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Report of Progress in Variety Tests of Oats

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AGRICULTURAL EXPERIMENT STATION

South Dakota State College
of Agriculture and Mechanic Arts

AGRONOMY DEPARTMENT



KHERSTON OATS

Progress in Variety Test of Oats

BROOKINGS, SOUTH DAKOTA

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REPORT OF PROGRESS IN VARIETY TESTS OF OATS

(By Clifford Willis, Chief in Agronomy.)

The object of the present bulletin is to report the progress of the work which has been done at this Station. According to the records the work in oats began in the year 1899. The seed of nearly all of the varieties, in this bulletin, was furnished by the Bureau of Plant Industry, United States Department of Agriculture, as the Department of Agronomy has been carrying on the work in cooperation with this Bureau. During the present season forty-two (42) varieties of oats were in the test. All varieties grown in 1907 were grown this season. The season has been very unfavorable to the oat crop. The crop has been a partial failure. The varieties varying very much in yield. The smallest yield was one and five-tenths (1.5) bushels per acre; while the largest yield was sixty-three and seven-tenths (63.7) bushels. All varieties were affected by rust and smut. The rainfall from April 1st till August first was nineteen and sixty-one hundredths (19.61) inches. The soil upon which these variety tests have been conducted is described by Mr. Frank Bennett of the Bureau of Soils to be a compact sandy loam about ten (10) inches deep. The sand varies from medium to fine; occasionally gravel, rounded pebbles, and bowlders are found on the surface. The bowlders are largely granite, granitic gneiss, etc., while the gravel and pebbles are made up of the same material, with a large quantity of limestone, and "greenstone" and a small quantity of quartzite. Beneath the soil there are about six (6) inches of yellowish loam containing some sand. From sixteen (16) to thirty-six (36) inches below the surface there is generally a yellowish clay containing a high percentage of coarse sand and gravel. Calcerous nodules in a partially decomposed state, forming white spots in the sub-soil are often found.

A Mechanical Analysis of a sample from the plots according to Hilgard's Method shows the following:

Designation of Soil Particles.	Diameter in m. m.	Hydraulic value in m. m.	Surface soil per cent.	Intermediate soil per cent.	Subsoil per cent.
Coarse grits	1-3	?	1.54	5.18	3.91
Fine grits	5-1	?	6.88	2.82	2.70
Coarse sand .....	.50	64	7.36	8.57	5.28
Medium sand .....	.30	32	.35	2.38	2.60
Fine sand .....	.16	16	4.64	9.81	12.89
Finest sand .....	.12	8	7.36	5.47	4.07
Coarse silt .....	.072	4	4.87	5.09	5.88
Large silt .....	.047	2	6.06	5.99	9.04
Medium silt .....	.036	1	5.68	4.46	3.08
Fine silt .....	.025	.5	10.53	3.58	7.29
Finest silt separated by elutriator.....	.016	.25	18.08	17.42	16.74
Finest silt separated by sedimentation.....	.010	.25	.39	1.62	2.09
Clay .....	.0001	.0023	13.39	20.84	16.11
Organic matter			9.64	4.95	8.66
Total			96.77	98.18	99.34
Water-free sample			100	100	100
Loss			3.23	1.82	.66

All plots upon which varieties of oats were grown this season were plowed in the fall of 1907 and thoroughly disked and harrowed in the spring of 1908. The rate of seeding for all varieties was two (2) bushels per acre. All varieties were seeded at as nearly the same time as possible with a disc drill. Dates of seeding were from April 17th till May 8th. Two varieties have been grown nine (9) years, viz., Swedish Select and Tobolsk.

DIFFERENT VARIETIES TESTED.

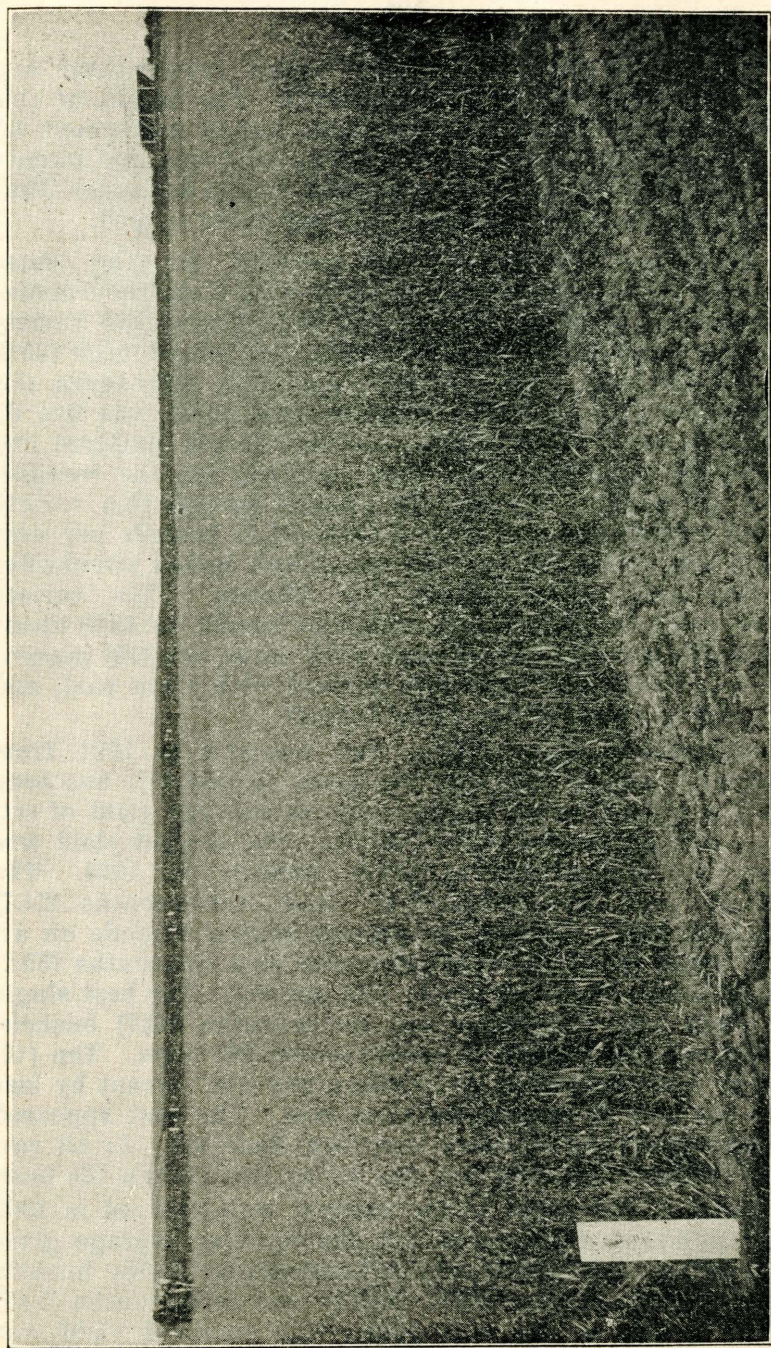
Swedish Select:--The seed of the Swedish Select variety was received in 1899 and was an original importation from St. Petersburg, Russia. During the nine years this variety has made an average of forty-three and seventy-nine hundredths (43.79) bushels per acre. The smallest recorded yield during this time was twenty-two and seven-tenths (22.7) bushels, in the year 1900. The largest recorded yield was seventy (70) bushels in the year 1904. The yield for 1908 was twenty-five (25) bushels, with a ninety

(90) per cent stand. Weight per bushel twenty-three and seventy-five hundredths (23.75) pounds. The height of this variety this year was forty-four (44) inches and about fifteen (15) per cent of it was affected by leaf rust and twenty (20) percent by stem rust. The rust began to appear June 4th and by July 15th the crop was partially lodged.

Tobolsk:—This variety was received in the same year 1899. It was an original importation from the Tobolsk Government, Russia. During the nine years this variety made an average yield of thirty-five and nine-tenths (35.9) bushels per acre. The largest yield was fifty-seven (57) bushels per acre, in 1901. The smallest yield was five (5) bushels in 1907. This variety matured in one hundred and three (103) days the same time required for the Swedish Select to mature. During the present season this variety yielded twenty-one and eight-tenths (21.8) bushels per acre with a ninety-five (95) percent stand and tested twenty-five and five-tenths (25.5) pounds per bushel. This variety grows about forty-eight (48) inches in height. In 1908 about fifteen (15) percent was affected with smut, ten (10) percent with leaf rust, thirty-five (35) percent with stem rust, and forty (40) percent of the grain lodged.

