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TEXAS AGRICULTURAL EXPERIMENT STATION.

BULLETIN No. 34.

FEBRUARY, 1895.

FIELD EXPERIMENTS AT MCKINNEY SUB-STATION AND
WICHITA FALLS SUB-STATION

WITH

Wheat, Corn, Cotton, Grasses and Manures.

FIELD EXPERIMENTS AT COLLEGE STATION

WITH

Corn, Cotton, Grasses, Peas and Manures.

POSTOFFICE:

COLLEGE STATION, BRAZOS CO., TEXAS.

All Reports from this Station are sent free to farmers of the State on application to
J. H. CONNELL, DIRECTOR, P. O. College Station, Texas.



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TEXAS AGRICULTURAL EXPERIMENT STATION.

FIELD EXPERIMENTS AT MCKINNEY, WICHITA FALLS, AND
COLLEGE STATION, WITH

Wheat, Corn, Cotton, Grasses and Manures.

J. H. CONNELL.

JAS. CLAYTON.

CONCLUSIONS.

The experiments here reported have been running but one season at any of the points mentioned. It would, therefore, be unwise to attempt to make nice distinctions between varieties, different forms of a given manure, or to name all of the forage crops that are sure to succeed on any one soil in the State. But it is possible for the reader to determine in a general way what are the more valuable varieties of corn, cotton, wheat, grasses, or peas suited to his section. Whether or not it will pay to sub-soil land for certain crops, or what kind of manure, if any, will pay best used on his land. We call attention to the following conclusions drawn from the experiments reported in this bulletin, and believe them to be reliable and conservative:

I. There are several varieties of wheat grown at McKinney and Wichita Falls Sub-Experiment Stations which promise larger yields per acre and of equally as good quality of grain as is produced from the common Mediterranean of North Texas.

II. None of the manures applied to wheat at McKinney gave a profit in their use, though some increased the yield. At Wichita Falls both fresh and rotted stable manure were applied with good profit, and the soil responded freely to the application of cotton seed meal and nitrate of soda.

III. For early maturing corn on the black lands, at Wichita Falls and College Station, it is evident that seed introduced recently from the

Northwest give best results. The season was such last year that we could not secure a fair test of late maturing varieties.

IV. Of the different kinds of fertilizers used on corn land at McKinney, none of them gave a profit on application. From experiments with fertilizers on corn land near Bryan, we must conclude that stable manure, acid phosphate and cotton seed hull ashes were used profitably.

V. Of the different methods used in the preparation of land for corn at McKinney, subsoiling to a depth of nine inches increased the yield, but did not pay for the cost of the work the first season. Subsoiling cotton land at McKinney gave a clear profit the first season over the cost of the work.

VI. Among the thirty-one varieties of cotton planted at College Station we name the ten best:

First Planting.		Second Planting.	
Name.	Increase over average of two nearest check plots.	Name.	Increase over average of two nearest check plots.
Peterkin	\$ 10 22	Peterkin Limbed Cluster	\$ 17 52
Peeler	7 86	Herlong	14 92
Sure Fruit	7 75	Peterkin	11 78
Drake's Cluster	7 47	Tennessee Gold Dust (Texas seed)	10 69
Welborn's Pet (not in second planting)	7 26	Sure Fruit	9 76
Marston	6 09	Drake's Cluster	8 98
Coltharp's Eureka	5 75	Coltharp's Eureka	8 52
Cochran's Prolific	5 75	Cochran's Prolific	8 19
King's Improved	5 66	Dickson's Improved	8 31
Peerless	5 24	Southern Hope	7 84

VII. Of the different fertilizers used on cotton at McKinney, the greatest increased yield was from the use of bone black (a form of phosphate), which gave a net gain of 80 cents per acre over its cost. Acid phosphate increased the yield of seed cotton 230 pounds per acre without profit.

VIII. The most successful grasses and forage plants grown at McKinney are Melilotus, Alfalfa, Alsike Clover, and English Rye Grass. Those succeeding best at Wichita Falls are Alfalfa, Melilotus, Rye Grass, Meadow Oat Grass, and Timothy. At College Station those succeeding best to date are Alfalfa, Crimson Clover, Burr Clover, Japan Clover, Sorghums, Bermuda (from seed), Rescue Grass, and Rye Grass.

REPORTS OF EXPERIMENTS WITH VARIETIES OF
WHEAT AT MCKINNEY AND WICHITA FALLS
SUB-EXPERIMENT STATIONS.

Early in the fall of 1893 land was prepared at McKinney and Wichita Falls for experiment with all of the varieties of wheat that could be had. On November 25 Mr. J. H. Ferguson planted 215 different varieties at McKinney, and on October 30 Mr. J. W. Phillips planted 230 varieties at Wichita Falls. The land at McKinney is low, and a typical black waxy soil of North Texas. The land at Wichita Falls is known as the black loam of the river bottoms of that section. In planting so many varieties of wheat, it was necessary to test the varying fertility of the soil used, so that every fifth or tenth plot was planted in ordinary Mediterranean as a standard by which the other wheats could be measured. The results here published show how the best of these varieties compared with the crops of Mediterranean on each side and nearest the varieties reported upon.

It will be noted that a large number of these varieties are prominent for excellence, both at Wichita Falls and at McKinney. Where their names occur more than once, it is fair to suppose that these are the most promising of all the varieties planted. We will continue experiments with these for another season, upon a more extended scale. We shall also plant in small plots all of the varieties we have planted this season, thinking that probably a second year in Texas will prove beneficial to some of them. Nearly all of the varieties here recorded were grown from seed obtained from Oklahoma Experiment Station, where they had been grown under test for one year. Many of the varieties so procured were gotten from Kansas-grown seed before planting in Oklahoma.

It would be unwise to say that any of these wheats which appear to excel the common Mediterranean in yield are necessarily better than that variety, since we have tested them but one season, and the fact that they have been brought South gives them an advantage over home-grown seed.

Two Hundred and Fifteen Varieties of Wheat Grown at McKinney.

Plot number.	Name.	Smooth, bearded or mixed.	Yield per acre, in bushels.	Yield in excess of Mediterra- nean.
1	Big English	Smooth	20.63	.....
2	Michigan Bronze	Bearded	15.00	.....
3	Diehl Mediterranean .....	.. do	17.74	.....
4	Bissell .....	.. do	23.37	.....
5	Jones' Mediterranean (failure).....	.....	.....	.....
6	McCregan	Smooth	16.85	.....
7	Missouri .....	.. do	15.00	.....
8	White Rose .....	.. do	15.93	.....
9	Early May .....	.. do	15.93	.....
10	Mediterranean (failure) .....	.....	.....	.....

Two Hundred and Fifteen Varieties of Wheat, etc.—continued.

Plot number.	Name.	Smooth, bearded or mixed.	Yield per acre, in bushels.	Yield in excess of Mediterra- nean.
11	New March	Smooth	15.00	
12	Golden Premium	do	11.25	
13	Shumaker's Clawson	do	17.74	
14	Improved Golden Prolific	do	15.33	
15	Genesee	Bearded	18.89	
16	Fountain	Smooth	16.94	
17	Mealy	do	12.00	
18	<i>Mediterranean</i>		<i>39.44</i>	
19	Wayne County Select	Bearded	16.94	
20	Improved Rice	Smooth	12.00	
21	No. 75	do	22.26	
22	Mammoth	Bearded	18.89	
23	<i>Mediterranean</i>		<i>32.58</i>	
24	Hybrid Mediterranean	Bearded	18.89	
25	Tuscan Island	do	13.61	
26	Australian	do	15.33	
27	Washington Glass	Smooth	13.61	
28	<i>Mediterranean</i>		<i>31.58</i>	
29	French Imperial	Smooth	15.33	
30	Tennessee Amber	do	13.61	
31	Emporium	do	18.55	
32	Golden Drop	do	16.94	
33	<i>Mediterranean</i>		<i>30.65</i>	
34	Johnsons	Mixed	13.61	
35	<i>Mediterranean</i>	<i>Bearded</i>	<i>18.89</i>	
36	Witters	Smooth	15.33	
37	Grunewalt	do	10.29	
38	<i>Mediterranean</i>		<i>30.65</i>	
39	German Emperor	Smooth	10.29	
40	Minnesota Hard Fife	do	13.61	
41	Washington	Bearded	13.61	
42	Early Red Clawson	Mixed	10.29	
43	<i>Mediterranean</i>		<i>36.31</i>	
44	Currell's Prolific	Smooth	15.33	
45	No. 185	do	15.33	
46	French Prairie	do	12.00	
47	Hindoostan	Bearded	13.61	
48	<i>Mediterranean</i>		<i>37.75</i>	
49	McGee's White	Smooth	8.55	
50	Roberts	Bearded	8.55	
51	Michigan Amber Indiana	Smooth	12.00	
52	Crawford County	do	15.33	
53	<i>Mediterranean</i>		<i>34.00</i>	
54	Currell's Prolific	Smooth	15.33	
55	Russian Red	Mixed	6.86	
56	Seneca Chief (?)	Bearded	8.55	
57	Treadwell	Smooth	5.14	
58	Sibley's Hybrid	Bearded	15.92	
59	Penquit's Velvet Chaff	do	25.81	
60	Hungarian	do	22.82	
61	German Amber	Smooth	18.23	
62	Baltimore	do	15.16	
63	No. 243	do	19.84	
64	Currell's Prolific	do	19.84	
65	Brady's Lake	Bearded	12.50	

Two Hundred and Fifteen Varieties of Wheat, etc.—continued.

Plot number.	Name.	Smooth, bearded or mixed.	Yield per acre, in bushels.	Yield in excess of Mediterra- nean.
66	Strayer's Longberry	Bearded	20.89	
67	<i>Mediterranean</i>		20.78	
68	Crate	Bearded	18.79	
69	Democrat		18.79	
70	Deitz Longberry	Bearded	17.74	
71	Dallas	do	21.86	
72	<i>Mediterranean</i>		29.28	
73	Valley	Bearded	24.03	
74	Missouri Blue Stem	do	48.15	17.30
75	Red Line	Smooth	16.69	
76	No. 282	Bearded	17.74	
77	<i>Mediterranean</i>		32.42	
78	Tasmanian Red	Bearded	18.79	
79	Sheriff	Smooth	21.86	
80	Red Cross	Bearded	15.64	
81	Rio Grande	Smooth	17.74	
82	<i>Mediterranean</i>		29.28	
83	Russian No. 2	Smooth	16.69	
84	American	Bearded	18.79	
85	Zimmerman	Smooth	17.74	
86	Rudy	Bearded	15.64	
87	<i>Mediterranean</i>		31.37	
88	Red Sea	Bearded	18.79	
89	Armstrong	Smooth	14.60	
90	McGee's White	do	14.60	
91	White Fultz	do	11.45	
92	<i>Mediterranean</i>		35.37	
93	Portio	Smooth	17.74	
94	High Grade	do	13.55	
95	Height's Prolific	do	17.74	
96	Big Frame	do	13.55	
97	<i>Mediterranean</i>		30.33	
98	Andrew's No. 4	Bearded	16.69	
99	Royal Australian	Smooth	15.64	
100	Finley	do	16.69	
101	Nigger	Bearded	19.84	
102	<i>Mediterranean</i>		32.42	
103	Currell	Smooth	16.69	
104	Lincoln	Bearded	18.79	
105	No. 25	do	19.84	
106	Improved Fife	Smooth	17.74	
107	Centennial	do	14.60	
108	Davis	do	17.74	
109	Yellow Alabama	do	15.64	
110	Diehl Egyptian	do	18.94	
111	No. 72	do	18.79	
112	Boyer	Bearded	18.79	
113	Michigan Nick	do	14.60	
114	Fenton	Smooth	10.24	
115	American Bronze	do	12.18	
116	Sandormila	do	16.85	
117	<i>Mediterranean</i>		14.03	
118	Red Amber	Bearded	19.68	4.24
119	Russian May	Smooth	15.00	
120	No. 243	do	16.85	1.41

Two Hundred and Fifteen Varieties of Wheat, etc.—continued.

Plot number.	Name.	Smooth, bearded or mixed.	Yield per acre, in bushels.	Yield in excess of Mediterra- nean.
121	New Australian	Bearded	18.71	3.27
122	<i>Mediterranean</i>		16.85	
123	Yellow Blue Stem	Smooth	16.85	.48
124	Gold Dust	do	9.35	
125	Golden Prolific	do	12.18	
126	Ballarks' Velvet Chaff	do	13.06	
127	<i>Mediterranean</i>		15.89	
128	Coryell	Smooth	17.74	.44
129	Raub's Black Prolific	Mixed	15.00	
130	Oregon Swamp	Smooth	16.85	
131	Sibley's New Golden	Bearded	11.21	
132	<i>Mediterranean</i>		18.71	
133	Smooth Scott	Smooth	12.18	
134	Deisman's No. 2	do	6.54	
135	Lost Nation	do	7.50	
136	Alabama		20.57	3.72
137	<i>Mediterranean</i>		15.00	
138	Amber-Champion	Mixed	12.18	
139	Canadian Wonder	Bearded	18.71	2.79
140	Early Red Clawson	Smooth	11.21	
141	Michigan Amber Kansas	do	16.85	.93
142	<i>Mediterranean</i>	Bearded	16.88	
143	Tappahannock	Smooth	16.85	
144	O. K.	Bearded	22.50	4.24
145	No. 176	Smooth	10.24	
146	Manitoba	do	7.50	
147	<i>Mediterranean</i>		19.68	
148	White Eldorado	Smooth	9.35	
149	Reliable	Bearded	21.53	1.41
150	Ramsey	Smooth	21.53	1.41
151	Hicks	do	16.85	
152	<i>Mediterranean</i>		20.57	
153	Mammoth Red	Bearded	21.53	4.96
154	Wheaton's Favorite	Smooth	15.40	
155	Peugh	do	14.43	
156	Willets	do	12.66	
157	Hybrid Mediterranean	do	13.55	
158	<i>Mediterranean</i>		12.58	
159	Bearded Monarch	Bearded	11.77	
160	No. 261	do	17.18	
161	Knapp	Smooth	14.43	
162	Bordeaux	do	17.18	
163	<i>Mediterranean</i>		16.29	
164	Red Chaff	Smooth	17.18	
165	Hickman	do	18.06	
166	Buckeye	do	18.95	.40
167	Rock Mountain	do	14.43	
168	<i>Mediterranean</i>		20.81	
169	Deitz	Bearded	18.95	
170	Crate	do	13.55	
171	Roger's Red	Smooth	18.06	
172	Amber Tuscan	Bearded	16.29	
173	<i>Mediterranean</i>		6.29	
174	Palestine	Mixed	15.40	
175	Big May	Smooth	15.40	

Two Hundred and Fifteen Varieties of Wheat, etc.—continued.

Plot number.	Name.	Smooth, bearded or mixed.	Yield per acre, in bushels.	Yield in excess of Mediterra- nean.
176	Golden Cross	Bearded	18.95	.....
177	Fultz	Smooth	15.40	.....
178	<i>Mediterranean</i>	<i>Mixed</i>	<i>18.06</i>	.....
179	Pool	Badly mixed	12.66	.....
180	Kentucky White	Smooth	16.29	.05
181	Wild Goose	do	13.55	.....
182	Ashburn	do	11.77	.....
183	<i>Mediterranean</i>		<i>14.43</i>	.....
184	Miller	Badly mixed	14.43	.....
185	Velvet Chaff	Bearded	16.29	1.86
186	Nebraska	do	21.71	7.28
187	Earnheart	Smooth	16.29	1.86
188	<i>Mediterranean</i>	<i>Bearded</i>	<i>14.43</i>	.....
189	Geneva	Bearded	22.58	8.59
190	Grecian	Smooth	12.66	.....
191	Small Frame	do	15.40	1.41
192	Travis	do	14.43	.44
193	<i>Mediterranean</i>	<i>Bearded</i>	<i>13.55</i>	.....
194	Menemonite	Bearded	16.29	2.21
195	New York Flint	Smooth	18.06	4.07
196	Siberian	do	16.29	2.30
197	Triticum	Bearded	14.43	.44
198	Jones' Mediterranean Fife	Smooth	5.40	.....
199	Longberry	do	17.18	3.19
200	Scott	Bearded	24.44	10.45
201	Bearded Silver Chaff	do	18.06	4.07
202	Mediterranean Red Chaff	Smooth	18.06	4.07
203	<i>Mediterranean</i>	<i>do</i>	<i>14.43</i>	.....
204	Purple Straw	Bearded	20.81	.69
205	McCracken	Smooth	17.18	.....
206	White Frack	do	16.29	.....
207	Lebanon	Bearded	23.55	3.43
208	Bodine E., O. K. West	Smooth	9.08	.....
209	Fountain	do	18.95	.....
210	Kentucky White	do	13.63	.....
211	<i>Mediterranean</i>		<i>25.81</i>	.....
212	Southern Amber	Smooth	22.02	.....
213	McPherson	do	21.29	.....
214	Bearded King	Bearded	22.02	.....
215	Rural No. 5	Smooth	19.76	.....
216	<i>Mediterranean</i>		<i>22.82</i>	.....
217	Little Red	do	8.07	.....
218	Little Red	Smooth	18.23	0.01
219	Hybrid No. 9	do	20.48	2.26
220	Red Sea	Bearded	19.85	1.63
221	Roscoe	do	14.43	.....
222	<i>Mediterranean</i>		<i>13.63</i>	.....
223	Shayer's Egyptian	Bearded	17.42	.....
224	Ontario	Smooth	19.76	2.30
225	Red May	do	20.48	3.02
226	Winter Green	do	22.02	4.56
227	<i>Mediterranean</i>		<i>21.29</i>	.....
228	Walker	Smooth	15.16	.....
229	Purple Straw Red	do	18.23	.....
230	Russian	Bearded	23.55	0.05

Two Hundred and Fifteen Varieties of Wheat, etc.—continued.

Plot number.	Name.	Smooth, bearded or mixed.	Yield per acre, in bushels.	Yield in excess of Mediterra- nean.
231	Clawson	Smooth	15.16	.....
232	<i>Mediterranean</i>		25.87	.....
233	McGee's Red	Smooth	13.63	.....
234	McQuay	do	19.85	.....
235	Gypsy	Bearded	22.02	.....
236	Ostery	Smooth	20.48	.....
237	<i>Mediterranean</i>		26.62	.....
238	Missouri Blue Stem	Bearded	18.76	.....
239	Egyptian	do	19.76	.....
240	Winter Green	do	16.69	.....
241	Oregon	Smooth	18.29	.....
243	Russian Hard	Bearded	19.76	.....
242	<i>Mediterranean</i>		28.75	.....
244	Champion		15.79	.....
245	Lehigh No. 6	Bearded	19.76	.....
246	Arnold's Hybrid	Smooth	15.97	.....
247	Powers	do	12.00	.....
248	Farquhar	do	21.29	.....
249	Colorado Blue Stem	Bearded	16.69	.....
250	Lancaster	do	22.82	.....
251	Ohio Swamp	do	16.69	.....
252	Canadian Express	Smooth	15.23	.....
253	<i>Mediterranean</i> .....		.....	.....
254	Wyandotte Red	Smooth	10.29	.....
255	Red Odessa	Mixed	20.29	.....
256	Ontario Wonder	Smooth	10.29	.....
257	Landreth	do	20.57	.....
258	<i>Mediterranean</i> .....		.....	.....
259	Early Rice	Smooth	13.61	.....
260	Panhandle	Bearded	13.61	.....
261	Ebersole	do	20.57	.....

