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DEPARTMENT OF AGRICULTURE.

Test of Varieties of Wheat.

A. C. MAGRUDER

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TEST OF VARIETIES OF WHEAT.

BY A. C. MAGRUDER.

Wheat growing is considered the foundation of our territorial agriculture. If the wheat crop is good and prices high, the farmer declares the situation satisfactory. If the crop is but half and prices only two-thirds of what was looked for, everybody feels the result and times are said to be close. Thus the condition of wheat being linked so closely with that of the country's financial state, we readily see how it is that we count wheat growing the agricultural foundation.

Appreciating this situation, at the organization of the Experiment Station, steps were taken to begin work on wheat as soon as possible. The lateness of the organization (December, 1891,) prevented any work that season in winter wheat, but three varieties of spring wheat were tested in '92. Accounts of this test may be found in Bulletin No. 4 of this Station. The results did not indicate that spring wheat would be profitable here. Recent reports from the Kansas State Board of Agriculture show a yield of but 5.92 bushels of spring wheat per acre for 1893—thus confirming our one year's results for Oklahoma.

The following fall—1892—a good portion of the farm was devoted to wheat and two hundred and fifty-four varieties were tested. The seed I obtained from the Kansas, Texas, Missouri, and Canada Experiment Sta-

tions and from various seedsmen. Each so-called variety was tested as to weight per bushel before planting, to see whether the wheat grown here would be heavier or lighter than that of other sections. *In but three or four cases was the weight per bushel increased.* In other words, the seed *sown* was heavier than that *grown* on the farm. This, I think, may be satisfactorily explained when we note the lateness of seeding and the very dry season just as the wheat heads were filling.

The seeding began October 10th, '92, on two pieces of upland, on which corn and oats had been grown the previous year. The soil at that time was very dry, as no rain had fallen for thirty days and thorough preparation was not possible, but care was taken to put it in as good condition as circumstances would allow; so after plowing, the land was disked two ways with cut-away-disk harrow, and after this it was run over with smoothing harrow and roller. The clods were fairly well broken and the seed bed was made firm and even by this treatment

The seeding was done with a Hoosier Press Drill in 1-40 acre plats, which were three and one-half by three hundred feet. This form of plat was selected in preference to the usual square plat on account of the convenience in harvesting.

The varieties were planted as nearly as possible with reference to time of ripening, and it is plain that this system would greatly facilitate the harvesting, as work was begun on the first plat and continued as the varieties matured.

Two feet were left between the plats to prevent mixing. This proved sufficient distance. Observations made April 29th, '93, note that the outside drill rows of each plat were better developed, having a greater number and broader leaves, better tillering capacity and from one to four inches taller than the inside rows.

Since all the plats constituted a comparative test and were all alike in respect to the outside rows, there could be no difference in the value of the results obtained. This better growth is accounted for in the fact that the outside rows had more soil from which to draw plant food and moisture.

The seeding of plats one to fifty-two was done "in the dust." A rainy season then set in, which prevented any further work until November 14, when the seeding was resumed, and concluded Nov. 24. The varieties planted before the rains were superior to those planted later, throughout the entire season and showed in a very marked

degree, even to those usually unobserving, the advantages of the early seeding.

CHARACTER OF THE SOIL.

The soil devoted to this test was quite uniform in character and of a quality about the same as other parts of the farm. It is not, however, a characteristic soil of the territory. (For descriptions of the soils of the Station farm, see Bulletin No. 5.)

In seeding the plats the utmost care was taken to prevent any admixture of the wheat in the handling. After seeding a variety the drill was thoroughly cleaned before beginning on another. The same care was exercised throughout the work of threshing, which was done in the new seed house, supplied with Atlas engine and boiler, and 28-inch agitator, to which is connected a blower with tubes for cleaning out the machine after each variety is run through. The work, although it has entailed a great deal of time, labor and expense, cannot show definite conclusions of value in a single year. It is expected to continue the test with a view of finding out those wheats best adapted to our territory.

By reference to the following tabulated data full descriptions of the varieties may be gotten.

TABLE SHOWING VARIETIES OF WHEAT TESTED ON THE STATION FARM DURING THE SEASON OF 1892-93.