Sixty-Day:—This variety was received in 1901 from Proskurov, Russia. During the seven (7) years it has been grown at this Station, it has made an average yield of sixty-two and five-tenths (62.5) bushels. The largest yield was eighty-four and five-tenths (84.5) bushels in 1904. The smallest yield was twenty-four and seven-tenths (24.7) bushels in 1907. During the present season it made an average yield, in all tests, of fifty-nine and two-tenths (59.2) bushels with a stand of ninety (90) percent. The best single plot yield was sixty-three and seven-tenths (63.7) bushels. It matured this season in ninety-seven (97) days. Ten (10) percent was affected by loose smut, ten (10) percent by leaf rust, and two (2) percent by stem rust. The rust appeared on this variety, as on other varieties, June 4th. In all varieties grown at this Station, Sixty-Day has proven the best.

Lincoln No. 151:—This variety was received in 1902 from Indian Head, Canada. A six (6) year average gives twenty-nine and seventy-eight hundredths (29.78) bushels per acre. The largest yield is fifty and seven-tenths (50.7) bushels grown in the year 1904. The smallest yield was



SIXTY-DAY OATS

fourteen and one-tenth (14.1) bushels in 1907. During the present season this variety gave a yield of seventeen and six-tenths (17.6) bushels with a ninety (90) percent stand, and tested twenty-one (21) pounds per bushel. This variety grew to a height of forty-one (41) inches. Fifteen (15) percent was injured by smut, fifteen (15) percent by leaf rust and twenty-five (25) percent by stem rust. The rust made its appearance June 4th and by July 13th at least twenty (20) percent of the grain was lodged. This variety matured in one hundred and five (105) days.

White Schonen:—This variety was received in 1902 from Indian Head, Canada. A five year average gives twenty-three and eight-tenths (23.8) bushels. The smallest yield is eight and four-tenths (8.4) bushels grown in 1908 with an eighty-five (85) percent stand. The largest yield was obtained in 1904, forty-six and eight-tenths (46.8) bushels. This season, 1908, this variety matured in one hundred and three (103) days and tested twenty (20) pounds per bushel. It grew to a height of forty-three (43) inches. Twenty (20) percent was affected by loose smut, sixty (60) percent by leaf rust, and sixty (60) percent by stem rust. Seventy-five (75) percent of this variety lodged.

Bavarian No. 150:—This variety was received in 1902 from Indian Head, Canada. During the five (5) years this variety has been grown it has made an average of thirty and seventy-seven hundredths (30.77) bushels per acre. The largest yield recorded for this variety is forty-six and eight-tenths (46.8) bushels in 1904. The smallest yield thirteen and four-tenths (13.4) bushels was received in 1908 with an eighty-five (85) percent stand and tested seventeen and five tenths (17.5) pounds per bushel. During the present season, this variety matured in one hundred and five (105) days and grew to a height of forty-two (42) inches. Fifteen (15) percent of this variety was affected by smut, twenty (20) percent by leaf rust, fifty (50) percent by stem rust, and thirty (30) percent of it lodged.

Banner No. 160:—This oats was received from Indian Head, Canada, in 1902. During the past six (6) years this variety made an average yield of twenty-eight and sixty-four hundredths (28.64) bushels per acre. The present season, 1908, this variety gave a return of two and five-tenths (2.5) bushels per acre, with a stand of eighty (80) percent,

tested fifteen (15) pounds per bushel; matured in one hundred and four (104) days and attained a height of forty-two (42) inches. One (1) percent was affected by smut, seventy-five (75) percent by leaf rust, forty (40) percent by stem rust, and forty(40) percent lodged. The largest yield was fifty-four and seven-tenths (54.7) bushels in 1904. The smallest yield being the present season, 1908.

American Triumph No. 162:—This variety was received from Indian Head, Canada, in 1902. During the six (6) years this variety has been grown in the test, it has made an average yield of twenty-eight and seventy-eight hundredths (28.78) bushels. The present season this variety matured in one hundred and four (104) days and gave a yield of forty-three (43) bushels with an eighty (80) percent stand. It tested seventeen and five-tenths (17.5) pounds, and attained a height of forty-two (42) inches. Forty (40) percent was affected by leaf rust, forty (40) percent by stem rust, and fifty-five (55) percent lodged. The largest yield of this variety was grown in 1904, fifty-two and seven-tenths (52.7) bushels. The smallest yield of four and three-tenths (4.3) bushels was obtained in the year 1908.

American Beauty No. 163:—This variety was received from Indian Head, Canada, in 1902, and has been grown on the Station plots since 1903. During this time it has made an average yield of twenty-eight and sixty-eight hundredths (28.68) bushels. Nineteen hundred four gave the largest yield fifty-five and six-tenths (55.6) bushels. Nineteen hundred eight gave the smallest yield, five (5.0) bushels with a stand of eighty (80) percent and tested fifteen and five tenths (15.5) pounds per bushel. During the present season this variety grew to a height of forty-two (42) inches and matured in one hundred and four (104) days. One (1) percent was affected by smut, forty (40) percent by leaf rust, forty (40) by stem rust, and fifty-five (55) percent lodged.

North Finnish Black:—This variety was received in 1902 from Tornea, Finland. During the five years (5) it has been grown at this Station the average yield has been forty-one and sixty-seven hundredths (41.67) bushels. The smallest yield was recorded in 1908, twenty and six-tenths (20.6) bushels with a stand of eighty-five (85) percent and tested twenty (20) pounds. The largest yield was sixty-five (65)

bushels in 1904. During the present season this variety matured in one hundred and two (102) days, and attained a height of thirty-eight (38) inches. Fifteen (15) percent was affected with loose smut, twenty (20) percent by leaf rust, forty (40) percent by stem rust, and forty (40) percent lodged.

Holstein Prolific No. 158:—This variety was received in 1902 from Indian Head, Canada. The last six (6) years the average yield has been twenty-eight and two-hundredths (28.02) bushels. The largest yield was fifty-five and six-tenths (55.6) bushels in 1904. Nineteen hundred eight gave the lowest yield, five and four-tenths (5.4) bushels, with a stand of eighty (80) percent, that tested sixteen (16) pounds per bushel. During the present season this variety attained a height of forty-two (42) inches and matured in one hundred (100) days. It was practically resistant this year to smut. Forty (40) percent, however, was affected by leaf rust, and forty (40) per cent by stem rust. Ninety (90) percent lodged.

Wide Awake No. 154:—This variety was received in 1902, from Indian Head, Canada. During the last six (6) years this variety has made an average of twenty-seven and four-tenths (27.4) bushels. The highest yield was fifty-one and seven-tenths (51.7) bushels in 1904. The lowest yield was eleven and nine-tenths (11.9) bushels in 1907. The year 1908 gave a yield of twelve and five-tenths (12.5) bushels with a stand of eighty-five (85) percent and tested nineteen and five-tenths (19.5) pounds per bushel. This season this variety matured in one hundred and five (105) days and attained a height of forty-three (43) inches. Fifteen (15) percent was affected by smut, fifteen (15) percent by leaf rust, and sixty (60) percent by stem rust. Seventy (70) percent lodged.

