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## Oat Variety Trials in South Dakota 1956 - 1960

South Dakota Agricultural Experiment Station

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OAT VARIETY TRIALS IN SOUTH DAKOTA<sup>1/</sup>

1956 - 1960

A Progress Report

by

D. D. Harpstead  
Agricultural Experiment Station  
South Dakota State College  
Brookings, South Dakota

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The 1960 season was one of the most successful seasons on record for small grain production in South Dakota. Cool temperatures with adequate amounts of rainfall early in the growing season provided the favorable situation which could later be measured by maximum yield of oats among the recommended varieties. Exceptions to this rule in commercial fields were closely linked to poor soil fertility, late planting or in some areas, in erratic rainfall pattern.

Yields reported in Tables 1 through 9 are secured from plots grown under conditions of good cultural management. On the stations in eastern South Dakota the plots usually follow a row crop such as corn. In the western part of the state these tests are grown on summer fallow.

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- Q. Kingsley, Assistant Agronomist, Agricultural Experiment Station
- H. Geise, Assistant Agronomist, Agricultural Experiment Station
- H. Lund, Agronomy Field Foreman, Main Experiment Station, Brookings
- A. Dittman, Station Superintendent, North Central Substation, Eureka
- W. Pringle, Station Superintendent, Central Substation, Highmore
- J. Bonnemann, U. S. Dryland and Irrigation Field Station, Newell
- J. Nesvold, Station Superintendent, Range Field Station, Cottonwood

Plot size will vary among stations depending on the facilities available. In all cases the data reported are from replicated plots. Yields from Brookings, Menno, Cottonwood and Presho are obtained from "drill strip" size plots. The remaining stations are represented by data from "rod-row" tests.

In the use of data of this type to evaluate a variety or group of varieties certain ground rules must be observed. No one variety will be perfect in all respects, even at one location, over a number of years. An excellent example of this can be seen in Table 1 where Minhafer is low in the 1960 rank of varieties but high in the long term averages. In the case of Clintland 60 it can be noted that the farther it is grown from its area of primary adaptation the poorer its reaction in relation to other varieties. In addition, a relatively disease-free year such as 1960 would not cause the superior rust resistance of an oat such as Clintland 60 to become an important factor in yielding ability.

These data tend to substantiate the general variety recommendation which advocates the use of Garry and Rodney primarily for early planting in northern oat growing regions. Burnett and Clintland 60 have given the most consistent yield when produced in a major corn growing region. In many cases the variety preference of any grower will depend largely on how he fits this crop into his over-all farm program and the use he eventually makes of the crop.

To evaluate the data, the L.S.D. (least significant difference) has been included with the 1960 yield column. Where this statistic is not published the yield differences cannot be considered significant in the strictest sense of the word. A new column, % of location yield average, has been added this year as an aid in comparing variety performance among two or more locations.

Table 1. Oat Variety Tests at the Main Experiment Station Brookings,  
1956-1960

Variety	Average yield, bu/acre		Test weight 1960	% of location yield average
	1960	1956-1960		
Nehawka	129.7	73.4*	34	110.5
Sauk	127.3	77.0	35	108.4
Mo-0-205	126.2	77.9	36	107.5
Andrew	125.1	72.4	34	106.5
Dupree	124.1	77.9	34	105.7
Portage	121.1	---	35	103.6
Waubay	120.9	71.7	34	103.0
Cherokee	119.5	66.6	35	102.0
Clintland 60	119.1	74.5*	36	101.4
C.I. 7473	118.4	---	36	100.8
Ransom	118.0	71.8	36	100.5
Garry	118.0	74.7	34	100.5
Burnett	117.7	75.6	37	100.2
Marion	117.7	72.5	35	100.2
Minton	116.3	78.3*	31	99.1
Minhafer	113.8	76.8**	36	96.9
Branch	106.4	69.1	32	90.6
Goodfield	105.6	61.2*	39	89.9
Rodney	103.9	70.3	33	88.5
Putnam	100.5	---	34	85.6
Ajax	89.0	70.0	31	75.8
L. S. D.	7.8			

