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1966 Small Grain Variety Trials

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SMALL GRAIN VARIETY TRIALS

AGRONOMY DEPARTMENT
AGRICULTURAL EXPERIMENT STATION
SOUTH DAKOTA STATE UNIVERSITY, BROOKINGS

LISTING OF SMALL GRAIN TABLES

Standard Variety Small Grain Trials in South Dakota 1962-1966

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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 release were in the performance trials in 1966. The trials were conducted at seven locations in South Dakota, under the supervision of the Crop Performance Testing Activity, Agricultural Experiment Station. Grain yields, test weights, available five-year averages and agronomic and pathologic 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 conducted at substations and with farmer cooperators. The locations and dates of seeding and harvesting are presented in Table 1. Results of tests of soil samples taken at seeding time and fertilizer applied are listed in Table 2. A new test site was established near Bison in northwestern South Dakota.

Weather and Climatic Conditions

Seeding in eastern and southern South Dakota was accomplished as soon as the frost left the ground and fields could be worked. Seeding in western and northern areas was delayed, first by a late blizzard and then by showers in late April.

Moisture was adequate for uniform germination when the grain was seeded. Growth was slow throughout the season because of low rainfall until late June. Hail at Bison on June 24 was damaging, especially to early varieties then heading. Severe storms at Eureka and Watertown caused serious lodging, especially of barley. July rains were too late to benefit the small grains significantly. July and August rains delayed ripening of the flax and caused serious weed problems. In many cases new bools set on the flax but failed to mature.

The assistance of the following named individuals is acknowledged. R. S. Albrechtsen, P. B. Price and D. G. Wells of the Agronomy Department; Substation supervisors Albert Dittman, Jake Fredrikson, Harry Geise, Frank Holmes, Quentin Kingsley, Herb Lund, Burton Lawrensen and Lenis Nelson; and farmer-cooperators Lavon Schearer and Joe Wunder.

TABLE 1. LOCATION OF TRIALS AND DATES OF SEEDING AND HARVESTING, 1966

County	Location and Post Office	Date Seeded	Date Harvested
	Barley		
Brookings	Agronomy Farm, Brookings	April 14	July 19
Clay	Southeast Research Farm, Beresford	April 7	July 14
Codington	Northeast Research Farm, Watertown	April 15	July 26
Hyde	Central Substation, Highmore	April 13	July 18
McPherson	North Central Substation, Eureka	May 3	July 27
Pennington	Lavon Schearer Farm, Wall	April 25	July 22
Perkins	Joe Wunder Farm, Bison	May 2	July 26
	Flax		
Brookings	Agronomy Farm, Brookings	May 7	as ready
Codington	Northeast Research Farm, Watertown	May 5	August 11
Hyde	Central Substation, Highmore	May 3	August 29
	Oats		
Brookings	Agronomy Farm, Brookings	April 14	as ready
Clay	Southeast Research Farm, Beresford	April 7	July 15
Codington	Northeast Research Farm, Watertown	April 15	July 27
Hyde	Central Substation, Highmore	April 13	July 18
McPherson	Northcentral Substation, Eureka	May 3	July 27
Pennington	Lavon Schearer Farm, Wall	April 25	July 22
Perkins	Joe Wunder Farm, Bison	May 2	July 26
	Spring Wheat and Durum		
Brookings	Agronomy Farm, Brookings	April 14	July 29
Clay	Southeast Research Farm, Beresford	April 7	July 15 & 25
Codington	Northeast Research Farm, Watertown	April 15	August 2
Hyde	Central Substation, Highmore	April 13	July 19
McPherson	North Central Substation, Eureka	May 3	July 28
Pennington	Lavon Schearer Farm, Wall	April 25	July 22
Perkins	Joe Wunder Farm, Bison	May 2	July 26
	Winter Wheat and Rye		
Brookings	Agronomy Farm, Brookings	Sept. 12	destroyed
Clay	Southeast Research Farm, Beresford	Oct. 4	July 14
Hyde	Central Substation, Highmore	Sept. 26	July 18
Pennington	Lavon Schearer Farm, Wall	Sept. 9	destroyed

TABLE 2. RESULTS OF LABORATORY ANALYSIS OF SOIL SAMPLES TAKEN PRIOR TO SEEDING SMALL GRAIN TRIALS AND FERTILIZER APPLIED FOR 1966 CROP YEAR

Location	Soil Classification	Percent Organic Matter	P	K	pH	Fertilizer Applied
			Lbs/A			
Brookings	Vienna loam	3.6	134	250	7.3	plowed down 200#/A 16-20-0 with seed 20#/A 18-46-0
Beresford	Kranzburg silty clay loam	3.7	12	533	6.4	disced under 100#/A 50-20-0 with seed 20#/A 18-46-0
Watertown	Kranzburg silt loam	3.5	37	250	6.2	disced under 200#/A 30-20-0 with seed 20#/A 18-46-0
Highmore	Williams loam	2.3	105	533	6.5	disced under 100#/A 33.5-0-0 with seed 20#/A 18-46-0
Eureka	Williams loam	4.0	95	533	7.0	disced under 100#/A 25-16-0 with seed 20#/A 18-46-0
Wall	Morton silt loam	1.6	13	409	7.0	with seed 50#/A 18-46-0
Bison	Morton silt loam	2.1	35	533	6.9	with seed 50#/A 18-46-0

Temperatures were well below average for April and early May. The last freezing temperature of the spring occurred at most locations on May 13. Damage was negligible. The below-normal temperatures extended into June at some locations. Although lower June temperatures prevailed, the moisture was quite limited and plant growth was slow. Yields of all entries, early or late, were reduced. Temperatures of 100-110° F. occurred at most locations in early July and caused some reduction in yield and test weight, especially of late varieties.

Weather data are presented for six locations in Table 3. No reporting stations are located near Wall.

Planting and Harvest Procedure

Field preparation, fertility level and rotation sequence are the same each year at each substation in accordance with practices established some time ago. The trials at Wall and Bison were on fallow land. To assure adequate fertility at germination and during early plant growth a mixed fertilizer was put down the boot with the seed at planting. On the fallow land the rate was 50 pounds per acre of 18-46-0 and on the substations the rate was 20 pounds per acre of the same material.

The trials at each site were seeded in a randomized-block design with four replications. The plots were 14 feet long and of four rows one foot apart. The two center rows were trimmed of border effect to 12 feet in length before harvest 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 prior to bagging the sample. The samples were returned to the Main Station, dried when necessary 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 SMALL GRAIN GROWING SEASON OF SOUTH DAKOTA FOR 1966

Location	Month	Temperature			Precipitation		
		Mean Average	Departure from Normal	Ave. Departure	Monthly Total	Departure from Normal	Total Departure
		degrees F.				inches	
Eureka*	April	37.5	-6.1		1.54	0.19	
	May	54.1	-2.0		0.83	-1.76	
	June	66.2	1.2		2.11	-1.72	
	July	75.7	3.3	-0.9	2.98	0.53	-2.76
	Last freeze May 13 - 28°				7.46		
Highmore* 1W	April	40.4	-5.0		1.69	-0.05	
	May	55.8	-1.4		0.95	-1.38	
	June	67.7	0.9		2.50	-1.04	
	July	78.6	4.1	-0.35	3.65	1.67	-0.80
	Last freeze May 13 - 26°				8.79		
Brookings* 1E	April	39.0	-6.2		1.76	-0.01	
	May	52.3	-5.3		1.31	-1.48	
	June	65.6	-1.5		5.21	1.26	
	July	78.6	1.8	-2.8	1.39	-0.76	-0.99
	Last freeze May 11 - 32°				9.67		
Centerville* 6SE	April	43.8			1.70		
	May	57.9			1.20		
	June	70.0			2.82		
	July	76.9			6.72		
	Last freeze May 13 - 30°				12.44		
Bison*	April	39.0			2.07		
	May	54.6			1.38		
	June	65.5			2.58		
	July	75.1			3.92		
	Last freeze May 13 - 31°				9.95		
NE Farm 15N Watertown	April	36.8			1.49		
	May	49.2			0.77		
	June	64.0			1.88		
	July	73.3			2.19		
	Last freeze May 19 - 32°				6.33		

* Based upon reports of Monthly Climatological Data, U. S. Dept. of Commerce, Environmental Science Services Administration, Office of the State Climatologist, State University, Brookings, South Dakota, 57006

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 fertility. Mathematical determinations have been made to determine whether yield differences were caused by variations in environment or were true varietal differences.