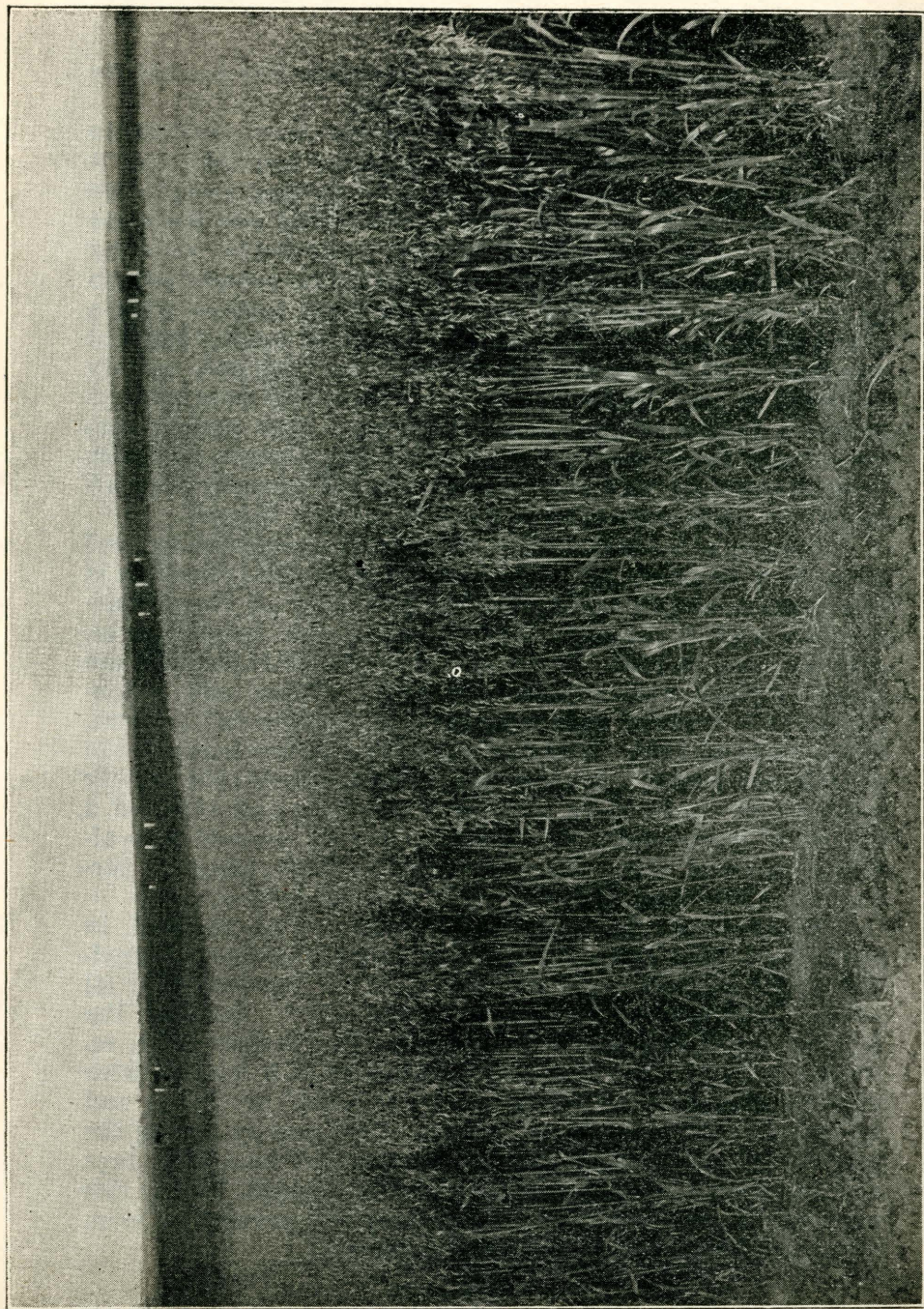
Abyssinian No. 155:—This variety was received in 1902 from Indian Head, Canada. The last six (6) years has given an average of twenty-nine and sixty-two hundredths (29.62) bushels. The largest yield, fifty-four and seven-tenths (54.7) bushels was received in 1904. The smallest yield was recorded in 1907, fourteen and four-tenths (14.4) bushels. The present season gave a return of sixteen and two-tenths (16.2) bushels with a stand of eighty-five (85) percent, and tested twenty-two (22) pounds per bushel. During the

present season this variety matured in one hundred and five (105) days and attained a height of forty (40) inches. Eighty-five (85) percent was affected by smut, fifteen (15) percent by leaf rust, sixty (60) percent by stem rust, and forty (40) percent lodged.

Columbus No. 156:—This variety was received in 1902 from Indian Head, Canada, and has been in the test six (6) years. Average yield thirty-three and twenty-two hundredths (33.22) bushels. The lowest recorded yield was fifteen (15) bushels in 1908 with a stand of eighty-five (85) percent, and tested twenty-one (21) pounds. The highest yield fifty-eight and six-tenths (58.6) bushels was recorded in 1904. This variety during the present season matured in one hundred and four (104) days and attained a height of forty (40) inches. Fifteen (15) percent was affected by smut, fifteen (15) percent by leaf rust, sixty (60) percent by stem rust, and forty (40) percent of the variety lodged.

Golden Beauty No. 159:—This variety was received in 1902 from Indian Head, Canada. The average yield of this variety for the past six (6) years has been twenty-nine and three-tenths (29.3) bushels. The highest yield fifty-six and six-tenths (56.6) bushels was recorded in 1904. The lowest yield, six and two-tenths (6.2) bushels, was in 1908. A stand of eighty (80) percent was obtained that tested seventeen and five-tenths (17.5) pounds per bushel. During the present season this variety matured in one hundred and four (104) days and attained a height of forty-two (42) inches. This variety appears to be practically free from smut. Fifty (50) per cent, however, was affected by leaf rust, forty (40) percent by stem rust, and seventy (70) percent lodged.

Belyak No. 10624:—This variety was received in 1904 from Moscow, Russia, and has been in the test five (5) years. During that time it has made an average yield of twenty-eight and eighty-four hundredths (28.84) bushels. The highest yield recorded, forty-two and eight-tenths (42.8) bushels, was in 1905. The lowest yield, nine and one-tenth (9.1) bushels, was in 1907. During the present season this variety made a yield of twenty-six and eight-tenths (26.8) bushels, with a stand of ninety-five (95) percent, and tested twenty (20) pounds per bushel. In 1908 this variety matured in one hundred and six (106) days and attained a height of forty-two (42) inches. Five (5) percent was affected by smut,



GARTON OATS.

twenty (20) percent by leaf rust, thirty-five (35) percent by stem rust, and fifty (50) percent lodged.

White Tartar No. 445:—This variety was received in 1905 from New Zealand. During the last four (4) years it has made an average yield of twenty-four and twenty-two hundredths (24.22) bushels. The highest yield was forty-one and nine-tenths (41.9) bushels in 1905. The lowest yield six and two-tenths (6.2) bushels was in 1907. The present season gave a return of ten and four-tenths (10.4) bushels with a stand of eighty-eight (88) percent. It tested twenty-one and five-tenths (21.5) pounds per bushel. In 1908 this variety matured in one hundred and twenty-two (122) days and attained a height of forty-two (42) inches. This variety was practically free from smut, but thirty (30) percent, however, was affected by leaf rust, twenty-five (25) percent was affected by stem rust, and forty (40) percent lodged.

Canadian No. 444:—This variety was received in 1905 from New Zealand. Sixteen and one-tenth (16.1) bushels is the average of this variety for the past four (4) years. Thirty-eight and four-tenths (38.4) bushels, the largest yield, was recorded in 1905. Three and one-tenth (3.1) bushels, the smallest yield, was recorded in 1907. Three and seven-tenths (3.7) bushels, with a stand of eighty-five (85) percent, is the yield of 1908. It tested eighteen and five-tenths (18.5) pounds per bushel. During the present season this variety matured in one hundred and four (104) days and attained a height of thirty-eight (38) inches. Five (5) percent was affected by smut, sixty (60) percent by leaf rust, sixty (60) percent by stem rust, and sixty (60) percent lodged.

Sparrowbill No. 443.—This variety was received in 1905, from New Zealand. Sixteen and ninety-five hundredths (16.95) bushels is the average yield for the past four (4) years. Thirty-nine and seven-tenths (39.7) bushels, the highest recorded yield, was in 1905. The lowest yield, recorded in 1908, was three and four-tenths (3.4) bushels with a stand of eighty-five (85) percent. It tested seventeen and five-tenths (17.5) pounds per bushel. This variety during the present season matured in one hundred and four (104) days and attained a height of thirty-eight (38) inches. Ninety (90) percent was affected by leaf rust, forty (40) percent by stem rust, and seventy-five (75) percent lodged.

VARIETY TEST OF OATS—1906.