At McKinney we found 57 varieties that equal or exceed the yield of common Mediterranean. All of the varieties planted were given the same condition in every respect. No manure was applied to any of this wheat. Some of the varieties show a gain over the common Mediterranean of more than 9 bushels per acre. There were 26 varieties that gave more than 20 bushels per acre. These were Penquits' Velvet Chaff, 25.8; Hungarian, 22.8; Strayer's Longberry, 20.9; Dallas, 21.8; Valley, 24; Missouri Blue Stem, 48.1; Sheriff, 21.9; Bissell, 23.4; No. 75, 22.3; Alabama, 20.6; Nebraska, 21.7; Scott, 24.4; Purple Straw, 20.8; Lebanon, 23.5; Southern Amber, 22; McPherson, 21.3; Bearded King, 22; Hybrid No. 9, 20.5; Red May, 20.5; Winter Green, 22; Russian, 23.5; Farquhar, 21.3; Lancaster, 22.8; Mediterranean, 13.55 to 39.44 bushels.

Varieties Yielding more than Mediterranean at McKinney.

Number.	Name.	Excess over check plot (Mediterranean) in bushels.
1	Missouri Blue Stem	17.30
2	Red Amber	4.24
3	No. 243	1.41
4	New Australian	3.27
5	Yellow Blue Stem	.48
6	Coryell	.44
7	Alabama	3.72
8	Canadian Wonder	2.79
9	Michigan Amber Kansas	.93
10	O. K.	4.24
11	White Eldorado	1.44
12	Ramsey	1.44
13	Buckeye	.40
14	Kentucky White	.05
15	Velvet Chaff	1.86
16	Nebraska	7.28
17	Eberhart	1.86
18	Geneva	8.59
19	Small Frame	1.41
20	Travis	.44
21	New York Flint	4.07
22	Siberian	2.39
23	Triecticum	.44
24	Menemonite	2.21
25	Longberry	3.19
26	Scott	10.45
27	Bearded Silver Chaff	4.07
18	Mediterranean Red Chaff	4.07
29	Purple Straw	.69
30	Lebanon	3.43
31	Little Red	.01
32	Hybrid No. 9	2.26
33	Red Sea	1.63
34	Ontario	2.30
35	Red May	3.02
36	Winter Green	4.56
37	Russian	.05
38	Coryell	1.82
39	Geneva	1.82
40	Mammoth Red	.55
41	Washington	.50
42	Witter	1.83
43	Raub's Black Prolific	6.16
44	Crate	3.08
45	American	.22
46	Alabama	.22
47	Missouri Blue Stem	2.04
48	Currell's Prolific	3.08
49	Currell's Prolific	3.08
50	Red Chaff	3.08
51	White Blue Stem	3.64
52	Witter	1.00
53	Soule's	.52
54	Peugh	1.56
55	Menomonite	.52
56	Hindoostan	3.64
57	Manmoth Red	4.96

Test of Fertilizers on Wheat Land at McKinney.

Wheat for this test was planted October 18, 1893, with Champion Drill, at the rate of one bushel per acre, germinated October 25, and made good fall growth; entering the winter in good condition. The fertilizers used were applied on February 28. In the table given below will be found an account of the kind of fertilizers used and cost of same per acre as applied, the increased yield (if any) per acre due to the application, and the profit or loss from its use.

The land on which this wheat was planted had been under cultivation for forty years, and had been run in wheat without interruption for a number of seasons. It was flushed in August, 1893, breaking it to a depth of four inches. It was harrowed twice in September before planting in October.

Plot number.	Application, in pounds.	Yield per acre, in bushels.	Increase or decrease from fertilizing.	Total value of crop.	Cost of fertilizer.	Loss or gain.
1	400 Cotton Seed Meal.....	18.33	-1.33	\$9 16	\$4 00	-4 67
2	200 Sulphate of Ammonia.....	26.16	6.50	13 08	7 00	-3 85
3	200 Nitrate of Soda.....	28.00	8.34	14 00	5 00	-0 83
4	4000 Rotted Manure.....	22.33	2.67	11 06	1 00	0 23
5	Check Plot.....	19.66	.....	9 83	.....	.....
6	4000 Fresh Manure.....	22.83	3.17	11 41	1 00	0 58
7	1000 Green Cotton Seed.....	24.00	4.34	12 00	4 00	-0 81
8	1000 Kainit.....	23.33	0.83	11 66	7 50	-7 04
9	400 Cotton Seed Hull Ashes.....	22.33	-0.17	11 66	1 00	-0 54
10	Check Plot.....	22.50	.....	11 25	.....	.....
11	1000 Unleached Ashes.....	22.50	.....	11 25	50	-0 50
12	400 Acid Phosphate.....	21.16	-1.34	10 58	2 20	-3 87
13	400 Raw Bone Meal.....	22.83	-0.17	11 41	5 00	-5 09
14	500 Bone Black.....	22.16	-0.84	11 08	5 00	-5 42
15	Check Plot.....	23.00	.....	11 50	.....	.....
16	500 Land Plaster.....	20.66	-2.34	10 33	2 50	-3 67
17	200 Salt.....	18.66	-4.34	9 33	1 00	-3 17
18	2000 Wheat Straw.....	19.16	4.34	9 08	50	-2 92
19	400 Bat Guano.....	24.80	1.30	12 40	*	.....
20	400 Cotton Seed Meal.....	21.00	0.17	10 50	4 00	-3 91
21	400 Rotted Manure.....	18.83	2.00	9 41	1 00	-2 00
22	Check Plot.....	20.83	.....	10 41	.....	.....
23	1000 Kainit.....	19.83	1.00	9 41	7 50	-8 48
24	Check Plot.....	20.00	.....	10 00	.....	.....
25	400 Acid Phosphate.....	20.16	0.16	10 08	3 20	-3 12

* Donated.

It is evident that from the above table that the first year's application of fertilizers to the better class of black lands in North Texas will not prove a paying investment in growing wheat during such seasons as that of 1893 and 1894.

As a matter of interest, we note that sulphate of ammonia appears to increase the yield over the blank plots some six bushels. But with pres-

ent price of wheat, it does not pay for the application. Nitrate of soda increases the yield somewhat more, but fails to pay for itself. The two applications of manure seem to have had little effect, nor did any other materials used, except those already noticed. More extensive experiments in fertilizing wheat land in North Texas will be reported on for the season of 1895.

The price of the chemicals purchased is given at a rate below their actual cost to us, because we bought them in New Orleans in less than carload lots. The figures given show the actual cost to us of the several materials in the New Orleans market at job lot rates. No estimate was made for freight charges, which were excessive. Below we give the prices per ton paid to the Standard and Chemical Guano Manufacturing Company for these fertilizers in New Orleans:

	Per ton.
Sulphate of ammonia.....	\$70 00
Nitrate of soda.....	50 00
Bone black.....	20 00
Raw bone meal.....	25 00
Acid phosphate.....	16 00
Kainit.....	15 00
Land plaster.....	10 00

Such materials used in these tests as were not purchased for experimental use are rated at the following prices:

	Per ton.
Cotton seed hull ashes.....	\$5 00
Cotton seed meal.....	20 00
Manure (stable).....	50
Wood ashes.....	1 00
Salt.....	10 00
Cotton seed.....	8 00

The bat guano was donated for experimental use by John Marbach, Bracken, Comal County, Texas.

The figures in the column showing "Loss or Gain" are obtained by comparing the value of the fertilized plots with that of the nearest blank (check), and should the value of the fertilized plot exceed that of the blank plot, their difference is *subtracted* from the cost of the fertilizer to show "Gain or Loss." Should the value of the blank plot exceed that of the one fertilized, this difference is *added* to the cost of the fertilizer, and this sum represents the total "*Loss*" for that test. The applications used in this experiment with fertilizers and for other such tests reported in this Bulletin were suggested by Prof. H. H. Harrington, chemist.

Two Hundred and Thirty Varieties of Wheat Grown at Wichita Falls.

Plot number.	Name.	Smooth or bearded.	Yield per acre, in bushels.	Yield in excess of Mediterranean.
1	Strayer's Longberry	Bearded	24.50	6.83
2	Bearded Monarch	do	20.20	2.53
3	Hickman	Smooth	13.63	
4	Badger	do	19.19	1.52
5	Canadian Wonder	Bearded	15.65	
6	Miller	Smooth	15.00	
7	Nebraska	do	19.19	1.52
8	Tasmanian Red	Bearded	17.17	
9	Lehigh No. 6.	do	14.14	
10	Hicks	Smooth	14.64	
11	<i>Mediterranean</i>	<i>Bearded</i>	<i>17.67</i>	
12	Gypsy	do	15.00	
13	Russian Hard	do	16.16	
14	Purple Straw Red	Smooth	17.67	
15	New Australian	Bearded	17.17	
16	Silver Chaff Bearded	do	14.14	
17	Oregon	Smooth	15.00	
18	Portia	do	16.16	
19	White Velvet	Bearded	13.63	
20	Oregon Club	Smooth	11.61	
21	<i>Mediterranean</i>	<i>Bearded</i>	<i>17.67</i>	
22	Landreth	do	12.12	
23	Egyptian	do	18.18	
24	Powers	Smooth	15.40	
25	Improved Rice	do	15.65	
26	High Grade	do	14.14	
27	Bordeaux	do	13.13	
28	Prolific Heights	do	20.20	2.03
29	Yellow Alabama	do	20.20	2.03
30	Scott	Bearded	17.17	
31	<i>Mediterranean</i>	<i>do</i>	<i>18.68</i>	
32	O. K.	do	17.17	
33	Red Amber	do	15.00	
34	Dallas	do	17.67	
35	White Frack	Smooth	14.14	
36	Yellow Blue Stem	do	14.14	
37	Davis	do	15.00	
38	Zimmerman	do	20.20	2.78
39	Andrews No. 4.	Bearded	18.18	0.76
40	Champion Amber	Smooth	12.12	
42	Finley	Smooth	16.16	2.28
41	<i>Mediterranean</i>	<i>Bearded</i>	<i>16.16</i>	
43	Velvet Chaff	Bearded	16.16	2.28
44	Armstrong	Smooth	12.12	
45	Sandomica	do	11.61	
46	Bissell	do	16.16	2.28
47	Golden Cross	Bearded	15.65	1.77
48	Red May	Smooth	15.65	1.77
49	Washington Glass	do	12.66	
50	Red Odessa	do	10.00	
51	<i>Mediterranean</i>	<i>Bearded</i>	<i>11.61</i>	

Two Hundred and Thirty Varieties of Wheat, etc.—continued.

Plot number.	Name.	Smooth or bearded.	Yield per acre, in bushels.	Yield in excess of Mediterranean.
52	Fultz	Smooth	15.00	2.70
53	Walker	do	17.67	5.37
54	German Amber	do	16.66	4.36
55	Buckeye	Smooth	19.69	3.39
56	Reliable	Bearded	18.18	5.88
57	New Monarch	Smooth	14.64	2.34
58	Big English	do	14.64	2.34
59	Ohio Swamp	Bearded	12.12	.....
60	Small Frame	Smooth	12.12	.....
61	<i>Mediterranean</i>	<i>Bearded</i>	<i>13.00</i>	.....
62	Centennial	Smooth	12.12	.....
63	Valley	Bearded	16.66	3.09
64	Early Red Clawson	do	12.12	.....
65	Colorado Blue Stem	do	15.00	1.43
66	Michigan Bronze	do	15.65	2.08
67	Nigger	do	17.17	3.60
68	Little Red	Smooth	15.00	1.43
69	Shayer's Egyptian	Bearded	17.67	4.10
70	Purple Straw	do	15.00	1.43
71	<i>Mediterranean</i>	<i>do</i>	<i>14.14</i>	.....
72	Hungarian	do	18.18	2.78
73	Improved Fife	Smooth	19.19	3.79
74	Missouri	do	17.67	2.27
75	Canadian Express	do	12.12	.....
76	Big May	do	12.12	.....
77	No. 25	Bearded	14.64	.....
78	Tuscan Amber	do	15.00	.....
79	Currel's Prolific	Smooth	14.14	.....
80	McQuay	do	15.00	.....
81	White Eldorado	do	12.66	.....
82	Crate	Bearded	16.16	0.76
83	Palestine	Smooth	13.00	.....
84	Willetts	do	14.14	.....
85	Treadwell	do	12.66	.....
86	Extra Early Oakley	do	19.69	4.29
87	No. 75	do	18.00	2.78
88	Winter Green	Bearded	17.17	1.77
89	American Bronze	Smooth	10.00	.....
90	Wyandotte Red	do	18.68	3.28
91	<i>Mediterranean</i>	<i>Bearded</i>	<i>16.66</i>	.....
92	Mealy	Smooth	15.65	.....
93	Dietz Longberry	Bearded	14.58	.....
94	French Prairie	Smooth	14.58	.....
95	Jacques	do	13.54	.....
96	Patagonia Trigo	do	15.62	.....
97	Emporium	do	10.41	.....
98	Minnesota Hard Fife	do	12.50	.....
99	Ontario Wonder	do	12.50	.....
100	French Imperial	do	8.85	.....
101	<i>Mediterranean</i>	<i>Bearded</i>	<i>17.70</i>	.....
102	American Bronze	Smooth	11.50	.....
103	Genessee	Bearded	17.70	2.10
104	Fultz Clawson	Smooth	12.50	.....
105	<i>Mediterranean</i>	<i>Bearded</i>	<i>13.50</i>	.....
106	Stewart	do	13.50	.....

Two Hundred and Thirty Varieties of Wheat, etc.—continued.

Plot number.	Name.	Smooth or bearded.	Yield per acre, in bushels.	Yield in excess of Mediterranean.
107	Lost Nation	Smooth	13.50	.....
108	Johnson	Bearded	13.50	.....
109	Rudy	do	11.50	.....
110	Sibley's New Golden	do	13.50	.....
111	<i>Mediterranean</i>	do	13.50	.....
112	Orate	do	12.50	.....
113	Lancaster	do	14.00	.....
114	Grunewalt	Smooth	18.75	2.44
115	Hybrid No. 9	do	23.50	7.19
116	Texas Zimmerman	Smooth	16.00	.....
117	Seneca Chief	Bearded	16.00	.....
118	Bearded King	do	17.28	.97
119	Russian No. 2	Smooth	16.00	.....
120	Ebbersole	Bearded	19.75	3.44
121	Ramsey	Smooth	19.75	3.44
122	White Fultz	do	14.81	.....
123	No. 176	do	14.81	.....
124	Winter Pearl	do	16.35	.04
125	<i>Mediterranean</i>	Bearded	19.13	.....
126	Wayne County Select	do	14.81	.....
127	Golden Premium	Smooth	15.43	.....
128	Ostery	do	19.13	.....
129	Champion	Bearded	14.81	.....
130	Missouri Blue Stem	do	11.72	.....
131	Hybrid Mediterranean	do	13.58	.....
132	Red Sea	do	14.81	.....
133	Knapp	Smooth	16.66	.....
134	Rural No. 5	do	12.96	.....
135	<i>Mediterranean</i>	Bearded	19.13	.....
136	Rio Grande	Smooth	21.00	1.87
137	Poole	do	14.81	.....
138	Big Frame	do	15.43	.....
139	Siberian	do	16.00	.....
140	Boyer	Bearded	16.00	.....
141	McCreagan	Smooth	20.37	1.24
142	Baltimore	do	17.28	.....
143	Ashburn	do	18.50	.....
144	Michigan Amber Kansas	do	19.75	.62
145	<i>Mediterranean</i>	Bearded	19.13	.....
146	Sheriff	Smooth	14.81	.....
147	Fountain	do	13.58	.....
148	Red Line	do	13.58	.....
149	Arnold's Hybrid	do	17.28	.....
150	Democrat	Bearded	14.81	.....
151	Roscok	Smooth	16.00	.....
152	Ballark's Velvet Chaff	do	16.66	.....
153	No. 72	do	19.75	2.19
154	White Rose	do	14.13	.....
155	<i>Mediterranean</i>	Bearded	16.00	.....
156	Lebanon	do	16.00	.....
157	Deitz	do	14.81	.....
158	Diehl Egyptian	Smooth	14.13	.....
159	Travis	do	7.40	.....
160	No. 19	do	9.25	.....
161	Earnhardt	do	10.50	.....

Two Hundred and Thirty Varieties of Wheat, etc.—continued.

Plot number.	Name.	Smooth or bearded.	Yield per acre, in bushels.	Yield in excess of Mediterranean.
162	Russian May	Smooth	13.58	
163	Fenton	do	12.34	
164	Clawson	do	12.96	
165	<i>Mediterranean</i>	<i>Bearded</i>	<i>19.75</i>	
166	Australian	do	12.96	
167	Currell	Smooth	16.00	
168	Mediterranean Red Chaff	do	17.28	
169	Rocky Mountain	do	12.34	
170	Southern Amber	do	16.00	
171	Winter Green	do	14.81	
172	Sibley's Hybrid	Bearded	16.00	
173	McCracken	Smooth	18.51	
174	Red Sea	Bearded	12.34	
175	<i>Mediterranean</i>	<i>do</i>	<i>17.90</i>	
176	Early May	Smooth	19.75	3.40
177	McPherson	do	18.50	2.15
178	Penquit's Velvet Chaff	Bearded	19.75	3.40
179	Michigan Wick	do	14.81	
180	Lancaster	do	15.43	
181	Trietium	do	12.96	
182	Longberry	Smooth	15.43	
183	Roger's Red	do	12.96	
184	Farquhar	do	17.90	1.55
186	Crawford County	Smooth	11.00	
185	<i>Mediterranean</i>	<i>Bearded</i>	<i>14.81</i>	
187	Lincoln	do	10.50	
188	Ontario	do	11.00	
189	New York Flint	do	13.58	
190	Michigan Amber Indiana	do	13.58	
191	Shumaker's Clawson	do	9.87	
192	Early Rice	do	12.33	
193	Diehl Medium	Bearded	12.33	
194	Panhandle	do	11.00	
195	Everett's High Grade	Smooth	12.96	
196	McGhee's White	do	11.72	
197	Oregon Swamp	do	12.96	
198	Jennings	Bearded	12.33	
199	Golden Prolific	Smooth	11.00	
200	Golden Drop	do	13.58	
201	Gold Dust	do	14.88	2.34
202	Russian	Bearded	15.43	
203	Diesman	Smooth	9.25	
204	Michigan White	do	15.43	
205	<i>Mediterranean</i>	<i>Bearded</i>	<i>14.13</i>	
206	Grecian	Smooth	9.87	
207	Mammoth	Bearded	14.81	2.50
208	Manitoba	Smooth	10.50	
209	Robert's	Bearded	8.64	
210	Coryell	Smooth	14.13	1.82
211	Extra Early Red	do	8.00	
212	Russian Red	Bearded	9.25	
213	Geneva	do	14.13	1.82
214	Early Red Clawson	Smooth	6.29	
215	<i>Mediterranean</i>	<i>Bearded</i>	<i>10.50</i>	
216	Mammoth Red	do	11.00	.50

Two Hundred and Thirty Varieties of Wheat, etc.—continued.