Plat Number.	DESIGNATION.	Test of seed sown.	Planted.	No. of days germinating.	No. of days to heading.	No. of days to maturity.	Height in feet and inches.		Harvested.	Glumes.	Plat yield in pounds.		Acre yield.		Weight of bushel.
											Grain.	Straw.	Grain.	Straw.	
							ft.	in.	June				bu.	lbs.	lbs.
1	Yellow Alabama	59	Oct. 10.	7	211	244	2	1	4	Smooth.	18	50	12	2000	53·7
2	Oregon	58	"	"	213	248	"	3	17	"	28	54	18.7	2160	56
3	Currell	59	"	"	"	246	"	2	15	"	30 1-2	65 1-2	20.3	2620	56
4	Penquit's Velvet Chaff	58 1-2	"	"	"	248	"	2	17	Bearded.	27	48	18	1920	55·7
5	Farquhar	57	"	"	215	"	"	0	17	Smooth.	21 1-2	53 1-2	14.3	2140	55·7
6	Hybred No. 9	58	"	"	213	246	"	2	15	"	30	63	20	2520	57·3
7	Earnhardt	56	"	"	"	"	"	3	15	"	21	50	14	2000	57
8	Missouri	58	"	"	"	"	"	4	15	"	31	70 1-2	20.7	2820	56
9	Diehl-Egyptian	57 1-2	"	"	"	248	"	5	17	"	30	52	20	2080	55·5
10	McCracken	60	"	"	"	246	"	1	15	"	29	61	19·3	2440	55·5
11	Bordeaux	56	"	"	215	248	"	3	17	"	22	48	14·7	1920	56
12	White Rose	54	"	"	"	246	"	0	15	"	20	61	13·3	2440	52
13	Ontario	56	"	"	"	"	"	0	15	"	16	56	10.7	2240	53·3
14	Michigan Amber Kansas	59	"	"	"	244	"	1	17	"	36	74	24	2960	53·3
15	Michigan Amber Indiana	59	"	"	"	"	"	3	17	"	15 1-2	32 1-2	10.3	1300	53·7
16	Ohio Swamp	59	"	"	216	248	"	1	17	Bearded.	29	54	19·3	2160	57·3
17	Siberian	60	"	"	"	"	"	1	17	Smooth.	18	53	12	2120	53
18	Silver Chaff Bearded	56 1-2	"	"	"	247	"	2	16	Bearded.	36	67	24	2680	54 7
19	Missouri Blue Stem	56	"	"	222	"	"	2	17	"	18 1-2	52 1-2	12.3	2100	53·7
20	German Amber	60	"	"	216	248	"	0	17	Smooth.	29	49	19·3	1960	57·7
21	Mediterranean Red Chaff	57	Oct. 12.	5	213	344	"	1	15	"	29	75 1-2	19·3	3020	57
22	Ostery	57	"	"	211	246	"	2	17	"	26	46	17·3	1840	56·7
23	Shumaker's Clawson	55	"	"	218	248	"	2	19	"	20	50	13·3	2000	48
24	Diehl Mediterranean	60	"	"	215	"	1	11	19	Bearded.	23	45	15·3	1800	52·7
25	Name Lost	57	"	"	211	245	2	0	16	"	25	61	16·7	2440	53·3
26	Powers	55	"	"	213	248	1	9	19	Smooth.	23 1-2	40 1-2	15·7	1620	53·3
27	Deitz	59	"	"	211	244	2	0	15	Bearded.	27	59	18	2360	55
28	McGhee's White	58	"	"	216	"	1	11	15	Smooth.	17	36	11·3	1440	52·3
29	New Monarch	52	"	"	"	245	"	10	16	"	16	53	10.7	2120	51·3
30	Washington Glass	55	"	"	"	248	"	9	19	"	18	37	12	1480	53·3

(CONTINUED.)

TABLE SHOWING VARIETIES OF WHEAT TESTED ON THE STATION FARM DURING THE SEASON OF 1892-93.

Plat Number.	DESIGNATION.	Test of seed sown.	Planted.	No. of days germinating.	No. of days to heading.	No. of days to maturity.	Height in feet and inches.		Harvested.	Glumes.	Plat yield in pounds.		Acre yield.		Weight of bushel.
							ft.	in.			Grain.	Straw.	Grain.	Straw.	
													bu.	lbs.	lbs.
31	Roger's Red	57	Oct. 12.	5	216	248	1	10	June 19	Smooth.	17	34	11.3	1280	52.7
32	Rural No. 5	52	"	"	220	248	2	3	19	"	14	36	9.3	1440	53.3
33	Centennial	53	"	"	218	248	2	4	16	"	22	47	14.7	1920	51.3
34	Triticum	57	"	"	214	247	2	1	19	"	19	38	12.7	1520	52.3
35	Nigger	60	"	"	214	248	1	11	16	"	23	46	15.3	1600	53.7
36	Sheriff	54	"	"	215	246	1	10	17	"	16	34	10.7	1360	49.7
37	Velvet Chaff	59	"	"	211	244	2	0	15	Bearded.	26	56	17.3	2240	56.3
38	Nebraska	58	"	"	211	244	1	11	15	"	22	52	14.7	2080	56
39	New York Flint	57	"	"	213	244	1	10	15	Smooth.	19	52	12.7	2080	54.3
40	Scott	57	"	"	215	248	1	10	19	Bearded.	20	70	13.3	2800	54
41	Rocky Mountain	53	"	"	218	248	2	3	19	Smooth.	19	58	12.7	2320	50
42	Lincoln	55	"	"	218	248	2	1	19	"	19	63	12.7	2520	50.7
43	Michigan Wick	51	"	"	220	244	1	11	15	Bearded.	19	56	12.7	2240	51.3
44	Egyptian	57	"	"	214	244	2	2	16	"	23	61	15.3	2440	53
45	Little Red	54	"	"	211	248	2	2	16	Smooth.	26	70	17.3	2800	52
46	Fenton	55	"	"	216	248	2	0	16	"	20	66	13.3	2640	50
47	Hungarian	59	"	"	211	244	2	0	16	Bearded.	29	68	19.3	2720	55.7
48	Canadian Express	56	"	"	213	248	2	1	19	Mixed.	24	65	16	2600	52.3
49	Sibley's Hybred	55	"	"	218	248	2	0	19	Bearded.	19	40	12.7	1960	53.3
50	Lancaster	57	"	"	211	248	1	10	16	"	20	53	13.3	2120	54
51	Royal Australian	54	"	"	216	248	1	11	19	Smooth.	19	55	12.7	2200	52.3
52	Early May	59	"	"	211	244	1	10	15	"	22	47	14.7	1880	54
53	California Blue Stem	58	Oct. 17.	—	—	—	2	0	15	Bearded.	18	45	12	1800	54.3
54	Lehigh No. 6	59	Nov. 16.	14	186	217	1	11	22	"	16	38	10.7	1520	53.3
55	Early Red Clawson	59	"	"	189	218	1	11	23	Smooth.	11 1-2	31 1-2	7.7	1260	46
56	Bulgarian Fall Wheat	61	"	"	189	217	2	0	22	Bearded.	13	42	8.7	1680	47
57	Red Velvet Chaff	56	"	"	189	217	1	9	22	Smooth.	8	34	5.3	1280	51.7
58	American Bronze	58	"	"	193	219	1	10	24	"	8	36	5.3	1200	52.7
59	Canadian Velvet Chaff	56	"	"	193	217	1	11	22	"	6	36	4	1440	41
60	Richille de Naples	57	"	"	177	191	1	10	26	"	1	11	0⅔	440	—

