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Spring Grain Variety Trials in South Dakota 1954-1958

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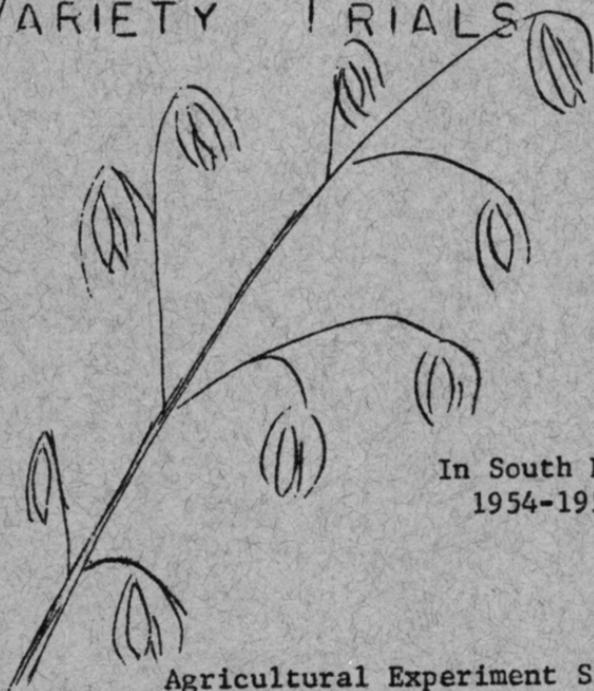
Agronomy Department

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SPRING GRAIN'S

VARIETY TRIALS



In South Dakota
1954-1958

Agricultural Experiment Station
South Dakota State College
Brookings, South Dakota

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Spring Grain Variety Trials in South Dakota

1954-1958

A Progress Report
by

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(not for publication without permission)

Six weeks of favorable weather in June and early July made possible the remarkable small grain crop of 1958. This period was sandwiched between an early spring drouth and a midsummer drouth, and favored crops and crop varieties with moisture needs matching water availability in nature. This year the early spring moisture pinch was a little more extended than usual in some areas, so that varietal performance was slightly divergent from the usual.

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This publication reports the yields of some of the more common small grain varieties either presently or potentially available to the farmers of the state. These yields are determined in fair, comparative tests at a series of experimental stations and farms throughout the state, which are representative of major crop variety adaptation areas of the state. Annual yields, when considered in the light of longer period performance averages, and the production problems of a given area, can be a very valuable guide in the choice of crop varieties and often crops on the farm. It is for this reason that this information goes out to the state's farmers via the Extension Service, as established nationally under the Smith-Lever Act.

The moving five year average now has left the very severe stem rust year of 1953 behind, and so the yield averages of some of the susceptible varieties will show recovery. Consequently, it is well to consider such attributes as disease resistance, heat tolerance and maturity along with yield, even though yield is the result of the action of all plant qualities - provided conditions lead to their expression.

Size and Location of Tests

Most of the results given here are taken from rod row nurseries, replicated three or more times. Larger, duplicate plots are used at the recently established research farms and Brookings.

Spring sown small grain variety tests were run at eight stations in South Dakota in 1958. These were Brookings, Highmore, Cottonwood, Eureka, Newell (both dryland and irrigated) and the three research farms at Menno, Presho and Watertown.

Management

The small grain nurseries are part of the rotations at all stations. This means that they

are sown on summerfallow at Cottonwood, Newell and Presho, and on row cropped (usually corn) land at the eastern locations.

Fertility of the soil is maintained at economic levels at all stations. Seeding dates in 1958 all fell within the recommended range of such dates, beginning with April 2 at Cottonwood.

Factors Influencing 1958 Yields

Some of the factors that affected small grain yield levels in South Dakota in 1958 were quite evident. These included:

A. Yield Favoring Factors:

1. A reserve of soil moisture in April, 1958 which carried the crop through the spring drouth until the advent of June rains.
2. Adequate rainfall in June and early July which came at a very critical time.
3. Unusually cool June and July weather which stretched the moisture and extending maturation period of the crop.
4. Absence of many diseases specific to some varieties which resulted in unusually high yields in these.
5. Abundant continuous moisture supply in the western areas.
6. Early planting favoring the maximum moisture utilization and expression of yield at several locations.

B. Yield Reducing Factors:

1. Spring drouth injury, during an abnormally dry April and May, which was especially severe at Watertown and Brookings.
2. Two successive hailstorms at Newell (June 7 and July 12) which completely destroyed the spring grain plantings.
3. Wide spread infestation of aphids in May and June.

4. Streak mosaic invasion of spring wheat at Presho which forced abandonment of spring wheat rod row tests.
5. Severe and widespread leaf rust infection on wheat.
6. Occurrence of "black chaff" on susceptible wheat varieties at Watertown and Brookings.
7. Rain came too late for early varieties at several stations.
8. Very late varieties and late plantings especially in flax, were reduced in yield and test weight by midsummer drouth.

Varietal Performance

The narrow limits of the favorable environment in 1958 did not favor extreme types on either end of the scale. In hard red spring wheat, medium early varieties were favored at the Western and Central stations, late strains at Brookings. Thus Lee and Selkirk did well over the state.

In oats, early varieties did surprisingly well at all but the eastern stations. Wherever moisture was available for uninterrupted growth, varieties like Osage, Andrew, Minhafer and Mo. 0-205 headed the list.

In flax, genotypes like Redwing, Marine and Redwood continued their superiority.

In barley, late varieties were favored over most of the state.

Using the Data

All yields reported here are given in bushels per acre and test weight in pounds per bushel. Where possible, five year average yields are also given for the varieties; at some stations shorter term averages are employed. Rust notes are reported on a percentage scale; other agronomic observations are given on a 0-9 scale, with "0" as the most desired reaction, and "9" the most severe possible.

Measuring differences

Average yields are not exact, even when taken over five years' time. The differences in yield between varieties should exceed the least significant difference (L.S.D.) given at the bottom of the column, before the difference is considered due to variety, rather than to handling or soil variations.