Variety.	Maturity				Resistance			Yield	
	Rate of Seeding	Date Sown	Date Ripe	No. Days	Per Cent. Smut	Stem Per Ct.	Leaf Rust	Wt. per Bu.	Bu. per Acre
Kherson ..	2 bu.	4-16	7-24	99	100	90	..	34.5	65.9
Sixty-day	2 bu.	4-16	7-24	99	95	90	..	32.5	61.6
North Finnish Black.....	2 bu.	4-16	7-27	102	90	85	..	23.5	40.8
Tobolsk ..	2 bu.	4-16	7-30	105	90	85	75	34.0	47.5
Swedish Select	2 bu.	4-16	7-30	105	95	70	85	33.0	61.6
Bavarian No. 150.....	2 bu.	4-16	8-1	107	95	87	70	21.0	39.7
Lincoln No. 151.....	2 bu.	4-16	8-1	107	90	82	80	25.5	42.2
White Schonen No. 153.....	2 bu.	4-16	8-1	107	85	70	40	23.0	19.4
Wide Awake No. 154.....	2 bu.	4-16	8-1	107	90	75	70	20.5	35.0
Abyssinian No. 155.....	2 bu.	4-16	8-1	107	90	87	75	21.5	37.2
Columbus No. 156.....	2 bu.	4-16	8-1	107	90	85	65	26.0	42.8
Holstein Prolific No. 158.....	2 bu.	4-16	8-1	107	95	87	80	24.0	44.4
Golden Beauty No. 159.....	2 bu.	4-16	8-1	107	95	75	70	25.0	42.2
Banner No. 160.....	2 bu.	4-16	8-1	107	95	88	70	24.0	42.7
American Triumph No. 162.....	2 bu.	4-16	8-1	107	95	88	75	24.5	45.5
American Beauty No. 163.....	2 bu.	4-16	8-1	107	95	90	75	22.5	43.8
Red Algerian No. 10269.....	2 bu.	4-16	8-3	109	98	60	98	27.5	53.1
Belyak No. 10624.....	2 bu.	4-16	8-3	109	95	60	65	24.0	42.8
Danish No. 441.....	2 bu.	4-16	8-3	109	95	90	65	24.0	40.0
Dun No. 442.....	2 bu.	4-16	8-6	112	98	60	65	20.0	14.7
Sparrowbill No. 443.....	2 bu.	4-16	8-6	112	95	50	50	21.5	20.0
Canadian No. 444.....	2 bu.	4-16	8-1	107	..	..	40	25.3	19.2
White Tartar No. 445.....	2 bu.	4-16	8-3	109	..	..	80	27.5	32.3

VARIETY TEST OF OATS—1907.

Variety.	Maturity				Resistance			Yield	
	Rate of Seeding	Date Sown	Date Ripe	No. Days	Per Ct. Rust		Per Cent. Smut	Wt. per Bu.	Bu. per Acre
					Stem	Leaf			
Kherson ..	2 bu.	5-10	8-4	86	70	60	100	22.0	34.1
Sixty-day ..	2 bu.	5-10	8-4	86	70	60	100	20.5	24.4
North Finnish Black.....	2 bu.	5-10	8-1	83	60	65	99.9	15.5	5.0
Swedish Select	2 bu.	5-10	8-10	92	70	78	100	19.0	24.1
Red Algerian No. 10269.....	2 bu.	5-10	8-10	92	60	98	100	26.5	35.9
Belyak No. 10624	2 bu.	5-10	8-10	92	60	80	100	18.5	9.1
Danish No. 441.....	2 bu.	5-10	8-13	95	60	78	100	15.0	10.0
Sparrowbill No. 443.....	2 bu.	5-10	8-13	95	70	78	100	16.0	4.7
Canadian No. 444	2 bu.	5-10	8-9	91	25	60	100	16.5	3.1
White Tartar No. 445.....	2 bu.	5-10	8-9	91	85	88	100	17.0	6.3
Lincoln No. 151.....	2 bu.	5-10	8-9	91	70	82	100	17.0	14.8
Wide Awake No. 154.....	2 bu.	5-10	8-9	91	70	82	100	18.0	11.9
Abyssinian No. 155.....	2 bu.	5-10	8-13	95	60	82	100	18.5	14.4
Columbus No. 156.....	2 bu.	5-10	8-13	95	70	82	100	19.0	17.8
Holstein Prolific No. 158.....	2 bu.	5-11	8-13	95	50	75	100	17.5	11.9
American Beauty No. 163.....	2 bu.	5-11	8-13	95	60	85	100	17.0	10.3
Banner No. 160.....	2 bu.	5-11	8-13	95	60	75	100	15.0	8.1
American Triumph No. 162.....	2 bu.	5-11	8-13	95	60	80	100	17.0	10.9
Golden Beauty No. 159.....	2 bu.	5-11	8-13	95	50	75	100	17.0	13.8

VARIETY TEST OF OATS—1908.

Variety.	Maturity				Resistance			Yield	
	Rate of Seeding	Date Sown	Date Ripe	No. Days	Per Cent. Smut	Per Cent. Rust		Wt. per Bu.	Bu. per Acre
						Stem	Leaf		
Sixty-day	2 bu.	4-16	7-22	97	90	98	90	23.75	59.2
Lincoln No. 151.....	2 bu.	4-17	7-31	105	85	85	75	21.0	17.6
Garton White	2 bu.	4-16	7-27	102	100	75	80	29.0	47.1
Danish No. 441	2 bu.	4-16	7-31	106	95	60	80	21.0	19.0
Belyak No. 10624.....	2 bu.	4-16	7-31	106	95	65	80	20.0	26.8
Red Algerian No. 10269.....	2 bu.	4-16	8-3	109	100	90	95	30.0	56.2
North Finnish Black.....	2 bu.	4-16	7-27	102	85	60	80	20.0	20.6
Kherson	2 bu.	4-16	7-27	102	90	95	90	27.0	47.5
Tobolsk	2 bu.	4-17	7-29	103	85	65	90	25.5	21.8
Bavarian No. 150.....	2 bu.	4-17	7-31	105	85	50	80	17.5	13.4
White Schonen No. 153.....	2 bu.	4-17	7-29	103	80	40	40	20.0	8.4
Wide Awake No. 154.....	2 bu.	4-17	7-31	105	85	40	85	19.5	12.5
Abyssinian No. 155.....	2 bu.	4-17	7-31	105	85	40	85	22.0	16.2
Columbus No. 156.....	2 bu.	4-17	7-30	104	85	40	85	21.0	15.0
Swedish Select	2 bu.	4-18	7-30	103	100	80	85	22.25	25.0
White Tartar No. 445.....	2 bu.	4-18	8-18	122	100	75	70	21.5	13.4
Canadian No. 444.....	2 bu.	4-18	7-31	104	95	40	40	18.5	3.7
Sparrowbill No. 143.....	2 bu.	4-18	8-6	110	100	60	10	17.5	3.4
White Bonanza	2 bu.	4-21	7-30	98	100	25	35	16.5	6.8
White Oats No. 150.....	2 bu.	4-21	8-3	102	100	30	30	16.0	1.5
Black Egypt	2 bu.	4-21	8-5	104	100	60	10	15.0	3.7
Banner No. 160.....	2 bu.	4-21	8-5	104	99	60	25	15.0	2.5
American Triumph No. 162.....	2 bu.	4-21	8-5	104	100	60	60	17.5	4.3
American Beauty No. 163.....	2 bu.	4-21	8-5	104	99	60	60	15.5	5.0
Golden Beauty No. 159.....	2 bu.	4-21	8-5	104	100	60	50	17.5	6.2
Holstein Prolific No. 158.....	2 bu.	4-21	8-5	104	100	60	60	16.0	5.4
Hansen No. 90.....	2 bu.	5-1	7-31	92	95	40	50	12.5	3.7

VARIETY TEST OF OATS—Three Years Average—1906, 1907, 1908.

Variety.	Maturity				Yield		
	Average No. Days Maturity	Earliest Date Ripe	Latest Date Ripe	Average Date Ripe	No. Years Tested	Wt. per Bu.	Bu. per Acre
Sixty-day ..	90	7-22	8-4	7-26	8	25.58	48.4
Kherson	95	7-24	8-4	7-29	3	27.8	49.1
Lincoln No. 151.....	101	7-31	8-9	8-3	7	21.16	24.8
North Finnish Black.....	95	7-27	8-1	7-29	7	19.8	22.2
Danish No. 441.....	103	7-31	8-13	8-4	4	20.0	23.0
Belyak No. 10624	102	7-31	8-10	8-3	5	20.83	26.2
Red Algerian No. 10269.....	103	8-3	8-10	8-3	3	28.75	51.7
Wide Awake No. 154.....	101	7-31	8-9	8-3	7	19.33	19.8
Abyssinian No. 155.....	102	7-31	8-13	8-4	7	20.66	23.6
Columbus No. 156.....	102	7-30	8-13	8-4	7	22.00	25.2
Swedish Select	100	7-30	8-10	8-3	10	24.75	36.9
White Tartar No. 445.....	104	8-3	8-18	8-3	4	21.83	17.3
Canadian No. 144.....	100	7-31	8-9	8-3	4	20.16	8.6
Banner No. 160.....	102	8-1	8-13	8-4	7	18.00	17.6
American Triumph No. 162.....	102	8-1	8-13	8-4	7	19.66	20.3
American Beauty No. 163.....	102	8-1	8-13	8-4	7	18.33	19.7
Golden Beauty No. 159.....	102	8-1	8-13	8-4	7	19.83	20.8
Holstein Prolific No. 158.....	100	8-1	8-13	8-4	7	19.16	20.5
Sparrowbill No. 443	105	8-6	8-13	8-4	4	18.33	9.3