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TABLE SHOWING VARIETIES OF WHEAT TESTED ON THE STATION FARM DURING THE SEASON OF 1892-93.

Plat Number.	DESIGNATION.	Test of seed sown.	Planted.	No. of days germinating.	No. of days to heading.	No. of days to maturity.	Height in feet and inches.		Harvested.	Glumes.	Plat yield in pounds.		Acre yield.		Weight of bushel.
											Grain.	Straw.	Grain.	Straw.	
							ft.	in.	June				bu.	lbs.	lbs.
61	De-rietta wheat	57	Nov. 16.	14	177	189	2	0	24	Bearded.	1	13	0⅔	520	
62	Panhandle wheat	59	"	"	189	217	1	10	22	"	10	33	6.7	1320	51.7
63	Texas Zimmerman	58	"	"	186	214	1	11	19	Smooth.	11	32	7.3	1280	50
64	Zimmerman	59	"	"	178	215	1	10	19	"	14	33	9.3	1320	50.7
65	Ballanck's Velvet Chaff	62	"	"	180	215	2	0	19	"	20	39	13.3	1560	55
66	Big Frame	59	"	"	178	215	1	9	19	"	15 1-2	41 1-2	10.3	1660	55
67	Rio Grande	58	"	"	184	214	1	11	20	"	15	44	10	1760	51.7
68	Extra Early Oakley	58 1-2	"	"	184	214	1	10	20	"	24 1-2	55 1-2	16.3	2220	54
69	Ramsey	60	"	"	184	214	1	9	20	"	18	44 1-2	12	1780	54
70	Baltimore	57	"	"	184	214	2	0	20	"	14 1-2	42 1-2	9.7	1700	52.7
71	Portio	57	"	"	184	214	2	0	20	"	18	48	12	1920	51.7
72	Oakley	57	"	"	184	216	2	0	21	"	15 1-2	34 1-2	10.3	1580	54
73	Ontario Wonder	54 1-2	"	"	189	216	1	10	21	"	8 1-2	42 1-2	5.7	1700	45
74	Red May	61	"	"	184	215	1	11	20	"	17	42	11.3	1680	54
75	Red Fultz	57	"	"	184	214	1	10	20	"	19 1-2	46 1-2	13	1860	52.7
76	Arnold's Hybred	59	"	"	184	214	2	0	20	"	19 1-2	44 1-2	13	1780	55.3
77	McPherson	56	"	"	184	214	2	0	20	"	13 1-2	39 1-2	9	1580	49.3
78	Purple Straw Red	58	"	"	184	215	1	11	20	"	14 1-2	47	9.7	1880	50.6
79	Early Rice	57	"	"	184	214	2	0	20	"	14	50	9.3	2000	50.6
80	Fultz	57	"	"	184	214	1	11	20	"	22	46	14.7	1840	53.7
81	Mealy	51	"	"	189	215	1	10	20	"	11	43	7.3	1720	42.5
82	Finley	58 1-2	"	"	184	214	1	11	20	"	16 1-2	51 1-2	11	2060	53.7
83	Bissell	58 1-2	"	"	184	215	1	11	20	Bearded.	17	47	11.3	1880	51.7
84	McCregan	57 1-2	"	"	189	215	2	0	20	Smooth.	6 1-2	35 1-2	4.3	1420	44.7
85	Prolific Heights	57	"	"	184	214	1	11	20	"	19 1-2	43 1-2	13	1740	54
86	Winter Pearl	55	"	"	189	215	2	2	20	"	12 1-2	47 1-2	8.3	1900	46
87	Ashburn	51 1-2	"	"	189	215	2	3	20	"	10	40	6.7	1600	43.7
88	Bearded King	58	"	"	184	215	2	2	20	Bearded.	16	51	10.7	2040	50.3
89	Crawford County	55	"	"	186	216	2	2	21	Smooth.	15	51	10	2140	46
90	Tuscan Amber	60 1-2	"	"	184	216	2	2	21	Bearded.	19	50 1-2	12.7	2020	51

(CONTINUED.)

TABLE SHOWING VARIETIES OF WHEAT TESTED ON THE STATION FARN DURING THE SEASON OF 1892-93.