Where the abbreviation N.S. occurs at the bottom of the column, it means that difference between the variety yield figures are not reliable, and that a variety might, by chance, have any yield in the range of yields reported. Thus, if Rushmore yields 15.0 bushels and Selkirk 13.0, and the difference is not significant, Selkirk might just as readily yield 15.0 and Rushmore 13.0. It would be well to assume that while the yields are what they are, they are really alike, except for soil and harvesting losses.

Table 1. Average 1958 Monthly Temperature and the Departure from the Long-Term Average at each of the Stations where Test Plots were located.*

<u>Average Monthly Temperature in Degrees Fahrenheit</u>										
	<u>Brkgs</u>	<u>High</u>	<u>Eureka</u>	<u>C'w'd</u>	<u>Newell</u>	<u>Menno</u>	<u>Wat'n</u>	<u>Kennebec**</u>		
April	45.3	45.8	44.7	45.4	43.4	48.2	43.4	45.7		
May	60.6	59.8	59.4	62.3	60.1	63.6	58.3	61.6		
June	61.8	62.4	59.1	64.0	60.6	65.7	60.1	64.1		
July	68.1	67.9	65.4	69.1	68.6	70.6	67.5	73.0		
August	71.4	74.3	71.9	75.0	73.1	74.8	70.8	74.9		
Mean	61.4	62.0	60.1	63.2	61.2	64.6	60.0	64.1		
<u>Departure from Long-Term Average</u>										
April	-0.1	0	0.8	-1.4	-1.2	-1.0	0	-1.3		
May	3.0	2.6	3.1	5.0	4.7	3.6	2.2	2.6		
June	-5.6	-4.3	-6.0	-2.8	-3.6	-4.4	-5.7	-4.6		
July	-5.6	-7.0	-7.0	-6.8	-4.9	-6.1	-5.1	-4.3		
August	0.1	1.5	1.3	1.3	1.9	0.8	0.7	-0.2		
Mean	-1.6	-1.4	-1.6	-0.9	-0.6	-1.4	-1.6	-1.6		

* Data courtesy U.S. Weather Bureau, Huron, South Dakota.

** Since Presho data are not available, Kennebec is substituted.

Table 2. Total 1958 Rainfall by Months and the Departure from the Long-Term Average at each of the Stations where the Test Plots were Located.*

Total Monthly Rainfall in Inches									
	Bkgs	High	Eureka	C'w'd	Newell	Menno	Wat'n	Kennebec**	
April	1.99	2.70	1.36	2.56	2.18	3.26	1.46	1.62	
May	0.10	1.34	2.46	1.72	0.55	1.30	1.34	0.65	
June	3.45	2.27	3.90	4.68	6.12	1.67	1.73	2.25	
July	2.83	2.23	3.15	3.59	2.78	2.71	1.35	1.62	
August	0.87	1.76	1.31	1.35	0.77	1.17	0.77	0.95	
Total	9.24	10.30	12.18	13.90	12.40	10.11	6.65	7.09	
Departure from the Long-Term Average									
April	0.18	0.99	-0.02	0.94	0.43	1.11	-0.60	0.97	
May	-2.56	-0.84	0.06	-0.85	-2.03	-1.94	-1.46	-1.71	
June	-0.54	-1.44	-0.12	1.78	2.89	-2.61	-2.08	-1.03	
July	0.77	0.43	0.78	2.20	1.03	0.33	-1.49	-1.08	
August	-2.03	-0.23	-0.89	0.10	-0.50	-1.89	-1.88	-1.08	
Total	-4.18	-1.09	-0.19	4.17	1.82	-5.00	-7.51	-3.93	

* Data courtesy U.S. Weather Bureau, Huron, South Dakota.

** Since Presho data are not available, Kennebec is substituted.

Table 3. Spring Wheat Variety Test at the Main Experiment Station, Brookings, 1954-58.

Variety	Average yield, bu./acre		Test Wt. 1958
	1958	1954-58	
<u>Hard Red Spring</u>			
Rushmore	26.8	25.9	61
Lee	23.3	26.6	61
Selkirk	29.0	29.8	60
Conley	27.8	24.9	61
Mida	27.6	24.5	62
Rival	28.5	21.6	61
Pilot	28.2	23.4	61
Thatcher	29.5	25.4	61
Cadet	29.8	22.7	60
Ceres	28.2	24.3	61
Spinkota	29.9	26.6	63
Marquis	25.8	20.6	61
Willet	25.2	28.8	61
R.H. 1935	24.5	29.9	60
Lee ⁶ K.F.	26.8	--	61
That. ⁶ K.F.	28.5	--	61
<u>Durum</u>			
Mindum	27.1	22.2	66
Vernum	24.6	23.1	65
Sentry	25.5	25.5	64
Yuma	23.9	23.3	63
Ramsey	30.8	26.0	64
Langdon	28.6	29.2	64
Ld. 389	29.5	--	64
Ld. 392	29.3	--	63
L.S.D.	3.8	1.9	

Table 4. Spring Wheat Variety Test at the Central Substation, Highmore, 1954-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test wt.</u>
	<u>1958</u>	<u>1954-58</u>	<u>1958</u>
<u>Hard Red Spring</u>			
Rushmore	30.1	22.2	61
Lee	34.6	22.9	62
Selkirk	33.4	24.6	59
Conley	32.6	20.9	61
Mida	35.1	22.1	62
Rival	31.2	18.5	62
Pilot	29.2	19.7	61
Thatcher	28.3	19.9	61
Cadet	31.8	23.0	61
Ceres	29.0	19.0	61
Spinkota	34.6	23.5	64
Marquis	23.3	17.0	59
Willet	39.0	24.7	60
R.H. 1935	38.4	25.8	62
Lee ⁶ K.F.	36.3	--	61
That ⁶ K.F.	28.4	--	61
<u>Durum</u>			
Mindum	43.6	21.1	65
Vernum	42.9	20.1	65
Sentry	36.2	24.8	64
Yuma	34.9	23.7	63
Ramsey	40.9	24.7	64
Langdon	45.1	26.7	65
Ld. 389	48.8	--	65
Ld. 392	42.9	--	62
L.S.D.	4.7	2.1	