Plot number.	Name.	Smooth or bearded.	Yield per acre, in bushels.	Yield in excess of Mediterranean.
217	Washington	Bearded	11.00	.50
218	Ramsey	Smooth	10.50	
219	Brady Lake	Bearded	10.50	
220	Diesman No. 2	Smooth	9.25	
221	Witter	do	12.33	1.83
222	Raub's Black Prolific	do	16.66	6.16
223	Crate	Bearded	13.58	3.08
224	German Emperor	Smooth	8.00	
225	<i>Mediterranean</i>	<i>Bearded</i>	<i>10.50</i>	
226	American	do	11.72	.22
227	Alabama	do	11.72	.22
228	Wild Goose	Smooth	11.00	
229	Wheaton's Favorite	do	8.85	
230	Missouri Blue Stem	Bearded	13.54	2.04
231	Currell's Prolific	Smooth	14.58	3.08
232	Currell's Prolific	do	14.58	3.08
233	Red Chaff	do	14.58	3.08
234	Witter	do	12.50	1.00
235	Bodine	do	10.41	
236	Beal	Bearded	13.00	
237	<i>Mediterranean</i>	<i>do</i>	<i>12.50</i>	
238	Golden Prolific Improved	Smooth	10.41	
239	White Blue Stem	Bearded	17.70	3.64
240	Rappahannock	Smooth	12.50	
241	Soule's	do	14.58	.52
242	Red Cross	do	12.50	
243	White Rogers	Bearded	10.41	
244	Tennessee Amber	Smooth	13.54	
245	Peugh	do	15.62	1.56
246	Menemonite	do	14.58	.52
247	<i>Mediterranean</i>	<i>Bearded</i>	<i>15.62</i>	
248	Tuscan Island	do	10.41	
249	Smooth Scott	Smooth	11.50	
250	Hindoostan	Bearded	17.70	3.64

At Wichita Falls there were 30 varieties which gave over 18 bushels per acre. They are as follows:

No.	Name.	Bush-els.
1	Strayer's Longberry	24.50
2	Bearded Monarch	20.20
3	Badger	19.19
4	Nebraska	19.19
5	Egyptian	18.18
6	Prolific Heights	20.20
7	Yellow Alabama	20.20
8	Zimmerman	20.20
9	Andrews' No. 4	18.18
10	Buckeye	19.69
11	Reliable	18.18
12	Hungarian	18.18
13	Improved Fife	19.19

No.	Name.	Bush-els.
14	Extra Early Oakley	19.69
15	Wyandotte Red	18.68
16	Grunewalt	18.75
17	Hybrid No. 9.....	23.50
18	Ebbersole	19.75
19	Ramsey	19.75
20	Ostery	19.13
21	Rio Grande	21.00
22	McCreagan	20.37
23	Ashburn	18.50
24	Michigan Amber (Kansas).....	19.75
25	No. 72	19.75
26	McCracken.....	18.51
27	Early May	19.75
28	McPherson	18.50
29	Penquitt's Velvet Chaff.....	19.75
30	Mediterranean	10.50 to 19.75

Varieties yielding more per acre than Mediterranean at Wichita Falls.

Number.	Name.	Excess over check plot (Mediterranean), in bushels.
1	Strayer's Longberry .....	.83
2	Bearded Monarch .....	.53
3	Badger .....	.52
4	Nebraska .....	.52
5	Prolific Heights.....	2.03
6	Yellow Alabama	2.03
7	Zimmerman .....	.78
8	Andrews' No. 4 .....	.76
9	Finley	2.28
10	Velvet Chaff	2.28
11	Bissell	2.28
12	Golden Cross	1.17
13	Red May.....	1.17
14	Fultz	2.70
15	Walker	5.37
16	German Amber	4.36
17	Buckeye	7.39
18	Reliable.....	5.88
19	New Monarch.....	2.34
20	Big English.....	2.34
21	Valley	3.09
22	Colorado Blue Stem.....	1.43
23	Michigan Bronze.....	2.08
24	Nigger	3.60
25	Little Red	1.43
26	Shayer's Egyptian	4.10
27	Purple Straw.....	1.43
28	Hungarian	2.78
29	Improved Fife	3.79
30	Missouri	2.27
31	Crate .....	.76

Varieties Yielding more per acre than Mediterranean, etc.—continued.

Plot number.	Name.	Excess over check plot (Mediterranean) in bushels.
32	Early Extra Oakley	4.29
33	No. 75	2.78
34	Winter Green	1.77
35	Wyandotte Red	3.28
36	Genessee	2.10
37	Grunewalt	2.44
38	Hybrid No. 9	7.19
39	Bearded King .....	.97
40	Ebbersole	3.44
41	Ramsey	3.44
42	Winter Pearl .....	.04
43	Rio Grande	1.87
44	McCregan	1.24
45	Michigan Amber Kansas .....	.62
46	No. 72	2.19
47	Early May	3.40
48	McPherson	2.15
49	Penquitt's Velvet Chaff	3.40
50	Farquhar	1.55
51	Gold Dust .....	.34
52	Mammoth	2.50
53	Missouri Blue Stem	2.04

Test of Fertilizers on Wheat Land at Wichita Falls.

Plot number.	Application, in pounds.	Yield per acre, in bushels.	Increase or decrease from fertilizing.	Total value of crop.	Cost of fertilizer.	Loss or gain.
1	Check Plot	10.00	.....	\$5 00	.....	.....
2	400 Cotton Seed Meal	14.65	+4.65	7 32	\$4 00	-1 68
3	200 Sulphate of Ammonia	11.33	+2.33	5 66	7 00	-5 84
4	Check Plot	9.00	.....	4 50	.....	.....
5	200 Nitrate of Soda	13.50	+4.50	6 75	4 50	-2 25
6	4000 Rotted Manure	15.00	+6.00	7 50	1 00	+2 00
7	4000 Fresh Manure	16.66	+6.66	8 33	1 00	+1 81
8	1000 Kainit.	11.33	+1.33	5 66	7 50	-7 36
9	Check Plot	11.05	.....	5 52	.....	.....
10	400 Cotton Seed Hull Ashes	13.00	+1.95	6 50	2 00	-1 02
11	1000 Wood Ashes	10.60	-0.45	5 30	50	-0 72
12	400 Acid Phosphate	10.00	-0.50	5 00	3 20	-3 45
13	Check Plot	10.50	.....	5 25	.....	.....
14	400 Raw Bone Meal	10.66	+0.10	5 33	5 00	-4 92
15	500 Bone Black	10.50	-0.00	5 25	5 00	-5 00
16	500 Land Plaster	9.83	-0.67	4 91	2 50	-2 84
17	200 Salt	9.16	-1.16	4 58	1 00	-1 42
18	2000 Wheat Straw	8.66	-2.66	4 33	50	-1 17
19	600 Bat Guano	8.66	-2.66	4 33	(*)	.....
20	Check Plot	10.00	.....	5 00	.....	.....

* Donated.

The only material applied with profit in the above list was the fresh and rotted manure applied to plots 7 and 8. It is evident that these valley lands have not been in cultivation sufficiently long to respond profitably to the use of bought manures with wheat at present low prices. The only marked increase in yield was due to the application of nitrogen in some form. See first seven plots in table. We therefore conclude that nitrogen is now lacking in some degree in these cultivated valley soils, and in the course of a few years it will be necessary to supply this growing lack in some form of manure composed largely of nitrogenous elements. At present the supply of potash and phosphoric acid seems abundant. We must also conclude that with a proper use of the manure found upon every farm, the fertility of the soil can be maintained indefinitely, since we see from plots 6 and 7 that manure increased the yield per acre to a greater extent than did any other application.

Test of Fifty-eight Varieties of Corn at McKinney.

On March 30, 1894, fifty-eight varieties of corn were planted at McKinney by Mr. J. H. Ferguson. These were uniformly up to a stand on April 10. They were planted on heavy bottom black land. All varieties were treated alike as to cultivation and preparation of land. The rows were three and one-half feet wide in all cases. The cultivation of all varieties consisted of working with double shovel April 27, with four shovel cultivator May 8, with double sweep May 28. Crop was hoed and thinned to stand May 20. The first preparation of the soil was flushing with a turning plow on January 20. The corn was planted on this land in March without any other working.

Special directions for cultivation furnished by originators were sent to the Superintendents in the case of Mosby's Prolific corn, Mosby's Early Field, and Welborn's Conscience, but these directions were not followed explicitly. It was impossible to secure seed corn of all varieties in time for an early planting at McKinney, in order that we might secure the largest yields per acre from all varieties tested.

The medium and late maturing field varieties were so seriously injured by the unusual hot winds of July 1 that their yields were decreased.

Below is the list of varieties, the yield of each, the time of maturity, and the distance between stalks in the drill:

Varieties of Corn at McKinney.

Plot number.	Name.	Distances between stalks in drill—inches.	Last Edible.	Yield per acre—bushels.
1	Wisconsin White Dent	18	June 15	28.6
2	Giant Broad Grain (white)	18	July 1	30.3
3	Virginia Horse Tooth (white)	18	July 1	33.6
4	Kansas King (white)	18	July 1	31.6
5	Ordinary (check, white)	24	July 10	41.7
6	Blount's Prolific (white)	18	June 25	37.4
7	Hawkin's Improved (white)	18	July 10	27.4
8	St. Charles (white)	18	June 25	41.7
9	Welborn's Conscience (white)	24	July 10	23.9
10	Ordinary (check, white)	24	July 10	36.8
11	Mammoth White Surprise	24	July 10	25.3
12	Forsythe's Favorite	18	June 25	36.8
13	Hickory King	18	July 1	39.3
14	Big Seed	24	July 10	25
15	Ordinary (check)	24	July 10	36.8
16	Clayton Bread	24	July 10	27.5
17	Champion Early White Pearl	18	July 1	29.4
18	White Giant Normandy	24	July 1	33.6
19	Wilson's Prolific	20	June 25	30.7
20	Ordinary (check)	24	July 10	36.8
21	Pride of America	24	June 25	33.9
22	White Pearl	18	June 25	29.4
23	First Premium	18	June 25	37.6
24	Girardeau's Poor Land	24	July 10	21.8
25	Ordinary (check)	24	July 10	36.8
26	Mosby's Prolific	20	July 1	25.9
27	Mosby's Early Field	24	July 1	30.9
28	Cocke's Prolific	20	July 1	39.9
29	Ordinary (check)	24	July 10	36.4
30	Golden Beauty	18	July 1	42.4
31	Piasza Queen	18	July 1	33.7
32	Clark's Mastodon	18	June 25	31.1
33	Early Mastodon	18	June 15	28
34	Ordinary (check)	24	July 10	40
35	Alabama Experiment Station Yellow	24	July 10	38
36	King Philip	18	June 1	12
37	Ordinary (check)	24	July 10	38
38	Chester County Mammoth	24	July 10	24.3
39	Pride of the North	18	June 15	20.4
40	Murdock's Ninety Day	18	June 10	25
41	Golden Dent	18	July 1	29.6
42	Ordinary (check)	24	July 10	36
43	Riley's Favorite	18	July 1	34.4
44	Long Yellow Flint	18	June 15	10
45	Ordinary (check)	24	July 10	34.4
46	Early Eclipse	18	June 20	36.5
47	Leaming	18	June 10	27.6
48	King of Earlies	18	June 1	23.6
49	North Texas Yellow	24	July 10	46.2
50	Ordinary (check)	24	July 10	38
51	Angel of Midnight	18	June 1	10
52	Long White Flint	18	June 1	20
53	Golden Dew Drop	18	June 1	20
54	Ordinary (check)	24	July 10	36
55	Red White Flint	18		17

Varieties of Corn at McKinney.—continued.

Plot number.	Name.	Distances between stalks in drill—inches.	Last edible.	Yield per acre—bushels.
56	Squaw (planted April 9).....	20	.....	32.2
57	Rustler White (planted April 9)	20	.....	15
58	Minnesota White (planted April 9).....	20	.....	32.2
59	Ordinary (check, planted April 9).....	20	.....	30
60	Mercer Yellow (planted April 9).....	20	.....	18
61	Longfellow (planted April 9)	20	.....	19
62	N. B. G. & Co.'s D. Dent (planted April 9).....	20	.....	16
63	Mosby's Early Field (planted April 9)	24	.....	25

Varieties of Sugar Corn.

Plot number.	Name.	Planted.	First edible.
1	First of all	April 2.....	June 5.
2	Egyptian	April 2.....	June 10.
3	Shaker Early	April 2.....	June 1.
4	Perry's Hybrid	April 2.....	June 8.
5	Ballard's Red Cob	April 2.....	June 10.
6	Moore's Early Concord	April 2.....	June 10.
7	Shoe Peg Ever Green	April 2.....	June 15.
8	White Cory	April 2.....	June 15.

List of Forty-two Varieties of Corn at Wichita Falls.

On March 24, 1894, Mr. J. W. Phillips planted forty-two varieties of corn on the black loam land of the Wichita valley. They germinated April 2, and were all cultivated alike. The crop was weeded and suckered and cultivated with a six-hoe plow three times. Cultivation ceased May 22. The land was first prepared by breaking with a two-gang plow drawn by six oxen, and was then double disked with a team of eight horses. The yield per acre of each variety is given in the table following:

Varieties of Field Corn at Wichita Falls.

Plot number.	Variety.	Time of tassel.	Yield per acre— bushels.
1	Extra Early Huron	May 28	22.28
2	Early Mastodon	June 1	19.42
3	First Premium	June 18	16.71
4	Forsyth's Favorite	June 18	17.71
5	Clark's Early Mastodon	June 12	17.71
6	Golden Beauty	June 13	17.42
7	Golden Dent	June 12	12.28
8	Golden Dew Drop	May 28	14.42
9	Hickory King	May 4	19.85
10	Improved Golden Dent	June 8	17.00
11	Kansas King	June 8	14.85
12	King of Earlies	May 28	19.57 ^a
13	King Phillip	May 28	17.28
14	<i>Home Grown (check)</i>	<i>June 16</i>	<i>21.14</i>
15	Long Yellow Flint	May 28	15.71
16	Long White Flint	May 29	24.42
17	<i>Home Grown (check)</i>	<i>June 16</i>	<i>19.42</i>
18	Home Grown	June 16	17.85
19	Murdock Ninety-day	May 28	24.57
20	Home Grown	June 16	17.57
21	<i>Home Grown (check)</i>	<i>June 16</i>	<i>15.42</i>
22	Pride of the North	June 1	26.14
23	Red White Flint	May 28	19.42
24	Squaw	June 18	11.14
25	St. Charles White	June 16	21.57
26	The Leaming	June 2	10.42
27	Thoroughbred White Flint	June 16	19.57
28	<i>Home Grown (check)</i>	<i>June 16</i>	<i>15.37</i>
29	White Pearl	June 16	18.71
30	Wisconsin White Dent	May 30	16.00

Varieties of Sugar Corn at Wichita Falls.

Plot number.	Variety.	Time of tassel.	Yield per acre—bushels.
1	Asylum	May 31	12.42
2	Black Mexican	May 31	25.00
3	Ballard's Red Cob	May 28	19.57
7	<i>Home Grown (check)</i>	<i>June 16</i>	<i>16.00</i>
5	Early Narragansett	June 5	9.42
6	Early Triumph	June 12	17.42
7	Egyptian	June 11	23.14
8	Excelsior	June 3	20.85
9	First of All	May 17	6.00
10	Dakota Dent (field corn)	June 23	9.57
11	Squaw (Field)	June 18	11.00
12	More's Early Concord	June 15	22.71
13	Rustler White (field) .....	.....	8.59
14	Shoe Peg Evergreen	May 28	22.14
15	Stowell's Evergreen	June 1	24.14
16	<i>Home Grown (field)</i>	<i>June 16</i>	<i>22.74</i>
17	<i>Home Grown (field)</i>	<i>June 16</i>	<i>24.74</i>
18	Mercer's Yellow (field)	June 22	9.14
19	Riley's Favorite (field)	June 14	21.85

Description and Yield of Varieties of Corn Grown at McKinney and Wichita Falls.

EARLY VARIETIES.

ANGEL OF MIDNIGHT.—Seed from Perry Seed Store, Syracuse, New York. Cost per gallon, 38 cents. A yellow flint variety. In hard dough June 1. Yield per acre, 10 bushels at McKinney.

CLARK'S MASTODON.—Seed from T. W. Wood & Son, Richmond, Va. Price per gallon, 25 cents. A yellow dent variety. In hard dough June 18. Stalk and ear both small. Grain long and soft. Yield per acre, 31.1 bushels at McKinney; 17.7 bushels at Wichita Falls.

EARLY ECLIPSE.—Seed from Plant Seed Company, St. Louis, Mo. Cost per gallon, 25 cents. A yellow dent variety. In hard dough June 20. Stalk and ear medium size. Grain long and soft. Yield per acre, 36.5 bushels at McKinney.

EARLY MASTODON.—Seed from Storrs, Harrison & Co., Plainessville, Ohio. Price per gallon, 30 cents. A yellow dent variety. In hard dough June 25. Stalk and ear medium size. Grain long and soft. Yield per acre, 28 bushels at McKinney; 19.4 bushels at Wichita Falls.

FIRST PREMIUM.—Seed from J. A. Everitt, Indianapolis, Ind. Price per gallon, 50 cents. A white dent variety. In hard dough June 25. Stalk and ears medium. Grain very white, large and fine. Yield per acre, 37.6 bushels at McKinney; 16.7 bushels at Wichita Falls.

FORSYTH'S FAVORITE.—Seed from J. A. Everitt, Indianapolis, Ind. Price per gallon, 38 cents. A white dent variety. In hard dough June 25. Stalk and ears medium size. Ears very heavy and firm. Grain very white, broad, and long. Yield per acre, 36.8 bushels at McKinney; 17.7 bushels at Wichita Falls.

GOLDEN BEAUTY.—Seed from Storrs, Harrison & Co., Plainesville, Ohio. Price per gallon, 30 cents. A yellow dent variety. In hard dough July 1. Stalk and ear medium size. Grain very broad, deep, and firm. Yield per acre, 42.4 bushels at McKinney; 17.7 bushels at Wichita Falls.

GOLDEN DENT.—Seed from J. M. Thorburn & Co., New York. Price per gallon, 30 cents. A yellow dent variety. In hard dough July 1. Stalk small. Ears very long. Grain short, broad, and flinty. Yield per acre, 42.4 bushels at McKinney; 12.7 bushels at Wichita Falls.