Plat Number.	DESIGNATION.	Test of seed sown.	Planted.	No. of days germinating.	No. of days to heading.	No. of days to maturity.	Height in feet and inches.		Harvested.	Glumes.	Plat yield in pounds.		Acre yield.		Weight of bushel.
											Grain.	Straw.	Grain.	Straw.	
							ft.	in.	June				bu.	lbs.	lbs.
91	O. K	60	Nov. 16.	14	189	222	2	0	23	Bearded.	19 1-2	57 1-2	13	2300	52
92	McQuay	58	"	"	184	216	2	3	21	Smooth.	16	43	10.7	1720	45.7
93	Improved Rice	59	"	"	184	215	2	3	20	"	16	48	10.7	1920	40
94	Shayer's Egyptian	56 1-2	"	"	184	215	2	2	20	Bearded.	20	46	13.3	1840	51
95	Lebanon	58 1-2	"	"	186	215	2	1	20	"	17	50	11.3	2000	50.3
96	Russian May	55	"	"	184	215	2	1	20	Smooth.	14 1-2	49 1-2	9.7	1980	49
97	Miller	55	"	"	186	216	2	0	21	"	18	63	12	2520	50
98	Badger	59	"	"	184	215	1	11	20	"	12	44	8	1760	50.3
99	Canadian Wonder	59	"	"	188	216	2	2	21	Bearded.	12	45	8	1800	49.7
100	Tasmanian Red	59	Nov. 15.	15	185	217	2	1	21	"	24	64	16	2500	55
101	Champion Amber	51	"	"	190	216	2	0	20	Smooth.	10 1-2	41 1-2	7	1660	44.3
102	Theiss	60	"	"	187	218	2	0	22	Bearded.	21	59	14	2360	55
103	Crate	60	"	"	187	—	2	2	—	"	18	57	12	2280	51.7
104	Clawson	54	"	"	190	217	2	0	21	Smooth.	16	55	10.7	2200	49.7
105	Walker	55	"	"	180	216	1	9	20	"	14	43	9.3	1720	54
106	Hicks	58	"	"	187	217	2	1	20	"	18	51	12	2040	51.3
107	Small Frame	58	"	"	180	215	1	8	20	"	14 1-2	43 1-2	9.7	1740	52.7
108	Longberry	57	"	"	183	216	2	5	20	"	19	48	12.7	1920	54
109	Wyandotte Red	56	"	"	183	215	2	4	20	"	18 1-2	43 1-2	12.3	1740	54.3
110	Heckman	58	"	"	190	217	2	3	21	"	11 1-2	44 1-2	7.7	1780	47.3
111	Champion	55	"	"	190	216	2	1	20	Bearded.	8	31	5.3	1240	44
112	Bearded Monarch	57	"	"	185	216	2	1	20	"	13	39	8.7	1560	52
113	Fulcaster	57	"	"	185	216	2	4	20	"	18	47	12	1880	52
114	White Frack	56	"	"	190	214	2	2	21	Smooth.	14	50	9.3	2000	47
115	Reliable	55 1-2	"	"	189	217	2	3	21	Bearded.	13	50	8.7	2000	46.7
116	Kentucky White	59	"	"	187	217	2	2	21	Smooth.	17	57	11.3	2280	52
117	Red Line	55	"	"	190	214	2	2	21	"	11	49	7.3	1960	46.7
118	Golden Cross	58	"	"	189	217	2	1	21	Bearded.	15 1-2	56 1-2	10.3	2260	48.3
119	Valley	55 1-2	"	"	189	217	2	1	21	"	11 1-2	45 1-2	7.7	1820	46.7
120	Gold Medal	57	"	"	188	217	2	1	21	Smooth.	16	59 1-2	10.7	2420	51.3

(CONTINUED.)

TABLE SHOWING VARIETIES OF WHEAT TESTED ON THE STATION FARM DURING THE SEASON OF 1892-93.