If the trials means were found not to be statistically different, a notation, N.S., is shown under the table. 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 at the 5% probability level.

As an example of Duncan's Test, note in Table 5 that varieties accompanied by the same lower case letter under the right hand column headed Statistical Significance, are not statistically different in 1966 yields. In the case of this table, under prevailing environmental conditions of 1966, Primus, Conquest and all entries in descending order through CI 11863 were not statistically different from each other in yield. The above example holds true for all the tables having significant differences in 1966 yields.

Discussion of Results

The 1966 and available five-year averages are presented in tables following the text. A more accurate estimation of a variety's capabilities under seasonal variation is obtained from 1962-66 averages rather than from results of a single year.

Oats: Several newly released varieties were included in the 1966 trials. Under prevailing climatic conditions of 1966, most of the newer varieties performed satisfactorily. However, statements based on one year of testing are often unreliable and further testing will be necessary.

Many of the newer varieties need adequate soil fertility in order to express their full yield potential. Specific varieties may react differently when fertility levels are low. Some varieties have given high yields but low test weight. Time of maturity, heat tolerance, disease reaction and kernel type also affect yield. Varietal recommendations for a specific area are presented on the back cover of this publication.

Barley: The drier growing season favored some of the older, disease susceptible varieties of the feed type at most locations. One exception was Primus, a newly developed, early, South Dakota barley currently undergoing further evaluation for malting. Larker, Trophy and Traill are good malting varieties.

Flax: Five flax varieties, resistant to the newer rust races, are currently recommended. Windom and Summit have the highest yields over a five-year period. The 1966 data at Highmore was unreliable. Data on trials conducted through 1965 are available in Circular 173, 1965 Small Grain Variety Trials.

Rye: Excellent yields of rye were obtained at Beresford in 1966. In the absence of winterkilling, two non-recommended varieties, Elk and Von Lochow, yielded very well. Antelope, Caribou and Pierre are recommended because they possess superior winterhardiness.

Durum: Leeds, a newly released durum, yielded well in 1966. It has better rust resistance and a higher test weight than Wells. Leeds is recommended for the durum growing areas of South Dakota.

Spring Wheat: Several new releases of spring wheat have been added to the recommended list. These varieties were in regional nursuries prior to inclusion in the standard variety trials after their release. Fortuna, a solid-stemmed, sawfly-resistant variety has performed quite satisfactorily in the northwestern and north central areas of the state. Manitou has been satisfactory nearly everywhere it has been grown in the state. Sheridan, released too late for inclusion in the 1966 recommendations, has also been quite satisfactory in the northwestern and north central parts of the state.

Winter Wheat: Lancer has done well in much of the winter wheat area. The South Dakota release, Hume, is superior where winterkilling and rust are more limiting to other varieties. Gage, Scout, and Omaha have done well in the south central area. Ottawa has been quite satisfactory in the extreme southern portions of the state.

TABLE 4. STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS, AGRONOMY FARM, BROOKINGS, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu
	1962	1963	1964	1965	1966	1962-66	
Wells	24.5	20.9	27.0	45.7	47.0	33.0	61.0
Leeds					46.9		63.0
Lakota	25.8	22.0	22.9	44.1	45.1	32.0	60.0
Stewart 63				43.1	43.9		63.0
Manitou				37.0	41.7		58.0
Crim	12.4	14.5	24.7	36.3	41.5	25.9	58.0
Fortuna					40.3		59.0
Justin	17.6	8.3	18.8	35.3	40.1	24.0	58.5
CI 13773				38.5	40.1		61.0
CI 13949				48.5	40.0		58.0
CI 13947				42.3	39.8		57.5
CI 13826					39.6		58.0
Thatcher	15.0	10.3	18.6	27.2	39.0	22.0	58.5
Sheridan		18.3	26.5	43.4	38.6		60.5
Pembina	22.0	13.5	17.1	34.2	38.1	24.9	57.0
Chris		23.4	32.7	46.7	36.8		58.0
Selkirk	22.3	11.9	21.1	33.3	35.7	24.9	55.0
Rushmore	17.5	12.7	21.6	32.0	34.7	23.7	58.5

Mean yield 40.5

N.S.

TABLE 5. STANDARD VARIETY BARLEY TRIALS, AGRONOMY FARM, BROOKINGS 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Primus					74.5		49.3	a
Conquest					73.9		45.2	ab
Galt					72.8		44.3	ab
Liberty	51.9	63.4	55.7	76.1	71.4	63.7	46.6	ab
Dickson				80.4	70.7		45.2	ab
Trophy	38.9	48.8	48.5	74.9	69.8	56.2	45.2	ab
CI 11864					69.7		46.1	ab
Plains	48.6	46.0	48.3	63.6	68.1	54.9	46.7	abc
Traill	49.6	53.5	50.4	82.3	67.3	60.6	46.5	abc
Larker	53.1	54.8	53.6	76.1	66.1	60.7	47.0	abc
CI 11863					64.0		46.1	abc
CI 13110					62.9		49.5	bc
Betzes	32.1	45.5	46.1	75.5	56.4	51.1	47.0	cd
Spartan	40.8	47.8	41.0	56.7	49.1	47.1	47.1	d

Mean yield 66.9

TABLE 6. STANDARD VARIETY OAT TRIALS, AGRONOMY FARM, BROOKINGS, 1962-1966

Variety	Average yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
CI 8172					118.0		37.2	a
Lodi		43.4	78.8	90.3	113.4		36.4	ab
Orbit					112.8		35.0	abc
Portage	62.4	61.4	80.5	105.1	111.8	84.2	38.6	abcd
Ortley	73.4	29.6	83.1	93.4	107.4	77.4	37.5	abcde
Garry	59.5	43.4	80.6	127.2	106.8	83.5	37.2	abcdef
Mo. 0-205	65.7	37.9	81.8	91.6	105.5	76.5	38.7	bcdefg
Brave			72.1	126.7	105.3		36.2	bcdefg
Holden			76.3	134.2	104.1		37.5	bcdefgh
CI 8174					103.0		39.7	bcdefgh
Harmon					100.4		36.3	bcdefghi
Wyndmere					100.3		38.0	cdefghi
Garland	94.7	52.1	75.8	121.8	100.0	88.9	37.1	cdefghi
Burnett	72.1	45.5	77.8	108.9	99.8	80.8	38.2	cdefghi
Portal					98.5		37.9	defghij
Dupree	69.5	42.6	79.2	111.1	96.7	79.8	37.3	efghij
Coachman		36.9	76.5	112.3	95.3		38.5	efghij
Jaycee					94.7		37.4	efghij
Tyler			72.6	107.6	93.1		35.8	fghij
Andrew	70.3	40.8	70.7	108.9	92.5	76.6	36.6	ghijk
CI 8072					90.4		37.7	hijkl
Clintford			67.3	90.3	86.2		39.8	ijklm
Dawn					86.1		37.4	ijklm
Minhafer	92.3	55.9	65.5	100.3	84.3	79.7	38.6	jklm
Rodney	63.4	40.8	70.7	124.0	77.7	75.3	36.6	klmn
Peterson 100				60.1	76.8		35.5	lmn
Santee			67.0	66.5	75.8		35.6	lmn
Clintland 64			76.9	103.9	75.8		37.6	lmn
Tippecanoe			68.7	81.7	73.1		37.1	mn
Stormont					72.1		34.2	mn
CI 8178				101.1	71.8		36.3	mn
Dodge	74.6	56.8	66.5	109.9	66.3	74.8	37.2	n
CI 8273					64.3		35.2	n