HICKORY KING.—Seed from Texas Seed and Floral Company, Dallas, Texas. Price per bushel, 40 cents. A white dent variety. In hard dough July 1. Stalk and ear medium size. Grain very broad and deep. Yield per acre, 39.3 bushels at McKinney; 19.8 bushels at Wichita Falls.

KANSAS KING.—Seed from Texas Seed and Floral Company, Dallas. Price per gallon, 40 cents. A white dent variety. In hard dough July 1. Stalk and ear medium size. Yield per acre, 31.6 bushels at McKinney; 14.8 bushels at Wichita Falls.

KING OF EARLIES.—Seed from Storrs, Harrison & Co., Plainville, Ohio. Price per gallon, 30 cents. A yellow dent variety. In hard dough June 1. Ears short and very firm, with bright yellow grain. Yield per acre, 23.6 bushels at McKinney; 19.5 bushels at Wichita Falls.

KING PHILIP.—Seed from J. M. Thorburn & Co., New York. Price per gallon, 30 cents. A red flint variety. In hard dough June 1. Stalk very small. Ear very long and small, with short, broad, red flint grain. Yield per acre, 12 bushels at McKinney; 17.3 bushels at Wichita Falls.

LONGFELLOW.—Seed from Northrup, Braslan, Goodwin Company, Minneapolis, Minn. Price per gallon, 17 cents. A yellow flint variety. Stalk very small. Ears very long, with short, broad yellow flint grains. Planted April 9. Yield per acre, 13 bushels at McKinney.

LONG YELLOW FLINT.—Seed from Northrup, Braslan, Goodwin Company. Price per gallon, 17 cents. A yellow flint variety. In hard dough June 15. Stalk small. Ear very long and small, with short, broad yellow grain. Yield per acre, 10 bushels at McKinney; 15.7 bushels at Wichita Falls.

LONG WHITE FLINT.—Seed from J. M. Thorburn & Co. Price per gallon, 30 cents. A white flint variety. In hard dough June 1. Yield per acre, 20 bushels at McKinney; 24.4 bushels at Wichita Falls.

MERCER YELLOW.—Seed from Northrup, Braslan, Goodwin Company. Price per gallon, 16 cents. A yellow variety. Stalk and ear very small. Yield per acre, 18 bushels. Planted April 19.

MINNESOTA WHITE.—Seed from Northrup, Braslan, Goodwin Company. Price per gallon, 19 cents. A white flint variety. Planted April 9. Stalk small. Ear very long, with short, broad, white flint grains. Yield per acre, 32.2 bushels.

MURDOCK'S NINETY DAY.—Seed from Plant Seed Company, St. Louis. Price per gallon, 25 cents. A yellow dent variety. In hard dough June

10. Stalk small. Ear short and firm, with long bright yellow grains. Yield per acre, 25 bushels at McKinney; 24.5 bushels at Wichita Falls.

N., B., G. & Co.'s DAKOTA DENT.—Seed from Northrup, Braslan, Goodwin Company. Price per gallon, 18 cents. A yellow dent variety. Planted April 9. Stalk and ear medium size. Yield per acre, 16 bushels.

PRIDE OF THE NORTH.—Seed from Plant Seed Company, St. Louis. Price per gallon, 25 cents. A yellow dent variety. In hard dough June

15. Stalk medium size. Ear short and firm. Grain long and bright yellow. Yield per acre, 20.4 bushels at McKinney; 26.1 bushels at Wichita Falls.

RILEY'S FAVORITE.—Seed from J. A. Everitt, Indianapolis. Price per gallon, 33 cents. A yellow dent variety. In hard dough July 1. Yield per acre, 34.4 bushels.

SQUAW.—Seed from Northrup, Braslan, Goodwin Company. Price per gallon, 25 cents. A white flint variety. Planted April 9. Stalk small. Ear very small, with short white flint grain. Yield per acre, 32.2 bushels.

ST. CHARLES WHITE.—Seed from Plant Seed Company. Price per gallon, 20 cents. A white dent variety. In hard dough June 25. Stalk and ears medium size. Yield per acre, 41.7 bushels.

LEAMING.—Seed from Plant Seed Company. Price per gallon, 25 cents. A yellow white cap dent. In hard dough June 10. Ear above medium size. Stalk medium. Yield per acre, 27.6 bushels.

WHITE PEARL.—Seed from J. M. Thorburn & Co. Price per gallon, 30 cents. A white dent variety. In hard dough June 25. Stalk and ear medium size. Yield per acre, 20.4 bushels.

WISCONSIN WHITE DENT.—Seed from J. M. Thorburn & Co. Price per gallon, 30 cents. A white dent variety. In hard dough June 15. Stalk and ear medium size. Yield per acre, 28.6 bushels.

PROLIFIC VARIETIES.

COCKE'S PROLIFIC.—Seed from T. W. Wood & Son, Richmond, Va. Price per gallon, 25 cents. A white flint variety. In hard dough July 1. Stalk and ear small; from two to four ears on each stalk. Yield per acre, 39.9 bushels.

BLOUNT'S PROLIFIC.—Seed from T. W. Wood & Son. Price per gallon, 25 cents. A white flint variety. In hard dough June 25. Stalk and ear medium size; from two to four ears on each stalk. Yield per acre, 37.4 bushels.

MOSBY'S PROLIFIC.—Seed from J. K. Mosby, Lockhart, Miss. Price per gallon, 43 cents. A white gourd seed variety. In hard dough July 1. Stalks large. Ears small, one to two ears on each stalk. Yield per acre, 25.9 bushels.

WILSON'S PROLIFIC.—Seed from Perry seed store, Syracuse, N. Y. Price per gallon, 15 cents. A white flint variety. In hard dough June 25. Stalk and ear both small. Grain broad and short. Yield per acre, 30.7 bushels.

FIELD VARIETIES.

ALABAMA EXPERIMENT STATION YELLOW.—Seed from Experiment Station, Auburn, Ala. Donated. A yellow flint variety. In hard dough July 10. Stalks large and vigorous. Ears medium size. Yield per acre, 38 bushels.

BIG SEED.—Seed from I. N. Shannon, Goodlettsville, Tenn. Price per gallon, 50 cents. A white dent variety. In hard dough July 10. Stalk large and vigorous. Ear and grain very large. Yield per acre, 25 bushels.

CHESTER COUNTY MAMMOTH.—Seed from J. M. Thorburn. Price per gallon, 30 cents. A yellow dent variety. In hard dough July 10. Stalk and ear medium size. Yield per acre, 24.3 bushels.

CLAYTON BREAD.—Seed from Experiment Station, Auburn, Ala. Donated. A white flinty variety. In hard dough July 10. Stalk very large and vigorous. Ear above medium size. Yield per acre 27.5 bushels.

GIANT BROAD GRAIN.—Seed from T. W. Wood & Son. Price per gallon, 25 cents. A white flinty variety. In hard dough July 1. Stalk and ear medium size. Grain very large and broad. Yield per acre 30.3 bushels.

GIRARDEAU'S POOR LAND.—Seed from W. M. Girardeau, Monticello, Fla. Price per gallon, \$1. A white dent variety. In hard dough July 10. Stalk large and vigorous. Ears long and medium size. Yield per acre, 21.8 bushels.

HAWKINS' IMPROVED.—Seed from Hiram Hawkins, Hawkinsville, Ala. Donated. A white gourd seed variety. In hard dough July 10. Stalk large and vigorous. Ears short and firm; very long grain. Yield per acre, 27.4 bushels.

MOSBY'S EARLY FIELD.—Seed from J. K. Mosby, Lockhart, Miss. Price per gallon, 63 cents. A white gourd seed variety. In hard dough July 1. Stalk and ear medium size. Yield per acre, 30.9 bushels.

PIASA QUEEN.—Seed from Plant Seed Company. Price per gallon, 25 cents. A yellow dent variety. In hard dough July 1. Stalk and ear medium size. Yield per acre, 33.7 bushels.

NORTH TEXAS YELLOW.—Seed from O. C. Scott, Melissa, Texas. Donated. A yellow dent variety. Ear and stalk medium size. In hard dough July 10. Yield per acre, 46.2 bushels.

PRIDE OF AMERICA.—Seed from T. W. Wood & Son. Price per gallon, 25 cents. A white dent variety. In hard dough June 25. Stalk and ear medium size. Yield per acre, 33.9 bushels.

VIRGINIA HORSE TOOTH.—Seed from J. M. Thorburn & Co. Price per gallon, 30 cents. A white gourd seed variety. In hard dough July 1. Stalk and ear medium size. Yield per acre 33.6 bushels.

WELBORN'S CONSCIENCE.—Seed from Jeff D. Welborn, New Boston, Texas. Donated. A white gourd seed variety. In hard dough July 10. Stalk very large and vigorous. Ears short and very large. Grain extra long and very soft. Yield per acre, 23.9 bushels.

WHITE GIANT NORMANDY.—Seed from Plant Seed Company, St. Louis. Price per gallon, 25 cents. A white dent variety. In hard dough July 1. Stalk and ears above medium size. Yield per acre, 33.6 bushels.

SQUAW.—Seed from Northrup, Braslan, Goodwin Company, Minneapolis, Minn. A white flint variety. Stalk small; ear very small, with short, white flint grain. Yield per acre, 11.1 bushels at Wichita Falls.

St. CHARLES WHITE.—Seed from Plant Seed Company, St. Louis, Mo. A white dent variety. Stalk and ear medium size. Yield per acre, 21.6 bushels at Wichita Falls.

THE LEAMING.—Seed from Plant Seed Company, St. Louis, Mo. A yellow whitecap dent variety. Stalk medium size; ear above medium. Yield per acre, 10.4 bushels at Wichita Falls.

THOROUGHbred WHITE FLINT.—Seed from J. M. Thorburn, New York. A white flint variety. Stalk medium size; ear small and long, with broad, short flint grain. Yield per acre, 19.6 bushels at Wichita Falls.

WHITE PEARL.—Seed from J. M. Thorburn, New York. A white dent variety. Stalk and ear medium size. Yield per acre, 18.7 bushels at Wichita Falls.

WISCONSIN WHITE DENT.—Seed from J. M. Thorburn, New York. A white dent variety. Stalk and ear medium size. Yield per acre, 16 bushels at Wichita Falls.

IMPROVED GOLDEN DENT.—Seed from T. W. Wood & Son, Richmond, Va. A yellow dent variety. Stalks and ear medium size. Yield per acre, 17 bushels at Wichita Falls.

EXTRA EARLY HURON.—Seed from Storrs, Harrison & Co., Plainville, Ohio. A yellow dent variety. Stalk small; ears short and bright yellow. Grain long and firm. Yield per acre, 22.3 bushels at Wichita Falls.

Time of maturity mentioned above is given for McKinney. Where place is not mentioned in connection with yield, McKinney is understood.

Test of Fertilizers on Corn Land at McKinney.

While it is a recognized fact that the black lands of North Texas consist of some of the richest soils in the world, yet it is acknowledged by some of the best informed farmers of that section that the fertility of these soils is not so great as when they were first opened to cultivation. It was, therefore, thought well to test the matter of artificial manuring, to see whether or not stable manure or commercial fertilizers could be added to these lands with profit. Below will be found the difference in yields due to the various applications to corn grown upon typical black lands in Collin county. An ordinary white flint corn was used in these experiments, planted March 15 and germinated March 22. In all of the plots the fertilizers used were applied on April 20, about one month from germination. Manures and fertilizers used cover a great number of substances and include very nearly all that can be purchased in Southern or Western markets.

In the preparation of the land and in the cultivation of the crop all plots were treated alike. Plowed with double shovel April 25, with two-horse four shovel cultivator May 17. Hoed and cut to a stand May 26, leaving twenty-four inches between stalks. Plowed with a single sweep June 18, and hoed the second time June 19.

Below is found the yield in bushels, cost of the fertilizers applied per acre, the total value of the yield, and the profit or loss in its use:

Plot number.	Application in pounds.	Yield per acre—bushels.	Increase or decrease from fertilizing—bush.	Total value.	Cost of fertilizer.	Loss.
1	200 Sulphate of Ammonia.....	37.9	-1.0	\$15 16	\$7 00	\$ 7 40
2	400 Bat Guano.....	40.7	+1.8	16 28	(*)	.....
3	200 Ashes of Guano.....					
4	1000 Kainit.....	35.8	-3.1	14 32	7 50	8 74
5	400 Acid Phosphate.....	36.2	-2.7	14 48	3 20	4 28
6	Check Plot.....	38.9	.....	15 56	.....	.....
7	4000 Rotted Manure.....	40.0	+1.1	16 00	1 00	56
8	4000 Fresh Manure.....	41.0	+2.1	16 40	1 00	16
9	1000 Wood Ashes.....	34.4	-4.5	13 76	50	2 30
10	1000 Kainit.....	38.3	-0.6	15 32	7 50	7 74
11	Check Plot.....	38.9	.....	15 56	.....	.....
12	400 Cotton Seed Meal.....	41.3	+2.4	16 52	4 00	3 04
13	200 Nitrate of Soda.....	38.6	-0.3	15 44	5 00	5 12
14	400 Cotton Seed Hull Ashes.....	36.8	+2.1	15 92	1 00	1 84
15	400 Bone Black.....	31.8	-7.1	12 72	4 00	6 84
16	Check Plot.....	38.9	.....	15 56	.....	.....
17	400 Cotton Seed Meal.....	30.4	-8.5	12 16	4 00	7 40
18	100 Kainit.....	33.3	-5.6	13 32	75	2 99
19	400 Bone Meal.....	35.2	-3.7	14 08	5 00	6 48
20	400 Acid Phosphate.....	45.3	+6.4	18 12	3 20	64
21	500 Land Plaster.....	34.0	-4.9	13 60	2 50	4 46

* Donated.

Yields from the check plots, to which no manure was applied, given above, indicate that the land was very even in character and fertility. The greatest increase in yield is noticed on the plot to which acid phosphate was applied. This is followed next by cotton seed meal and fresh manure. Rating the corn at 40 cents per bushel, it is evident that none of the manures applied paid for themselves in their increased yield.

Test of Methods of Preparing Land for Corn (Conducted at McKinney).

For this test an ordinary yellow field corn was used. All of the plots were treated exactly in the same manner, except that they differed in the mode of preparation of the land before the seed were received. Seed were planted March 16 on a typical piece of black land. Germinated March 23, and received the following cultivation throughout: It was plowed April 28 with two-wheel shovel cultivator, and again on May 9; with double sweep May 21. Corn was cut to 24-inch stand in the drill on May 24. Plowed again with double sweep June 19, and received a second hoeing June 20. The corn from all the different plots matured at the same time, July 1, but the yields varied considerably with the different methods of preparation. All of the land was plowed alike to the

depth of four inches in January. Except when otherwise stated, $3\frac{1}{2}$ foot rows were used. The corn in all cases was thinned to twenty inches in the drill. Method of treatment and the yield per acre is given below. From the fifth acre plots used every fifth plot planted was treated in the ordinary way, without special preparation, to be used as a check plot and to test the varying fertility of the soil.

	Yield per acre.
Plot No. 1, Subsoiled 9 inches deep and bedded	37.8 bushels
Plot No. 2, Bedded on one subsoil furrow	34.1 bushels
Plot No. 3, ((Check) Ordinary preparation	34.8 bushels
Plot No. 4, One subsoil furrow in water furrow	28.4 bushels
Plot No. 5, Four foot beds (instead of $3\frac{1}{2}$)	33.3 bushels
Plot No. 6, Broken in January and then bedded in 8 foot rows, two drills on each	34 bushels

From the year's experiments reported above, we must conclude that subsoiling gave an increase of some three bushels per acre over land not treated in this manner, but did not repay cost of work.

From subsoiling water furrow there was no increase. This is probably due to the fact that this particular work was not done until late spring. Under ordinary conditions subsoiling usually gives best results when the work is done in time to catch winter rains and freezes.

There was no gain in changing the size nor the form of the beds used.

Test of Fertilizers on Cotton at McKinney Sub-Station.

The land planted in cotton to which fertilizers were applied was black waxy upland, which had been in cultivation for many years. A variety of materials was used, hoping to increase the yield with profit, and the reader is referred to the table published below for the accurate results of the experiment. Boll worms caused some of the bolls to fall during the summer season, but the attack was general and seemed to be fairly distributed throughout all of the plots.

The land was flushed in December and thrown into $3\frac{1}{2}$ -foot rows. Cotton planted April 18, 1894; germinated April 23. Its cultivation consisted of plowing with a double sweep May 7, cut to a 7-inch stand May 14; plowed with a 2-horse 4-shovel cultivator May 30, and hoed again June 15. A common variety was selected for planting. Fertilizers were all applied on the side of the drill May 7.

The table given below shows the various manures applied, their cost per acre, and increased yield per acre (if any), the value of this yield, and the net profit or loss for each application:

Plot number.	Application in pounds.	Yield per acre, lbs. seed cotton.	Increase or decrease from fertilizing—bush.	Total value of crop.	Cost of fertilizers.	Loss or gain.
1	1000 Wood Ashes	640	- 90	\$12 80	\$0 50	-2 30
2	4000 Rotted Manure	760	+ 30	15 20	1 00	- 40
3	4000 Fresh Manure	800	+ 70	16 00	1 00	+ 40
4	400 Cotton Seed Meal	530	-200	10 60	4 00	-8 00
5	Check Plot (nothing)	730	.....	14 60	.....	.....
6	400 Bat Guano	860	+130	17 20	(*)	.....
	200 Ashes of Guano					
7	400 Raw Bone Meal	920	+190	18 40	5 00	-1 20
8	200 Sulphate Ammonia	770	+ 40	15 40	7 00	-6 20
9	200 Nitrate Soda	860	+130	17 20	5 00	-2 40
10	1000 Kainit.	760	+ 30	15 20	7 50	-6 90
11	400 Acid Phosphate.....	740	+ 60	14 80	3 20	-2 00
12	400 Cotton Seed Hull Ashes	820	+140	16 40	1 00	+1 80
13	400 Cotton Seed Meal	730	+ 50	14 60	4 00	-3 00
14	Check Plot (nothing)	680	.....	13 60	.....	.....
15	500 Bone Black	970	+290	19 40	5 00	+ 80
16	200 Nitrate Soda	950	+220	19 00	5 00	+ 40
17	100 Kainit	840	+110	16 80	7 50	-4 30
18	400 Acid Phosphate.....	910	+230	18 20	3 20	+1 40
19	500 Land Plaster.....	710	+ 30	14 20	2 50	-1 90
20	100 Kainit	640	- 40	12 80	75	-1 55
21	200 Salt	680	.....	13.60	1 00	-1 00

* Donated.

The figures for the column headed "Total Value" are obtained by rating the seed cotton at 2 cents per pound.