Plat Number	DESIGNATION.	Test of seed sown.	Planted.	No. of days germinating.	No. of days to heading.	No. of days to maturity.	Height in feet and inches.	Harvested,	Glumes.	Plat yield in pounds.		Acre yield.		Weight of bushel.
										Grain.	Straw.	Grain.	Straw.	
							ft. in.	June				bu.	lbs.	lbs.
121	McGhee's Red	57	Nov. 15.	15	183	215	2 10	20	Smooth.	23	57	15.3	2280	54.5
122	White Eldorado	55 1-2	"	"	190	217	2 1	21	"	14	57	9.3	2280	43.5
123	Grecian	50	"	"	190	217	2 1	21	"	16	50	10.3	2000	46.5
124	Purple Straw	58	"	"	185	217	2 6	21	Bearded.	21	53	14	2120	54
125	New Australian	57	"	"	185	217	2 5	21	"	22	55	14.7	2200	52.5
126	Boyer	59	"	"	185	217	2 8	21	"	26	64	17.3	2560	54
127	Roscoe	53	"	"	190	217	2 1	21	Smooth.	11	46	7.3	1840	44
128	Golden Premium	56	"	"	185	217	2 3	21	"	16	57	10.7	2280	49
129	Improved Fife	55 1-2	"	"	185	217	2 4	21	"	17 1-2	48 1-2	11.7	1940	51
130	Half Beard	59	"	"	185	217	2 6	21	Bearded.	20	49 1-2	13.3	1980	54.5
131	Andrew's No. 4	58	"	"	187	217	2 2	21	"	15	52	10	2080	47
132	Buckeye	57 1-2	"	"	185	217	2 6	21	Smooth.	19	61	12.7	2440	51
133	Fountain	61	"	"	194	217	2 1	21	"	15	61	10	2440	45.5
134	Davis	58 1-2	"	"	185	217	2 3	21	Mixed.	15	48	10	1960	49.5
135	White Fultz	55	"	"	187	217	2 3	21	Smooth.	14	64	9.3	2560	49.7
136	Mennonite	61	"	"	189	217	2 0	21	Bearded.	27 1-2	70 1-2	18.3	2820	56
137	Canada Club	55	"	"	189	217	2 3	21	"	13	63	8.7	2520	47.3
138	Winter Green	57	"	"	185	217	2 6	21	Smooth.	17	45	11.3	1800	55
139	Big English	58	"	"	185	217	2 1	21	"	21	53	14	2120	52.5
140	Michigan Bronze	56	"	"	188	217	2 1	21	Bearded.	16	55	10.7	2200	48.5
141	Travis	56 1-2	"	"	194	218	2 3	22	Smooth.	10	56	6.7	2240	45
142	Treadwell	56 1-2	"	"	194	218	2 1	22	"	8	54	5.3	2160	44
143	Dallas	60	Nov. 14.	16	186	218	2 4	21	Bearded.	18	53	12	2120	53
144	Poole	55	"	"	186	218	2 6	21	Smooth.	15	43	10	1720	50
145	Southern Amber	58	"	"	186	218	2 5	21	"	15	59	10	2360	50
146	Gypsy	57 1-2	"	"	186	218	2 3	21	Bearded.	18	56	12	2240	52.5
147	Knapps	58	"	"	186	218	2 5	21	Smooth.	17	55	11.3	2200	52
148	Wayne County Select	53	"	"	188	218	2 6	21	Bearded.	15 1-2	65	10.3	2600	47.5
149	Palestine	55 1-2	"	"	190	219	2 3	22	Smooth.	11 1-2	61 1-2	7.7	2460	45
150	White Velvet	56	"	"	188	218	2 4	21	Bearded.	15	59	10	2360	53

(CONTINUED.)

TABLE SHOWING VARIETIES OF WHEAT TESTED ON THE STATION FARN DURING THE SEASON OF 1892-93.

Plat Number.	DESIGNATION.	Test of seed sown.	Planted.	No. of days germinating.	No. of days to heading.	No. of days to maturity.	Height in feet and inches.		Harvested.	Glumes.	Plat yield in pounds.		Acre yield.		Weight of bushel.
											Grain.	Straw.	Grain.	Straw.	
							ft.	in.	June				bu.	lbs.	lbs.
151	Red Odessa	58	Nov. 14.	16	188	218	2	4	21	Bearded.	15 1-2	55 1-2	10.3	2220	50.7
152	Hybred Mediterranean	57	" "		190	218	2	4	21	"	15	66	10	2640	47.5
153	Red Sea	56	" "		191	221	2	3	24	"	11	46	7.3	1840	47.5
154	Seneca Chief	58	Nov. 16.	17	189	219	2	2	24	"	16	60	10.7	2400	47
155	Democrat	60	" "		189	219	2	3	24	"	11	57	7.3	2280	45.5
156	Landreth	55 1-2	" "		195	217	2	0	22	Smooth.	9	54	6	2160	41.5
157	High Grade	54	" "		189	217	2	2	22	"	14	57	9.3	2280	47.5
158	Red Amber	58	" "		189	217	2	4	22	Bearded.	16 1-2	50 1-2	11	2260	51
159	Eberisole	61	" "		191	219	1	11	24	"	20	67	13.3	2680	52
160	Russian Hard	58	" "		195	219	1	10	24	"	24	66	16	2640	52
161	Yellow Blue Stem	57	" "		191	217	2	1	22	Smooth.	12	60	8	2400	44.5
162	Currell's Prolific	58 1-2	Nov. 19.	16	183	213	2	5	21	"	21	50	14	2000	52.5
163	Lehigh	58	" "	14	186	213	2	2	21	Bearded.	11	47	7.3	1880	50.5
164	Russian No. 2	57	" "		186	213	2	2	21	Smooth.	11	45	7.3	1800	46.5
165	Big May	58	" "		186	214	2	2	22	Bearded.	11	52	7.3	2080	46.5
166	Strayer's Longberry	57	" "		186	213	2	3	21	Smooth.	15	53	10	2120	48.5
167	Russian	58 1-2	" "		186	213	2	3	21	Bearded.	11	49	7.3	1960	47.7
168	Golden Prolific	54	" "		190	213	2	2	21	Smooth.	11	51	7.3	2040	41.7
169	Australian	58	" "		184	213	2	4	21	Bearded.	15	53	10	2120	49
170	Tappahannock	51	" "		186	213	2	3	21	Smooth.	11	51	7.3	2040	44.7
171	Armstrong	54	" "		186	213	2	4	21	"	13	55	8.7	2200	46.7
172	Willets	48	" "		—	—	2	3	21	"	8	50	5.3	2000	40
173	York White Chaff	52	" "	16	193	213	2	2	21	"	3 1-2	31 1-2	2.3	1260	40
174	Sandormika	56	" "	14	188	213	2	2	21	"	9	56	6	2240	42
175	Silver Chaff	51	" "		197	213	2	5	21	"	3	35	2	1400	32
176	White Mountain	50	" "		192	213	2	3	21	"	9	51	6	2040	39
177	Oregon Club	59	" "		192	218	2	1	24	"	9	66	6	2640	45.5
178	Gold Dust	57	" "		186	214	2	1	22	"	14	49	9.3	1960	47.5
179	American	56	" "		186	213	2	2	21	Bearded.	13	53	8.7	2120	49.5
180	Brady Lake	58	" "		186	214	2	1	22	"	15	53	10	2120	47

(CONTINUED.)