VARIETY TEST OF OATS—Yield Per Acre for Each Year Grown

Varieties.	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	Yrs.	Av.
Swedish Select	41.65	22.7	59	..	Hall	70	43.5	61.6	24.1	25	9	43.79
Tobolsk	35.5	24.3	57	..	"	55.6	40.6	47.5	5.0	21.8	9	35.91
Sixty-Day			65	..	"	84.5	80	61.6	24.7	59.2	7	62.5
Lincoln No. 151.....					"	50.7	24.3	42.2	14.1	17.6	6	29.78
White Schonen No. 153....					"	46.8	20.6	19.4	....	8.4	5	23.80
Bavarian No. 150.....					"	46.8	30.2	32.7	....	13.4	5	30.77
Banner No. 160.....					"	54.7	35.2	42.7	8.1	2.5	6	28.64
American Triumph No. 162.					"	52.7	30.5	45.5	10.9	4.3	6	28.78
American Beauty No. 163...					"	55.6	28.7	43.8	10.3	5.0	6	28.68
North Finnish Black.....					"	65.0	35.7	....	45.4	20.6	5	41.67
Holstein Prolific No. 158...					"	55.6	22.8	44.4	11.9	5.4	6	28.02
Wide Awake No. 154.....					"	51.7	24.1	35.0	11.9	12.5	6	27.04
Abyssinian No. 155.....					"	54.7	25.6	37.2	14.4	16.2	6	29.62
Columbus No. 156.....					"	58.6	31.9	42.8	17.8	15.0	6	33.22
Golden Beauty No. 159.....					"	56.6	27.5	42.4	13.8	6.2	6	29.30
Belyak No. 10624.....					"	28.0	37.5	42.8	9.1	26.8	5	28.84
White Tartar No. 445.....							41.9	32.3	6.3	10.4	4	24.22
Canadian No. 444.....							38.4	19.2	3.1	3.7	4	16.1
Sparrowbill No. 443.....							39.7	20.0	4.7	3.4	4	16.95

TABLE SHOWING COMPARATIVE YIELD OF VARIETIES OF OATS

	Number Yrs. Grown	Bushels per Acre	
Sixty Day.....	7	62.5	—————
Swedish Select.....	9	43.79	—————
North Finnish Black.....	5	41.67	—————
Tobolsk	9	35.91	—————
Columbus No. 156.....	6	33.22	—————
Bavarian No. 150.....	5	30.77	—————
Lincoln No. 151.....	6	29.78	—————
Abyssinian No. 155	6	29.62	—————
Golden Beauty No. 159.....	6	29.30	—————
Belyak No. 10269.....	5	28.84	—————
American Triumph No. 162.	6	28.78	—————
American Beauty No. 163..	6	28.68	—————
Banner No. 160.....	6	28.64	—————
Holstein Prolific No. 158....	6	28.02	—————
Wide Awake.....	6	27.04	—————
White Tartar.....	4	24.22	—————
White Schonen No. 153.....	5	23.08	—————
Sparrowbill No. 443.....	4	16.95	—————
Canadian No. 444.....	4	16.1	—————

Meteorological Record. 1899-1908. Temperature, Degrees, Fahrenheit.

	January			February			March			April		
	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.
1889	19.8	30.2	9.5	5.0	16.8	-6.8	15.8	26.4	5.2	43.8	58.0	29.6
1900	18.1	31.8	4.5	7.9	21.4	-5.5	24.2	38.8	9.6	50.2	63.4	37.1
1901	16.8	27.5	5.9	13.7	24.9	-2.6	33.4	44.6	22.3	45.7	55.7	35.2
1902	17.2	28.8	5.6	16.1	25.6	6.6	29.2	37.7	20.8	43.8	59.0	28.6
1903	13.7	24.0	3.5	10.7	21.2	0.2	29.2	37.0	21.5	45.1	58.3	32.0
1904	7.0	17.5	3.4	7.1	19.1	4.8	29.3	40.5	18.1	40.5	53.5	28.1
1905	11.3	17.2	5.9	22.5	24.9	20.2	36.4	47.3	25.6	42.4	55.8	28.8
1906	20.7	32.0	9.5	19.3	31.9	6.8	21.2	30.5	11.9	48.0	61.5	34.5
1907	4.8	14.7	5.1	19.1	30.2	8.0	34.1	45.3	22.9	35.9	48.5	23.4
1908	21.0	33.0	10.0	21.0	30.0	13.0	28.0	38.0	19.0	47.0	62.0	33.0
	May			June			July			August		
1889	55.2	66.4	44.1	64.8	76.0	53.7	69.1	83.1	55.2	72.8	88.9	56.8
1900	59.9	76.1	43.8	66.1	80.6	51.6	68.1	80.6	55.7	74.1	86.3	61.9
1901	56.9	71.6	42.4	65.9	77.0	54.8	76.2	89.9	62.5	70.4	84.6	56.3
1902	58.1	69.5	46.8	60.2	72.6	47.8	64.5	81.7	57.4	65.1	76.0	54.2
1903	56.6	68.8	44.5	62.2	75.0	49.5	66.9	79.3	54.6	65.2	76.4	54.0
1904	54.9	68.2	41.9	62.3	73.8	50.9	65.1	79.0	51.3	65.2	79.9	50.6
1905	51.1	62.2	40.1	63.8	75.7	51.9	66.0	78.2	53.9	70.1	82.8	57.5
1906	55.7	67.9	43.5	62.1	74.2	50.1	66.5	80.3	52.7	69.4	82.1	56.8
1907	47.8	60.5	35.2	64.6	77.1	52.2	69.1	81.7	56.5	69.2	83.7	54.7
1908	54.5	68.0	41.0	63.0	74.0	52.0	68.5	94.0	43.0	64.5	91.0	38.0
	September			October			November			December		
1889	61.7	72.5	40.9	48.3	62.5	34.1	31.0	36.4	25.6	16.6	28.8	4.4
1900	62.4	78.1	46.8	50.8	60.3	41.3	28.8	42.5	15.1	21.5	31.1	11.9
1901	57.5	68.5	46.6	47.8	62.6	34.9	30.1	42.5	17.8	15.1	24.2	6.1
1902	54.1	67.8	40.5	47.5	62.3	32.9	41.8	24.1	10.3	20.9	32.9	-2
1903	56.5	69.3	43.8	48.7	63.3	34.2	28.3	38.9	17.7	12.5	24.5	0.5
1904	59.0	74.2	43.8	49.1	61.1	37.2	36.4	51.2	21.3	20.3	29.7	11.0
1905	62.9	76.5	49.4	43.2	54.8	31.9	35.0	46.0	24.1	22.6	32.9	12.4
1906	62.2	73.9	50.6	43.8	53.4	34.3	29.5	38.5	20.6	20.1	30.0	10.3
1907	58.2	62.5	44.0	47.3	64.1	30.5	33.9	46.3	21.5	35.5	23.1	10.7
1908	61.5	99.0	24.0	51.5	81.0	22.0	37.0	72.0	2.0	...	...	...

RAINFALL—INCHES BY MONTHS.

Year	January	February	March	April	May	June
1889	0.25	0.21	0.40	3.38	3.36	5.42
1900	0.02	0.20	2.09	1.68	1.23	1.62
1901	0.09	0.28	0.50	1.40	1.80	4.51
1902	0.50	0.26	0.67	1.60	2.66	3.17
1903	0.10	0.31	1.87	1.00	4.53	4.16
1904	0.04	0.15	0.25	1.78	1.82	4.30
1905	0.22	1.00	0.68	1.01	6.14	6.09
1906	0.17	0.02	0.58	1.40	3.51	4.89
1907	1.06	0.28	0.55	1.17	2.36	5.65
1908	0.20	1.80	1.16	2.10	6.46	6.35
Year	July	August	September	October	November	Dec.
1899	0.73	3.25	0.17	2.21	0.42	0.43
1900	4.94	4.00	4.97	2.72	.45	.64
1901	1.66	2.94	5.09	0.74	0.60	0.15
1902	2.75	5.30	0.26	1.18	0.96	2.52
1903	3.30	4.25	2.73	1.85	0.10	0.45
1904	1.91	0.93	0.93	3.15	0.02	0.20
1905	0.98	4.54	2.16	1.50	2.45	T
1906	1.86	4.28	5.13	3.01	0.89	0.52
1907	3.77	1.41	1.28	0.96	0.10	1.12
1908	4.69	2.37	3.89	1.43	1.30	...