Table 5. Spring Wheat Variety Test at the North Central Substation, Eureka, 1954-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test wt.</u>
	<u>1958</u>	<u>1954-58</u>	<u>1958</u>
<u>Hard Red Spring</u>			
Rushmore	33.0	19.6	60
Lee	45.4	22.3	60
Selkirk	38.4	21.5	57
Conley	28.9	20.2	57
Mida	37.0	19.6	61
Rival	35.7	19.1	59
Pilot	27.2	17.2	58
Thatcher	29.7	18.2	58
Cadet	30.3	18.4	57
Ceres	31.1	18.5	59
Spinkota	40.5	21.4	62
Marquis	27.3	15.6	58
Willet	42.2	21.0	59
R.H. 1935	38.2	23.6	61
Lee ⁶ K.F.	47.9	--	60
That ⁶ K.F.	32.6	--	58
<u>Durum</u>			
Mindum	39.8	17.2	63
Vernum	42.0	18.6	63
Sentry	49.0	24.4	65
Yuma	31.7	17.4	60
Ramsey	43.5	20.9	63
Langdon	47.2	22.3	63
Ld. 389	49.2	--	62
Ld. 392	46.9	--	59
L.S.D.	5.2	1.9	

Table 6. Spring Wheat Variety Test at the Range Field Station, Cottonwood, 1954-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test Wt.</u>
	<u>1958</u>	<u>1954-58</u>	<u>1958</u>
<u>Hard Red Spring</u>			
Rushmore	36.5	18.1	60
Lee	41.0	19.1	60
Selkirk	38.2	17.9	56
Conley	35.1	15.0	59
Mida	37.4	16.9	59
Rival	32.1	15.0	57
Pilot	36.2	16.2	58
Thatcher	34.4	15.4	57
Cadet	36.8	15.3	59
Ceres	37.1	17.3	60
Spinkota	39.9	18.3	61
Marquis	32.4	14.8	60
Willet	42.9	19.7	59
R.H. 1935	42.1	21.2	60
Lee ⁶ K.F.	38.3	--	59
That. ⁶ K.F.	36.2	--	60
<u>Durum</u>			
Mindum	33.0	14.4	64
Nugget	28.8	16.4	62
Sentry	35.2	18.6	64
Yuma	29.0	14.6	61
Ramsey	35.5	16.2	64
Langdon	36.1	17.5	63
Ld. 389	39.6	--	62
Ld. 392	41.2	--	60
L.S.D.	5.1	2.0	

Table 7. Spring Wheat Variety Test on Dryland at the U.S.D. & I. Station, Newell, 1954-57*.

Variety	Average yield, bu./acre		Test wt.
	1957*	1954-57	1957
Rushmore	15.3	12.2	55
Lee	18.5	12.2	55
Selkirk	19.7	13.2	53
Conley	14.0	10.3	54
Mida	16.0	11.0	58
Thatcher	19.4	--	52
Cadet	16.4	--	54
Ceres	15.2	--	58
Marquis	15.2	--	55
Spinkota	17.0	--	59
R.H. 1935	20.3	14.3	56
Lee ⁶ K.F.	16.8	--	55
L.S.D.	N.S.	1.8	

*1958 crop hailed out completely

Table 8. Spring Wheat Variety Test on Irrigation at the U.S.D. & I. Station, Newell, 1954-57*.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test wt.</u>
	<u>1957*</u>	<u>1954-57</u>	<u>1957</u>
Rushmore	17.0	25.5	58
Lee	18.3	28.6	58
Selkirk	16.4	29.0	54
Conley	14.5	26.8	57
Mida	17.5	24.4	61
Thatcher	19.9	24.4	56
Cadet	13.2	24.8	57
Ceres	18.2	25.5	59
Marquis	13.0	--	58
Spinkota	20.4	--	60
R.H. 1935	20.4	--	58
Lee ⁶ K.F.	16.2	--	57
L.S.D.	3.0	2.3	

* 1958 crop hailed out completely.

Table 9. Spring Wheat Variety Test at the Southeast Station, Menno, 1956-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test wt.</u>
	<u>1958</u>	<u>1956-58</u>	<u>1958</u>
<u>Hard Red Spring</u>			
Rushmore	20.7	19.2	61
Lee	19.7	19.0	61
Selkirk	21.4	21.3	58
Conley	19.3	14.6	61
Mida	22.7	20.9	62
Rival	21.8	18.0	61
Pilot	21.4	17.8	61
Thatcher	22.3	19.2	60
Cadet	22.9	17.2	60
Ceres	22.7	16.1	62
Spinkota	20.6	18.5	62
Marquis	20.5	16.8	60
R.H. 1935	20.6	23.0	60
Lee ⁶ K.F.	19.0		61
That. ⁶ K.F.	21.7		60
<u>Durum</u>			
Sentry	26.6	23.4	64
Yuma	21.2	16.8	63
Ramsey	19.2	19.5	64
Langdon	23.9	20.4	64
Ld. 389	20.8		63
Ld. 393	25.4		65
L. S. D.	2.8	2.8	

Table 10. Spring Wheat Variety Test at the Northeast Station, Watertown, 1956-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test Wt.</u>
	<u>1958</u>	<u>1956-58</u>	<u>1958</u>
<u>Hard Red Spring</u>			
Rushmore	17.1	17.5	58
Lee	25.7	21.5	59
Selkirk	23.5	22.4	56
Conley	14.2	15.5	55
Mida	22.3	20.4	59
Rival	18.9	17.8	58
Pilot	14.6	15.8	56
Thatcher	13.1	15.1	55
Cadet	13.9	15.9	55
Ceres	15.6	16.1	57
Spinkota	29.8	24.2	62
Marquis	12.5	13.5	54
R.H. 1935	30.6	25.2	61
Lee ⁶ K.F.	28.3		59
That. ⁶ K.F.	17.5		56
<u>Durum</u>			
Stewart	18.7	18.3	60
Vernum	27.0	21.1	62
Sentry	30.2	26.6	64
Yuma	23.5	21.2	59
Ramsey	23.0	20.7	61
Langdon	31.8	24.8	62
Ld. 389	31.7		62
Ld. 393	27.8		62
L.S.D.	4.2	2.7	

Table 11. Spring Wheat Variety Test at the South Central Station, Presho, 1958.