TABLE SHOWING VARIETIES OF WHEAT TESTED ON THE STATION FARN DURING THE SEASON OF 1892-93.

Plat Number.	DESIGNATION.	Test of seed sown.	Planted.	No. of days germinating.	No. of days to heading.	No. of days to maturity.	Height in feet and inches.		Harvested.	Glumes.	Plat yield in pounds.		Acre yield.		Weight of bushel.
							ft.	in.	June		Grain.	Straw.	Grain.	Straw.	
													bu.	lbs.	lbs.
181	Wild Goose	51	Nov. 19.	14	197	214	1	11	22	Smooth.	4	35	2.7	1400	38
182	Jennings	52	"	"	188	213	2	0	22	Bearded.	9	44	6	1760	42.5
183	Johnson	49	"	"	192	213	2	0	22	"	5	41	3.3	1640	38
184	Golden Prolific Improved	55	"	"	190	216	2	0	24	Smooth.	10	47	6.7	1880	43.5
185	Michigan White	56	"	"	186	214	2	0	32	"	9	46	6	1840	41.5
186	Surprise	53	"	"	190	214	2	2	22	"	9	48	6	1920	42.5
187	Minnesota Hard Fife	52	"	"	192	214	2	3	22	"	8	47	5.3	1880	42
188	Strayer's Roumania	55	"	"	190	214	2	2	22	"	10	49	6.7	1960	41
189	Alabama	57	"	"	186	216	2	1	24	Bearded.	17	54	11.3	2160	50.5
190	Witter	53	"	"	188	214	2	0	22	Smooth.	11	44	7.3	1760	45.5
191	Patagonia Trigo	56	"	"	186	214	1	11	22	"	10	44 —	6.7	1760	42.5
192	Golden Drop	56	"	"	190	214	2	0	22	"	11	45	7.3	1800	46.5
193	Geneva	50	"	"	186	213	1	11	21	Bearded.	13	42	8.7	1680	50.5
194	Roberts	53	"	"	186	214	2	0	22	"	8	41	5.3	1640	45.5
195	French Imperial	59 1-2	"	"	193	216	2	1	24	Smooth.	8	50	5.3	2000	46
196	White Blue Stem	56 1-2	"	"	186	214	1	10	22	Bearded.	7	39	4.7	1560	46
197	Raub's Black Prolific	50	"	"	188	214	1	9	22	"	6	28	4	1120	45
198	Tennessee Amber	50	"	"	186	214	2	0	22	Smooth.	12	40	8	1600	51
199	Sibley's New Golden	57	"	"	186	214	2	1	22	Bearded.	8	28	5.3	1120	45
200	Tuscan Island	52	"	"	186	214	2	0	22	"	15	46	10	1840	51.5
201	Smooth Scott	55 1-2	"	16	190	215	2	1	23	Smooth.	6	34	4	1360	42
202	Mammoth	55 1-2	"	14	190	215	2	1	23	Bearded.	10	39	6.7	1560	46
203	Smith's Improved	55	"	"	192	216	1	10	23	"	4	40	2.7	1600	42
204	Emporium	53 1-2	"	"	193	214	1	11	22	Smooth.	4	36	2.7	1440	39
205	Hindostand	56	"	"	186	215	2	1	23	Bearded.	9	32	6	1280	40.5
206	Lost Nation	55	"	"	190	216	2	0	24	Smooth.	8	37	5.3	1480	41
207	Blue Stem	54	"	"	204	216	2	1	24	"	1 1-2	34 1-2	1	1380	1
208	Soules	52	"	"	190	215	1	11	23	"	8	54	5.3	2160	39
209	French Prairie	59	"	"	190	216	2	0	24	"	8	36	5.3	1440	45
210	Fultz-Clawson	55	"	"	193	215	1	11	23	"	6	39	4	1560	38

(CONTINUED.)

TABLE SHOWING VARIETIES OF WHEAT TESTED ON THE STATION FARM DURING THE SEASON OF 1892-93.