Mean yield 92.7

TABLE 7. STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS, NORTHEAST RESEARCH FARM, WATERTOWN UNIT, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Wells	38.3	7.6	33.5	39.4	30.1	29.8	60.0	a
Stewart 63				35.0	29.7		61.5	a
CI 13773				42.9	29.4		58.0	a
CI 13949				49.8	29.1		54.5	a
Leeds					29.0		61.5	a
Lakota	41.2	9.9	29.8	41.4	28.7	30.2	60.0	a
Thatcher	14.1	7.0	23.8	18.0	25.1	17.6	53.5	b
CI 13947				35.3	24.1		52.5	bc
Justin	18.8	6.2	24.0	28.8	23.8	20.3	55.5	bcd
Manitou				38.0	23.4		53.0	bcd
Chris		17.0	32.3	44.5	23.3		55.0	bcd
CI 13826					22.9		53.0	bcde
Rushmore	20.7	9.5	27.6	24.1	22.8	20.9	53.0	bcde
Selkirk	22.4	8.6	24.8	26.4	21.3	20.7	48.5	cdef
Crim	18.0	6.9	29.1	28.0	21.0	20.6	52.0	defg
Pembina	21.4	13.7	23.2	29.1	20.2	21.5	51.0	efg
Fortuna					19.7		54.0	fg
Sheridan		11.4	28.8	42.0	18.2		56.0	g

Mean yield 24.5

TABLE 8. STANDARD VARIETY BARLEY TRIALS, NORTHEAST RESEARCH FARM, WATERTOWN UNIT, 1962-1966

Variety	Average Yield, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Spartan	38.9	30.3	40.3	59.3	37.3	41.2	43.0	a
Plains	38.1	34.0	43.5	62.7	37.1	43.1	37.5	a
Liberty	38.2	37.9	54.9	70.1	31.4	46.5	37.0	b
Betzes	43.7	34.0	47.8	66.9	28.9	44.3	39.0	bc
Conquest					25.8		35.5	cd
Primus					25.4		38.0	cde
Larker	51.8	31.6	50.3	67.8	24.2	45.1	36.0	def
Galt					23.1		33.5	def
CI 13110					21.0		33.0	efg
CI 11863					20.9		34.5	fg
Trophy	47.2	26.8	48.8	74.3	20.1	43.4	35.0	fg
CI 11864					18.7		32.0	gh
Traill	48.8	25.6	47.8	65.5	16.4	40.8	32.5	h
Dickson				73.7	14.7		33.0	h

Mean yield 24.6

TABLE 9. STANDARD VARIETY OAT TRIALS, NORTHEAST RESEARCH FARM, WATERTOWN UNIT, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Burnett	65.9	56.9	73.5	104.9	60.3	72.3	33.7	a
Clintford			74.7	100.9	58.8		36.0	ab
Holden			79.8	124.6	54.5		33.0	abc
CI 8072					54.5		32.0	abc
Portal					54.2		33.2	abcd
Ortley	76.9	46.2	78.5	102.1	53.3	71.4	32.7	bcde
Portage	88.8	54.2	71.0	109.3	53.1	75.3	30.0	bcde
Santee			68.9	122.8	53.0		31.0	bcde
Garland	91.0	61.3	71.9	120.4	52.5	79.4	32.2	bcde
CI 8273					52.1		33.0	cde
Lodi		59.2	69.0	96.0	52.0		30.7	cde
CI 8172					51.4		29.0	cdef
Orbit					51.4		27.7	cdef
Andrew	61.0	52.2	78.2	90.2	50.4	66.4	31.5	cdefg
Minhafer	93.6	61.9	72.3	109.8	50.0	77.5	32.2	cdefg
Clintland 64			80.1	121.9	49.4		32.0	cdefgh
Wyndmere					48.7		28.7	cdefgh
CI 8174					48.6		32.2	cdefgh
CI 8178				121.4	48.5		30.0	cdefghi
Tippecanoe			67.6	106.3	48.2		33.7	cdefghi
Peterson 100				107.7	48.1		31.2	cdefghi
Dupree	76.5	55.4	74.7	115.0	48.1	73.9	29.7	cdefghi
Dodge	88.2	52.3	71.0	111.9	47.9	74.3	33.7	cdefghi
Rodney	70.0	40.6	58.3	98.5	47.3	62.9	32.0	defghi
Mo. 0-205	73.1	57.5	74.1	113.2	47.1	73.0	30.2	efghij
Jaycee					47.1		30.0	efghij
Brave			75.5	118.5	47.1		29.0	efghij
Garry	60.0	44.2	67.0	102.8	46.6	64.1	30.5	efghij
Stormont					44.1		32.0	fghij
Tyler			68.6	119.9	43.5		30.7	ghij
Dawn					41.9		31.0	hij
Coachman		55.5	69.7	110.4	40.9		32.5	ij
Harmon					40.0		31.5	j
				Mean yield	49.5			

TABLE 10. STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS, SOUTHEAST RESEARCH FARM, BERESFORD, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
CI 13949				45.2	35.7		58.0	a
CI 13773				38.2	35.1		60.5	ab
Wells					34.0		58.5	abc
Lakota					33.9		60.0	abc
Stewart 63					33.8		62.5	abc
CI 13826					33.0		55.0	abcd
Chris		16.8	27.1	34.7	32.8		59.0	abcd
Fortuna					32.6		60.0	abcd
Crim	8.5	12.0	21.4	30.9	32.6	21.1	57.5	abcd
Manitou				36.9	31.9		57.0	bcd
Leeds					31.8		61.5	bcd
Rushmore	8.1	11.8	19.4	27.3	30.5	19.4	59.0	cde
Pembina	7.3	11.4	17.5	33.8	30.2	20.0	55.5	cde
Sheridan		16.8	24.4	34.3	30.1		60.0	cde
Justin	4.5	8.7	17.0	20.7	29.9	16.2	57.5	cde
CI 13947				32.3	29.7		57.5	cde
Selkirk	5.7	10.5	18.2	23.7	28.6	17.3	53.0	de
Thatcher	6.5	10.3	19.0	21.8	26.4	16.8	58.0	e

Mean yield 31.8

N.S.

TABLE 11. STANDARD VARIETY BARLEY TRIALS, SOUTHEAST RESEARCH FARM, BERESFORD, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu
	1962	1963	1964	1965	1966	1962-66	
Liberty	42.3	34.8	41.5	61.9	53.4	46.8	44.8
Plains	21.5	21.3	34.8	64.6	51.3	38.7	47.3
Dickson				70.8	50.3		43.7
Traill	26.3	32.3	41.5	67.1	49.7	43.4	46.2
CI 11863					48.9		44.7
Primus					47.2		46.7
Galt					46.8		41.0
Conquest					46.6		44.2
Trophy	24.8	20.5	37.9	63.0	46.3	38.5	42.2
Larker	31.6	23.9	42.1	68.5	46.3	42.5	46.2
CI 11864					45.4		40.7
CI 13110					45.0		40.7
Spartan	14.4	18.0	31.2	52.8	43.3	31.9	47.2
Betzes	11.8	18.9	41.3	60.3	36.0	33.7	42.0