METEOROLOGICAL SUMMARY FOR THE EXPERIMENT STATION

1889	Temperatures					Rainfall in Inches	No. Clear Days	No. Cloudy Days	No. Partly Cloudy Days
	Average			Max.	Min.				
	Max.	Min.	Mean.						
Jan.	19.6	7.8	13.7	41	-19	1.05	...	...	...
Feb.	20.4	-1.1	9.7	43	-30	0.00	...	...	...
March	41.0	20.0	30.0	55	4	0.44	...	...	...
April	43.2	36.0	39.6	83	13	0.88	...	...	...
May	67.9	37.9	52.9	91	20	4.93	...	...	...
June	78.4	49.1	63.7	94	36	2.02	...	...	...
July	81.5	56.8	69.2	98	37	3.29	...	...	...
Aug.	83.1	53.7	68.4	97	41	0.72	...	...	...
Sept.	70.0	40.4	55.2	87	30	2.70	...	...	...
Oct.	60.3	32.7	46.5	76	24	0.50	...	...	...
Nov.	41.5	10.9	26.2	60	-6	0.00	...	...	...
Dec.	38.1	13.3	25.7	59	-12	1.01	...	...	...
Total	...	...	...	...	...	17.54	...	...	...
Ave.	...	...	...	73.6	11.5	...	...	...	...

1890									
Jan.	13.0	2.9	8.0	43	-28	0.65	...	...	...
Feb.	19.5	8.3	13.9	48	-35	0.00	...	...	...
March	31.7	-0.0	15.9	54	-28	0.60	...	...	...
April	64.0	34.0	49.0	84	10	0.79	...	...	...
May	66.9	37.8	52.3	90	23	2.97	...	...	...
June	80.5	58.3	69.4	91	39	7.91	...	...	...
July	84.9	56.5	70.7	95	41	1.54	...	...	...
Aug.	79.7	51.7	65.7	99	35	2.07	...	...	...
Sept.	75.0	40.5	57.8	91	25	0.55	...	...	...
Oct.	58.5	31.9	45.2	75	20	0.43	...	...	...
Nov.	44.2	2.3	23.2	68	-6	0.00	...	...	...
Dec.	31.1	9.3	20.2	56	-20	1.10	...	...	...
Total	...	...	...	...	...	18.61	...	...	...
Av.	...	...	...	74.5	6.3	...	...	...	...

METEOROLOGICAL SUMMARY FOR THE EXPERIMENT STATION

1891	Temperatures					Rainfall in Inches	No. Clear Days	No Cloudy Days	No. Partly Cloudy Days
	Average			Max.	Min.				
	Max.	Min.	Mean.						
Jan.	31.0	7.80	19.4	45	-10	0.10	...	...	...
Feb.	16.8	-1.90	9.3	43	-28	1.00	...	...	...
March	31.0	7.9	19.4	50	-24	0.84	...	...	...
April	57.7	31.8	44.7	88	11	2.23	...	...	...
May	71.3	39.9	55.6	93	30	0.84	...	...	...
June	73.3	51.3	62.3	89	38	4.09	...	...	...
July	76.6	51.1	63.8	89	39	2.05	...	...	...
Aug.	83.2	50.2	66.7	94	31	1.38	...	...	...
Sept.	81.5	49.2	65.3	98	31	0.45	...	...	...
Oct.	61.2	33.4	47.3	80	20	1.07	...	...	...
Nov.	37.3	12.3	24.8	62	-29	0.25	...	...	...
Dec.	38.7	13.7	26.2	52	-21	2.30	...	...	...
Total	...	...	...	...	...	16.60	...	...	...
Av.	...	...	...	74.0	7.3	...	...	...	...

1892									
Jan.	21.8	4.00	12.9	49	-34	0.35	...	...	...
Feb.	27.0	8.00	18.0	48	-19	0.36	...	...	...
March	41.0	17.7	29.3	65	-9	0.48	...	...	...
April	51.5	31.2	41.3	68	15	3.15	...	...	...
May	58.5	37.5	48.0	77	28	7.25	...	...	...
June	74.1	51.3	62.7	85	39	3.52	...	...	...
July	81.9	57.1	69.5	97	45	3.69	...	...	...
Aug.	81.7	53.8	67.7	95	36	3.03	...	...	...
Sept.	76.4	47.4	61.9	97	30	1.40	...	...	...
Oct.	67.2	34.5	50.8	92	9	0.53	...	...	...
Nov.	43.6	20.6	32.1	67	-12	0.22	...	...	...
Dec.	32.5	13.7	23.1	64	-19	0.33	...	...	...
Total	...	...	...	...	...	24.40	...	...	...
Av.	...	...	...	75.3	9.0	...	...	...	...

METEOROLOGICAL SUMMARY FOR THE EXPERIMENT STATION

1903	Temperatures					Rainfall in Inches	No. Clear Days	No. Cloudy Days	No. Partly Cloudy Days
	Average			Max.	Min.				
	Max.	Min.	Mean.						
Jan.	29.0	10.0	19.0	36	-5	0.06	...	...	...
Feb.	00.0	00.0	00.0	00	00	0.86	...	...	...
March	00.0	00.0	00.0	00	00	2.34	...	...	...
April	54.0	26.0	40.0	59	13	1.30	...	...	...
May	66.5	37.9	52.2	82	17	2.85	...	...	...
June	82.2	57.1	70.0	93	41	1.54	...	...	...
July	89.3	58.0	73.6	99	50	0.68	...	...	...
Aug.	84.7	52.9	68.8	97	28	1.99	...	...	...
Sept.	79.9	47.4	63.6	96	18	0.56	...	...	...
Oct.	61.5	31.3	46.4	81	6	0.44	...	...	...
Nov.	44.5	15.3	29.9	73	-13	0.04	...	...	...
Dec.	25.7	2.6	14.1	47	-21	0.27	...	...	...
Total	...	...	...	...	...	12.93	...	...	...
Av.	...	...	...	76.3	13.4	...	...	...	...
1904									
Jan.	19.3	-4.4	11.8	49	-33	0.12	...	...	...
Feb.	26.5	0.9	13.7	47	-16	0.05	...	...	...
March	47.9	20.6	34.2	78	-7	0.65	...	...	...
April	58.2	28.4	43.3	82	7	3.04	...	...	...
May	72.7	41.5	57.1	92	26	0.30	...	...	...
June	86.2	49.8	68.0	97	37	1.30	...	...	...
July	95.1	50.2	72.6	104	39	0.09	...	...	...
Aug.	87.3	47.6	67.4	97	30	0.73	...	...	...
Sept.	78.1	37.6	57.8	94	18	1.68	...	...	...
Oct.	61.2	25.0	43.1	81	16	2.36	...	...	...
Nov.	38.9	14.7	26.8	56	-5	0.19	...	...	...
Dec.	37.0	14.1	25.5	51	-18	0.14	...	...	...
Total	...	...	...	...	...	10.65	...	...	...
Av.	...	...	...	77.0	7.8	...	...	...	...