\* Estimated from three years' data  
 \*\* Estimated from four years' data

Table 2. Oat Variety Tests at the Central Substation, Highmore  
1956-1960\*

Variety	Average yield, bu/acre		Test weight	% of location yield average
	1960	1956-1960*	1960	
Andrew	84.1	60.2	36	126.8
Portage	77.7	--	30	117.2
Nehawka	76.8	--	35	115.8
Osage	73.9	63.2	31	111.5
Waubay	73.4	66.1	35	110.7
Burnett	72.2	62.0	35	108.9
Minhafer	70.4	61.8	32	106.2
Garry	69.7	56.4	26	105.1
Mo-0-205	69.0	65.1	37	104.1
Putnam	65.7	--	36	99.1
Cherokee	64.6	54.4	35	97.4
Dupree	63.4	58.8	31	95.6
Marion	61.9	60.0	33	93.4
Goodfield	60.1	--	37	90.6
Ransom	54.8	50.6	32	82.6
Clintland 60	42.7	--	34	64.4
Clinton	42.3	49.4	36	63.8
L.S.D.	14.7			

\* 1959 yields not included, crop destroyed by early summer drought  
and high temperatures

Table 3. Oat Variety Tests at the Range Field Station, Cottonwood  
1956-1960

<u>Variety</u>	<u>Average yield, bu/acre</u>		<u>Test weight</u>	<u>% of location yield average</u>
	<u>1960</u>	<u>1956-1960</u>	<u>1960</u>	
Dupree	79.4	53.8	31	133.8
Osage	69.0	54.9	30	116.4
Nehawka	67.5	49.2*	33	113.8
Garry	66.2	50.5	32	111.6
Minhafer	59.6	46.7**	32	100.5
Andrew	58.9	52.4	31	99.3
Marion	58.3	50.1	32	98.3
Mo-0-205	53.4	52.4	30	90.0
Portage	51.7	--	31	87.2
Ransom	51.6	46.0	31	87.0
Cherokee	50.9	40.5	32	85.8
Clintland 60	45.6	--	33	76.9

\* Estimated from three years' data

\*\* Estimated from four years' data

Table 4. Oat Variety Tests at the North Central Substation, Eureka  
1956-1960

Variety	Average yield, bu/acre		Test weight	% of location yield average
	1960	1956-1960	1960	
Mo-0-205	37.2	59.0	33	115.5
Shield	36.6	--	31	113.7
Andrew	36.4	57.8	34	113.0
C.I. 7473	35.4	--	30	109.9
Marion	34.1	55.6	31	105.9
Burnett	33.6	56.3	34	104.3
Goodfield	33.2	--	34	103.1
Nehawka	32.6	--	34	101.2
Garry	32.0	54.9	28	99.4
Osage	32.0	54.7	30	99.4
Portage	32.0	--	30	99.4
Minhafer	30.4	57.0	31	94.4
Waubay	30.2	56.2	33	93.8
Minton	29.4	--	29	91.3
Clintland 60	28.0	53.8*	34	86.9
Dupree	27.8	59.0	31	86.3
Ransom	26.8	50.8	31	52.2

\*Estimated from three years' data

Table 5. Oat Variety Tests at the Southeast Station, Menno, 1956-1960

Variety	Average yield, bu/acre		Test weight	% of location yield average
	1960	1956-1960	1960	
Mo-0-205	96.3	54.0	38	116.7
Portage	91.0	--	36	110.3
Andrew	89.7	51.0	35	108.7
Burnett	89.6	52.1	36	108.6
Clintland 60	88.2	50.5	36	106.9
Cherokee	84.7	49.4	36	102.7
Nehawka	84.7	48.4	37	102.7
Shield	84.1	--	36	101.9
Garry	81.8	47.5	35	99.2
Sauk	78.7	51.2	34	95.4
Goodfield	78.2	42.6	39	94.8
Minhafer	77.9	50.7	37	94.4
Minton	77.1	46.7	32	93.4
Marion	73.7	45.4	36	89.3
Waubay	73.5	47.2	37	89.1
Ransom	70.6	45.6	36	85.6
L. S. D.	14.3			

Table 6. Oat Variety Tests at the Northeast Station, Watertown  
1956-1960

Variety	Average yield, bu/acre		Test weight 1960	% of location yield average
	1960	1956-1960		
Rodney	80.0	70.5	30	119.8
Andrew	77.9	67.3	34	116.6
Marion	74.8	65.7	33	112.0
Minhafer	74.8	66.2	33	112.0
Portage	74.5	--	33	111.5
C.I. 7473	73.6	--	35	110.2
Burnett	73.3	66.1	36	109.7
Waubay	70.6	61.6	35	105.7
Minton	66.1	--	28	99.0
Cherokee	65.9	59.2	34	98.6
Garry	65.9	66.6	31	98.6
Goodfield	64.9	--	38	97.2
Ransom	61.9	56.9	36	92.7
Clintland 60	58.0	--	37	86.8
Putnam	52.4	--	36	78.4
Mo-0-205	40.0	52.8	34	59.9