Plat Number.	DESIGNATION.	Test of seed sown.	Planted.	No. of days germinating.	No. of days to heading.	No. of days to maturity.	Height in feet and inches.	Harvested.	Glumes.	Plat yield in pounds.		Acre yield.		Weight of bushel.
										Grain.	Straw.	Grain.	Straw.	
							ft. in.	June				bu.	lbs.	lbs.
211	German Emperor	58	Nov. 19.	14	190	214	2 0	22	Smooth.	11	40	7·3	1600	45·5
212	Jacques	51	"	"	193	214	2 0	22	"	7	29	4·7	1160	35·5
213	Beal	51	"	"	192	215	2 1	23	Bearded.	7	29	4·7	1160	40
214	Mammoth Red	55	"	"	196	215	1 11	23	"	11	40	7·3	1600	43·5
215	Martin's Amber	53	"	"	197	216	1 11	24	Smooth.	5	33	3·3	1320	39
216	Wyson	52	"	"	15 197	216	2 0	24	"	4	29	2·7	1160	38
217	Bodine	53	"	"	14 197	216	2 2	24	"	6	34	4	1360	39·5
218	Mediterranean	55	"	"	186	214	2 0	22	Bearded.	15	38	10	1520	41
219	Red-Cross	57	"	"	190	214	2 1	22	"	11	31	7·3	1240	39
220	Deisman No. 1	55	"	"	193	214	2 2	22	Smooth.	5	41	3·3	1640	43
221	White Rogers	53	"	15	197	216	2 1	26	"	5	32	3·3	1280	35
222	Deisman No. 2	52	"	14	190	215	2 0	26	"	8	37	5·3	1480	41
223	Pure-Gold	55	"	"	197	214	1 11	22	"	1	35	·3	1400	—
224	White Chaff	49	Nov. 21.	9	185	208	2 2	24	"	3	31	2	1240	37
225	Baily	48	"	10	185	208	2 1	24	Bearded.	3	24	2	960	34
226	Washington	49	"	"	184	207	2 3	23	"	4	32	2·7	1280	37
227	Bennett	56	"	"	189	207	1 10	23	Smooth.	4	21	2·7	840	40
228	Manitoba	55	"	"	185	210	2 0	26	"	7	39	4·7	1560	45
229	Yellow Missouri	52	"	"	191	208	2 0	24	"	2	30	1·3	1200	36
230	Stewart	51	"	"	185	207	2 1	23	Bearded.	4	27	2·7	1080	40
231	Granawalt	52	"	9	180	206	1 8	22	Smooth.	7	30	4·7	1200	44
232	Dakota Iron Clad	55	"	10	196	—	2 0	—	"	2	31	1·3	1240	—
233	Peugh	57 1-2	"	"	180	206	1 10	22	"	0	25	0	1000	40
234	Oregon Swamp	58	"	"	180	207	1 10	23	"	11	38	7·3	1520	50
235	Witter	56	"	9	184	206	1 10	22	"	6 1-2	23 1-2	4·3	940	43
236	Currell's Prolific	56	"	9	180	206	1 11	22	"	13	39	8·7	1560	50
237	Extra Eerly Red	54	"	10	185	208	2 0	24	"	7	29	4·7	1160	42·5
238	American Bronze	53 1-2	"	9	189	210	1 11	26	"	5 1-2	35 1-2	3·7	1420	39·5
239	Squaw-Head	52	"	10	189	—	1 11	—	"	4	26	2·7	800	35
240	Finley	57	"	"	180	206	2 0	22	"	12	35	8	1400	47

(CONTINUED.)

TABLE SHOWING VARIETIES OF WHEAT TESTED ON THE STATION FARM DURING THE SEASON OF 1892-93.

Plat Number.	DESIGNATION.	Test of seed sown.	Planted.	No. of days germinating.	No. of days to heading.	No. of days to maturity.	Height in feet and inches.		Harvested.	Glumes.	Plat yield in pounds.		Acre yield.		Weight of bushel.
							ft.	in.			Grain.	Straw.	Grain.	Straw.	
									June				bu.	lbs.	lbs.
241	Rudy	55	Nov. 21.	9	182	211	1	10	26	Bearded.	8	34	5.3	1360	46
242	Rumsey	55	"	9	180	206	1	11	22	Smooth.	12	33	8	1320	51
243	Everett's High Grade	55 1-2	"	9	184	208	2	2	24	"	10	29	6.7	1160	44
244	Red Chaff	55	"	9	180	210	2	0	26	"	11	36	7.3	1440	48
245	Currell's Prolific	56	"	9	180	206	1	10	22	"	10	27	6.7	1080	50
246	Rieti Red-French	52	Nov. 22.	12	194	215	2	4	26	Bearded.	1 1-2	9 1-2	1	380	1
247	Deitz-Longberry	56 1-2	"	10	187	215	2	0	26	"	7	33	4.7	1320	47
248	Orate	57 1-2	"	10	185	215	2	0	26	"	10	38	6.7	1520	47
249	Gennessee	53 1-2	"	10	194	215	2	2	26	"	4 1-2	23 1-2	3	940	40
250	Missouri Blue Stem	57	"	11	187	213	2	1	24	"	9	27	6	1080	44
251	Coryill	56	"	11	185	212	1	10	23	Smooth.	7	20	4.7	800	48
252	Russian Red	56	"	11	187	213	2	1	24	Bearded.	7	30	4.7	1200	43
253	Whaeton's Favorite	57	"	11	191	217	1	11	26	Smooth.	6	28	4	1120	40
254	Early Red Clawson	55	"	12	191	215	1	10	24	"	8	30	5.3	1200	41

WHEAT WITHOUT MANURE.

An acre of land was set aside to be sown in wheat year after year without the addition of any fertilizing material. It was seeded November 22 to Red Fultz wheat at the rate of five pecks to the acre with Hoosier Press Drill, and was up nicely with a good stand December 4th.