METEOROLOGICAL SUMMARY FOR THE EXPERIMENT STATION

1895	Temperatures					Rainfall in Inches	No. Clear Days	No. Cloudy Days	No. Partly Cloudy Days
	Average			Max.	Min.				
	Max.	Min.	Mean.						
Jan.	16.4	-5.0	10.2	34	-24	0.25	...	...	...
Feb.	22.2	1.6	11.9	62	-34	0.17	...	...	...
March	44.0	21.6	32.8	69	-14	0.66	...	...	...
April	67.5	48.8	58.1	79	27	2.41	...	...	...
May	68.2	45.5	56.8	89	29	3.50	...	...	...
June	76.4	51.5	63.9	85	37	3.84	...	...	...
July	85.6	54.5	70.0	93	38	3.79	...	...	...
Aug.	83.1	74.5	78.8	94	36	2.13	...	...	...
Sept.	75.4	50.7	63.0	100	23	4.12	...	...	...
Oct.	59.1	29.7	44.4	77	4	0.00	...	...	...
Nov.	40.7	14.7	27.7	67	-7	1.02	...	...	...
Dec.	31.5	8.0	19.7	44	-18	0.03	...	...	...
Total	...	...	...			21.92	...	...	...
Av.	...	...	...	74.4	8.5	...	...	...	...
1896									
Jan.	27.7	5.0	16.3	51	-21	0.13	...	...	...
Feb.	30.5	11.4	20.9	41	-30	0.00	...	...	...
March	34.0	8.7	21.3	57	-18	0.52	10	13	8
April	00.0	0.0	00.0	00	00	0.00	...	...	...
May	00.0	0.0	00.0	00	00	0.00	...	...	...
June	00.0	0.0	00.0	00	00	3.82	...	...	...
July	00.0	0.0	00.0	00	00	2.00	...	...	...
Aug.	00.0	0.0	00.0	00	00	00.0	...	...	...
Sept.	69.8	37.2	53.5	88	16	1.90	...	...	...
Oct.	54.9	16.5	35.7	80	7	1.83	...	...	...
Nov.	26.8	8.9	17.8	46	-17	0.78	...	...	...
Dec.	33.2	14.8	24.0	41	-16	0.25	...	...	...
Total	...	...	...	...	...	11.23	...	...	...
Av.	...	...	...	57.7	-11.2	...	...	...	...

METEOROLOGICAL SUMMARY FOR THE EXPERIMENT STATION

1897	Temperatures					Rainfall in Inches	No. Clear Days	No. Cloudy Days	No. Partly Cloudy Days
	Average			Max.	Min.				
	Max.	Min.	Mean.						
Jan.	16.0	-2.3	9.10	40	-30	1.60	...	...	...
Feb.	25.3	3.6	14.4	36	-27	0.30	16	12	0
March	30.7	12.0	21.3	50	-13	0.44	14	11	6
April	55.2	32.2	43.7	83	16	2.45	...	...	...
May	71.4	40.5	55.9	89	27	1.71	...	...	...
June	75.3	50.2	62.7	90	29	3.86	...	...	...
July	83.1	50.9	67.0	95	49	4.32	...	...	...
Aug.	77.5	49.2	63.3	91	37	3.59	16	4	11
Sept.	80.2	52.4	66.3	94	31	3.17	23	5	2
Oct.	62.4	37.8	50.1	88	20	1.48	...	...	...
Nov.	42.1	14.1	28.1	70	-16	0.56	15	15	0
Dec.	24.8	5.5	15.1	42	-20	0.34	13	10	8
Total	...	...	...	...	...	23.82	...	...	...
Av.	...	...	...	72.4	8.5	...	...	...	...
1898									
Jan.	32.3	10.2	21.2	40	-5	0.00	6	4	21
Feb.	32.3	8.1	20.2	52	-14	0.07	6	6	16
March	45.8	19.4	32.6	64	-4	0.40	14	6	11
April	61.5	29.6	45.5	85	10	0.88	6	3	21
May	69.9	42.8	56.3	83	29	5.15	2	9	20
June	80.3	52.5	66.4	91	42	1.94	1	4	25
July	84.7	56.0	70.3	94	42	1.56	2	2	27
Aug.	84.7	53.9	69.3	101	40	2.78	6	3	22
Sept.	76.1	45.0	60.5	96	27	1.31	10	3	17
Oct.	52.0	31.2	41.6	76	15	1.19	2	8	21
Nov.	38.6	13.7	26.1	64	-13	0.59	5	3	22
Dec.	26.6	3.2	14.9	52	-22	0.00	12	4	15
Total	...	...	...	...	...	15.87	...	...	...
Av.	...	...	...	74.7	12.2	...	...	...	...

METEOROLOGICAL SUMMARY OF THE EXPERIMENT STATION

1899	Temperatures					Rainfall in Inches	No. Clear Days	No. Cloudy Days	No. Partly Cloudy Days
	Average			Max.	Min.				
	Max.	Min.	Mean.						
Jan.	30.2	9.5	19.8	47	-27	0.25	...	...	...
Feb.	16.8	-6.8	11.8	55	-41	0.21	6	3	19
March	26.4	5.2	15.8	58	-15	0.40	...	...	...
April	58.0	29.6	43.8	83	5	3.36	3	3	24
May	66.4	44.1	55.2	85	25	3.38	7	10	14
June	76.0	53.7	64.8	88	42	5.42	1	11	18
July	83.1	55.2	69.1	95	40	0.73	9	2	20
Aug.	88.9	56.8	72.8	95	48	3.25	12	9	10
Sept.	72.5	40.9	56.7	92	12	0.17	17	2	11
Oct.	62.5	34.1	48.3	80	17	2.21	10	12	9
Nov.	53.0	25.6	39.3	68	9	0.42	10	7	13
Dec.	28.8	4.4	16.6	54	-18	0.44	13	7	11
Total	...	...	...	...	...	20.23	...	...	...
Av.	...	...	...	75.0	7.9	...	...	...	...

1900									
Jan.	31.8	4.5	18.1	60	-18	0.02	14	9	8
Feb.	21.4	5.5	13.4	45	-22	0.20	8	9	11
March	38.8	9.6	24.2	68	-14	2.09	17	14	0
April	63.4	37.1	50.2	80	21	1.68	16	8	5
May	76.1	43.8	59.9	93	25	1.23	16	5	10
June	80.6	51.6	66.1	92	32	1.62	15	4	11
July	80.6	55.7	68.1	94	44	4.94	12	6	13
Aug.	86.3	61.9	74.1	100	52	4.00	15	6	10
Sept.	78.1	46.8	62.4	88	25	4.97	15	9	6
Oct.	60.3	41.3	50.8	70	23	2.72	14	10	7
Nov.	36.4	15.1	25.7	69	-9	0.45	13	10	7
Dec.	31.1	11.9	21.5	48	-12	0.64	10	11	10
Total	...	...	...	...	...	24.56	...	...	...
Av.	...	...	...	75.5	12.2	...	...	...	...

METEOROLOGICAL SUMMARY FOR THE EXPERIMENT STATION

1901	Temperatures					Rainfall in Inches	No. Clear Days	No. Cloudy Days	No. Partly Cloudy Days
	Average			Max.	Min.				
	Max.	Min.	Mean.						
Jan.	25.5	5.9	16.7	49	-15	0.09	11	7	13
Feb.	25.9	2.6	13.8	52	-9	0.28	16	2	10
March	37.7	20.8	29.2	61	-9	0.50	8	15	8
April	59.0	35.2	47.1	90	21	1.40	10	10	10
May	71.6	42.3	56.9	87	25	1.80	20	5	6
June	88.0	45.8	65.9	93	30	4.51	9	8	13
July	89.9	62.5	76.2	103	51	1.66	22	3	8
Aug.	84.6	56.3	70.4	101	46	2.94	14	4	13
Sept.	68.5	46.6	57.6	88	31	5.09	14	10	6
Oct.	62.6	43.9	48.7	81	26	0.74	17	8	6
Nov.	42.5	17.8	30.1	68	4	0.60	17	5	8
Dec.	24.2	6.1	15.1	46	-26	1.15	9	10	12
Total	...	...	...	...	...	9.76	...	...	...
Av.	...	...	...	76.5	14.5	...	...	...	...
1902									
Jan.	28.8	5.6	17.2	55	-24	0.50	22	4	5
Feb.	25.6	6.6	16.1	55	-22	0.26	10	8	10
March	44.6	22.3	33.4	66	-8	0.67	8	12	11
April	55.7	28.6	42.1	83	9	1.60	14	5	11
May	69.5	46.8	58.1	85	32	2.66	12	6	13
June	72.6	48.7	70.2	87	30	3.17	8	14	8
July	81.7	57.3	69.5	94	42	2.75	13	10	8
Aug.	76.0	54.2	65.1	86	33	5.30	13	13	5
Sept.	67.8	40.5	54.1	87	23	0.26	19	8	3
Oct.	62.3	32.7	47.5	78	21	1.18	16	7	8
Nov.	41.8	24.1	32.9	58	5	0.96	10	12	8
Dec.	20.9	-0.2	10.4	41	-28	2.52	10	20	1
Total	...	...	...	...	...	21.83	...	...	...
Av.	...	...	...	72.9	9.4	...	...	...	...