<u>Variety</u>	<u>Yield bu./acre</u> <u>1958</u>	<u>Test Wt.</u> <u>1958</u>
<u>Bread Wheats</u>		
Lee	17.1	55
Selkirk	14.2	49
Rushmore	13.8	54
Thatcher	9.0	52
That. ⁶ K.F.	10.1	52
Conley	7.8	51
<u>Durum</u>		
Yuma	18.4	51
Langdon	23.6	57
Sentry	18.9	57
L.S.D.	2.9	

Table 12. Spring Wheat Variety Test on Irrigation at the Shadehill Development Farm, 1956-58*.

<u>Variety</u>	<u>Yield, bu./acre</u>		<u>Test wt.</u>
	<u>1958</u>	<u>1956-58</u>	<u>1958</u>
<u>Hard Red Spring</u>			
Rushmore	45.5	37.6	61
Lee	47.0	41.6	60
Selkirk	52.0	38.5	60
Conley	47.0	38.4	59
R.H. 1935	47.5	35.3	61
T.T. 630	40.6	33.5	62
L.S.D.	5.3	3.1	

* Data furnished by C. R. Umback, Farm Operator. Cooperating Agencies: USDA-ARS, S.D. Exp. Station, U.S.B.R. (farm owner).

Table 13. Spring Wheat Performance Notes, 1958 Season.

<u>Variety</u>	<u>Brookings</u>	<u>Watertown</u>			<u>Eureka</u>
	<u>Shattering</u> <u>Score</u>	<u>Leaf</u> <u>Rust</u>	<u>Date</u> <u>Headed</u>	<u>Black</u> <u>Chaff</u>	<u>Lodging</u> <u>Score</u>
<u>Hard Red Spring</u>					
Rushmore	T	60	6-29	2.0	0.0
Lee	1.0	55	6-23	5.0	1.5
Selkirk	1.0	50	7- 2	4.0	0.0
Conley	4.0	60	7- 4	8.5	1.8
Mida	4.0	50	7- 1	7.0	2.0
Rival	6.0	70	7- 3	4.0	2.2
Pilot	T	60	7- 2	4.0	3.0
Thatcher	T	70	7- 2	4.0	0.0
Cadet	T	75	7- 5	4.0	1.8
Ceres	3.0	60	7- 1	3.5	2.2
Spinkota	0.5	55	7- 2	1.5	2.0
Marquis	2.0	80	7- 6	4.0	2.2
Willet	3.0	0	7- 3	3.0	2.0
R.H. 1935	T	0	6-28	2.0	4.0
Lee ⁶ K.F.	1.0	50	6-29	5.5	2.0
That. ⁶ K.F.	1.0	70	7- 2	4.0	0.5
<u>Durum</u>					
Mindum	-	1	7- 3	0.8	1.7
Vernum	-	22	7- 3	1.0	1.3
Sentry	-	15	7- 1	2.3	0.7
Yuma	-	40	7- 6	2.7	1.3
Ramsey	-	7	7- 3	2.7	1.3
Langdon	-	30	7- 3	2.7	1.0
Ld. 389	-	10	7- 1	3.0	1.0
Ld. 392	-	13	6-29	4.7	0.0

Table 14. Flax Variety Test at the Main Experiment Station, Brookings, 1954-58.

Variety	Average yield, bu./acre		Test wt.
	1958	1954-58	1958
Marine	17.0	13.6	52
Sheyenne	15.6	13.6	54
Redwood	19.6	14.5	53
Bolley	19.6	15.7(3)	52
B-5128	19.2	13.9	52
Army	18.6	15.0(2)	53
Redwing	17.4	15.1	54
Dakota	19.2	15.1	53
Raja	13.8	13.1(3)	51
Linda	19.6	15.2(3)	51
Bison	20.0	15.1	53
Norland	20.7	13.8	53
Royal		12.6(4)	52
L.S.D.	1.0	1.0	

(3) Number of years averaged when less than five.

Table 15. Flax Variety Test at the Central Substation, Eureka, 1955-58*.

Variety	Average yield, bu./acre		Test wt.
	1958	1955-58	1958
Marine	12.4	7.4	51
Sheyenne	9.2	7.3	51
Redwood	9.0	7.1	54
Bolley	10.5	7.9(3)	49
B-5128	9.8	7.5	53
Redwing		6.7(3)	
Dakota	10.6	7.8	49
Norland	6.6	7.0(3)	44
L.S.D.	3.8	2.4	

*The 1954 crop was destroyed by drought.

(3) No. of yrs. averaged when less than four.

Table 16. Flax Variety Test at the Central Substation, Highmore, 1954-58.

Variety	Average yield, bu./acre		Test wt.
	1958	1954-58	1958
Marine	21.5	16.9	54
Sheyenne	22.8	13.5	54
Redwood	23.8	14.5	53
Bolley	24.2	12.4(3)	52
B-5128	25.9	14.2	53
Army	22.2	16.0(2)	53
Redwing	23.4	15.4	54
Dakota	25.1	15.1	54
Raja	19.7	16.1(2)	52
L.S.D.	0.8	1.4	

(3) Number of years averaged when less than five.

Table 17. Flax Variety Test at the Northeast Experiment Station, Watertown, 1956-58.

Variety	Average yield, bu./acre		Test wt.
	1958	1956-58	1958
Marine	17.7	16.3	52
Sheyenne	16.5	16.1	52
Redwood	19.9	16.3	52
Bolley	19.0	15.5	52
B-5128	19.5	16.0	51
Army	19.1	16.8(2)	52
Dakota	18.0	16.0	50
Raja	14.9	14.9(2)	48
Linda	18.3	16.4(2)	48
Norland	19.7	16.8	52
Redwing		15.3(2)	
L.S.D.	N.S.	2.6	

(2) Number of years averaged when less than three.

Suggested Varietal Choices in Spring Grain Crops
for South Dakota, 1958-1959.