Table 7. Oat Variety Tests at the South Central Station, Presho  
1958-1960

<u>Variety</u>	<u>Average yield, bu/acre</u>		<u>Test weight</u>	<u>% of location yield average</u>
	<u>1960</u>	<u>1958-1960</u>	<u>1960</u>	
Dupree	49.7	42.8	27	115.0
Nehawka	46.6	--	28	107.9
Burnett	44.6	38.8	28	103.2
Mo-0-205	43.2	38.0	27	100.0
Andrew	42.9	36.6	27	99.3
Cherokee	42.6	--	27	98.6
Clintland 60	41.2	--	29	95.4
Marion	40.5	--	28	93.8
Minhafer	37.3	32.0	28	86.3

Table 8. Oat Variety Tests Under Irrigation at the U.S.D. & I. Station  
Newell, 1956-1960

<u>Variety</u>	<u>Average yield, bu/acre</u>		<u>Test weight</u>	<u>% of location yield average</u>
	<u>1960</u>	<u>1956-1960*</u>	<u>1960</u>	
Trojan	108.7	86.3	36	118.2
Osage	101.4	82.1	36	110.3
Waubay	100.1	81.5	35	108.9
Rodney	98.8	80.1	33	107.5
Garry	97.0	77.3	35	105.5
C. I. 7473	96.7	--	37	105.2
Dupree	94.1	81.8	35	102.4
Ajax	93.7	80.0	35	102.0
Park	92.9	81.5	35	101.1
Minton	91.5	--	32	99.6
Vikota	90.5	77.7	37	98.5
Shield	89.4	--	36	97.3
Marion	88.3	75.0	36	96.1
Mo-0-205	87.3	78.6	37	95.0
Portage	86.4	--	36	94.0
Ransom	85.5	71.6	37	93.0
Nehawka	84.5	--	36	92.0
Clintland 60	83.6	--	37	91.0
Burnett	79.9	77.4	37	86.9
Minhafer	80.3	75.4**	36	84.7
Goodfield	76.5	--	36	84.3
L. S. D.	6.4			

\* 1958 nursery destroyed by hail

\*\* Estimated on basis of three years' data

Table 9. Oat Variety Test on Dryland at the U.S.D. & I Station,  
Newell, 1956-1960

<u>Variety</u>	<u>Average yield, bu/acre</u>		<u>Test weight</u>	<u>% of location yield average</u>
	<u>1960</u>	<u>1956-1960*</u>	<u>1960</u>	
Dupree	28.1	26.5	30	118.6
Andrew	26.4	24.7	29	111.4
Macon	25.2	--	33	106.3
Minhafer	24.6	23.4	31	103.8
Osage	24.6	23.2	30	103.8
Shield	24.0	--	30	101.3
Mo-0-205	23.2	--	30	97.9
Ransom	22.5	25.4	30	94.9
Nehawka	22.1	--	32	93.2
Clintland 60	20.6	--	33	86.9
Brunker	19.8	20.7	30	83.5
Putnam	19.4	--	31	81.8

\* 1958 crop destroyed by hail. All averages based on four years' data.

Table 10. Oat Performance Notes, 1960

<u>Variety</u>	<u>Brookings 1960</u>			<u>Menno 1960</u>	
	<u>Date Headed</u>	<u>Plant Height inches</u>	<u>Lodging 0-9*</u>	<u>Plant Height</u>	<u>Lodging 0-9*</u>
Ajax	7-1	48	5	---	---
Andrew	6-22	37	3	37	4
Branch	7-4	48	5	---	---
Burnett	6-24	35	2	40	5
Cherokee	6-23	33	7	37	5
Clintland 60	6-25	38	1	38	3
Dupree	6-21	33	3	---	---
Garry	6-29	42	2	44	5
Goodfield	6-24	32	1	38	2
Marion	6-24	34	5	44	7
Minhafer	6-21	38	1	41	4
Minton	6-27	36	4	40	8
Mo-0-205	6-23	35	3	40	5
Nehawka	6-20	32	2	38	4
Portage	6-27	39	2	45	5
Putnam	6-21	40	---	---	---
Ransom	6-22	35	4	34	7
Rodney	7-3	41	4	---	---
Sauk	6-29	40	5	42	6
Waubay	6-24	37	1	42	3
C. I. 7473	6-29	40	4	---	---

\*Scale 0-9 used, 9 = most severe rating