium late; S-MT, short to mid-tall; MT-T, mid-tall to tall; G, good; F, fair; P, poor; R, resistant; S, susceptible; Mix, react both ways

TABLE 33. CHARACTERISTICS OF OAT VARIETIES RECOMMENDED FOR SOUTH DAKOTA, 1966

Variety	Parentage	Released	Agronomic Characteristics					Disease Reaction*			
			Yielding Ability	Plant Height	Maturity	Lodging Resistance	Bushel Weight	Stem Rust	Leaf Rust	Smut	Red Leaf
Andrew	Bond x Rainbow	Minn. '49	High	Medium	Early	Medium	Medium	MS	S	R	S
Brave	Putnam x LMJHA	Ill. '65	High	Medium	Medium	Medium	Medium	MS	MS	R	MS
Burnett	Victoria x Hajira-Banner 2x Colo	Iowa '57	High	M-tall	Medium	Good	High	MR	MS	R	S
Clintland 64	Cltd ^{5}x LMHJA 3x Cltd 2x Cltn ^{6}x Grey Alg.	Ind. '64	Medium	Medium	M-early	Good	High	MR	MR	R	S
Coachman	Marne ^{2}4x Bvr x Gy 2x Ctn 3x Clintland	Mich. '64	Medium	Medium	Medium	Medium	High	MR	MS	MR	MS
Dodge	Clintland 2x Garry x Hawkeye-Victoria	Wisc. '61	Medium	Medium	Medium	Good	High	MR	MR	R	S
Dupree	Anthony x Bond 2x Richland x Fulghum	S.D. '54	Medium	Short	Early	Medium	Medium	S	S	R	S
Garland	Clintland 2x Garry x Hawkeye-Victoria	Wisc. '62	Medium	M-short	Medium	Good	High	MR	MR	R	S
Garry	Victory 2x Victoria x Hajira-Banner	Can. '53	High	Tall	Late	Good	Medium	MR	MS	R	S
Lodi	Richland x Bond 3x Garry 2x Hawkeye x Victoria	Wisc. '64	High	Tall	Late	Good	Medium	MR	MR	R	S
Minhafer	Bond-Rainbow x Hajira-Joanette 2x Landhafer	Minn. '57	Medium	Medium	Early	Good	Medium	MS	MS	R	S
Ortley	Garry 2x Santa Fe x R.L. 1942 3x R.L. 2228	S.D. '63	High	Tall	Late	Medium	High	MR	MS	MR	S
Portage	Ajax x Hawkeye-Victoria	Wisc. '60	High	Tall	Late	Medium	Medium	MS	MR	R	S
Rodney	Vict. x Haj-Ban 2x Vict-Haj. 3x Roxton	Can. '54	High	Tall	Late	Good	High	MR	MS	R	S
Santee	Clinton 4x Victoria 2x Hajira x Banner 3x Victory	Nebr. '65	Medium	Short	M-early	Good	Medium	MS	MS	R	S
Tippecanoe	Clintland 60^{2} x Mo. 0-205	Ind. '65	Medium	Short	Early	Excel.	High	MS	MS	R	S
Tyler	Clintland 60^{2} x Mo. 0-205	Ind. '65	Medium	Short	M-early	Excel.	High	MS	MS	MS	S

*R- resistant, MR - moderately resistant, MS - moderately susceptible, S - susceptible

TABLE 34. CHARACTERISTICS OF FLAX VARIETIES RECOMMENDED FOR SOUTH DAKOTA, 1966

Variety	Parentage	Released	Agronomic Characteristics								Disease Reaction*		
			Yielding Ability	Plant Height	Maturity	Lodging Resistance	Seed Size	Flower Color	Oil Content	Oil Quality	Rust Race 300	Wilt	Pasmo
B-5128	Golden x Rio	N.D. '43	Medium	M-tall	M-late	Good	M-L	Blue	Good	Fair	I	MS	S
Bolley	Birio x C.I. 1134	N.D. '47	Medium	Medium	Early	Good	Med.	Blue	High	High	I	MR	S
Redwood	B-5128 x Redson	Minn. '51	Medium	Medium	M-late	Fair	Med.	Blue	Good	Med.	I	MR	S
Summit	C.I. 980 x Zenith	S.D. '64	High	Medium	Early	Good	Med.	Blue	Med.	Med.	I	R	MS
Windom	Renew x Bison 2x Kota x Redwing 3x Redwood	Minn. '63	High	Medium	Early	Good	M-S	Blue	Med.	High	I	R	S

* R - resistant, MR - moderately resistant, MS - moderately susceptible, S - susceptible

Data furnished through courtesy of R. S. Albrechtsen

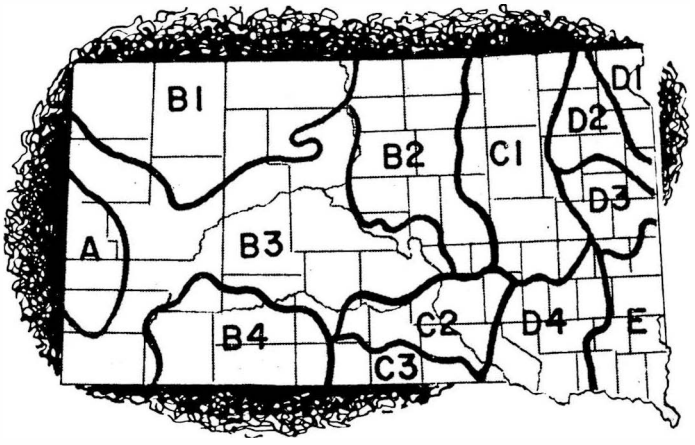
TABLE 35. CHARACTERISTICS OF BARLEY VARIETIES GROWN IN 1965 TRIALS