Mean yield 46.9

TABLE 12. STANDARD VARIETY OAT TRIALS, SOUTHEAST RESEARCH FARM, BERESFORD, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Andrew	43.7	56.8	44.0	82.7	78.0	61.0	32.0	a
Dupree	58.8	56.7	58.3	82.6	77.9	66.9	31.1	ab
Wyndmere					77.1		31.0	abc
Orbit					75.9		28.6	abcd
Brave			45.6	85.6	74.1		30.7	abcde
CI 8178				83.6	72.7		31.0	abcdef
Dawn					72.0		31.1	abcdefg
Jaycee					71.4		31.7	abcdefgh
Coachman		50.0	46.1	85.4	70.8		31.5	abcdefgh
Mo. 0-205	39.0	52.4	56.5	83.6	69.2	60.1	32.8	abcdefghi
CI 8072					69.2		31.7	abcdefghi
Burnett	34.8	50.2	54.4	87.8	69.1	59.3	32.7	abcdefghi
CI 8174					68.7		31.2	abcdefghi
CI 8172					68.3		29.5	abcdefghi
Holden			56.7	92.0	67.8		30.0	abcdefghij
Tyler			46.1	87.2	67.5		30.4	abcdefghij
Stormont					67.1		29.1	bcdefghij
Tippecanoe			49.6	80.2	67.0		31.5	bcdefghij
Lodi		38.3	56.7	81.9	67.0		29.2	bcdefghij
Santee			45.3	85.7	66.4		32.1	cdefghij
Portal					66.2		31.7	cdefghij
Peterson 100				79.4	64.8		32.2	defghijk
CI 8273					63.6		30.8	efghijk
Clintland 64			46.4	90.8	62.7		32.2	efghijk
Dodge	44.1	53.4	48.6	95.5	62.5	60.8	32.4	efghijk
Portage	50.9	53.1	52.5	74.4	62.4	58.7	29.7	efghijk
Clintford			42.3	92.8	61.8		33.0	fghijk
Garland	37.3	45.1	47.8	101.3	60.1	58.3	31.7	ghijk
Minhafer	53.9	50.2	47.0	90.0	59.9	60.2	30.6	ghijk
Garry	45.1	38.0	58.8	87.0	58.7	57.5	27.2	hijk
Ortley	48.4	51.2	61.1	73.3	56.2	58.0	31.6	ijk
Harmon					54.9		28.5	jk
Rodney	38.9	44.7	55.0	71.2	51.8	52.3	27.0	k

Mean yield 66.7

TABLE 13. STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
CI 13949				41.6	17.6		54.0	a
Fortuna					17.6		52.5	a
Thatcher	27.0	12.6	22.9	26.0	17.3	21.2	51.0	ab
Manitou				40.1	16.9		50.0	abc
Rushmore	30.9	14.7	25.3	33.2	16.9	24.2	52.0	abc
Pembina	39.6	15.0	23.4	35.1	16.9	26.0	50.0	abc
Chris		19.2	28.1	35.1	16.2		53.0	abc
CI 13773				41.4	16.0		57.5	abcd
Crim	33.8	14.2	24.0	33.7	15.9	24.3	52.0	abcd
Lakota	47.1	21.3	29.6	46.1	15.9	32.0	55.5	abcd
Leeds					15.8		59.5	abcd
Wells	52.4	22.8	27.5	38.4	15.3	31.3	56.0	bcd
CI 13826					15.3		51.5	bcd
CI 13947				37.7	15.2		52.0	bcd
Justin	37.4	13.4	23.8	37.1	15.0	25.3	52.0	cd
Selkirk	37.6	11.5	26.4	34.0	14.8	24.9	46.5	cd
Sheridan		16.7	26.3	44.3	13.9		53.0	d
Stewart 63				35.3	13.8		56.0	d
				Mean yield	15.9			

TABLE 14. STANDARD VARIETY BARLEY TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Primus					36.2		43.7	a
Liberty	54.0	37.5	32.9	81.9	35.5	48.4	42.0	ab
Spartan	43.8	33.9	30.5	59.7	31.7	39.9	46.0	abc
Plains	50.8	32.4	29.3	65.7	31.1	41.9	43.7	bc
Conquest					29.9		40.0	cd
Galt					28.1		36.2	cde
Larker	52.7	43.1	39.1	84.4	26.8	49.2	41.0	cdef
Betzes	43.0	37.4	35.6	87.0	25.8	45.8	38.7	def
CI 13110					24.3		41.0	def
CI 11864					22.8		37.0	efg
Trophy	61.3	45.1	38.6	76.6	21.8	48.7	39.2	fg
Dickson				90.4	21.7		41.1	fg
Traill	69.4	41.3	41.5	87.7	21.4	52.3	39.5	fg
CI 11863					18.1		38.5	g
				Mean yield	26.8			

TABLE 15. STANDARD VARIETY OAT TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Jaycee					52.7		32.2	a
Santee			51.0	66.3	51.9		33.0	ab
Andrew	84.2	48.9	51.8	89.0	51.0	65.0	34.0	abc
CI 8174					49.8		35.5	abcd
Burnett	98.8	50.4	52.6	85.6	48.8	67.2	33.5	abcde
Mo. 0-205	88.7	51.1	60.3	97.2	47.5	69.0	32.0	abcdef
Clintford			40.8	70.4	47.0		37.0	abcdef
Brave			60.8	98.7	46.4		32.0	abcdef
Holden			47.7	106.1	45.9		32.7	bcdef
Orbit					45.8		27.5	bcdef
Wyndmere					44.4		32.0	cdefg
Minhafer	112.7	39.2	47.4	75.5	44.3	63.8	34.0	cdefg
Dupree	87.6	49.5	58.8	87.2	44.2	65.5	32.0	cdefg
Portal					44.1		33.0	cdefg
Clintland 64			45.1	74.0	43.7		33.7	defg
Peterson 100				72.2	43.2		32.5	defgh
Garland	110.4	38.4	45.4	108.6	43.0	69.2	33.2	defgh
Tyler			49.0	83.1	42.2		32.5	efghi
CI 8072					41.0		32.0	fghij
Tippecanoe			44.7	68.0	40.2		35.0	fghij
CI 8273					38.1		34.0	ghijk
CI 8178				85.8	37.2		33.5	ghijk
Dawn					37.1		33.2	ghijk
Coachman		41.4	50.3	80.1	36.9		34.5	ghijk
Dodge	96.2	41.9	41.0	93.5	35.5	61.6	34.7	hijkl
Portage		41.9	53.9	90.7	34.1		30.0	ijklm
CI 8172					33.1		31.5	jklm
Stormont					32.2		30.3	klm
Lodi		39.2	59.5	92.2	30.8		26.7	klm
Ortley	106.9	38.5	50.4	76.6	30.7	60.6	32.0	klm
Harmon					28.1		29.7	lmn
Garry	86.0	35.6	61.4	103.3	26.7	62.6	30.5	mn
Rodney	91.2	36.2	59.5	75.8	22.0	56.9	29.7	n

Mean yield 40.6

TABLE 16. STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS, NORTHCENTRAL SUBSTATION, EUREKA, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
CI 13773				37.0	18.2		58.5	a
Rushmore	24.5	16.4	32.4	27.6	18.0	23.8	56.0	ab
CI 13949				40.0	18.0		55.0	ab
CI 13826					17.7		53.0	abc
Fortuna					17.3		57.0	abcd
Thatcher	25.7	15.7	32.5	21.7	17.1	22.5	54.0	abcd
Manitou				32.7	17.0		53.0	abcd
CI 13947				35.7	16.9		51.5	abcd
Crim	23.4	12.3	39.7	30.4	16.7	24.5	55.0	abcd
Pembina	30.9	16.6	33.6	31.2	16.2	25.7	52.0	bcde
Leeds					16.1		60.0	bcde
Stewart 63				34.1	15.5		60.0	cde
Sheridan		17.9	45.4	31.6	15.4		56.0	cde
Justin	24.3	14.7	35.8	24.3	14.6	22.7	56.0	cde
Wells	27.2	17.4	48.6	35.8	14.3	28.7	55.0	cde
Chris		17.8	42.6	31.6	14.1		55.0	de
Lakota	30.6	15.6	50.1	37.0	14.0	29.5	55.0	de
Selkirk	29.0	13.8	31.0	27.9	12.4	22.8	49.0	e
				Mean yield	16.1			