Spring wheat

Conley	B1, B2, C1, D2
Lee	B1, B2, B3
Rushmore	B1, B2, B3
Selkirk	B1, B2, C1, D1, D2, D3

Durum Wheat

Langdon	B1, B2, C1, D1, D2, D3
Ramsey	B1, B2, C1, D1, D2, D3
Yuma	D1, D2

Flax

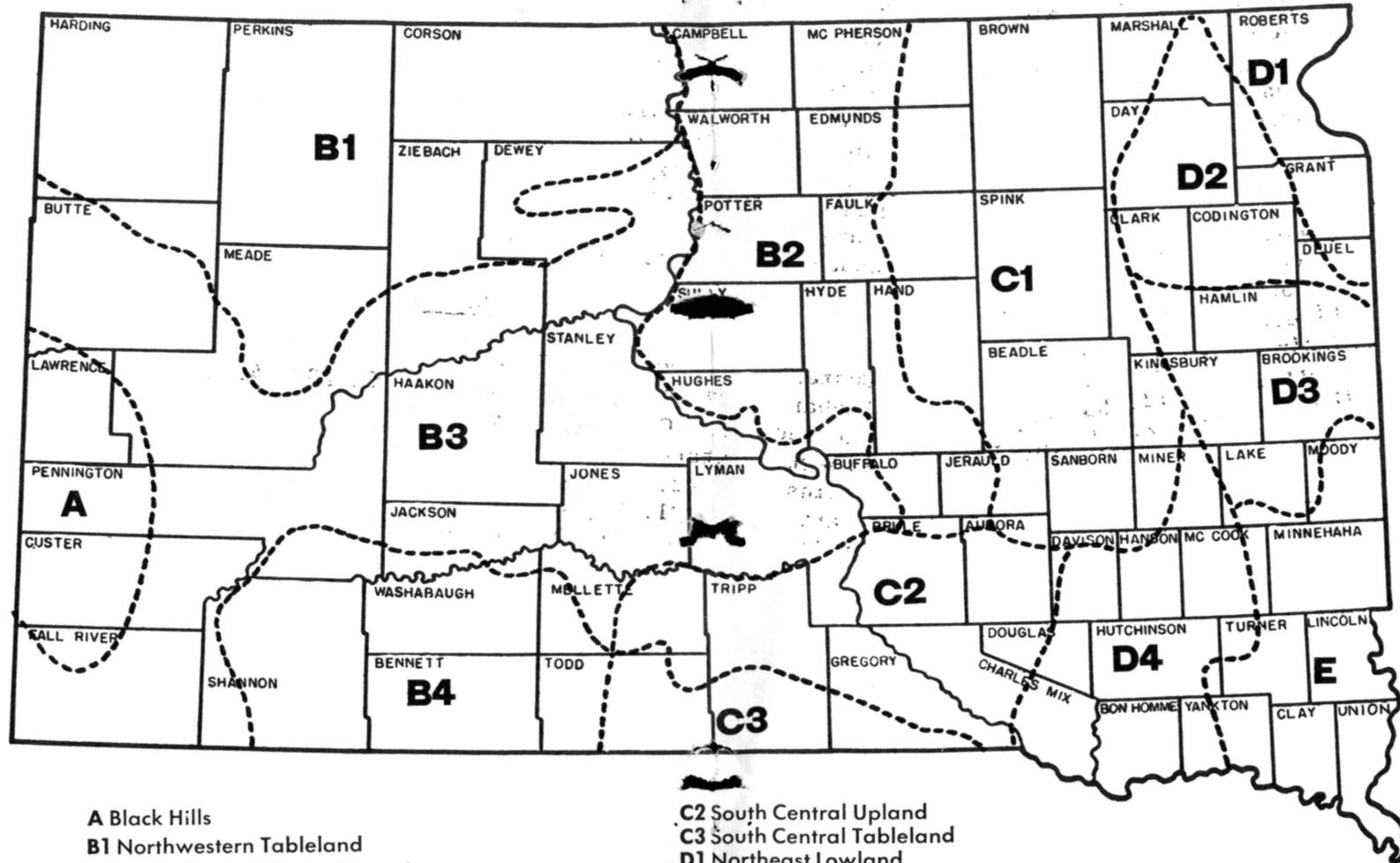
Arny	C1, D1, D2, D3
Bolley	B1, B2, C1, D1, D2, D3, D4, E
B 5128	C1, D1, D2, D3
Marine	B1, B2, C1, D1, D2, D3, D4, E
Redwood	C1, D1, D2, D3
Sheyenne	B1, B2, C1, D2, D4.

CROP ADAPTATION AREAS OF SOUTH DAKOTA

South Dakota State College

Soil Survey—Agronomy Department

MARCH 1958



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

Oats

Andrew	State-wide
Burnett	C1, C2, D1, D2, D3, D4, E
Cherokee	A, D4, E
Dupree	B1, B2, B3, B4, C2
Garry	D1, D2, D3
Marion	C1, D2, D4, E
Mo-0-205	State-wide
Minhafer	State-wide
Newton	D1, D4, E
Ransom	State-wide
Rodney	D2
Waubay	C1, D2, D3, D4, E

Barley

Custer	B3, B4, C2, C3, D4
Feebar	B2, B4, C1, C2, C3, D1, D2, D3, D4, E
Kindred	B2, C1, D1, D2, D3
Liberty	State-wide
Plains	State-wide
Spartan	A, B1, B3, B4, C2, C3
Trail	A, B2, C1, D1, D2, D3

Table 18. Barley Variety Test at the Main Experiment Station, Brookings, 1954-58.

Variety	Average yield, bu./acre		Test wt.
	1958	1954-58	1958
Custer	52.0	51.7	52
Feebar	59.1	44.9	44
Fox	63.8	43.9(3)	50
Husky	71.4	62.9(2)	50
Kindred	50.1	44.1	49
Liberty	67.1	61.0(2)	50
Manchuria	58.8	46.6	49
Montcalm		37.5(4)	
Odessa	57.9	51.0	50
Parkland	73.2	51.6(3)	50
Plains	38.3	48.8	49
Spartan	48.2	43.9	52
Traill	62.8	47.7(3)	48
Trebi	70.4	61.9(2)	47
Tregal	55.5	45.7	47
Velvon 11	61.7	48.7	47
Wisconsin 38	60.0	43.7	46
L.S.D.	8.8	3.9	

(3) Number of years averaged when less than five.

