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Small Grain

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Dakota Agricultural College

DAKOTA AGRICULTURAL COLLEGE

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SMALL GRAIN.

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LEWIS McLOUTH, Director.

DEPARTMENT OF AGRICULTURE.

LUTHER FOSTER.

WHEAT, OATS AND BARLEY.

CONDITION OF SOIL.

The land upon which the grain plats were located is the usual sandy loam of the farm with a subsoil of clay and it has a slight westward slope.

This portion of the farm came into our possession only the previous fall, but it had been under cultivation for nine years, having produced four crops of wheat, three of oats and two of corn. Only a small portion of the piece had ever been manured and that but sparingly. The ground was plowed in October to a depth of seven inches and thoroughly pulverized in the spring just before seeding.

MODE OF SEEDING.

A series of eleven plats was sown broadcast by hand and covered with an ordinary harrow, this not doing the work well was followed by the Acme Pulverizer. With this exception, the seeding was done with garden drills in rows fourteen inches apart.

CULTIVATION.

The plats were arranged in double tiers making one end of each face a drive. Between these tiers and also between the plats of each tier were alleys four feet wide.

These drives and alleys were kept entirely free from grass and weeds. The plats of drilled grain were hoed twice during the season.

GENERAL REMARKS.

The early part of the season was unusually favorable for the growth of small grain. The seed all came well and up to July the outlook was most excellent.

At that time all the grain showed signs of being "fired" at the base. Later on this became intensified and was followed by blight and rust.

These evils affected all the grain to a greater or less degree and in nearly all cases greatly damaged the crop. In consequence the yield and quality were not in any case up to the average, varying much with the different varieties. The experiment is, however, valuable as showing what varieties will stand such extremes with the least injury. This may be seen from a careful examination of the tables.

TABULATED STATEMENT.

In laying out the experimental plats the aim has been to make them of that form and size which would most nearly approach field conditions. Those for small grain contain one-eighth of an acre each, being six rods in length and three and one-third rods in width. All figures in the following tables refer to single plats, one-eighth of an acre in size.

WHEAT.

NAME OF VARIETY.	Sowed	Pounds of seed	Height inches	Matured	Days to Mature	Yield in pounds	Weight of straw	REMARKS.
	May			Aug				Slightly mixed with a bearded variety. Badly "fired" and
White Russian	5	8	28	13	100	15	69	rusted a little.
French Imperial	5	8	34	11	98	24	90	Slightly rusted and blighted.
Pure Scotch Fife	5	8	29	11	98	24	80	Very rusty, only slightly affected otherwise.
Blount's No. 15	5	8	29	14	101	26	84	Badly "fired" and rusted.
Wellman's Saskatchawan	4	8	28	11	99	27	89	Considerably "fired" and rusted.
Russian Fife	4	6	31	13	101	32	86	"Fired" somewhat.
Velvet Chaff	4	8	32	11	99	44	108	Among those affected least by heat, blight and rust.
Champlain	4	9	28	11	99	26	72	Similar to French Imperial. Badly rusted.
Blount's No. 17	4	9	33	13	101	41	121	Much like French Imperial—somewhat rusted.
	Apr.							
China Tea	27	11	34	13	108	36	111	Materially injured by heat and rust.
Ladoga	27	3	31	8	103	11	61½	Very much rusted and badly lodged.
	May							
Blount's Colorado	10	8	33	13	95	27	112½	Multiple headed—three to seven divisions.
	Apr.							
Saxonka	27	2¼	31	13	108	11½	72	Seed not pure—badly "fired."
Golden Drop	27	8	32	13	108	30½	104½	Rusted and slightly lodged.
Kubauka	27	2¼	36	11	106	35	113½	Seed impure, badly rusted and lodged.
	May							
French Imperial No. 2	5	8	34	11	88	34	102	"Fired" a little and quite rusty—heads long and loose.

OATS.