By a careful study of the above table, we see that some form of phosphate increases the yield of cotton very satisfactorily. Bone black gave 290 pounds seed cotton increase, and acid phosphate 230 pounds. Raw bone meal, 190 pounds seed cotton. Some form of nitrogen comes next in importance, as is shown by results of plots Nos. 3, 6, 9, and 16, in all of which the yield is increased from 30 to 260 pounds of seed cotton per acre. As in single application profits were shown in the case of common manure, nitrate soda, bone black, acid phosphate, and cotton seed hull ashes.

Using the past year's results as a basis of calculation, it is highly probable that a judicious combination of phosphoric acid and nitrogen will give a satisfactory profit on their use in growing cotton on the black lands.

Test of Methods of Preparing Land for Cotton (Conducted at McKinney).

The variety of cotton used in this test was the ordinary short staple, commonly grown throughout the black lands, having a rather large boll, making large weed. It was planted April 18, and the seed germinated on the 23d. On May 7 it was plowed with a double sweep, and cut to a 12-inch stand May 14. It was plowed with a four-shovel wheel culti-

vator May 30, and hoed the second time June 14. It was plowed again with double sweep June 23, and again for a last cultivation with four-shovel cultivator July 10.

All of the land used in this experiment was of an even nature, laying on the side of a hill, the soil being two to four feet deep above the rock. Every fifth plot was cultivated in the ordinary manner, so that the results from different methods of treatment might be measured by these check plots. The yields from these check plots indicate that the soil used was of a very even fertility. It must be borne in mind that a tillage test will vary somewhat in results from year to year, depending upon the seasons, on rainfall, wind, etc. Should it be a dry year, it is likely that the deeper the preparation of the land the better will be the results; whereas if it be a very wet year, upon many soils, there would be no advantage derived from deep breaking or subsoiling the land. To throw more light upon the value of these experiments for the season of 1894, we think it necessary to publish with this report a record of the rainfall at the McKinney station farm, and refer the reader to page 561 of this report.

The following different styles of treatment were followed in these experiments. Each plot consisted of one-fifth acre.

	Yield per acre.
*Plot No. 1, Subsoiled 9 inches deep.....	1385 pounds seed cotton
Plot No. 2, Land flushed, planted flat.....	1290 pounds seed cotton
Plot No. 3, (Check) Ordinary 3½ foot rows.....	1150 pounds seed cotton
Plot No. 4, Seed planted in water furrow.....	1210 pounds seed cotton
Plot No. 5, Two drills on one 8-foot bed.....	915 pounds seed cotton
†Plot No. 6, Subsoiled to a depth of 9 inches.....	1410 pounds seed cotton
†Plot No. 7, Subsoil furrow under drill before bedding.....	1200 pounds seed cotton
Plot No. 8, Ordinary 3½ foot rows.....	1285 pounds seed cotton
†Plot No. 9, Subsoil furrow run under water furrow....	820 pounds seed cotton
Plot No. 10, Four foot beds (instead of 3½).....	1000 pounds seed cotton

From the results above reported, we must conclude that subsoiling in cotton increases the yield in such seasons as that just passed from 125 to 190 pounds seed cotton per acre.

There was no gain in changing the form or the size of the beds. Subsoiling under the drill and subsoiling the water furrow seemed to decrease the yield per acre.

If we calculate the values of the increased yield on plot No. 1, due to subsoiling (235 pounds seed cotton at 2 cents per pound), we see that the value of this increased yield is \$4.70. The cost of the subsoiling is just twice that of ordinary breaking, since four mules and two men were required to do the work properly. The subsoil plow used was bought of Mansur & Tebbitts, St. Louis, Mo. If we estimate this cost at \$2.50 per acre, the increased yield pays for the work the first season, and gives a profit of \$2.20. The good effect on the land will be increased for several years, and will remain in some degree for five or seven seasons. The increased yield from plot 6, which was also subsoiled, amounts to 125 pounds seed cotton per acre. Calculated at above rates, it pays for the subsoiling the first season.

*Subsoiled in January when land was flushed.

†Subsoil furrow run March 3, at which time land was thrown into beds with turning plow. This was too late for best results.

Test of Varieties of Cotton at McKinney.

On April 26, 1894, thirty-five varieties of cotton were planted at the McKinney Station, under the same conditions, and great care was taken in their cultivation. All conditions promised a most excellent trial of these varieties of cotton, including the cluster varieties, long limbs, and long and short staples, but all of them were so much damaged by the boll-worm during the summer season that a publication of the yields of these varieties would prove misleading. Some of the plots suffered so much that no cotton was picked from them, while others gave as much as 1000 pounds of seed cotton per acre. It is a matter of great interest to note that the longer the staple of the cotton under trial the greater was the chance for the escape of that variety from the attacks of the boll-worm. So that *all* of the long staples gave better yields than did the short ones under these peculiar conditions. We will give the record of a few of these varieties, in order to illustrate this point. The following varieties were planted in the order named on one-tenth acre plots laying side by side, and gave the yields to which each is credited:

- Cochran's Prolific (short staple), 100 pounds.
- Herlong (short staple), 390 pounds.
- Allen's Long Staple, 560 pounds.
- Coltharp's Pride (long staple), 550 pounds.
- Sea Island (long staple), 630 pounds.
- Jones' Wonderful (long staple), 690 pounds.
- Bohemian (short staple), 500 pounds.
- Dalkeith's Eureka (long staple), 700 pounds.
- Southern Hope (long staple), 1000 pounds.
- Matthews' Long Staple, 540 pounds.
- Coltharp's Eureka (long staple), 580 pounds.
- Bohemian (short staple), entirely destroyed by worms.
- Rocket's Favorite (short staple), entirely destroyed by worms.

A second planting of the 35 varieties was again made on May 3, and germinated May 7. We expected to give each of them the advantages of the slightly different season by this late planting, but all this crop suffered so severely from the worm, including both the long and short staple varieties, that the experiment was also ruined. On the grounds of the Station at College Station there was scarcely any damage done cotton by the boll-worm, and a very fair experiment was conducted on that soil, to which the reader is referred. See page 571.

Classification of Varieties of Cotton Grown at McKinney.

ALLEN LONG STAPLE.—Fiber strong, color good, very white, staple good, extra; strict good ordinary.

COLTHARP'S PRIDE.—Fiber strong, color good, staple very good; low middling.

JONES' WONDERFUL.—Fiber strong, color good, staple extra; low middling.

SEA ISLAND.—Fiber strong, color fair, staple long extra; strict good ordinary.

SOUTHERN HOPE.—Fiber strong, color good, staple very good, shy extra; low middling.

BOHEMIAN.—Fiber strong, color good, staple very good; strict low middling.

PEELER.—Fiber strong, color good, staple good; strict good ordinary.

TENNESSEE GOLD DUST (Tennessee seed).—Fiber strong, color good, staple good; low middling.

TENNESSEE GOLD DUST (Texas seed).—Fiber fairly strong, color good, staple good; strict low middling.

Grass and Forage Plant Experiment at McKinney and Wichita Falls—Season of 1894.

At McKinney these tests were made on a typical black waxy soil, upon a rather low piece of ground, which has been under cultivation in wheat and corn for the past thirty years. Its present fertility can be judged of by the yield of corn and wheat grown upon it recently. The yield of corn ranges from 45 to 55 bushels per acre; wheat from 20 to 30 bushels per acre.

Land was prepared by breaking four inches deep, and harrowed in September. Seed were planted on all the plats February 28, 1894, except when other date is especially mentioned. Much of the seed used in the experiments was bought of the Plant Seed Company, St. Louis, Mo.

On November 18, 1893, a large number of forage plants, consisting of grasses, clover, etc., were planted on the black loam soils of Wichita Valley. Owing to the dry condition of the land, many of these did not germinate until the middle of December, and by far the greater part of these were killed by the severe freezes occurring on January 23 and February 11 to 14. The plants that were winter killed consisted of Alsike Clover (*Trifolium hybridum*), White Clover (*Trifolium repens*), Common Red Clover (*Trifolium pratense*), Sweet Clover or Bokahra (*Melilotus alba*), Crimson Clover (*Trifolium incarnatum*), Yellow Trefoil (*Trifolium cuspidatum*), Bur Clover (*Medicago maculata*), Tall Meadow Oat Grass (*Avena elatior*), English Rye Grass (*Lolium perenne, tenue*), Sheep Fescue (*Festuca ovina*), Water Meadow Grass (*Poa aquatica*), Vetch (*Vicia sativa*), Timothy (*Phleum pratense*), Orchard Grass (*Dactylis glomerata*), Red Top (*Agrostis vulgaris*), Rape (*Brassica campestris*).

Besides these varieties there were some others planted in the fall that did not germinate at all. In the spring of 1894 a second planting of grasses and forage plants was made. The greater number of these proved too tender for the unusually dry spring, followed by hot winds in July.

ALSIKE CLOVER (*Trifolium hybridum*)—Perennial.

Seed planted at McKinney required six days for germination; grew to a height of 8 to 10 inches before the dry weather of summer, and died back. It is likely that this clover will show a more satisfactory growth from last year's seeding during the spring of 1895, as the plants were

still alive and doing well the latter part of the fall of 1894. Promises well for black lands of the State. Seed of this clover was also planted October 27, 1893, and germinated promptly, but all the plants were winter killed by the severe freeze of January 23, 1894. Seed were also planted at Wichita Falls March 9 which germinated April 1. It grew to a height of 3 to 4 inches only before it died down under the hot winds of July. If it survives the winter of 1894-95 it promises a fair yield under average conditions throughout the extreme northern portion of the State.

Seed sown at the rate of 15 pounds per acre on land thoroughly prepared and covered the same depth as for turnip seed. Seed costs \$5 to \$7 per 60 pounds.

CRIMSON CLOVER (*Trifolium incarnatum*)—Annual.

Seed at McKinney required six days for germination; the plants grew to a height of from 4 to 6 inches during early spring. Seed of this clover was also planted in the fall of 1893 under favorable conditions. It grew feebly until killed by January cold. Crimson Clover planted March 9 at Wichita Falls germinated March 25. It grew to a height of only 4 or 5 inches during the early spring and summer, which is the season of growth for this plant, and since it is an annual, we can expect nothing more from the first planting, and must, therefore, look upon it as a failure for all seasons such as that of 1894.

Seed sown at the rate of 15 pounds per acre. Cost of seed 5 cents per pound.

WHITE CLOVER (*Trifolium repens*)—Perennial.

At McKinney seed required fifteen days for germination; made a dense growth as high as 5 or 6 inches, sufficient to afford good pasturage if mixed with a grass. Grew only 3 or 4 inches high at Wichita Falls and was not a success.

When used freely it is known to cause severe salivation to all work stock for a short while. It is used only for pasturage. Seed sown at the rate of 3 pounds per acre. Cost of seed, \$9 to \$12 per 60 pounds.

COMMON RED CLOVER (*Trifolium pratense*)—Biennial.

At McKinney seed required six days to germinate. Grew to a height of 8 to 10 inches in early summer, and died back in the latter part of the summer. Many of the plants revived with the fall rain, and a fair growth is promised from this planting for the spring and summer of 1895. Seed was also planted in the fall of 1893 and the crop grew well until destroyed by the January cold.

Planted at Wichita Falls March 9, germinated March 25. This grew to a height of 6 or 8 inches. The hot winds of July killed it back, but like the Alsike Clover, it may prove a success during the coming spring and summer season.

Seed sown at the rate of 12 pounds per acre as for turnips. Cost of seed, \$5 to \$7 per 60 pounds.

It is highly esteemed for hay wherever it will thrive, and enriches the land for succeeding crops.

MELILOTUS, OR SWEET CLOVER (*Melilotus alba*)—Biennial.

Seed required six days to germinate at McKinney. Grew to a height of 4 feet by August 1, bloomed July 27, and entered the fall in a very thrifty condition. In October the tap roots were 18 to 24 inches in length, $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter across the crown. Best growth of this plant is expected in the spring and summer of 1895, the second year from planting. Seed sown the fall of 1893 germinated and grew off well, but the stand was destroyed by January freeze. Spring planting then followed and succeeded well. At Wichita Falls these seed were planted March 9, and were up to a stand April 2. On June 30 the plants were 15 to 18 inches high and gave a good cutting of hay from the plot. It did not show any growth after the hot winds of July, but since the summer is a period of rest for this clover (and many others) this was to be expected. We hope that its early spring and summer growth will be highly satisfactory. It seems to be well adapted to our northwest for supplying early hay and grazing.

Seed sown at the rate of 25 pounds per acre, bought of S. D. Lee, Brooksville, Miss. Seed cost \$2.50 to \$3.50 per 50 pounds. Seed planted in land ordinarily prepared and covered lightly. The crop re-seeds itself every two years. This plant is grown extensively on the black prairie and lime lands of Alabama and Mississippi, and is used for both hay and grazing. The hay is rather coarse, but stock eat it and like it when accustomed to it. It is prized as a renovating crop for enriching worn lands in some parts of the South. In buying seed there is much danger of getting the pest, Johnson grass, mixed with *Melilotus* seed.

BURR CLOVER (*Medicago maculata*)—Annual.

At McKinney seed required six days to germinate. Grew feebly to a height of 4 inches during the spring months, and died May 15 without blooming, and showed no signs of life in October. Seed from J. Beatty, Starkville, Mississippi. Sown at the rate of 10 pounds per acre. Cost of seed \$3 per 20 pounds in the burr. This plant is recommended for sandy loam soils.

Fall sown seed germinated, and plants were thrifty until killed by cold weather in January.

ALFALFA, OR LUCERNE (*Medicago sativa*)—Perennial.

At McKinney seed required six days for germination. Reached a height of from 18 to 20 inches by August 1. Plants entered the fall in a thrifty, growing condition, with strong tap roots and a full stand. The growth for the second and succeeding seasons will likely be more vigorous than for the first, unless attacked by root rot (*ozonium*), the same as that affecting cotton and some other crops.

At Wichita Falls seed were planted April 5 and germinated April 26. First bloom appeared June 10, when the plant was 10 or 12 inches high. It was mowed, and the crop showed green during the entire summer, and entered the fall in a thrifty condition. The last blooms appeared in Sep-

tember. This is one of the most promising of the forage plants tested during the past season.

Seed sown at the rate of 25 pounds per acre broadcast on well prepared land. Cost of seed \$6 to \$8 per 60 pounds. Ranks high as a hay, and is grown successfully on the deep rich soils of the South when protected from weeds the first season. It is used for hay only. Meadows will not bear grazing.

TURKESTAN ALFALFA (*Medicago sativa turkestanica*)—Perennial.

Seed planted at McKinney May 28 germinated June 10. It grew well during the summer and withstood the drouths with marked success. Though planted late, it made a growth of 20 inches before dying back. It entered the winter in a vigorous condition, and we expect a better growth from it in the spring of 1895. Seed obtained from the Department of Agriculture at Washington. Planted the same as common alfalfa. We know nothing of this plant more than is stated above.

WATER MEADOW GRASS (*Glyceria aquatica*)—Perennial.

Planted at McKinney October 27, 1893, germinated December 1. A fair stand was secured, and the grass grew to a height of from 8 to 10 inches during the early spring and summer, forming a good sod. The plants died back by the first of August, but in October they had revived and entered the winter in good condition. This is one of the few grasses that stood the freeze of January, 1894, without injury. A promising grass for North Texas. Seed planted at the rate of 15 pounds per acre, on thoroughly prepared land, and covered very lightly. Cost of seed \$1 per 20 pounds.

TALL MEADOW OAT GRASS (*Avena elatior*)—Perennial.

At McKinney seed required thirty-one days to germinate. It made a scant growth during the spring, but died during the summer and did not make its appearance again during the fall. Fall planting germinated and grew until killed by January freeze.

ENGLISH PERENNIAL RYE GRASS (*Lolium perene*)—Perennial.

Planted at McKinney October 27, 1893, and germinated December 5. It was not killed by the January freeze, and was all along considered the best of the grasses under trial. It grew well through the entire summer, and showed an abundance of green leaves in October. The most promising of the grasses (not clovers) tested at the black land station. Seed sown in the spring of 1894 gave almost as good results as did fall planting. The Rye Grass at Wichita Falls was planted March 9, germinated March 27, and grew 4 to 5 inches high in early summer. It showed no growth during midsummer, but is one of the most promising of the true cultivated grasses.

Seed sown at the rate of 40 pounds per acre, on well prepared land and covered well. Cost of seed, \$6 for 40 pounds.

SWEET VERNAL (*Anthoxanthum odoratum*).

Seed germinated thirty-one days after planting at McKinney; grew feebly during the spring, but died early in summer and did not reappear in fall. Seed sown in the fall of 1893 germinated and grew until killed by the January freeze.

ORCHARD GRASS (*Dactylis glomerata*).

At McKinney Seed were planted October 27, 1893, germinated December 10, and stood the freeze of January, 1894. This grass made medium growth in spring and early summer, and did not lose all of its green during midsummer. The stand was good in October and it entered the winter under favorable conditions. Promises well for the season of 1895. Seed were planted March 9 at Wichita Falls, and grew in all respects similar to Rye Grass.

Seed sown at the rate of 20 pounds per acre on land well prepared. Cost of seed, \$4 per 20 pounds.

SHEEP FESCUE (*Festuca ovina*)—Annual.

Seed at McKinney required thirty-one days to germinate. It grew feebly till early summer, and died out completely. Seed sown the fall of 1893 grew until winter killed in January, 1894.

TEXAS BLUE GRASS (*Poa arachnifera*)—Perennial.

Sets were planted at McKinney in November, 1893. These were obtained of George H. Hogan, Ennis, Texas. Blooms appeared May 4 and a satisfactory growth was reported until June 15, when the plants died back. The fall growth was quite strong and satisfactory, the blades of grass at this time measuring from 10 to 12 inches in length. Promises well for the season of 1895.

The plants were set 12 inches apart in well prepared land. This grass can also be propagated from seed if great care is taken in preparation of land and in lightly covering the "cottony" seed. Sow 4 pounds of seed per acre. Cost of seed, \$3 per pound.

DWARF ESSEX RAPE.

Seed required six days to germinate at McKinney. The growth was very satisfactory, resembling that of a good crop of turnip tops 8 to 12 inches in height. The fall growth from the spring planting was very satisfactory. Fall planting was killed in January.

Seed sown at the rate of 10 pounds per acre. Cost, \$2 per 10 pounds. This plant is used in the North for soiling and grazing to sheep and other stock. It also makes a very pleasant salad for table use.

YELLOW TREFOIL (*Medicago lupulina*)—Perennial.

Planted March 9 at Wichita Falls, and grew to a height of only 3 or 4 inches before it was killed back by hot winds.

MILO MAIZE (*Sorghum vulgare*)—Annual.

Planted May 14 at McKinney. The yield of fodder and seed was large, but weight per acre not given. Height of stalk, 5½ feet.

TEOSINTE (*Euchloena luxurians*)—Annual.

Planted April 7 at McKinney; germinated April 20. Fodder grew to a height of 8 feet, forming an average of 6 canes from each seed planted. This number would be increased had the crop been cut down in early stage of its growth. Plants did not mature seed.

At Wichita Falls seed were planted April 19; germinated April 27. It grew to a height of 3½ to 4 feet during the summer, and tillered out strongly. The plant does not mature seed in this State.