Table 19. Barley Variety Test at the Central Substation Highmore, 1954-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test wt.</u>
	<u>1958</u>	<u>1954-58</u>	<u>1958</u>
Compana	54.9	34.6	50
Custer	57.6	38.4	48
Feebar	39.4	31.1	44
Forrest	45.3	44.4(2)	49
Fox	59.1	44.2(2)	48
Kindred	47.9	33.1	49
Liberty	54.1	50.2	49
Manchuria	53.9	46.7	48
Odessa	46.1	32.6	50
Parkland	60.7	53.7(2)	50
Plains	53.6	39.2	49
Spartan	37.0	33.5	50
Trall	51.2	38.4(3)	52
Trebi	57.6	47.9(2)	46
Tregal	53.1	35.2	45
Vantmore	34.7	38.0(2)	47
Velvon 11	56.9	36.1	46
L.S.D.	12.0	5.0	

(2) Number of years averaged when less than five.

Table 20. Barley Variety Test at the North Central Substation, Eureka, 1954-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test wt.</u>
	<u>1953</u>	<u>1954-58</u>	<u>1958</u>
Custer	63.1	38.8	46
Feebar	37.8	25.6	45
Forrest	57.7	53.3(2)	52
Fox	42.0	38.4(2)	50
Kindred	33.4	22.4	49
Liberty	51.2	55.9(2)	49
Montcalm	35.2	21.0	49
Odessa	39.8	24.6	48
Parkland	56.2	51.7(2)	48
Plains	56.9	35.9	48
Traill	47.1	34.5(3)	49
Trebi	44.2	46.7(2)	44
Tregal	44.8	26.9	47
Vantmore	65.2	60.0(2)	49
Velvon 11	57.7	34.5	46
L.S.D.	12.0	4.1	

(2) Number of years averaged when less than five.

Table 21. Barley Variety Test at the Range Field Station, Cottonwood, 1954-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test wt.</u>
	<u>1958</u>	<u>1954-58</u>	<u>1958</u>
Compana	66.5	36.7	49
Custer	70.1	37.0	47
Feebar	64.2	29.1	46
Forrest	81.1	46.2(2)	52
Fox	70.4	39.5(2)	48
Kindred	53.8	22.9	48
Liberty	77.6	50.8(2)	52
Manchuria	67.7	40.1(2)	49
Odessa	65.2	27.8	50
Parkland	79.2	46.5(2)	50
Plains	59.9	34.1	49
Spartan	54.0	38.9(2)	49
Traill	70.2	33.6(3)	50
Trebi	56.9	40.0(2)	48
Tregal	62.7	27.8	47
Vantmore	73.4	50.1(2)	51
Velvon 11	75.2	33.2	46
L.S.D.	12.2	3.6	

(2) Number of years averaged when less than five.

Table 22. Barley Variety Test on Dryland at the U.S.D. & I. Station, Newell, 1954-57.*

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test Wt.</u>
	<u>1957</u>	<u>1954-57</u>	<u>1957</u>
Compana	32.2	17.6	42
Custer	45.9	26.6(2)	40
Feebar	26.5	14.6	38
Kindred	24.8	12.1	38
Liberty	41.4	20.2(3)	43
Munsing	32.1		46
Otis	34.7	21.0(3)	46
Spartan	31.2	17.7	45
Spartan x Munsing	19.2		44
Traill	28.3	17.4(2)	41
Trebi	37.2		38
L.S.D.	N.S.	1.2	

* Note: 1958 crop hailed out. For handy reference, the 1957 report is given here.

(2) Number of years averaged when less than four.

Table 23. Barley Variety Test on Irrigation at the U.S. & I. Station, Newell, 1954-57.*

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test Wt.</u>
	<u>1957</u>	<u>1954-57</u>	<u>1957</u>
Betzes	41.1		48
Custer	50.5	51.1(2)	41
Feebar	28.9	43.3	40
Feebar x Trebi	46.0		40
Forrest	45.1		48
Herta	31.1		46
Husky	50.1		44
Kindred	46.2	47.9	40
Lenta	32.4		48
Liberty	52.8	60.8	45
Manchuria	42.4		42
Montcalm	27.0	45.5	43
Odessa	48.3	52.7(2)	42
Piroline	37.8		50
Plains	45.1	45.8	44
7114 x Velvon	44.1		40
S.D. 1484	29.9		41
Spartan	36.8	38.5	47
Traill	48.2	60.8(2)	42
Trebi x Spartan	46.4		48
Trebi	44.7	54.4	41
Tregal	41.7	48.3	42
L.S.D.	N.S.	4.5	

* Note: 1958 crop hailed out. For handy reference, the 1957 report is given here.

(2) Number of years averaged when less than four.

Table 24. Barley Variety Test at the Southeast Station, Menno, 1956-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test wt.</u>
	<u>1958</u>	<u>1956-58</u>	<u>1958</u>
Compana		22.3(2)	
Custer	43.0	34.0	53
Feebar	34.4	26.4	46
Kindred	36.0	28.4	51
Liberty	40.6	42.0(2)	52
Manchuria	37.8	35.9(2)	50
Odessa		22.5(2)	
Plains	30.9	29.5	52
Spartan	30.4	23.5	52
Trail	39.0	33.7	53
Trebi	45.6	42.8(2)	49
Tregal		21.7(2)	
Velvon 11	43.4	29.0	48
L.S.D.	15.1	6.3	

(2) Number of years averaged when less than three.

Table 25. Barley Variety Test at the Northeast Station, Watertown, 1956-58.

Variety	Average yield, bu./acre		Test wt.
	1958	1956-58	1958
Custer	69.9	44.1	48
Feebar	69.9	39.1	47
Forrest	58.6	46.4(2)	52
Fox		30.2(2)	
Husky	58.6	45.1(2)	50
Kindred	46.0	31.0	46
Liberty	52.3	42.8(2)	46
Manchuria	56.7	34.9	48
Montcalm		28.2(2)	
Odessa		28.9(2)	
Parkland	58.6	41.5	50
Plains	55.4	36.0	46
Spartan		31.3(2)	
Traill	68.0	44.7	49
Trebi	62.4	46.5(2)	45
Tregal	47.9	33.9	48
Velvon 11	60.5	39.0	45
Wisconsin 38	46.0	37.9	49
L.S.D.	10.0	5.2	

(2) Number of years averaged when less than three.