TABLE 17. STANDARD VARIETY BARLEY TRIALS, NORTHCENTRAL SUBSTATION, EUREKA, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Spartan	37.8	43.7	52.3	58.7	29.0	44.3	45.5	a
Larker	57.9	51.6	71.5	78.0	27.8	57.4	45.5	ab
Primus					27.0		44.0	ab
Plains	37.1	40.4	56.5	71.9	24.8	46.1	44.0	abc
Liberty	46.5	52.1	57.7	83.6	24.1	52.8	44.5	abcd
Conquest					24.0		42.5	abcd
Galt					22.2		40.0	bcde
Betzes	34.5	45.0	49.9	60.4	21.4	42.2	41.0	bcde
CI 13110					19.5		41.0	cdef
Traill	33.4	43.8	65.6	73.3	18.1	46.8	40.0	cdef
CI 11863					18.0		41.5	cdef
CI 11864					17.3		39.0	def
Trophy	33.3	40.9	55.5	76.5	15.2	44.3	38.0	ef
Dickson				72.1	14.0		40.0	f
				Mean yield	21.6			

TABLE 18. STANDARD VARIETY OAT TRIALS, NORTHCENTRAL SUBSTATION, EUREKA, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Santee			79.6	98.2	25.4		33.0	a
Brave			99.9	108.1	25.2		32.0	ab
Wyndmere					25.1		31.0	abc
Clintford			85.9	102.1	24.5		37.0	abcd
Minhafer	72.9	46.5	98.1	101.3	24.2	68.6	33.5	abcde
Tyler			90.7	99.8	22.4		32.5	abcdef
CI 8273					22.3		33.0	abcdef
Burnett	56.6	53.6	109.2	112.1	21.2	70.5	34.0	abcdef
CI 8174					20.2		35.0	abcdefg
Dupree	47.4	35.4	92.7	112.8	19.5	61.6	32.0	abcdefgh
Tippecanoe			97.9	98.8	19.2		34.0	abcdefgh
Peterson 100				98.1	19.1		32.0	abcdefgh
Mo. 0-205	58.5	30.8	105.6	106.7	19.1	64.1	32.0	abcdefgh
Holden			91.7	108.0	18.4		34.5	bcdefghi
Garland	60.6	51.6	82.5	116.4	18.1	65.8	34.0	cdefghi
Andrew	57.0	47.8	89.8	106.8	18.0	63.9	33.0	defghi
CI 8072					17.5		33.0	defghi
CI 8172					17.5		30.0	defghi
Clintland 64			91.9	103.3	17.4		32.5	defghi
Coachman		53.0	95.9	102.7	17.0		33.5	efghij
Dodge	50.6	47.7	84.4	99.5	16.1	59.7	33.0	fghij
Garry	54.2	25.7	102.3	105.7	15.8	60.7	30.5	fghij
Jaycee					15.7		32.0	fghij
Rodney	54.7	34.1	112.9	96.3	15.5	62.7	33.0	fghij
Portage		44.9	102.4	100.7	15.4		30.5	fghij
Portal					15.1		33.0	fghij
CI 8178				111.9	13.1		31.0	ghij
Orbit					12.5		26.5	ghijk
Lodi		29.7	114.4	102.7	12.1		28.0	hijk
Stormont					12.1		30.5	hijk
Dawn					10.5		31.0	ijk
Ortley	76.2	42.7	120.8	97.5	9.2	69.3	29.0	jk
Harmon					4.3		28.0	k
				Mean yield	17.5			

TABLE 19. STANDARD VARIETY SPRING WHEAT AND DURUM TRIALS, WALL, 1963-1966

Variety	Average Yields, bushels per acre					1966 Test Wt. lb/bu
	1963*	1964*	1965	1966	1963-66	
Chris	17.2	27.3	25.1	24.7	23.6	58.5
Wells				24.1		61.5
Manitou			23.1	23.8		58.0
Fortuna				22.9		60.0
Lakota				22.7		60.0
CI 13949			26.0	22.7		58.0
Sheridan	13.5	25.9	28.9	22.6	22.7	60.5
Crim	13.6	23.1	17.1	22.2	19.0	59.0
Stewart 63				22.1		60.5
Thatcher	15.5	23.0	7.1	21.7	16.8	58.0
Rushmore	18.6	27.9	15.7	21.6	21.0	58.5
Pembina	14.8	22.4	20.0	21.6	19.7	57.0
Justin	14.8	28.1	13.2	21.5	19.4	57.5
CI 13826				21.5		57.5
CI 13947			26.1	21.4		58.0
Leeds				21.3		61.5
CI 13773			21.0	21.0		61.0
Selkirk	15.4	24.0	15.6	20.8	19.0	56.0
			Mean yield	22.2		
				N.S.		

*Data for 1963 and 1964 from Cottonwood

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

Variety	Average Yields, bushels per acre				1966* Test Wt. bu/ac
	1963*	1964*	1965	1963-65	
Betzes	31.3	27.1	32.7	30.3	47.5
Conquest					45.5
Dickson			56.5		47.5
Larker	22.1	33.4	53.9	36.5	47.5
Liberty	20.9	13.5	53.4	29.3	47.5
Plains	11.6	31.0	38.2	26.9	47.0
Spartan	24.0	22.9	35.0	27.3	48.0
Traill	25.8	22.4	51.9	33.4	47.5
Trophy	21.0	19.5	50.6	30.4	46.0
CI 11863					47.0
CI 11864					47.5
Primus					47.5
CI 13110					46.5
Galt					44.0

Trial located on hard-pan area of field not evident at time of seeding.
1966 trial resulted in poor or uneven stands and yield data not reliable.

TABLE 21. STANDARD VARIETY OAT TRIALS, WALL, SOUTH DAKOTA, 1963-1966

Variety	Average Yields, bushels per acre					1966 Test Wt. lb/bu	Statistical Significance
	1963*	1964*	1965	1966	1963-66		
Jaycee				44.1		36.7	a
Burnett	33.3	38.4	67.1	44.0	45.7	35.0	ab
Brave		43.0	70.8	44.0		33.7	ab
Ortley	30.4	32.1	64.4	43.4	42.6	33.7	abc
Portage	32.0	33.6	77.7	43.1	37.3	34.5	abcd
Stormont				43.0		34.2	abcde
Tyler		46.9	76.6	42.8		32.5	abcde
Rodney			48.4	41.1		34.5	abcdef
Dawn				40.9		34.5	abcdef
Wyndmere				40.6		33.5	abcdefg
CI 8174				40.5		36.0	abcdefg
Santee		38.6	75.2	40.1		34.0	abcdefgh
Clintland 64		29.8	75.9	39.9		33.7	abcdefghi
Clintford		40.1	78.9	38.8		37.5	abcdefghij
Peterson 100			71.6	38.4		32.5	abcdefghij
CI 8178			63.8	38.0		35.5	abcdefghij
Holden		36.4	77.7	37.8		35.7	abcdefghij
Garland	31.8	42.0	75.6	37.3	46.6	35.0	abcdefghij
Mo. 0-205	29.4	38.1	83.6	37.0	47.0	34.2	abcdefghij
Tippecanoe		39.2	65.0	35.2		34.2	bcdefghijk
Lodi			80.7	35.1		32.2	bcdefghijk
CI 8072				34.1		34.0	cdefghijk
Minhafer	28.5	34.5	54.4	33.6	37.8	33.2	defghijk
Dupree	37.6	38.5	72.4	33.5	45.5	32.5	defghijk
Portal				33.2		33.5	defghijk
Coachman	32.5	34.2	59.5	33.0	39.8	34.7	efghijk
CI 8172				31.5		32.2	fghijk
Orbit				31.2		30.7	fghijk
Andrew	29.2	41.0	57.2	30.3	39.4	31.0	ghijk
Dodge	29.0	36.1	69.6	29.6	41.2	34.0	hijk
CI 8273				29.4		32.2	ijk
Garry			67.2	28.2		32.5	jk
Harmon				25.8		33.7	k
			Mean yield	36.9			