METEOROLOGICAL SUMMARY FOR THE EXPERIMENT STATION

1903	Temperatures					Rainfall in Inches	No. Clear Days	No. Cloudy Days	No. Partly Cloudy Days
	Average			Max.	Min.				
	Max.	Min.	Mean.						
Jan.	24.0	3.5	13.7	41	-17	0.10	5	11	15
Feb.	21.2	0.2	10.7	41	-26	0.31	3	5	20
March	39.7	21.5	30.6	63	5	1.87	14	10	7
April	58.3	32.0	45.1	75	15	1.00	13	7	10
May	68.8	44.5	56.6	81	29	4.53	9	11	11
June	75.0	49.5	62.2	87	30	4.16	14	11	5
July	79.3	54.6	66.9	90	40	3.30	7	9	15
Aug.	76.5	54.0	65.2	94	40	4.25	12	13	6
Sept.	69.3	43.8	56.5	88	30	2.73	10	8	12
Oct.	63.3	34.2	48.7	78	20	1.85	17	6	8
Nov.	38.9	17.7	28.3	71	-4	0.10	11	7	12
Dec.	24.5	00.5	12.5	42	-27	0.45	14	8	9
Total Av.	...	...	...	...	...	24.65	...	...	...
	...	...	...	70.8	11.2	...	...	...	...
1904									
Jan.	17.5	-3.4	7.0	37	-34	0.04	7	9	15
Feb.	19.1	-4.8	7.1	35	-24	0.15	7	6	16
March	40.5	18.1	29.3	62	-6	0.25	5	14	12
April	53.5	28.1	40.8	77	12	1.78	15	10	5
May	68.2	41.7	54.9	85	30	1.82	16	9	6
June	73.8	50.9	62.3	87	36	4.30	9	9	12
July	79.0	51.3	65.1	91	37	1.91	20	6	5
Aug.	79.9	50.6	65.2	91	34	0.93	19	8	4
Sept.	74.2	43.8	59.0	100	23	0.93	15	7	8
Oct.	61.1	37.2	49.1	80	17	3.15	15	8	8
Nov.	51.6	21.3	36.4	71	2	0.02	21	2	7
Dec.	29.7	11.0	20.3	58	-15	0.20	12	9	10
Total Av.	...	...	...	...	...	15.48	...	...	...
	...	...	...	72.8	9.3	...	...	...	...

METEOROLOGICAL SUMMARY FOR THE EXPERIMENT STATION

1905	Temperatures					Rainfall in Inches	No. Clear Days	No. Cloudy Days	No. Partly Cloudy Days
	Average			Max.	Min.				
	Max.	Min.	Mean.						
Jan.	17.2	-5.9	5.6	38	-23	0.22	15	9	7
Feb.	24.9	20.2	22.5	55	-40	1.00	7	6	16
March	47.3	25.6	36.4	75	3	0.68	10	16	5
April	55.8	28.8	42.3	71	14	1.01	13	11	6
May	62.2	40.1	51.1	77	30	6.14	10	13	8
June	75.7	51.9	63.8	92	41	6.09	7	11	12
July	78.2	53.9	66.0	93	41	0.98	16	5	10
Aug.	82.8	57.5	70.1	97	48	4.54	14	7	10
Sept.	76.5	49.4	62.4	100	36	2.16	18	5	7
Oct.	54.8	31.9	43.3	83	15	1.50	16	8	7
Nov.	46.0	24.1	35.0	58	-13	2.45	14	13	3
Dec.	32.9	12.4	22.6	48	-9	T	19	3	9
Total	...	...	...	...	...	26.77	...	...	...
Av.	...	...	...	73.8	11.9	...	...	...	...
1906									
Jan.	32.0	9.5	20.9	53	-16	0.17	14	10	7
Feb.	31.9	6.8	19.3	56	-28	0.02	14	4	10
March	30.5	11.9	21.2	55	-12	0.58	10	12	9
April	61.5	34.5	48.0	86	21	1.40	12	8	10
May	67.9	43.5	55.7	91	24	3.51	10	11	10
June	74.2	50.1	62.1	88	39	4.89	12	6	12
July	80.3	52.7	66.5	90	42	1.86	19	1	11
Aug.	82.1	56.8	69.4	100	39	4.28	11	10	10
Sept.	73.9	50.6	62.2	93	31	5.13	16	6	8
Oct.	53.4	34.3	43.8	79	13	3.01	...	...	...
Nov.	38.5	20.6	29.5	60	-3	0.89	9	11	10
Dec.	30.0	10.3	20.1	51	-7	0.52	19	3	9
Total	...	...	...	...	...	26.26	...	...	...
Av.	...	...	...	75.1	11.8	...	...	...	...

METEOROLOGICAL SUMMARY FOR THE EXPERIMENT STATION

1907	Temperatures					Rainfall in Inches	No. Clear Days	No. Cloudy Days	No. Partly Cloudy Days
	Average			Max.	Min.				
	Max.	Min.	Mean.						
Jan.	14.7	-5.1	4.8	39	-22	1.06	4	20	7
Feb.	30.2	8.0	19.1	56	-33	0.28	12	7	9
March	45.3	22.9	34.1	75	-8	0.55	13	10	8
April	48.5	23.4	35.9	66	11	1.67	12	9	9
May	60.5	35.3	47.8	86	18	2.36	7	9	15
June	77.1	52.2	64.6	94	39	5.65	10	12	8
July	81.7	56.5	69.1	97	43	3.77	11	6	14
Aug.	83.7	54.7	69.2	99	40	1.41	18	2	11
Sept.	72.5	44.0	58.2	87	24	1.28	10	10	10
Oct.	64.1	30.5	47.3	87	15	0.96	23	3	5
Nov.	46.3	21.5	33.9	63	-1	0.10	14	12	4
Dec.	35.5	10.7	23.1	52	-11	1.12	14	12	5
Total	...	...	...	...	...	20.21	...	...	...
Av.	...	...	...	75.0	9.5	...	...	...	...

OAT SMUT.

The loss to the farmers of South Dakota during the year 1908 due to the smut of the oat crop was great. Generally it is underestimated for three reasons, viz: 1. The stalks affected by smut are somewhat shorter than the ones not affected, and in making an examination of the fields these stalks are overlooked. 2. Frequently the smutted heads are not pushed out of the rolled up leaves and these plants are not taken into consideration. 3 Smut ripens these plants earlier than the healthy stalks, so that by the time the oats are ripe the smut spores have been whipped off by the wind. In cases of this sort the damage is attributed to some other cause. Mr. A. D. Shamel of the U. S. Department of Agriculture, formerly of the Illinois station, says: "The actual per cent of smut in any field of oats can be determined as follows: Place an ordinary barrel hoop, or light frame of any kind of convenient size over any average spot of oats in the field. Count all of the stalks inside the hoop and note the number. Then count the stalks affected by smut and divide the number of smutted stalks by the total number of stalks. This operation repeated in three or more places in every field, in order to get an average, will determine the per cent of smutted stalks for the entire field."

There are two distinct smuts viz., 1. Loose smut. 2. Close or covered smut. The loose smut is a dusty olive brown mass which is easily blown off leaving the stalk bare. The close smut is not so dusty as the loose and is of a somewhat blackish brown in color. In many instances this smut is unnoticed as it is covered by the hull of the oat kernel.

There is no fungus disease known which can be so readily and absolutely prevented as smut in oats. Any farmer who will tolerate the smut in his oats after knowing how to prevent it, is not interested in getting the largest possible yield of oats per acre. Let us remember that perfectly clean seed and clean ground will produce a clean crop, and that when a farm is once thoroughly rid of smut it is easily kept free by a little care.

TREATMENT TO PREVENT SMUT.

It is possible to treat the seed oats so as to destroy the smut spores and at the same time not injure the oat kernel. This Station recommends the Formalin Treatment.

FORMALIN TREATMENT.

Apparatus: A barrel, several gunny sacks, and a supply of formalin:

Mixture: Use one pint of formalin to twenty-five gallons of water, preferably warm water although it is not necessary.

Treatment: Dip the oats in the gunny sacks into the barrel containing the mixture (formalin and water.) Be sure that all of the oats are submerged. Allow the oats to remain in the mixture (formalin and water) ten or fifteen minutes, after which they can be removed and sown at once. If the oats are permitted to drain for a short time upon removal from the water, the twenty-five gallons will treat about twenty bushels.

Cost: Formalin can be obtained of your druggist at about twenty-five cents per pint. Two men can treat enough seed in one day to sow forty acres at least.