Table 26. Barley Variety Test at the South Central Station, Presho, 1958*.

<u>Variety</u>	<u>Yield, bu./acre</u>		<u>Test wt.</u>
	<u>1958</u>		<u>1958</u>
Custer	36.3		48
Feebar	15.4		48
Liberty	38.9		49
Otis	38.4		50
Plains	32.2		49
S.D. 1483	35.3		46
Spartan	28.8		49
Trebi	35.2		48
Velvon 11	32.4		48
Velvon 11 x Spartan	37.3		50

L.S.D. 4.1

* New station. First year results.

Table 27. Barley Variety, Height, and Disease Data 1958 Season at Brookings and Watertown.

<u>Variety</u>	Plant	<u>Lodging</u>	Septoria*		Stem**	Leaf
	<u>Height</u>		<u>Brkgs.</u>	<u>Brkgs.</u>	<u>Wat.</u>	<u>Rust %</u>
	<u>Brkgs.</u>		<u>Brkgs.</u>	<u>Wat.</u>	<u>Brkgs.</u>	<u>Brkgs.</u>
Custer	28	0	3	5	0	2
Feebar	31	2	T	2	0	T
Forrest	38	T	3	5	0	T
Fox	31	0	2		0	T
Husky	35	0	3	5	0	T
Kindred	38	35	5	5	0	T
Liberty	32	0	4	5	0	T
Manchuria	32	40	3	5	0	T
Odessa	35	30	3		T	T
Otis	21	0	3		T	T
Parkland	36	0	4	5	0	T
Plains	26	0	3	5	0	T
S.D. 1483	25	0	1	5	0	T
Spartan	31	0	1		T	T
Traill	35	0	4	5	T	T
Trebi	32	0	1	5	T	T
Tregal	32	0	2	5	T	T
Velvon II	30	0	T	5	1	T
Wisc. 38	37	10	3	5	T	T

* Septoria 0-not infected
5-heavily infected

** Stem and leaf rust readings equal percent of stems and leaves covered with rust pustules.

Table 28. Oat Variety Test at the Main Experiment Station, Brookings, 1954-58.

Variety	Average yield, bu./acre		Test wt.
	1958	1954-58	1958
Andrew	57.4	72.3	40
Burnett	73.4	80.1	40
Cherokee	57.1	63.3	40
Dupree	69.5	78.3	38
Garry	68.8	77.0	42
Marion	73.4	72.6	39
Minhafer	59.9	72.4	41
Mo-0-205	73.4	79.0	41
Nemaha		67.2(4)	
Newton	63.1	68.5	40
Ransom	63.8	71.7	40
Waubay	67.7	68.9	39
Ajax	80.5	77.2	40
Branch	75.1	70.0	38
Jackson		74.9(4)	
Sauk	68.8	76.0	37
Rodney	70.9	72.7	42
Vikota		75.2(4)	
Clintland 60	73.3	92.0(2)	34
Minn. II-50-12	80.1	72.1(3)	31
C.I. 7266	57.1	67.6(2)	36
C.I. 7194	56.9	76.8(2)	33
C.I. 6625	61.2		34
L.S.D.	9.5	4.5	

(4) Number of years averaged when less than five.

Table 29. Oat Variety Test at the Central Substation, Highmore, 1954-58.

<u>Variety</u>	<u>Average yield bu./acre</u>		<u>Test wt.</u>
	<u>1958</u>	<u>1954-58</u>	<u>1958</u>
Andrew	84.0	50.8	35
Burnett	97.1	58.6(3)	36
Cherokee	87.9	47.0	36
Dupree	80.5	55.5	34
Garry	88.4	53.1	36
Marion	91.0	55.0	34
Minhafer	93.0	58.8(3)	35
Mo-0-205	92.7	62.9	36
Newton	79.3	48.0	36
Ransom	84.6	50.2	35
Waubay	100.9	60.6	36
Ajax	81.1	49.5	34
Clinton	93.2	48.5	36
Jackson	96.6	55.4	38
Osage	105.2	58.8	34
Richmond	86.8	53.4	35
Trojan		45.5(4)	
Vikota		43.6(4)	
Clintland 60	93.2		36
C.I. 7194	97.6		38
L.S.D.	17.6	6.8	

(3) Number of years averaged when less than five.

Table 30. Oat Variety Test at the North Central Substation, Eureka, 1954-58.

<u>Variety</u>	<u>Average yield bu./acre</u>		<u>Test Wt.</u>
	<u>1958</u>	<u>1954-58</u>	<u>1958</u>
Andrew	110.7	64.3	37
Burnett	94.3	83.2(3)	39
Dupree	115.0	68.0	36
Garry	100.4	76.2(4)	34
Marion	94.6	59.0	36
Minhafer	111.3	90.7(3)	37
Mo-0-205	120.9	70.1	38
Newton	102.8	96.6(2)	39
Ransom	108.5	61.8	37
Waubay	110.2	62.1	39
Clinton	107.5	61.6	38
Osage	118.2	63.1	37
Richland	109.5	60.2	36
Vikota	105.8	59.3	36
Clintland 60	108.6		38
L.S.D.	16.8	6.3	

(3) Number of years averaged when less than five.

Table 31. Oat Variety Test at the Range Field Station, Cottonwood, 1954-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test Wt.</u>
	<u>1958</u>	<u>1954-58*</u>	<u>1958</u>
Andrew	101.5	54.3	36
Burnett	96.2	57.5(2)	37
Dupree	91.7	52.6	35
Garry	100.8	50.7(3)	36
Marion	95.7	49.6	34
Minhafer	77.9	48.1(3)	35
Mo-0-205	107.2	56.6	36
Newton		29.8(3)	
Ransom	94.1	46.9	36
Waubay		34.6(3)	
Ajax		32.5(3)	
Brunker	83.4	47.2	34
Cherokee	78.0	39.1	36
Osage	110.3	57.2	34
Trojan	99.5	51.5	34
Vikota		36.4(3)	
C.I. 7194	87.8		
L.S.D.	16.3	4.9	

* 1955 yield data not in average due to extremely variable soil condition.