*1963 and 1964 data from Cottonwood

TABLE 22. STANDARD VARIETY SPRING WHEAT AND DURUM TRIAL, BISON, 1966

This trial damaged by hail storm on June 24. Data are matter of record

Variety	1966 Test Wt. lb/bu	1966 Yield B/A
Thatcher	56.0	14.2
Rushmore	56.0	11.7
Selkirk	51.0	12.0
Pembina	52.0	9.7
Wells	60.0	19.2
Lakota	59.0	17.9
Justin	54.0	12.8
Crim	57.0	13.8
Sheridan	57.0	12.1
CI 13826	54.0	10.6
Chris	57.0	15.0
Stewart 63	60.5	16.5
CI 13773	57.5	15.7
Manitou	56.0	14.9
CI 13947	55.0	12.5
CI 13949	56.0	12.6
Fortuna	58.0	16.7
Leeds	62.0	18.2

TABLE 23. STANDARD VARIETY OAT TRIAL, BISON, 1966

This trial damaged by hailstorm on June 24.

Variety	1966 Test Wt. lb/bu	1966 Yield B/A	Statistical Significance
CI 8172	33.0	30.7	a
Brave	31.0	30.7	a
Garry	31.0	30.7	a
Orbit	30.0	29.8	ab
Lodi	31.5	28.5	abc
Ortley	32.0	28.0	abc
CI 8072	32.0	26.9	abcd
Wyndmere	31.0	26.9	abcde
Minhafer	30.0	26.7	abcde
Harmon	31.0	25.4	abcdef
Santee	30.0	25.3	abcdef
Portage	31.0	25.0	abcdef
CI 8178	33.0	24.9	abcdef
Peterson 100	30.0	24.6	abcdef
Coachman	33.5	24.2	abcdef
Mo. 0-205	33.0	24.1	abcdef
Holden	31.5	24.0	abcdef
Stormont	27.5	23.7	abcdefg
Dupree	31.0	23.6	abcdefg
CI 8174	31.0	23.1	bcdefg
Garland	31.0	22.1	bcdefgh
Andrew	30.5	21.8	cdefgh
Burnett	33.0	21.4	cdefgh
Dawn	31.5	20.6	cdefgh
Portal	33.0	19.0	defgh
Jaycee	30.0	18.3	efgh
Rodney	32.0	17.9	fghi
Clintford	32.0	17.7	fghi
Clintland 64	30.0	17.5	fghi
Dodge	29.0	17.5	fghi
Tyler	30.0	15.2	ghi
CI 8273	27.0	14.0	hi
Tippecanoe	29.0	9.2	i

TABLE 24. STANDARD VARIETY WINTER WHEAT TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1961-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1961	1963	1964	1965	1966	1961-66 1/		
Shoshoni			22.4	14.4	34.7		60.0	a
CI 13884					31.7		60.0	ab
Gage			27.4	29.2	31.3		58.5	abc
Nebred	12.2	28.9	22.2	15.7	30.9	22.0	60.5	abc
Scout			27.1	35.4	30.7		58.0	abc
Lancer	7.6	30.5	21.7	39.7	29.7	25.8	58.0	abcd
Winalta			18.3	25.7	28.9		59.5	abcd
Warrior	10.2	34.8	21.3	13.4	28.2	21.6	59.5	abcde
Omaha	6.9	36.0	24.3	24.2	27.3	23.7	60.0	bcde
CI 13864					26.1		57.5	bcde
Winalta Sel.					26.0		60.0	bcde
Hume	8.0	31.7	16.0	33.9	25.5	23.0	57.5	bcde
Minter	22.2	23.5	15.3	22.8	25.0	21.8	55.0	bcde
Bison	2.9	30.8	21.8	21.6	23.2	20.1	59.0	cde
CI 13682					22.4		58.5	de
Ottawa	8.5	40.5	25.6	17.8	20.4	22.6	59.5	e
				Mean yield 27.6				

1/ 5-year averages; no data available for 1962.

TABLE 25. STANDARD VARIETY RYE TRIALS, CENTRAL SUBSTATION, HIGHMORE, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Von Lochow				61.0	34.8		53.0	a
Caribou	17.6	32.1	44.3	47.2	23.9	33.0	52.0	b
Elk	15.8	28.2	43.6	51.8	21.8	32.2	50.5	b
Antelope	29.5	30.4	42.6	42.8	20.6	33.2	52.5	b
Pierre	22.3	21.5	44.9	41.0	12.8	28.5	52.0	c
				Mean yield 22.8				

TABLE 26. STANDARD VARIETY WINTER WHEAT TRIALS, SOUTHEAST RESEARCH FARM, BERESFORD, 1962-1966

Variety	Average Yields, bushels per acre					1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1966	1962-66*		
Scout			40.7	48.8		59.0	a
Warrior	5.2	7.2	36.3	48.3	24.2	59.5	a
Lancer	5.8	18.3	37.1	46.1	26.8	60.5	ab
CI 13884				45.6		61.5	ab
Omaha	6.2	10.5	35.0	44.5	24.1	61.0	ab
Nebred	2.9	9.3	30.7	44.4	21.8	60.0	ab
Ottawa	6.0	13.0	33.5	42.8	23.8	58.0	ab
Gage			39.2	42.6		59.0	abc
Winalta			35.6	42.1		59.5	abc
Winalta Sel.				41.7		60.5	abc
Shoshoni			37.8	40.8		59.5	abc
Bison	4.7	4.6	30.4	39.4	19.8	59.0	abc
Hume	10.5	17.9	34.0	39.1	25.4	58.0	abc
CI 13864				36.1		58.5	bc
CI 13862				36.1		58.5	bc
Minter	8.9	16.8	34.6	29.5	22.5	56.0	c
			Mean yield	41.7			

*1965 trial lost to winter killing

TABLE 27. STANDARD VARIETY RYE TRIALS, SOUTHEAST RESEARCH FARM, BERESFORD, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu
	1962	1963	1964	1965	1966	1962-66	
Von Lochow				21.1	73.8		55.6
Elk	10.8	4.6	36.5	17.5	65.6	27.0	54.7
Caribou	15.1	27.8	39.8	49.4	59.1	38.2	55.2
Antelope	20.9	27.0	37.8	49.6	56.9	38.4	55.5
Pierre	13.7	24.6	33.7	53.6	54.9	36.1	56.1
				Mean yield	62.1		

TABLE 28. STANDARD VARIETY FLAX TRIALS, AGRONOMY FARM, BROOKINGS, 1962-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1962	1963	1964	1965	1966	1962-66		
Windom	9.1	19.2	15.1	32.1	18.3	18.8	55.5	a
Redwood	5.8	14.9	13.4	30.2	15.6	16.0	54.2	ab
Noralta					15.6		55.5	ab
Caldwell		18.4	7.9	32.3	15.3		53.0	abc
CI 2292				32.1	14.7		55.2	bcd
CI 2290				30.9	13.6		54.2	bcd
Bolley	7.0	17.0	15.2	*	13.6		55.0	bcd
Summit	10.1	18.6	17.0	26.3	13.5	17.1	54.0	bcd
Dillman			11.8	29.6	12.6		54.6	bcd
B-5128	4.6	13.2	15.7	29.4	12.5	15.1	55.0	bcd
Norland	4.0	12.7	12.8	28.4	12.2	14.0	55.7	bcd
Redwood 65					11.9		55.0	cd
CI 1910			9.6	35.5	11.4		54.0	d
				Mean yield	13.9			