The freezing and thawing of the winter and spring opened the soil so that the roots of the plants were injured slightly from exposure. On March 21st the west half of the acre was rolled with an eleven hundred-pound iron roller to pack the soil. This treatment did not result in any good so far as observed. The plat was harvested June 19th.

Gross weight	2,055 lbs.
Weight of grain	633 "
" " straw	1,422 "
" " bushel	54.66 "
Yield in bushels per acre	10.55

DESCRIPTION OF PROMISING VARIETIES.

SILVER CHAFF BEARDED—Plat No. 18, (see table.)—Planted Oct. 10th, '92, "in the dust." Seed came up well after first rain and gave a good stand of healthy looking plants; 216 days from planting to heading, and 247 days to maturity; harvested June 16th, '93; height of straw, two feet, two inches; heads bearded, broad, loose, and flat; length of head, 2 1-8 inches; grain dark red, medium sized, shrunken. Yield of grain per acre, 24 bushels; yield of straw per acre, 2680 pounds. Ratio of grain to straw as 1 to 1.8.

MICHIGAN AMBER, (from Kansas,) Plat No. 14, (see table.)—Planted Oct. 10th, 92, "in the dust." Stand good; 215 days were required to time of heading, and 244 days to maturity; harvested June 17th, '93; height of straw, two feet, one inch: heads 2 3-4 inches long, smooth, loose, and tapering; grain dark red, short, shrunken. Yield of grain per acre, 24 bushels; yield of straw, 2960 pounds. Ratio of grain to straw as 1 to 2.05.

MISSOURI—Plat No. 8, (see table.)—Planted Oct. 10th, '92, "in the dust." Stand, as compared with all the other plats, good; 213 days from planting to heading; 246 days from planting to maturity; harvested June 15th, '93;

height of straw, two feet, four inches; heads three inches long, smooth, cylindrical, and slender; color, dark red; medium sized berries, but badly shrunken. Yield of grain per acre, 20.7 bushels; yield of straw per acre 2820 pounds. Ratio of grain to straw as 1 to 1.36.

CURRELL.—Plat No. 3, (see table)—Planted Oct. 10th, 92, "in the dust." Stand good; little rust or smut; 213 days from planting to heading; 246 days from planting to maturity; harvested June 15th, '93; height of straw, two feet, two inches; heads smooth, 2 3-4 inches long, square, and compact; grain red, fairly plump. Yield of grain per acre, 20.3 bushels; yield of straw per acre, 2620 pounds. Ratio of grain to straw as 1 to 2.15.

MEDITERRANEAN RED CHAFF—Plat No. 21, (see table.)—Planted Oct. 12th, '92, "in the dust." Stand very good; 213 days from planting to heading; 244 days from planting to maturity; harvested June 15th, '93; height of straw, two feet, one inch; heads smooth, square, and 3 1-16 inches long; grain red, long, but badly shrunken. Yield of grain per acre, 19.3 bushels; yield of straw per acre, 3020 pounds. Ratio of grain to straw as 1 to 2.6.

MENNONITE—Plat No. 136, (see table.)—Planted November 15th, '92, after a continued wet spell; stand, good; 189 days from planting to heading; 217 days from seeding to maturity; harvested June 21st, 93; height of straw, two feet, three inches; heads 2 9-16 inches long, with extra long beards, is square and loose; grain red, badly shrunken, but quite hard. Yield of grain per acre, 18 03 bushels; yield of straw per acre, 2820 pounds. Ratio of grain to straw as 1 to 1.5.

CONCLUSIONS.

1. The varieties yielding the largest amount of grain to the acre are Silver Chaff Bearded, Michigan Amber (from Kansas,) Missouri, and Currell, in the order named.

2. The varieties making the

largest yield of straw to the acre are: Mediterranean Red Chaff, Michigan Amber (from Kansas,) Missouri, and Mennonite, in order named.

3. The ratio of grain to straw was least in Silver Chaff Bearded, there being one pound of grain to every one and eighty-six hundredths pounds of straw, or 111.6 pounds of straw to a bushel of grain.

4. Silver Chaff Bearded produced the most grain to the acre --24 bushels.

5. Mediterranean Red Chaff produced the most straw to the acre--3020 pounds.

6. None of the varieties were up to the standard in weight, the heaviest being German Amber and weighing 57.7 pounds to the bushel.

7. The varieties gaining weight per bushel over seed sown were: Earnhardt, Rural No. 5, and Michigan Wick. Highest gain, 1.3 pounds.

8. The early seeded plats gave

the best returns except in case of Mennonite. This was planted more than a month later than plats one to fifty-two inclusive; but matured with them and yielded better returns than forty of the early seeded varieties.

9. The following varieties gave very satisfactory results for unmatured upland: Currell, Hybred No. 9, Missouri, Diehl-Egyptian, Michigan Amber (from Kansas,) Silver Chaff Bearded, and Mennonite. (See description of soil, page 5.)

10. The late seeded varieties giving best returns are: Mennonite, Boyer, Extra Early Oakley, Tasmanian Red, in order named, ranging from sixteen to eighteen and three-tenths bushels to the acre.

11. Total number of inches of rain-fall from first seeding to maturity of all the wheat was 19.86. Amount of rain-fall reckoned necessary for a successful wheat crop is two inches a month if equally distributed.