(2) Number of years averaged when less than four.

Table 32. Oat Variety Test on Dryland at the U.S.D. & I. Station, Newell, 1954-57*.

Variety	Average yield, bu./acre		Test wt.
	1957	1954-57	1957
Andrew	51.4	30.9	33
Nemaha	41.9	28.1	33
Dupree	59.0	33.2	30
Minhafer	53.5		30
Mo-0-205	56.8	32.8	30
Newton	49.9	29.5(2)	28
Ransom	59.6	34.3(3)	32
Ajax		19.7(3)	
Brunker	50.2	31.2	28
Osage	52.2	30.5	29
Trojan	55.6	32.8	31
L.S.D.	N.S.	1.9	

* Note: 1958 crop hailed out. For handy reference, the 1957 report is given here.

(2) Number of years averaged when less than four.

Table 33. Oat Variety Test on Irrigation at the U.S.D.&I. Station, Newell, 1954-57.*

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test wt.</u>
	<u>1957</u>	<u>1954-57</u>	<u>1957</u>
Andrew		75.4(3)	
Burnett	43.4	70.9(2)	33
Dupree	50.7	75.5	28
Garry	35.7	63.8	24
Marion	49.1	67.4(3)	30
Minhafer	43.8		32
Mo-0-205	51.8	76.4	31
Ransom	36.3	64.1	30
Waubay	50.5	71.7	30
Ajax	47.7	74.1	28
Branch	49.7	71.8	25
Osage	44.1	81.2	26
Park	40.6	70.0	24
Rodney	26.5	61.8	23
Trojan	49.1	76.3	32
Vikota	49.6	73.8	26
L.S.D.	13.5	5.7	

* Note: 1958 crop hailed out. For handy reference, the 1957 report is given.

(3) Number of years averaged when less than four.

Table 34. Oat Variety Test at the Southeast Station, Menno, 1956-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test Wt.</u>
	<u>1958</u>	<u>1956-58</u>	<u>1958</u>
Andrew	64.1	52.6	41
Burnett	64.9	54.2	40
Cherokee	57.0	50.9	40
Garry	64.1	50.7	40
Marion	59.4	48.7	40
Minhafer	59.2	54.4	40
Mo-O-205	69.9	55.7	39
Newton	48.3	47.6	42
Ransom	62.7	50.0	40
Waubay	55.9	51.3	41
Ajax	59.4	51.5	37
Branch	62.4	48.8	40
Clinton	61.6	46.4	41
Jackson	67.4	55.7	41
Sauk		36.0(2)	
Simcoe	63.8	54.0	36
Richland		44.5(2)	
Rodney		36.5(2)	
<u>L.S.D.</u>	N.S.	3.0	

Potential Varieties*

Clint. 60	48.3	75.7(2)	37
II-50-12	44.9	70.5(2)	31
CI 7266	41.1	60.6(2)	40
CI 7194	44.0	67.2(2)	36
CI 6625	46.6		36
Minhafer	44.0	70.1(2)	34
Burnett	47.2	65.4(2)	40

* Yields comparable only within this series, since data came from separate tests.

Table 35. Oat Variety Test at the Northeast Station, Watertown, 1956-58.

<u>Variety</u>	<u>Average yield, bu./acre</u>		<u>Test Wt.</u>
	<u>1958</u>	<u>1956-58</u>	<u>1958</u>
Andrew		64.4(2)	
Burnett	115.3	79.2	39
Cherokee	102.1	70.5	40
Garry	123.8	82.6	40
Marion	107.7	78.4	42
Minhafer	111.5	77.4	38
Mo-O-205	107.7	69.9	40
Newton	103.0	67.7(2)	38
Ransom	104.9	69.1	40
Waubay	101.1	73.0	39
Ajax	111.5	79.4	39
Branch	114.3	77.4	36
Clinton	94.5	64.7	40
Jackson		59.6(2)	
Sauk	118.1	87.0	36
Simcoe	123.8	84.2	40
Richland		49.6(2)	
Rodney	128.5	83.9	34
L.S.D.	11.3	6.2	

(2) Number of years averaged when less than three.

Table 36. Oat Variety Test at the South
Central Station, Presho, 1958.

<u>Variety</u>	<u>Yield, bu./acre</u> <u>1958</u>	<u>Test wt.</u> <u>1958</u>
Osage	64.7	33
Trojan	60.0	34
Brunker	60.0	34
Mo-0-205	64.0	33
Minhafer	53.6	32
Burnett	65.5	34
Dupree	69.9	34
Andrew	60.5	34
L.S.D.	N.S.	

Table 37. Oat Performance Notes, 1958.

Variety	Brookings, 1958				Highmore 1957
	Date headed	Plant height	Crown** rust %	Stem rust %	Lodg. 0-9*
Andrew	6- 9	31	10	T	3
Burnett	-13	32	5	-	
Cherokee	-10	29	10	5	3
Dupree	-11	28	T	10	8
Garry	-22	33	T	-	2
Marion	-12	32	20	T	6
Minhafer	-10	32	-	-	4
Mo-0-205	-13	31	10	T	2
Nemaha	-10	29	T	10	
Newton	-13	29	10	T	
Ransom	- 9	31	10	-	2
Waubay	-13	31	20	5	3
Ajax	-21	33	50	10	4
Branch	-20	31	5	5	
Jackson	-16	31	T	5	3
Sauk	-21	32	T	T	
Rodney	-25	32	5	-	
Vikota	-16	28	20	T	5
Brunker	- 7	25	10	-	9
Osage	-11	27	10	T	3
Trojan	-13	28	20	5	5
Clinton	-13	29	20	50	3
Richland	-17	31	20	5	5

* Scale 0-9 used where 9= most severe.

** Crown rust scattered, some varieties may have escaped by chance.