*Seed planted had been improperly labeled

TABLE 29. STANDARD VARIETY FLAX TRIALS, NORTHEAST RESEARCH FARMS, WATERTOWN UNIT, 1961-1966

Variety	Average Yields, bushels per acre						1966 Test Wt. lb/bu	Statistical Significance
	1961	1963	1964	1965	1966	1961-66*		
CI 2292				30.4	18.1		55.0	a
Summit	21.3	16.4	24.0	32.9	17.2	22.3	55.0	ab
Redwood 65					16.8		56.0	ab
Windom	19.2	15.8	23.3	33.8	16.6	21.7	55.3	abc
Redwood	18.3	13.0	23.3	29.5	16.3	20.1	55.0	abc
Caldwell		13.0	20.2	30.8	15.7		56.0	abc
Bolley	13.5	15.5	20.6	≠	15.7		55.0	abc
Noralta					15.1		55.0	bc
CI 2290				26.9	15.0		55.0	bcd
B-5128	18.5	11.6	20.4	28.2	14.8	18.7	55.0	bcd
Norland	18.7	12.6	18.6	26.5	13.8	18.0	55.0	cd
Dillman			22.1	30.5	13.8		55.0	cd
CI 1910			21.3	27.0	11.9		55.0	d
				Mean yield	15.4			

*1962 lost to excessive lodging
≠Seed planted had been improperly labeled.

TABLE 30. WINTER GRAIN DRILL STRIP VARIETY TRIALS, SOUTH CENTRAL RESEARCH FARM, PRESHO, 1962-1966*

Variety	Average Yield, bushels per acre						1966 Test Wt. lb/bu	Date of Heading	Height, inches
	1962	1963	1964	1965	1966	1962-66†			
Winter Wheat								June	
Northern:									
Winalta		38.5	36.5	19.3	33.2		58.6	21	35
Minter	1.8	22.8	32.8	26.1	31.3	23.0	56.3	20	36
Central:									
Lancer	20.9	35.4	35.8	30.7	42.2	33.0	59.4	17	33
Scout			41.2	23.2	38.8		58.4	13	32
Omaha	6.6	35.0	34.0	20.3	38.4	26.9	59.3	13	31
Warrior	4.0	36.4	43.6	10.5	36.5	26.2	56.8	19	32
CI 13862					34.9		57.1	21	34
CI 13883					34.7		57.8	21	35
Shoshoni			38.4	14.2	34.6		57.8	17	34
Hume	13.6	25.0	28.4	31.6	34.4	26.6	57.4	14	33
Ottawa	18.0	39.2	39.3	12.8	34.3	28.7	58.9	14	33
Nebred	1.4	28.4	33.6	10.6	34.2	21.6	59.3	15	30
Gage			38.9	25.9	33.8		58.0	15	32
Southern:									
Rodco	21.2	28.2	34.1	11.5	37.2	26.4	57.4	17	34
Bison	4.9	21.4	35.4	7.7	35.0	20.9	57.3	18	33
Winter Barley									
Kearney	30.0	18.8	35.1	≠	48.9	33.2	46.0		
Chase	28.6	16.6	36.9	≠	47.4	32.4	44.4		
Dicktoo	31.7	16.9	34.5	≠	46.1	32.3	45.6		
Mo. B1222		18.2	31.7	≠	42.5		47.1		
Mo. B969	39.8	13.8	36.8	≠	41.1	32.9	43.8		
Rye									
Von Lochow				67.4	41.0		53.6	4	38
Elk		23.0	31.8	61.8	36.4	51.0	53.0	5	44
Antelope		19.7	31.8	49.1	29.6	43.4	53.5	5/31	41
Caribou		19.7	26.3	47.4	30.1	41.2	52.8	1	41
Pierre		14.3	23.0	46.3	23.3	35.6	54.0	5/31	42

*Data furnished by H. A. Geise, Supt. Harvested area, 3 replications, 6 x 150 feet.
†Winter barley and rye only 4 year averages.
≠1965 crop lost to severe winter kill, 1959 and 1961 also lost to winter kill.

TABLE 31. SPRING SMALL GRAIN VARIETY TRIALS AT THE SOUTH CENTRAL RESEARCH FARM, PRESHO, 1964-66*

Oats

Variety	Test Wt.	1966	1964-66
	lb/bu	Yield, B/A	
Wyndmere	34.2	40.9	
Brave	31.8	40.9	
Burnett	36.6	40.4	59.8
Orbit	32.2	40.0	
Jaycee	32.0	39.8	
Tyler	32.2	38.7	
Dupree	32.3	37.3	57.1
Coachman	35.3	36.8	
Dawn	32.3	36.2	
Andrew	35.1	35.9	54.9
Neal	34.5	35.7	50.1
Garland	35.0	35.6	53.9
Santee	33.7	34.5	44.3
Minhafer	34.6	34.3	44.4
Clintford	37.1	31.5	
Tippecanoe	33.5	30.7	51.0
Lodi	30.8	28.7	
Garry	31.5	27.8	52.2
Bonkee	33.5	27.6	
Dodge	32.3	25.4	48.6
Clintland 64	36.3	24.3	37.9
Rodned	31.0	19.3	

Average 33.7
LSD-.05 6.6

Barley

Variety	Test Wt.	1966	1964-66
	lb/bu	Yield, B/A	
Otis	47.3	43.7	47.6
Trophy	41.3	32.5	41.6
Traill	47.8	32.4	41.7
Dickson	45.8	32.4	
Primus	49.0	28.9	
Liberty	45.7	28.8	42.7
Larker	46.0	24.9	39.8

Average 31.9

Durum Wheat

Variety	Test Wt.	1966	1964-66
	lb/bu	Yield, B/A	
Wells	59.6	24.3	21.6
Lakota	58.5	22.8	21.0
Leeds	61.5	19.3	
Stewart 63	58.7	16.6	

Average 20.7
LSD-.05 3.3

Spring Wheat

Variety	Test Wt.	1966	1964-66
	lb/bu	Yield, B/A	
CI 13773	58.3	16.7	
Crim	54.9	14.9	15.1
SD 62-6	53.9	14.9	
BH 632	54.6	14.8	
Sheridan	56.6	14.6	
Thatcher	53.6	14.5	
Rushmore	55.1	14.3	11.9
BH 631	54.6	14.2	
Lee	55.6	13.6	8.9
Manitou	53.9	13.4	
Chris	55.9	12.6	16.7
Fortuna	55.6	12.5	
Pembina	52.3	11.1	12.5
Selkirk	50.6	10.9	14.3
Justin	53.3	10.8	12.5

Average 13.6
LSD .05 1.8

*Harvested area was 4 x 41 feet. All yield reported are the average of three replications.