HEMP—Kentucky.

Planted at McKinney April 12; germinated May 1. Average growth of 5 feet. No yield recorded.

At Wichita Falls the seed were planted April 19, and germinated April 28. It grew to an average height of 8 feet, matured its seed September 20, gave a yield of 374 pounds of seed per acre, and 2594 pounds of whole stem (the hemp was not broken to remove the fiber).

HAIRY VETCH (*Vicia villosa*)—Annual.

Planted at Wichita Falls April 19; germinated April 29. It grew to a height of 4 or 5 inches, but was entirely killed by hot winds. It was planted too late in the spring to afford the best chance of success.

MEADOW OAT GRASS—Annual.

Seed were planted at Wichita Falls March 9, and grew in all respects similar to rye grass. (See above.)

TIMOTHY (*Phlerom pratense*)—Perennial.

Planted March 9 at Wichita Falls, and grew in all respects similar to rye grass. (See above.)

NOTES ON SOME M'KINNEY GRASSES.

Crested Dog's Tail and Red Top, planted in the fall of 1893, failed to germinate, while the other seed did well.

The following named varieties were planted in the fall and were winter killed by the severe freeze of January 23, 1894, and were replanted February 28, 1894, and for some unknown cause failed to come up: Crested Dog's Tail (*Cynosurus cristatus*); Red Top (*Agrostis vulgaris*); Meadow Fescue (*Festuca elatior*); Rescue Grass (*Bromus unioloidies*); Timothy (*Phleum pratense*); Bermuda (*Cynodon dactylon*); Hard Fescue (*Festuca duriuscula*); Meadow Fox Tail (*Alopecurus pratensis*); Kentucky Blue Grass (*Poa pratensis*); Winter Vetch (*Vicia sativa*).

FIELD EXPERIMENTS CONDUCTED AT COLLEGE STATION.

Experiments in Varieties of Corn at College Station.

For this test new land known as prairie post oak loam was selected. The sod was turned early in January with a Scotch Gang Plow bought of Parlin & Orendoff Co., Dallas, Texas, using one man and six mules. The breaking was thorough and very satisfactory. The harrow was used freely before planting in the preparation and after planting in the cultivation. Plots were accurately measured one-tenth of an acre each, four rows to plot, which were run off four feet wide with two-horse sweep and one furrow completed the bed. The corn was planted on the bed with an Eclipse planter March 23. The weather was wet and cold immediately and for several days after planting—conditions unfavorable to the germination of seed. The land being new, the bud worms were numerous and destructive. The cultivation was largely done with a smoothing harrow and side harrow. A sweep cultivator was run through the corn only once, which completed the cultivation. Seasons were favorable until July 1. The hot winds which occurred at about this date throughout the entire West were very destructive to all vegetation, and particularly was this true of the corn crop. All varieties maturing later than July 1 were more or less injured, according to maturity. Results of this test in corn on Texas Experiment Station for 1894 are given to the people of the State with the above explanation. In the arrangement of this experiment every fifth plot was planted in the same variety of corn, locally known here as Kansas corn, and bought of a seed store in the Bryan market.

The varieties were divided into four groups, and planted in adjacent plots in the following manner: Common Field corn, Prolific corn, early Field corn, and Sugar corn.

Results of this test will be found in the tables given below:

Experiments in Corn — Varieties.

Name.	Yield per acre —in bush.	Number ears per bushel of 70 lbs.	Number lbs. shelled corn from 70 lbs. ear corn.	Weight of cobs in 70 lbs. ears.	Per cent of cobs.
<i>Kansas</i>	12.6	168	54.8	13.2	18.8
Alabama Experiment Station Yellow	12.7	160	53.6	14.0	20.0
Big Seed	9.8	156	56.8	10.8	15.4
Chester County Mammoth	10.5	132	55.6	12.4	17.7
Clayton Bread	12.2	140	53.2	14.4	16.3
<i>Kansas</i>	13.8	160	54.8	13.2	18.2
Everitt's Mortgage Lifter	14.5	172	55.6	12.4	17.7
Giant Broad Grain	12.1	148	53.2	14.4	18.7
Girardeau's Poor Land	11.1	184	55.6	12.0	17.1
Hawkins' Improved	11.5	148	56.0	12.0	17.1
<i>Kansas</i>	12.8	140	54.0	14.0	20.0
Mammoth White Surprise	18.8	144	54.0	13.6	19.3
Moore's White	14.7	144	53.6	14.0	20.0
Moore's Yellow	17.0	.....	.....	.....	.....
Mosby's Early Field	11.2	160	54.0	14.0	20.0
<i>Kansas</i>	14.7	144	54.0	13.6	19.3
North Texas Yellow	12.6	148	55.6	12.4	17.7
Piasa Queen	12.1	136	54.4	13.2	18.8
Pride of America	13.8	156	56.4	11.6	16.6
Virginia Horse Tooth	12.6	184	58.4	9.2	13.1
<i>Kansas</i>	12.8	140	53.2	14.8	20.2
Virginia White Gourd Seed	7.5	136	60.8	11.2	16.0
Welborn's Conscience	6.7	160	56.0	12.0	17.1
White Giant Normandy	8.6	140	51.6	16.4	22.9
White Red Cob	12.0	156	53.6	14.0	20.0
<i>Kansas</i>	11.2	172	54.0	13.6	19.3
Cocke's Prolific	12.1	208	54.4	13.2	18.8
Blount's Prolific	12.5	228	54.8	12.8	18.3
Mosby's Prolific	5.2	232	54.8	12.8	18.3
Wilson's Prolific	8.2	184	53.6	14.0	20.3
<i>Kansas</i>	10.1	156	53.2	14.0	20.0
Angel of Midnight	5.1	368	52.8	15.2	21.7
Champion Early White Pearl	5.8	.....	.....	.....	.....
Clarke's Mastodon	6.1	160	53.6	13.2	18.8
Early Butler	7.1	232	58.4	9.6	13.7
<i>Kansas</i>	9.9	156	53.2	14.4	20.6
Early Canada	5.6	464	50.4	17.6	29.9
Early Eclipse	12.3	164	56.0	11.6	16.6
Extra Early Huron	17.7	264	56.0	11.6	16.6
Early Mastodon	5.3	164	54.8	13.2	18.8
<i>Kansas</i>	9.0	176	53.6	13.0	20.0
First Premium	12.8	168	43.3	14.4	20.6
Forsythe's Favorite	14.2	152	54.0	13.6	19.3
Gentry's Early Market	12.5	192	53.8	13.8	20.2
Golden Beauty	11.9	144	56.5	12.4	17.7
<i>Kansas</i>	13.5	152	54.0	14.0	20.0
Golden Dent	10.5	152	56.0	12.0	17.1
Golden Dew Drop	5.7	440	48.4	18.0	25.7
Hickory King	15.2	132	57.6	10.0	14.3
Improved Golden Dent	19.8	.....	.....	.....	.....
<i>Kansas</i>	16.6	160	54.4	13.2	18.8
Kansas King	20.4	172	56.0	12.0	17.1
King of Earlies	14.1	232	57.2	10.4	14.8
King Philip	6.3	448	50.4	17.2	24.6
Long Yellow Flint	6.1	312	50.8	16.8	23.9
<i>Kansas</i>	13.8	144	53.6	14.0	20.0

Experiments in Corn Varieties—continued.

Name.	Yield per acre —in bush.	Number ears per bushel of 70 lbs.	Number lbs. shelled corn from 70 lbs. ear corn.	Weight of cobs in 70 lbs. ears.	Per cent of cobs.
Long White Flint	8.6	272	52.0	16.0	29.9
Murdock's Ninety-day	18.2	264	56.8	11.2	16.0
Pride of the North	17.1	232	56.4	11.2	16.0
Red White Flint	7.0	464	50.0	17.6	25.0
<i>Kansas</i>	15.1	172	53.2	14.4	20.5
Riley's Favorite	15.5	192	54.4	13.6	19.3
St. Charles White	11.1	184	54.4	13.6	19.3
The Leaming	10.6	164	54.8	13.2	18.8
Thoroughbred White Flint	10.4	216	49.2	18.8	26.9
<i>Kansas</i>	14.7	160	44.8	13.2	18.9
White Pearl	9.6	188	55.2	12.8	18.3
Wisconsin White Dent	17.8	168	54.4	13.6	14.8
<i>Kansas</i>	20.6	164	55.2	13.8	18.3
Longfellow	13.4	288	54.6	14.4	20.6
Mercer Yellow	4.3	424	48.8	19.2	27.4
Minnesota White	14.4	232	54.4	14.6	19.4
<i>Kansas</i>	17.2	144	54.4	13.6	19.4
N., B., G. & Co. Dakota Dent	21.7	208	56.0	12.0	17.1
N., B., G. & Co. Rustler White	16.7	188	54.4	13.6	19.4
Squaw	7.3	520	52.0	16.0	22.9
Large Red	15.1	140	52.2	14.4	20.6
<i>Kansas</i>	14.9	184	52.0	16.0	22.9

Experiments in Sugar Corn.

	Height of stalk.	First edible.	Character of growth.	Productiveness.
Asylum	5 feet ..	June 11	Vigorous	Not prolific.
Black Mexican	4 feet ..	June 11	Moderat'y vig	Not prolific.
Ballard's Red Cob	3½ feet ..	June 6	Moderat'y vig	Not prolific.
Early Narragansett	3 feet ..	May 25	Small	Prolific.
Early Triumph	5 feet ..	June 20	Vigorous	Prolific.
Egyptian	5 feet ..	June 20	Vigorous	Prolific.
Excelsior	4 feet ..	June 20	Moderat'y vig	Mod. prolific.
First of All	3 feet ..	May 22	Small	Prolific.
Gold Coin	6 feet ..	June 20	Very vigorous	Prolific.
Marble Head	2½ feet ..	May 31	Very small...	Not prolific.
Moore's Early Concord	4 feet ..	June 18	Moderat'y vig	Mod. prolific.
Ne Plus Ultra	5 feet ..	June 20	Vigorous	Very prolific.
Perry's Hybrid	4 feet ..	May 31	Moderat'y vig	Very prolific.
Shaker's Early	5 feet ..	June 15	Vigorous	Very prolific.
Shoe Peg Evergreen	4 feet ..	June 20	Moderat'y vig	Prolific.
Stowell's Evergreen	5 feet ..	June 15	Vigorous	Prolific.
White Corey	3 feet ..	May 22	Small	Prolific.

A Test of Sixty-one Varieties of Corn.

A brief description of sixty-one varieties of corn planted on Texas Experiment station March 23, 1894, is given below:

Bud worms injured the varieties seriously from April 5 to April 20, and did such injury to the young plants that the stand of each variety was made more or less imperfect. The hot winds of July 1, which did much damage to the corn crop of the entire West, ruined all the late maturing kinds tested here.

The results of the experiment have been so vitiated by these two causes that no fair comparison of yields can be made. It is but fair to say that the low yield obtained from all varieties tested is due to some extent to one or both of the causes mentioned. The publication of such yields would prove misleading and harmful, unless it is explained that they are presented only for the purpose of indicating some of the better varieties of the early maturing kinds of corn. Of those tried we can endorse a number for the use of Texas farmers, including the following: Kansas King, Improved Golden Dent, Dakota Dent, Wisconsin White Dent, Pride of the North, Rustler White, and Riley's Favorite. Sugar corn for garden culture: Early Narragansett, First of All, Ne Plus Ultra, Perry's Hybrid, Shaker's Early, and Stowell's Evergreen.

From the experiments of the past season we do not feel justified in recommending any one of the middle or late maturing varieties over another. All varieties planted in 1894 will be under test again in 1895, and many new ones will be added to the list. It is hoped that fair conditions will prevail, and the results obtained from the coming season's work in testing these varieties will be more reliable and satisfactory than for the season of 1894.

Below we give some of the most prominent characteristics of the varieties of corn tested, including a description of grain, ear, and stalk, yield per acre, and per cent of grain in a hundred pounds of shucked ear corn. The seedsmen of whom each variety was obtained is given with address. The varieties are grouped into early, late, and prolific, and each group is alphabetized.

EARLY VARIETIES.

ANGEL OF MIDNIGHT.—Seed from Perry Seed Store, Syracuse, N. Y. A yellow flint variety; roasting ear June 6; stalk and ear both small; yield per acre 5.1 bushels corn; 100 pounds shucked ear corn yield 78.3 pounds grain.

CLARK'S MASTODON.—Seed from T. W. Wood & Son, Richmond, Va. A yellow dent variety; roasting ear June 18; stalk and ear both small; grain long and soft; yield per acre 6.1 bushels corn; 100 pounds shucked ear corn yield 81.2 pounds grain.

EARLY BUTLER.—Seed from Storrs, Harrison & Co., Plainville, Ohio. A yellow dent variety; roasting ear June 11; stalk and ear both small; grain long and soft; yield per acre, 7.1 bushels corn; 100 pounds shucked ear corn yield 86.3 pounds grain.

EARLY CANADA.—Seed from J. M. Thorburn, New York. A yellow flint variety; roasting ear June 11; stalk small; ear long, with short flint.

grains; yield per acre, 5.6 bushels corn; 100 pounds shucked ear corn yield 70.1 pounds grain.

EARLY ECLIPSE.—Seed from Plant Seed Company, St. Louis, Mo. A yellow dent variety; roasting ear June 20; stalk and ear medium size; grain long and soft; yield per acre, 12.3 bushels corn; 100 pounds shucked ear corn yield 83.4 pounds grain.

EARLY MASTODON.—Seed from Storrs, Harrison & Co., Plainville, Ohio. A yellow dent variety; roasting ear June 18; stalk and ear medium size; grain long and soft; yield per acre, 5.3 bushels corn; 100 pounds shucked ear corn yield 83.6 pounds grain.

EXTRA EARLY HURON.—Seed from Storrs, Harrison & Co., Plainville, Ohio. A yellow dent variety; roasting ear June 9; stalk small; ears short and bright yellow; grain long and firm; yield per acre, 7.7 bushels corn; 100 pounds shucked ear corn yield 83.6 pounds grain.

FIRST PREMIUM.—Seed from J. A. Everitt, Indianapolis, Ind. White dent variety; roasting ear June 20; stalk and ear medium size; grain very white, large, and firm; yield per acre, 12.8 bushels corn; 100 pounds shucked ear corn yield 79.4 pounds grain.

FORSYTH'S FAVORITE.—Seed from J. A. Everitt, Indianapolis, Ind. A white dent variety; roasting ear June 20; stalk and ear medium size; ears very heavy and firm; grain very white, broad, and long; yield per acre, 14.2 bushels corn; 100 pounds shucked ear corn yield 80.7 pounds grain.

GENTRY'S EARLY MARKET.—Seed from T. W. Wood & Son, Richmond, Va. A white flint variety; roasting ear June 20; stalk and ear medium size; ear heavy, firm, and long; grain short, broad, flinty, and very white; yield per acre, 12.5 bushels corn; 100 pounds shucked ear corn yield 79.8 pounds grain.

GOLDEN BEAUTY.—Seed from Storrs, Harrison & Co., Plainville, Ohio. A yellow dent variety; roasting ear June 20; stalk and ear medium size; grain very broad, deep, and firm; yield per acre 11.9 bushels corn; 100 pounds shucked ear corn yield 82.3 pounds grain.

GOLDEN DENT.—Seed from J. M. Thorburn, New York. A yellow dent variety; roasting ear June 20; stalk and ear medium size; yield per acre, 10.5 bushels corn; 100 pounds shucked ear corn yield 82.9 pounds grain.

GOLDEN DEWDROP.—Seed from J. M. Thorburn, N. Y.—A yellow flint variety; roasting ear June 11; stalk small, ears very long, grain short, broad and flinty; yield per acre 5.7 bushels corn; 100 pounds shucked ear corn yield 74.3 pounds grain.

HICKORY KING.—Seed from Texas Seed and Floral Co., Dallas, Texas. A white dent variety; roasting ear June 20; stalks and ear medium size; grain very deep and broad; yield per acre 15.2 bushels corn; 100 pounds shucked ear corn yield 85.7 pounds grain.

IMPROVED GOLDEN DENT.—Seed from T. W. Wood & Son, Richmond, Va. A yellow dent variety; roasting ear June 20; stalks and ear medium size; yield per acre 19.8 bushels corn; 100 pounds shucked ear corn yield 84 pounds grain.

KANSAS KING.—Seed from Texas Seed and Floral Co., Dallas, Texas. A white dent variety; roasting ear June 18; stalk and ear medium size; yield per acre 20.4 bushels corn; 100 pounds shucked ear corn yield 82.9 pounds grain.

KING OF EARLIES.—Seed from Storrs, Harrison & Co., Plainville, Ohio. A yellow dent variety; roasting ear June 9; stalk and ear small; ear

short and very firm with bright yellow grain; yield per acre 14.1 bushels corn; 100 pounds shucked ear corn yield 85.2 pounds grain.

KING PHILLIP.—Seed from J. M. Thorburn, N. Y. A red flint variety; roasting ear June 9; stalk very small; ear very long and small, with short, broad, red flint grain; yield per acre 6.3 bushels corn; 100 pounds shucked ear corn yield 75.4 pounds grain.

LONGFELLOW.—Seed from Northrup, Braslan & Goodwin Co., Minneapolis, Minn. A yellow flint variety; roasting ear June 18; stalks very small; ears very long with short, broad, yellow flint grains; yield per acre 13.4 bushels corn; 100 pounds shucked ear corn yield 78.4 pounds grain.

LONG YELLOW FLINT.—Seed from Northrup, Braslan & Goodwin Co., Minneapolis, Minn. A yellow flint variety; roasting ear June 11; stalk small; ear very long and small with short, broad, yellow grain; yield per acre 6.1 bushels corn; 100 pounds shucked ear corn yield 76.1 pounds grain.

LONG WHITE FLINT.—Seed from J. M. Thorburn & Co., N. Y. A white flint variety; roasting ear June 11; stalk small; ear very long, small, with white flint grain; yield per acre 8.6 bushels corn; 100 pounds shucked ear corn yield 70.1 pounds grain.

MERCER YELLOW.—Seed from Northrup, Braslan Goodwin Company, Minneapolis, Minn. A yellow dent variety; roasting ear June 18; stalk and ear very small; yield per acre, 4.3 bushels corn; 100 pounds shucked ear cor yield 72.6 pounds grain.

MINNESOTA WHITE.—Seed from Northrup, Braslan Goodwin Company, Minneapolis, Minn. A white flint variety; roasting ear June 18; stalk small; ear very long, with short, broad, white flint grains; yield per acre, 14.4 bushels corn; 100 pounds of shucked ear corn yield 80.6 pounds grain.

MURDOCK NINETY DAY.—Seed from Plant Seed Company, St. Louis, Mo. A yellow dent variety; roasting ear June 15; stalk small; ear short and firm, with long, bright yellow grain; yield per acre, 18.2 bushels corn; 100 pounds shucked ear corn yield 84 pounds grain.