NAME OF VARIETY.	Sowed	Pounds of seed	Height inches	Matured	Days to Mature	Yield in pounds	Weight of straw	REMARKS.
	May			Aug				
White Surprise	9	12	31	4	87	136	284	Among the varieties injured least by rust and lodging.
Brunswick	9	10	30	4	87	80	146	Slightly rusted and a little lodged—damaged some by stock.
Black Tartarian	9	9	34	8	91	59	142	Very rusty, badly lodged.
Dakota Chieftain . . .	9	8	36	6	89	70	119	Slightly rusted and lodged.
Golden Russian	9	8	37	6	89	91	196	Slightly lodged, very rusty.
White Victoria	9	8	39	4	87	102	338	Very much rusted and lodged somewhat.
White Bonanza	9	8	36	4	87			Very badly rusted and slightly lodged.
Holstein	9	8	38	6	89	84	255	Rusted and lodged.
	Apr.							
Black Norway*	30	8	34	6	98	71	202	Quite rusty and lodged considerably.
New Black Russian* . .	30	8	27	4	96	41½	135½	Very rusty and badly lodged.
Egyptian*	30	8	35	8	100	88½	239	Somewhat rusted.
Americen Banner* . . .	30	8	31	8	100	63	123	Slightly rusted.
Pringle's Progress* . . .	30	8	26	4	96	55	88	Very slightly rusted and not lodged at all.
White Belgian*	30	8	31	4	96	51	254	Quite rusty and much lodged.
Race Horse*	30	8	33	4	96	60	109	Lodged some and quite rusty.
Badger Queen*	30	8	34	2	94	59	137	Very much rusted and quite badly lodged.
Wide Awake*	30	8	32	4	96	145	230	Very little lodged but quite rusty.
Improved Welcome* . .	30	8	33	4	96	69	145	Slightly lodged and much rusted.
Dakota Gray*	30	8	28	8	100	64½	179½	A little rusted, not lodged.

* Sown broadcast.

BARLEY.

NAME OF VARIETY.	Sowed	Pounds of seed	Height inches	Matured	Days to Mature	Yield in pounds	Weight of straw	REMARKS.
	May			Aug				
Wis. Manshury	5	12	29	4	91	111	193	Stood up well but poorly filled.
Imperial Hybrid	5	12	27	7	94	144	328	Very uneven in maturing, fairly well filled.
Dakota Manshury	5	5	31	4	91	130	229	Straw rather weak and inclined to lodge. [while ripening.
Highland Chief	5	12	29	6	93	110	242	Straw verystrong, heads poorly filled.
Black Hulless	5	12	28	4	91	98	185	A promising variety, considerably pulled down by squirrels
White Hulless	5	5	27	4	91	108½	180½	Much like the one preceeding and damaged in the same way.
Chevalier	5	12	33	6	93	156	226	A good kind but lodged a little.
Melon	5	12	30	6	93	172	244	Grain large and plump, one of the best.
Manshury	5	16	30	1	88	122½	185	Same as Wisconsin only from Dakota grown seed.
Barley No. 3	5	12	29	6	93	156	272	Among the best in general qualities.
Danish	5	4	33	6	93	148	258	Seed imported by the Canada Experiment Station.
Imperial	5	12	32	1	88	126	220	Damaged slightly by stock.
				July				
Four Rowed	5	12	29	30	86	131	171	Has done fairly well for the last two seasons.

GENERAL CROP.

METHODS OF SEEDING.

The general crop of wheat and oats, with the exception of a small piece of the former, was put in with a Havana Press Drill. The unusual rains immediately following the seeding were very favorable for the grain sown broadcast and made the value of the roller press drill less apparent than in an average season. Still the principle upon which the Havana and other similar drills are constructed was shown to be very superior for our soil and climate. Careful observations and comparisons of two pieces of wheat were made, one sown broadcast by hand at the rate of eight pecks per acre, the other put in with the roller press drill at the rate of six pecks per acre, other conditions being exactly the same. From these some special points in favor of the latter method may be briefly stated as follows:

1. Quick germination is insured by the seed being put at once into moist soil and the covering firmed by the rollers.

2. The wind instead of laying bare the seed rather deepens the covering by partially filling up the tracks of the rollers.

3. Economy of seed through the certainty that all is covered.

4. The weeds are not so rank and interfere less with the growth of the grain.

QUANTITY OF SEED.

Experiments were made with the press drill, using different quantities of seed per acre, to determine the relative amount of stooling.

In each case the average number of straws per square foot was carefully determined.

The following statement shows the quantities of grain used per acre and the corresponding number of straws per square foot.

4 pks. per acre,	41 straws per sq. ft.
5 pks. per acre,	49 straws per sq. ft.
6 pks. per acre,	50 straws per sq. ft.
7 pks. per acre,	51 straws per sq. ft.
8 pks. per acre,	54 straws per sq. ft.