Data for this table furnished by 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	R	G	P	G	P
Hume	Parents were Kharkof, Minter, Nebred, 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 form 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	P
Spring Wheat														
Chris	Ftn-Thatcher^3 x (K58$_2$ x Nth) x Thatcher^2	Minn. '65	Medium	Medium	M-tall	Excel.	High	R	R					
Crim	Klein Titan-Thatcher^3 x II-44-29-Tc^2	Minn. '63	Early	Fair	M-tall	Good	High	S	R					
Fortuna	Rescue-Chinook x (Frontana x Kenya 58-Newthatch)	N.D. '66	Early	Good	M-tall	Good	Medium	R	R					
Justin	[(That. x K. Farmer) x (Lee x Mida)] x Conley	N.D. '63	Medium	Good	M-tall	Excel.	Good	S	R					
Manitou	(Tc^7 -Ftn x Canthatch) x (Tc^{6}x PI 170925)	Can. '65	M-early	Fair	M-tall	Good	High	MR	R					
Pembina	Thatcher x (McMurachy-Exchange x Redman^3)	Can. '59	Early	Good	M-tall	Excel.	High	S	R					
Rushmore	Rival x Thatcher	S.D. '49	Early	Good	M-tall	Good	High	S	MR					
Selkirk	(McMurachy-Exchange) x Redman	Can. '55	M-early	Good	M-tall	Fair	Good	S	R					
Sheridan	(Frontana x II-44-29) x Pilot	Mont-SD'66	M-late	Fair	Tall	Fair	High	R	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	M-tall	Good	Medium	S	S					
Durum														
Lakota	Sentry x (Ld 379-Ld 357)	N.D. '60	Early	Good	Short	Excel.	High	R	MR					
Leeds	(Ld 357^4 x St. 464 - Ld 357) x Wells	N.D. '66	Early	Good	Short	Good	High	R	R					
Stewart 63	Stewart^8 x St. 464	Can. '63	Lake	Fair	Tall	Excel.	High	R	R					
Wells	Sentry x (Ld 379-Ld 357)	N.D. '60	Early	Good	Short	Good	High	R	MR					

Data furnished by D. G. Wells Abbreviations Used: M-early, Medium eally M-late, Medium late S-MT, short to mid-tall M-tall, mid-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, 1967

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	Medium	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 Bvrx Gy 2x Ctn 3x Clintland	Mich. '64	Medium	Medium	Medium	Good	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. '64	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, 1967

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	Medium	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

Date furnished by R. S. Albrechtsen

TABLE 35. CHARACTERISTICS OF BARLEY VARIETIES GROWN IN 1966 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*	Traill[2] x Kindred x C.I. 7117-77	N.D. '65	High	Medium	Medium	Good	Medium	Med.	≠	White	R	MR	S
Liberty*F	LMC-A x Titan	S.D. '57	High	Medium	Medium	Good	Medium	Med.	Poor	White	R	S	S
Plains *F	Peatland x Dryland	S.D. '48	High	Short	Early	Medium	High	Med.	Poor	White	R	MS	S
Spartan *F≠	Mich. 2-rowed x Black Barbless	Mich.'28	Medium	Medium	Early	Medium	High	Lge.	Poor	White	S	S	S
Betzes≠	Intro. from Poland	Mont.'57	Medium	Short	Late	Poor	High	Lge.	Fair	White	S	S	S
Feebar F	Peatland x Vaughn	S.D. '47	Medium	Short	Medium	Good	Low	Lge.	Poor	White	R	MS	S
Primus*	Brandon 3902 x Liberty x Swan	S.D. '66	High	Medium	Early	Good	High	Med.	≠	White	R	S	S
Conquest	Vantage x Jet 2x Vantmore 3x Br. 4635 4x Swan 5x Parkland	Man. '65	Medium	Tall	Medium	Good	Medium	Med,	≠	Blue	R	S	R
Galt F	Glacier x[2] Newal 2x Husky	Alta.'65	High	M-S	Medium	Good	Medium	M-L	Poor	White	R	S	S

*Recommended for 1967
≠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 by P. B. Price

By **Ralph A. Cline** and **Elmer E. Sanderson,** Extension Agronomists—Crops

Varieties Recommended in South Dakota for 1967

Crop adaptation areas of the state, shown on the map, are based on soil type, elevation, temperature, and rainfall. These factors largely determine the type of agriculture within these areas.

Varieties are recommended on the basis of length of growing season, average rainfall, disease frequency, and farming practices. Often an individual farm, due to its location or the management practiced by the operator, may more closely resemble conditions of an area other than the one in which the farm is located. Recommendations listed here should be considered in the light of this information.

SMALL GRAIN

variety — **area of best adaptation**

Winter Wheat

Gage — B4, C2, C3
Hume — A, B3, B4, C2, C3, D4, E
Lancer — A, B3°, B4, C2, C3, D4, E
Minter — A, B3, D4, E
Omaha — B4, C2, C3
Scout — B4, C2, C3
Winalta — A, B3, C2

Winter wheat production under the high risk conditions of areas B1, B2, and C1 means selecting the most hardy varieties. Good yields will also depend on a favorable climate and the best cultural practices.

Spring Wheat

Chris‡ — Statewide
Crim — Statewide
Fortuna — B1
Justin — B1, B2†, C1†, D1, D2, D3
Manitou — Statewide
Pembina — B1, B2, C1, D1, D2, D3
Rushmore — A, B1, B2, B3, B4, C2
Selkirk‡ — B1, B2, C1, D1, D2, D3
Sheridan — A, B1, B2, B3, C1

Durum

Lakota — B1, B2, C1, C2, D1, D2, D3
Leeds — B1, B2, C1, C2, D1, D2, D3
Wells — B1, B2, C1, C2, D1, D2, D3
Stewart 63 — B1, B2, C1, C2, D1, D2, D3

Oats

Andrew‡ — Statewide
Brave — Statewide
Burnett‡ — B2, C1, C2, D1, D2, D3, D4, E
Clintland 64 — C2, C3, D2, D3, D4, E
Coachman‡ — A, B1, B2, B3, C1, D1, D2, D3
Dodge — B2, C1, D1, D2, D3, D4, E
Dupree — B1, B2, B3, B4, C2, C3
Garland — B2, C1, D1, D2, D3, D4, E
Garry — C1, D1, D2, D3
Lodi — D1, D2, D3†
Minhafer — Statewide
Ortley — C1†, D1, D2, D3
Portage — C1†, D1, D2, D3
Rodney — C1†, D1, D2, D3
Santee — B4, C2, C3, D4, E
Tippecanoe — C1°, C2, C3, D3, D4, E
Tyler — C1°, C2, C3, D3, D4, E

Barley

Dickson — A, B2, C1, D1, D2, D3
Larker — A, B2, C1, D1, D2, D3
Liberty‡ — Statewide
Plains — A, B1, B2, B3, B4, C2, C3, D4, E
Primus — Statewide
Spartan — A, B1, B2°, B3, B4, C2, C3
Trophy — A, B2†, C1†, D1, D2, D3

Larker and Trophy approved for malting; Dickson and Primus not yet approved.

Flax

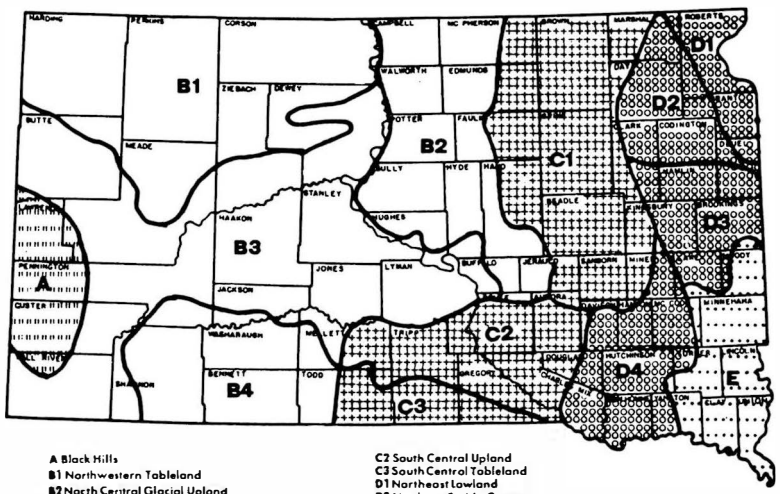
B-5128 — C†, D1, D2, D3
Bolley — All flax areas
Redwood — C†, D1, D2, D3
Summit — All flax areas
Windom — All flax areas

Rye

Antelope — Statewide
Caribou — Statewide
Pierre — Statewide

°Southern counties of this area.
†Northern counties of this area.
‡For both irrigation and dryland.

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