N. B. G. Co.'s DAKOTA DENT.—Seed from Northrup, Braslan Goodwin Company. A yellow dent variety; roasting ear June 9; stalk and ear medium size; yield per acre, 21.7 bushels corn; 100 pounds shucked ear corn yield 82.9 pounds grain.

N. B. G. Co.'s RUSTLER WHITE.—Seed from Northrup, Braslan Goodwin Company, Minneapolis, Minn. A white dent variety; roasting ear June 9; stalk and ear medium size; yield per acre, 16.7 bushels corn; 100 pounds shucked ear corn yield 80.6 pounds grain.

PRIDE OF THE NORTH.—Seed from Plant Seed Company, St. Louis, Mo. A yellow dent variety; roasting ear June 15; stalk medium size; ear short and firm; grain long and bright yellow; yield per acre, 17.1 bushels corn; 100 pounds shucked ear corn yield 84 pounds grain.

RILEY'S FAVORITE.—Seed from J. A. Everitt, Indianapolis, Ind. A yellow dent variety; roasting ear June 15; stalk and ear medium size; yield per acre, 15.5 bushels corn; 100 pounds shucked ear corn yield 80.7 pounds grain.

SQUAW.—Seed from Northrup, Braslan Goodwin Company, Minneapolis, Minn. A white flint variety; roasting ear June 9; stalk small; ear

very small, with short white flint grain; yield per acre, 7.3 bushels corn; 100 pounds shucked ear corn yield 77.1 pounds grain.

ST. CHARLES WHITE.—Seed from Plant Seed Company, St. Louis, Mo. A white dent variety; roasting ear June 20; stalk and ears medium size; yield per acre, 11.1 bushels corn; 100 pounds shucked ear corn yield 80.7 pounds grain.

THE LEAMING.—Seed from Plant Seed Company, St. Louis, Mo. A yellow whitecap dent variety; roasting ear June 20; stalk medium size; ear above medium; yield per acre, 10.6 bushels corn; 100 pounds shucked ear corn yield 81.2 pounds grain.

THOROUGHbred WHITE FLINT.—Seed from J. M. Thorburn, New York. A white flint variety; roasting ear June 28; injured by hot winds; stalk medium size; ear small and long, with broad, short flint grain; yield per acre, 10.4 bushels corn; 100 pounds shucked ear corn yield 73.1 pounds grain.

WHITE PEARL.—Seed from J. M. Thorburn, New York. A white dent variety; roasting ear June 20; stalk and ear medium size; yield per acre, 9.6 bushels corn; 100 pounds shucked ear corn yield 81.7 pounds grain.

WISCONSIN WHITE DENT.—Seed from J. M. Thorburn, New York. A white dent variety; roasting ear June 18; stalk and ear medium size; yield per acre, 17.8 bushels corn; 100 pounds shucked ear corn yield 85.6 pounds grain.

COMMON FIELD VARIETIES.

ALABAMA EXPERIMENT STATION YELLOW.—Seed from Alabama Experiment Station, Auburn, Ala. A yellow flint variety; not in roasting ear July 1; badly injured by hot winds occurring at that date; stalk large and vigorous; ears medium size; yield per acre 12.7 bushels corn; 100 pounds shucked ear corn yield 80 pounds grain.

BIG SEED.—Seed from I. N. Shannon, Goodlettsville, Tenn. A white dent variety; roasting ear June 28; badly injured by hot winds; stalk large and vigorous; ear and grain very large; yield per acre 9.81 bushels corn; 100 pounds shucked ear corn yield 84.6 pounds grain.

CHESTER COUNTY MAMMOTH.—Seed from J. M. Thorburn, New York. A yellow dent variety; roasting ear June 20; stalk and ear medium size; yield per acre, 10.57 bushels corn, 100 pounds shucked ear corn yield 82.3 pounds grain.

CLAYTON BREAD.—Seed from Alabama Experiment Station. A white flinty variety; roasting ear June 20; stalk very large and vigorous; ear above medium size; yield per acre, 12.23 bushels corn; 100 pounds shucked ear corn yield 83.7 pounds grain.

EVERITT'S MORTGAGE LIFTER.—Seed from J. A. Everitt, Indianapolis, Ind. A yellow dent variety; roasting ear June 18; stalk and ear medium size; ears very firm and heavy and grow near the ground; yield per acre, 14.50 bushels corn; 100 pounds shucked ear corn yield 82.3 pounds grain.

GIANT BROAD GRAIN.—Seed from T. W. Wood & Son, Richmond, Va. A white flint variety; roasting ear June 18; stalk and ear medium size; grain very large and broad; yield per acre, 14.84 bushels corn; 100 pounds shucked ear corn yield 81.3 pounds grain.

GIRARDEAU'S POOR LAND.—Seed from W. M. Girardeau, Monticello, Fla. A white dent variety; roasting ear June 28; badly injured by hot

winds; stalk large and vigorous; ears long and medium size; yield per acre, 12.57 bushels corn; 100 pounds shucked ear corn yield 82.9 pounds grain.

HAWKINS' IMPROVED.—Seed from Hiram Hawkins, Hawkinsville, Ala. A white gourd seed variety; roasting ear June 28; badly injured by hot winds; stalks large and vigorous, ears short and firm, very long grain; yield per acre, 11.70 bushels corn; 100 pounds shucked ear corn yield 82.9 pounds grain.

KANSAS.—Seed from C. F. Moore, Bryan, Texas. A white dent variety; roasting ear June 21; stalk and ear medium size; yield per acre 12.61 bushels corn; 100 pounds shucked ear corn yield 80.4 pounds grain.

LARGE RED.—Seed from E. V. Finklea, Bryan, Texas. A large red yellow cap dent variety; roasting ear June 20; stalk large and vigorous; ear large, with large red grain; yield per acre, 15.1 bushels corn; 100 pounds shucked ear corn yield 78.4 pounds grain.

MOORE'S WHITE.—Seed from C. F. Moore, Bryan, Texas. A white dent variety; roasting ear June 18; stalk and ear medium size; yield per acre 14.71 bushels corn; 100 pounds shucked ear corn yield 80 pounds grain.

MOORE'S YELLOW.—Seed from C. F. Moore, Bryan, Texas. A yellow dent variety; roasting ear June 28, injured by hot winds; stalk and ear medium size; yield per acre, 17 bushels corn; 100 pounds shucked ear corn yield 81.7 pounds grain.

MOSBY'S EARLY FIELD.—Seed from J. K. Mosby, Lockhart, Miss. A white gourd seed variety; roasting ear June 18; stalk and ear medium size; yield per acre, 11.21 bushels corn; 100 pounds shucked ear corn yield 80 pounds grain.

NORTH TEXAS YELLOW.—Seed from O. C. Scott, Melissa, Texas. A yellow dent variety; roasting ear June 28; badly injured by hot winds; ear and stalk medium size; yield per acre, 12.41 bushels corn; 100 pounds shucked ear corn yield 82.3 pounds grain.

PIASA QUEEN.—Seed from Plant Seed Company, St. Louis, Mo. A yellow dent variety; roasting ear June 28; badly injured by hot winds; stalk and ear medium size; yield per acre, 21.11 bushels corn; 100 pounds shucked ear corn yield 81.2 pounds grain.

PRIDE OF AMERICA.—Seed from T. W. Wood & Son, Richmond, Va. A white dent variety; roasting June 20; stalk and ear medium size; yield per acre, 13.82 bushels corn; 100 pounds shucked ear corn yield 83.4 pounds grain.

TEXAS WHITE.—Seed from W. R. Cavitt, Bryan, Texas. A white dent variety; roasting ear July 2; badly injured by hot winds; stalk and ear medium size, large grain and small red cob; yield per acre, 12.05 bushels corn; 100 pounds shucked ear corn yield 80 pounds grain.

VIRGINIA HORSE TOOTH.—Seed from J. M. Thorburn, New York. A white gourd seed variety; roasting ear June 20; stalk and ear medium size; yield per acre, 12.78 bushels corn; 100 pounds shucked ear corn yield 86.9 pounds grain.

VIRGINIA WHITE GOURD SEED.—Seed from T. W. Wood & Son, Richmond, Va. A white gourd seed variety; roasting ear July 2; badly injured by hot wind; stalk and ear both large; yield per acre, 7.52 bushels corn; 100 pounds shucked ear corn yield 84 pounds grain.

WELBORN'S CONSCIENCE.—Seed from Jeff D. Welborn, New Boston, Texas. A white gourd seed variety; roasting ear July 2; badly injured by hot winds; stalk very large and vigorous; ear short but very large; grain extra long and very soft; yield per acre 6.5 bushels corn; 100 pounds shucked ear corn yield 82.9 pounds grain.

WHITE GIANT NORMANDY.—Seed from Plant Seed Company, St. Louis, Mo. A white dent variety; roasting ear July 2; badly injured by hot winds; stalk and ears above medium size; yield per acre 8.61 bushels corn; 100 pounds shucked ear corn yield 77.1 pounds grain.

PROLIFIC VARIETIES.

COCKE'S PROLIFIC.—Seed from T. W. Wood & Son, Richmond, Va. A white flint variety; roasting ear June 28; badly injured by hot winds; stalk and ear small, from two to four ears on each stalk; yield per acre, 12.14 bushels corn; 100 pounds shucked ear corn yield 81.7 pounds grain.

BLOUNT'S PROLIFIC.—Seed from T. W. Wood & Son, Richmond, Va. A white flint variety; roasting ear June 28; badly injured by hot winds; stalk and ear medium size, from two to four ears on each stalk; yield per acre, 12.48 bushels corn; 100 pounds shucked ear corn yield 81.7 pounds grain.

MOSBY'S PROLIFIC.—Seed from J. K. Mosby, Lockhart, Miss. A white gourd seed variety; roasting ear July 2; very badly injured by hot winds; stalk large; ear small, from one to two ears on each stalk; yield per acre, 5.21 bushels corn; 100 pounds shucked ear corn yield 81.7 pounds grain.

WILSON'S PROLIFIC.—Seed from Perry Seed Store, Syracuse, N. Y. A white flint variety; roasting ear June 15; stalk and ear both small; grain broad and short; yield per acre, 8.07 bushels corn; 100 pounds shucked ear corn yield 78.7 pounds grain.

Results of Experiments with Fertilizers on Corn on Farm of McDuff Simpson, Bryan, Texas, 1894.

Below is given a table showing amounts and kinds of fertilizers, increased or decreased yield from the use of fertilizers, yield and value of corn per acre, cost of fertilizers, and loss or gain per acre. The loss or gain was obtained by taking the difference between the value of the check plots and fertilized plots. Where the value of the increase is greater than cost of fertilizer used, the difference is a gain; if less, it is a loss. The corn is valued at 50 cents per bushel of seventy pounds ear corn.

Experiments with Fertilizers on Corn.

Plot number.	Application in pounds.	Yield per acre—bushels.	Increase or decrease from fertilizers—bush.	Total value.	Cost of fertiliz'rs.	Loss or gain.
1	400 cotton seed meal.....	7.7	1.3	\$3 85	\$4 00	-3.35
2	200 sulphate of ammonia	7.0	.6	3 50	7 00	-6.70
3	400 bat guano	12.9	6.5	6 45	*	.....
4	200 nitrate of soda	7.9	1.5	3 95	4 50	-3.75
5	Check plot.....	6.4	.....	3 20	.....	.....
6	4000 rotted manure.....	12.3	5.9	6 15	1 00	+1.95
7	1000 rotted cotton seed	8.3	1.9	4 15	4 00	-3.05
8	1000 kainit	9.7	3.3	4 55	7 50	-6.20
9	400 cotton seed hull ashes.....	11.7	5.3	5 85	2 00	+ .65
10	Check plot.....	6.4	.....	3 20	.....	.....
11	400 acid phosphate	13.3	6.9	6 65	3 20	+ .25
12	200 salt	6.1	.3	3 05	1 00	-1.15

* Donated.

The crop responded freely to the application of rotted stable manure, and gave a good profit for this application. This increased the yield nearly six bushels per acre. There was a slight profit also in the use of 400 pounds of cotton seed hull ashes and of 400 pounds acid phosphate per acre. There is no doubt, also, that bat guano paid a net profit, since it increased the yield 6.5 bushels per acre over the unfertilized plot. From the above results we must conclude that the light sandy soils of South Texas are especially deficient in phosphoric acid and nitrogen.

There was nothing to indicate that cotton seed meal may prove a useful form of nitrogen. Neither did sulphate of ammonia or nitrate of soda furnish nitrogen in a proper form, while common manure seems to be a perfect fertilizer for corn on these soils during such seasons as was that of 1894.

Experiments in Varieties of Cotton at College Station, Texas.

Results of a test of thirty-one varieties of cotton planted on the grounds of Texas Experiment Station, season 1894.

For testing these varieties of cotton, new land known as black sandy was selected, which had been broken early in January with a Scotch gang plow. The harrow was used freely both in the preparation and cultivation. Plots were accurately measured one-tenth of an acre each. Rows were made four feet wide and four rows to each plot. Two plantings of all the varieties except three were made. The cotton was planted on the bed with an Eclipse planter. The first planting was made on April 10 and the second on May 10. In the arrangement of the experiment, the varieties of cotton were planted in the following manner: Long staple, long limbed, and cluster were grouped with each other. The cultivation

was thorough, which was largely done with smoothing and side harrows. A cultivator and sweep were each run through the crop once. The long stapled and long limbed varieties were thinned to one stalk every two feet in the drill. The cluster or short limbed varieties were thinned to one stalk every foot. Each fifth plot was intended for a basis of comparison, and was planted in the same variety which is in general use in this section, and locally known as Bohemian.

The early planting was cultivated in the following manner, and the late planting in the same way: April 16 cotton was up to perfect stand; run smoothing harrow diagonally across the rows. May 2 run side harrow around cotton. May 4 chopped cotton to stand. May 10 run side harrow around cotton. May 22 run four-sweep "Victor cultivator" around cotton. June 11 run buzzard-wing sweep very shallow around cotton, which completed the cultivation.

The long limbed varieties of cotton seemed to have greater powers of endurance, and are better able to withstand a dry, hot season like that of the past summer than the short limbed or cluster varieties, while the cluster kinds are generally early and have the advantage of maturing much of their crop before the drouth season. It will be noted from the results of this experiment that only three out of the ten varieties which gave the greatest yield over the check plots in the first planting and in the second planting were short limbed. These are Welborn's Pet, Drake's Cluster, and Cochran's Prolific of the first planting, and Cochran's Prolific, Drake's Cluster, and Herlong of the second. It is but fair to say, however, that for want of seed Welborn's Pet was not planted in the second test. The seed of Tyler's Limbed Cluster and Dalkeith's Eureka were not received in time for the first planting; they were used only in the second test. Thus it will be seen that some discrimination in favor of these three varieties must be made, as they have been compared in one instance only. A sample of lint was taken from each variety as it was ginned, numbered, and sent to W. D. Cleveland & Co., Houston, Texas, for classification. The long staple varieties were given one-fourth cent premium on account of their superior staple, which were Allen Long Staple, Coltharp's Eureka, Dalkeith's Eureka, Hurley's Choice, Jones' Wonderful, Mathew's Extra Long Staple, and Southern Hope. The valuations are based on quotations from the Houston market for January 18, "middling," 5½ cents per pound.

Below is given a table showing yield per acre in seed cotton, lint cotton, cotton seed, per cent of lint, value of lint, value of seed, and total value of crop per acre, with value of increased yield over the average of the two nearest check plots (Bohemian.).

Experiment in Varieties — Cotton.

First planting.

Planted April 10, 1894.

Name of variety.	Yield per acre, in pounds—seed cotton.					Total yield of seed cotton per acre, in pounds.	Total yield of lint cotton per acre, in pounds.	Total yield of seed per acre, in pounds.	Per cent of lint.	Value of lint cotton per acre.	Value of seed per acre.	Total value per acre.	Excess over Bohemian plots.
	First picking, Aug. 1.	Second picking, Aug. 27.	Third picking, Sept. 22.	Fourth picking, Oct. 20.	Fifth picking, Dec. 11.								
<i>Bohemian</i>	48	467	42	55	486	1,068	555	707	32.4	\$18 19	\$2 12	\$20 31	.....
Allen Long Staple.....	80	418	44	104	578	1,224	357	831	29.2	19 08	49	21 57	3 06
Coltharp's Eureka.....	60	438	72	84	617	1,271	405	825	31.9	21 77	49	24 26	5 75
Jones' Wonderful.....	48	408	119	73	475	1,123	323	767	29.6	17 36	30	19 66	1 15
Mathews' Extra Long Staple	47	378	67	66	448	1,006	306	669	30.5	16 45	00	18 45	.....
<i>Bohemian</i>	35	518	59	35	278	925	291	605	31.4	14 91	31	16 72	.....
Southern Hope.....	57	198	92	77	617	1,041	289	723	28.7	15 53	16	17 69	1 19
Jones' Imperial.....	82	511	35	24	362	1,014	361	617	35.6	18 50	85	20 35	3 85
Peeler.....	37	358	178	136	717	1,426	419	965	28.6	21 47	89	24 36	7 86
Peterkin.....	43	489	62	77	678	1,349	473	829	34.3	24 24	48	26 72	10 22
<i>Bohemian</i>	40	452	44	45	311	892	284	579	31.8	14 55	73	16 28	.....
Peterkin Limbed Cluster.....	42	400	46	42	400	930	301	582	33.1	15 42	74	17 16	2 39
Petit Gulf.....	44	267	127	84	372	894	290	575	32.5	14 86	72	16 58	1 81
Tennessee Gold Dust*.....	105	338	30	74	390	937	307	600	32.5	15 73	80	17 53	2 76
Tennessee Gold Dust†.....	29	378	161	45	369	982	318	632	32.4	17 09	89	18 98	4 21
<i>Bohemian</i>	198	239	54	35	207	733	231	479	31.5	11 84	1.43	13 27	.....
Texas Storm Proof.....	175	214	38	21	226	674	243	431	32.2	12 45	29	13 74	.....
Truitt's Improved.....	289	218	53	49	450	1,059	322	694	31.3	16 50	08	18 57	4 66
Beck's Prolific.....	318	182	37	78	396	1,011	293	688	29.0	15 01	06	17 07	3 15
Cochran's Prolific.....	280	195	35	96	455	1,061	344	682	32.5	17 63	04	19 67	5 75
<i>Bohemian</i>	255	202	48	52	262	799	254	519	31.9	13 02	55	14 57	.....
Dickson's Improved.....	353	173	32	112	526	1,166	348	783	29.0	17 83	34	20 17	5 00
Drake's Cluster.....	342	203	40	73	593	1,251	394	817	31.5	20 19	25	22 64	7 47
Herlong.....	92	202	195	121	499	1,109	326	750	29.4	16 70	25	18 95	3 78
Peerless.....	362	205	40	126	497	1,230	349	846	28.4	17 88	53	20 41	5 24
<i>Bohemian</i>	262	213	55	39	296	865	275	562	31.6	14 09	68	15 77	.....
Welborn's Pet.....	410	130	54	120	458	1,172	423	749	32.7	21 68	24	23 92	7 26
Hurley's Choice.....	200	155	86	76	510	1,027	295	702	28.8	15 86	10	17 96	1 30
Marston.....	186	198	113	90	606	1,193	400	753	33.6	20 50	25	22 75	6 09
Sure Fruit.....	241	192	83	130	636	1,282	429	810	33.5	21 98	43	24 41	7 75
<i>Bohemian</i>	253	215	69	55	372	963	310	621	32.2	15 89	86	17 75	.....
Beck's Big Boll.....	330	180	52	87	392	1,041	364	640	35.0	18 65	92	20 57	2 67
Hawkins' Improved.....	286	176	63	145	559	1,229	361	832	29.3	18 50	49	20 99	3 09
Meridian.....	394	173	30	70	387	1,054	345	674	32.7	17 68	02	19 70	1 80
King's Improved.....	370	136	16	142	510	1,174	418	714	35.6	21 42	14	23 56	5 66
<i>Bohemian</i>	264	214	69	48	376	971	316	623	32.6	16 19	86	18 05	.....
Dooley's Improved.....	273	299	81	59	399	1,111	334	743	30.1	17 12	22	19 34	89
<i>Bohemian</i>	264	228	68	48	355	963	312	620	32.4	15 99	86	17 85	.....