Variety	Parentage	Released	Agronomic Characteristics								Disease Reaction		
			Yielding Ability	Plant Height	Maturity	Lodging Resistance	Bushel Weight	Seed Size	Malting Quality	Aluerone Color	Stem Rust	Spot Blotch	Smut
Larker *M	Traill x Swan	N.D. '61	High	Medium	Medium	Good	Medium	M-L	Good	White	R	MS	S
Trophy *M	Traill x Swan	N.D. '61	High	Medium	Medium	Good	Medium	Med.	Good	White	R	MS	S
Dickson*	LMC-A x Titan	N.D. '65	High	Medium	Medium	Good	High	Med.	≠	White	R	MR	S
Liberty*F	Peatland x Dryland	S.D. '57	High	Medium	Medium	Good	Medium	Med.	Poor	White	R	S	S
Plains *F	Mich. 2-rowed x Black Barbless	S.D. '48	High	Short	Early	Medium	High	Med.	Poor	White	R	MS	S
Spartan*F/	Intro. from Poland	Mich. '28	Medium	Medium	Early	Medium	High	Lge.	Poor	White	S	S	S
Betzes/	Wisc. Barbless x Velvon	Mont. '57	Medium	Short	Late	Poor	High	Lge.	Fair	White	S	S	S
Custer F	Traill[2] x Kindred x C.I. 7117-77	Nebr. '53	High	Short	Early	Medium	Medium	Lge.	Poor	White	R	S	S
Feebar F	Peatland x Vaughn	S.D. '47	Medium	Short	Medium	Good	Low	Lge.	Poor	White	R	MS	S
Otis/ F	Munsing x Spartan	Colo. '51	Medium	Short	Medium	Medium	Medium	Lge.	Poor	White	S	MS	S
Parkland	Newal x Peatland 2x O.A.C. 21 3x Olli x Montcalm	Can. '56	Medium	Tall	Late	Good	Medium	Med.	Fair	Blue	R	MS	S
Traill M	Kindred x Titan	N.D. '57	High	Medium	Medium	Good	Medium	Med.	Good	White	R	MS	S

* Recommended for 1966
/ Two-row variety
≠ Malting quality reports to date are favorable, but final acceptance is being delayed until further testing is completed.
M Malting type
F Feed type

Data furnished through courtesy of P. B. Price

CROP ADAPTATION AREAS OF SOUTH DAKOTA



1966 RECOMMENDED SMALL GRAIN VARIETIES AND AREAS OF BEST ADAPTATION

Variety	Area of Best Adaptation
Spring Wheat	
Chris*	Statewide
Crim	Statewide
Justin	B1, B2/, C1/, D1, D2, D3
Pembina	B1, B2, C1, D1, D2, D3
Rushmore	A, B2, C1, D1, D2, D3
Selkirk*	B1, B2, C1, D1, D2, D3
Durum	
Lakota	B1, B2, C1, C2, D1, D2, D3
Stewart 63	B1, B2, C1, C2, D1, D2, D3
Wells	B1, B2, C1, C2, D1, D2, D3
Flax	
B-5128	C1, D1, D2, D3
Bolley	all flax areas
Redwood	C1, D1, D2, D3
Summit	all flax areas
Windom	all flax areas
Barley	
Dickson(M)	A, B2, C1, D1, D2, D3
Larker (M)	A, B2, C1, D1, D2, D3
Liberty	Statewide
Plains	Statewide
Spartan	A, B1, B2/, B3, B4, C2, C3
Trophy(M)	A, B2/, C1, D1, D2, D3

Variety	Area of Best Adaptation
Oats	
Andrew*	Statewide
Brave	Statewide
Burnett*	C1, C2, D1, D2, D3, D4, E
Clintland 64	C1, C2, C3, D1, D2, D3, D4, E
Coachman*	A, B1, B2, B3, C1, D1, D2, D3
Dodge	C1, D1, D2, D3, D4, E
Dupree	B1, B2, B3, B4, C2
Garland	C1, C2, D1, D3, D4, E
Garry	C1, D1, D2/, D3
Lodi	D1, D2, D3/
Minhafer	Statewide
Ortley	C1/, D1, D2, D3
Portage	C1/, D1, D2, D3
Santee	B4, C2, C3, D4, E
Tippecanoe	C1/, C2, C3, D3, D4, E
Tyler	C1/, C2, C3, D3, D4, E
Rye	
Antelope	Statewide
Caribou	Statewide
Pierre	Statewide
Winter Wheat	
Gage	B4, C2, C3
Hume	A, B3, B4, C2, C3, D4, E
Lancer	A, B3/, C2, C3, B4, D4, E
Minter	A, B3, D4, E
Omaha	B4, C2, C3, D4, E
Scout	B4, C2, C3
Winalta	A, B3, C2

* for both irrigated and dryland
/ Northern counties
≠ Southern counties
(M) Malting type

These recommendations are through the courtesy of R. A. Cline and E. E. Sanderson, Extension Agronomists-Crops.