*Tennessee seed.

†Texas seed.

Experiment in Varieties — Cotton.

Second Planting.

Planted May 10, 1894.

Name of variety.	Yield per acre, in pounds—seed cotton.				Total yield of seed cotton per acre, in pounds.	Total yield of lint cotton per acre, in pounds.	Total yield of seed per acre, in pounds.	Per cent of lint.	Value of lint cotton per acre.	Value of seed per acre.	Total value per acre.	Excess over Bohemian plots.
	First picking, Sept. 25.	Second picking, Oct. 9.	Third picking, Oct. 31.	Fourth picking, Dec. 19.								
Bohemian.....	289	184	56	236	760	244	490	32.3	\$12 50	\$1 47	\$13 97	.....
Allen Long Staple.....	418	344	222	254	1,238	348	854	28.6	16 70	2 56	21 26	.....
Coltharp's Eureka.....	360	314	310	420	1,404	412	950	29.4	22 14	2 85	24 99	.....
Jones' Wonderful.....	130	358	374	318	1,180	348	996	29.9	18 70	2 98	21 68	.....
Mathew's Extra Long Staple.....	284	320	280	386	1,270	362	972	28.5	19 46	2 91	22 37	.....
Bohemian.....	316	274	148	284	1,052	330	688	31.5	16 91	3 06	18 97	.....
Southern Hope.....	288	370	340	520	1,518	424	1,052	27.7	22 79	3 15	25 94	.....
Jones' Improved.....	464	348	144	220	1,176	424	710	36.0	21 73	2 13	23 86	.....
Peeler.....	170	262	262	496	1,190	332	824	27.9	17 02	2 47	19 49	.....
Peterkin.....	280	382	250	626	1,538	527	958	34.3	27 01	2 87	29 88	11. 78
Bohemian.....	290	248	144	300	982	298	654	33.9	15 27	1 96	17 23	.....
Peterkin Limbed Cluster.....	384	460	456	608	1,908	618	1,230	32.4	31 67	3 69	35 36	17. 32
Petit Gulf.....	622	164	222	434	1,442	434	964	30.1	22 24	2 89	25 13	7. 29
Tennessee Gold Dust*.....	400	360	156	282	1,198	336	838	28.1	17 22	2 51	19 73	1. 89
Tennessee Gold Dust†.....	440	430	274	430	1,574	472	1,054	30.0	25 37	3 16	28 53	10. 69
Bohemian.....	378	242	118	332	1,070	318	726	29.8	16 30	3 16	18 45	.....
Texas Storm Proof.....	438	254	140	270	1,102	352	714	32.0	18 04	2 14	20 18	1. 58
Truitt's Improved.....	422	466	354	280	1,522	447	1,028	29.4	22 91	3 08	25 99	7. 39
Beck's Prolific.....	452	388	310	336	1,486	448	992	31.6	22 96	2 97	25 93	7. 33
Cochran's Prolific.....	374	470	316	354	1,514	464	1,004	30.7	23 78	3 01	26 79	8. 19
Bohemian.....	384	264	110	258	1,046	326	680	31.3	16 71	3 04	18 75	.....
Dickson's Improved.....	382	370	276	364	1,392	413	938	29.6	21 17	2 81	23 98	8. 31
Drake's Cluster.....	256	420	334	398	1,408	427	924	30.3	21 88	2 77	24 65	8. 98
Herlong.....	406	434	406	514	1,760	528	1,178	30.1	27 06	3 53	30 59	14. 92
Peerless.....	324	344	248	332	1,248	380	828	30.8	19 47	2 48	21 95	5. 28
Bohemian.....	146	254	114	200	714	218	474	30.6	11 17	1 42	12 59	.....
Tyler's Limbed Cluster.....	302	328	366	494	1,490	427	1,020	28.7	21 88	3 06	24 94	7. 27
Hurley's Choice.....	280	326	386	246	1,338	398	840	29.2	21 39	2 52	23 91	6. 24
Marston.....	350	462	202	340	1,354	431	880	31.1	22 09	2 64	24 73	7. 06
Sure Fruit.....	402	374	334	398	1,508	478	982	31.7	24 49	2 94	27 43	9. 76
Bohemian.....	438	252	296	270	1,256	396	820	31.6	20 29	2 46	22 75	.....
Beck's Big Boll.....	432	200	102	250	984	294	660	28.7	15 07	1 98	17 05	.....
Hawkins' Improved.....	490	350	82	326	1,248	376	834	30.1	19 27	2 50	21 77	1. 64
Meridian.....	644	174	194	274	1,286	349	902	27.1	17 88	2 70	20 50	3. 37
King's Improved.....	518	124	60	296	998	326	611	32.7	16 71	1 83	18 54	4. 1
Bohemian.....	430	188	58	290	966	303	632	31.3	15 53	1 89	17 42	.....
Dooley's Improved.....	600	206	54	166	1,026	282	714	27.7	14 45	2 14	16 59	.....
Dalkeith's Eureka.....	484	248	84	324	1,140	326	814	28.9	17 52	2 44	19 96	7. 9
Bohemian.....	588	164	50	266	1,068	328	706	30.8	16 81	2 11	18 92	.....

*Tennessee seed.
†Texas seed.

Description of Thirty-one Varieties of Cotton.

LONG STAPLE.

ALLEN LONG STAPLE.—Seed from H. C. Prevost, New Orleans, La. Early planting, first bloom June 11, first open boll July 15; late planting, first bloom July 5, first open boll August 28. *Description:* Long limbs put out from near the ground, short limbs (with short joints bearing cotton) put out from these long limbs and from the main stalks. Bolls medium size, long and pointed, distributed on short limbs from main stalk and from the short ones growing out from the long limbs.

Plant a vigorous grower, average height $4\frac{1}{2}$ feet, with light green foliage. Yield of cotton seed per acre, 1224 pounds from early planting, showing 29.2 per cent of lint; 1238 pounds from late planting, showing 28.6 per cent of lint. Cost of seed, 75 cents per half bushel.

COLTHARP'S EUREKA.—Seed from Coltharp Bros., Talullah, La. Early planting, first bloom June 12, first open boll July 25; late planting, first bloom July 5, first open boll August 25. *Description:* Resembles Allen Long Staple in main characteristics. Yield of seed cotton per acre, 1274 pounds early planting, showing 31.9 per cent of lint; 1404 pounds from late planting, showing 29.4 per cent of lint. Cost of seed, \$1 per half bushel.

DALKEITH'S EUREKA.—Seed from D. G. Humphreys, Dalkeith, La. Late planting, first bloom July 6, first open boll August 28. *Description:* Stalk very open, with long limbs and long joints, bolls small; average height of plant, $3\frac{1}{2}$ feet, with very light green foliage. Yield of seed cotton per acre, 1140 pounds from late planting, showing 28.9 per cent of lint. No early planting of this variety. Cost of seed, \$1 per half bushel.

HURLEY'S CHOICE.—Seed from T. C. Hurley, Pottsboro, Texas. Early planting, first bloom June 12, first open boll, July 30; late planting, first bloom July 5, first open boll August 27. *Description:* Stalk very open, with long limbs, small bolls; average height of plant, 4 feet; vigorous, with dark green foliage. Yield of seed cotton per acre, 1027 pounds from early planting, showing 28.6 per cent of lint; 1338 pounds from second planting, showing 29.2 per cent of lint. Seed donated.

JONES' WONDERFUL.—Seed from J. H. Jones, Herndon, Ga. Early planting, first bloom June 11, first open boll July 27; late planting, first bloom July 5, first open boll August 25. *Description:* Long limbs, with long joints; bolls large, long and pointed; plant a vigorous grower; average height $4\frac{1}{2}$ feet, with light green foliage. Yield of seed cotton per acre, 1123 pounds from early planting, showing 29.6 per cent of lint; 1186 pounds from late planting, showing 29.9 per cent of lint. Cost of seed, \$1 per half bushel.

MATHEWS' EXTRA LONG STAPLE.—Seed from J. A. Matthews, Holly Springs, Miss. Early planting, first bloom June 13, first open boll July 30; late planting, first bloom July 8, first open boll, August 27. *Description:* Resembles Allen's Long Staple in main characteristics. Yield of seed cotton per acre, 1006 pounds from early planting, showing 30.5 per cent of lint; 1270 pounds from late planting, showing 28.5 per cent of lint. Cost of seed, \$1 per half bushel.

SOUTHERN HOPE.—Seed from E. J. McGehee, Pinckneyville, Miss. Early planting, first bloom June 11, first open boll July 26; late planting, first bloom July 4, first open boll August 28. *Description:* Stalk pyramidal in shape, long drooping limbs with long joints, three to six bolls on each limb, bolls medium size long and pointed, plant large and vigorous, average height five feet, with light green foliage. Yield seed cotton per acre 1041 pounds from early planting, showing 28.7 per cent of lint; 1518 pounds from late planting, showing 27.7 per cent of lint. Seed cost \$2.00 per half bushel.

LONG LIMBED VARIETIES.

BECK'S BIG BOLL.—Seed from C. B. Beck, Bryan, Texas. Early planting, first bloom June 8, first open boll July 28; late planting, first bloom July 8, first open boll August 30. *Description*: Resembles Bohemian in main characteristics. Yield seed cotton per acre 1041 pounds from early planting, showing 35 per cent of lint; 944 pounds from late planting, showing 30.6 per cent of lint. Cost of seed 75 cents per half bushel.

BOHEMIAN.—Seed from Rudolph Simmons, College Station, Texas. Early planting, first bloom June 11, first open boll July 26; late planting, first bloom July 5, first open boll August 27. *Description*: Stalk low, broad and open, with long limbs, bolls very large and round, usually containing five locks of cotton each, plant small, average height $3\frac{1}{2}$ feet, with dark green foliage. Yield seed cotton per acre 923 pounds from early planting, showing 31.6 per cent of lint; 1008 pounds from late planting, showing 31.5 per cent of lint. Cost of seed 25 cents per half bushel.

DICKSON'S IMPROVED.—Seed from Capers Dickson, Oxford, Ga. Early planting, first bloom June 7, first open boll July 25; late planting, first bloom July 7, first open boll August 28. *Description*: Stalk open, long limbs with very short joints, bolls medium size and round, average height of plant $3\frac{1}{2}$ feet, with light green foliage. Yield seed cotton per acre from early planting 1166 pounds, showing 29 per cent of lint; 1392 pounds from late planting, showing 29.7 per cent of lint. Cost of seed \$1.25 per half bushel.

DOOLEY'S IMPROVED.—Seed from W. B. Dooley, Wharton, Texas. Early planting, first bloom June 17, first open boll July 30; late planting, first bloom July 4, first open boll August 27. *Description*: Resembles Marston in main characteristics. Yield seed cotton per acre 1111 pounds from early planting, showing 30.1 per cent of lint; 1026 pounds from late planting, showing 27.7 per cent of lint. Seed donated.

JONES' IMPROVED.—Seed from V. B. Hardy, Bryan, Texas. Early planting, first bloom June 9, first open boll July 24; late planting, first bloom July 5, first open boll August 27. *Description*: Stalk small, low and open with long limbs, bolls round and above medium size, average height of plant 3 feet, with dark green foliage. Yield of seed cotton per acre, 1014 pounds from early planting, showing 35.6 per cent of lint; 1176 pounds from late planting, showing 36 per cent of lint. Cost of seed, 75 cents per half bushel.

KING'S IMPROVED.—Seed from T. J. King, Louisburg, N. C. Early planting, first bloom June 11, first open boll July 21; late planting, first bloom July 7, first open boll August 25. *Description*: Stalk very open with long limbs, bolls small, average height of plant $2\frac{1}{2}$ feet, with very light green foliage. Yield seed cotton per acre, 1174 pounds from early planting, showing 35.6 per cent of lint; 998 pounds from late planting, showing 32.7 per cent of lint. Cost of seed, \$1 per half bushel.

MARSTON.—Seed from H. C. Prevost, New Orleans, La. Early planting, first bloom June 16, first open boll July 30; late planting, first bloom July 9, first open boll August 30. *Description*: Stalk very open, long limbs put out from near the ground, limbs of medium length put out from the main stock and the long limbs, bolls medium size, plant

vigorous, average height 4 feet, with light green foliage. Yield seed cotton per acre, 1193 pounds from early planting, showing 33.6 per cent of lint; 1354 pounds from late planting, showing 32 per cent of lint. Cost of seed, 50 cents per half bushel.

PEELER.—Seed from H. C. Prevost, New Orleans, La. Early planting, first bloom June 11, first open boll July 26; late planting, first bloom July 8, first open boll August 30. *Description:* Stalk very large and open with long drooping limbs, bolls medium size, long and pointed, plant a vigorous grower, average height $5\frac{1}{2}$ feet, with light green foliage. Yield seed cotton per acre, 1419 pounds from early planting, showing 28.4 per cent of lint; 1190 pounds from late planting, showing 27.9 per cent of lint. Cost of seed, \$1 per half bushel.

PETERKIN IMPROVED.—Seed from Alexander Drug and Seed Company, Augusta, Ga. Early planting, first bloom June 16, first open boll July 26; late planting, first bloom July 7, first open boll August 28. *Description:* Stalk very open with long limbs, bolls medium size, average height of plant $4\frac{1}{2}$ feet, with light green foliage. Yield of seed cotton per acre, 1349 pounds from early planting, showing 34.3 per cent of lint; 1478 pounds from late planting, showing 32 per cent of lint. Cost of seed, 65 cents per half bushel.

PETERKIN LIMBED CLUSTER.—Seed from Alexander Drug and Seed Co., Augusta, Ga. Early planting, first bloom June 16, first open boll July 25; late planting, first bloom July 6, first open boll August 25. *Description:* Long limbs with short joints, bolls very small, plant a vigorous grower, average height $4\frac{1}{2}$ feet, with dark green foliage. Yield per acre seed cotton 930 pounds from early planting, showing 33.1 per cent of lint; 1908 pounds from late planting, showing 32.4 per cent of lint. Cost of seed 25 cents per half bushel.

PETIT GULF.—Seed from H. C. Prevost, New Orleans, La. Early planting, first bloom June 16, first open boll July 28; late planting, first bloom July 9, first open boll September 4. *Description:* Resembles Peeler in main characteristics. Yield seed cotton per acre 894 pounds from early planting, showing 32.5 per cent of lint; 1442 pounds from late planting, showing 30.1 per cent of lint. Cost of seed 38 cents per half bushel.

SURE FRUIT.—Seed from W. M. Girardeau, Monticello, Fla. Early planting, first bloom June 16, first open boll July 30; late planting, first bloom July 5, first open boll August 28. *Description:* Resembles Marston in main characteristics. Yield seed cotton per acre 1292 pounds from early planting, showing 33.6 per cent of lint; 1508 pounds from late planting, showing 31.7 per cent lint. Cost of seed \$3.00 per half bushel.

TENNESSEE GOLD DUST.—Seed from Jenkins & Trobaugh, Stewartville, Tenn. Early planting, first bloom June 11, first open boll July 15; late planting, first bloom July 5, first open boll August 25. *Description:* Stalk very open with long limbs, bolls medium size, average height of plant 3 feet, with very light green foliage; yield seed cotton per acre 940 pounds from early planting, showing 32.9 per cent of lint; 1198 pounds from late planting, showing 28.1 per cent of lint. Seed cost \$4 per half bushel.

TENNESSEE GOLD DUST.—Seed from T. C. Hurley, Pottsboro, Texas. Early planting, first bloom June 12, first open boll July 27; late plant-

ing, first bloom July 6, first open boll August 25. *Description*: Seed badly mixed; yield seed cotton per acre 982 pounds from early planting, showing 32.9 per cent of lint; 1514 pounds from late planting, showing 30 per cent of lint. Seed donated.

TEXAS STORM PROOF.—Seed from W. J. Smilie, Baileyville, Texas. Early planting, first bloom June 13, first open boll July 25; late planting, first bloom July 5, first open boll August 28. *Description*: Stalk very large with very long limbs, bolls large and round, average height of plant $4\frac{1}{2}$ feet with light green foliage, yield seed cotton per acre 674 pounds from early planting, showing 32.2 per cent of lint; 1102 pounds from late planting, showing 32 per cent of lint. Seed donated.

TRUITT'S IMPROVED.—Seed from G. W. Truitt, La Grange, Ga. Early planting, first bloom, June 17, first open boll July 28; late planting, first bloom July 8, first open boll August 29. *Description*: Stalk low, broad and open, with long limbs with short joints, often bearing bolls on opposite sides of the limb; bolls medium size, round; plant vigorous, with very large dark green foliage. Yield of seed cotton per acre, 1059 pounds from early planting, showing 31.3 per cent of lint; 1502 pounds from late planting, showing 28.7 per cent of lint. Cost of seed, \$1 per half bushel.

TYLER'S LIMBED CLUSTER.—Seed from Alexander Drug and Seed Company, Augusta, Ga. Late planting, first bloom, July 16, first open boll, September 6. *Description*: Stalk very open; long limbs, with very short joints; bolls small; average height, $5\frac{1}{2}$ feet; plant vigorous, with light green foliage; yield seed cotton per acre, 1510 pounds from late planting, showing 29.4 per cent lint. No early planting of this variety. Seed donated.

CLUSTER VARIETIES.

BECK'S PROLIFIC.—Seed from C. B. Beck, Bryan, Texas. Early planting, first bloom, June 13, first open boll, July 25; late planting, first bloom, July 5, first open boll, August 27. *Description*: Long limbs put out from near the ground, short limbs (with short joints bearing cotton) put out from these long limbs from the main stalks; bolls medium size and round; plant small; average height of plant, 3 feet, with light green foliage; yield seed cotton per acre, 1011 pounds from early planting, showing 29 per cent of lint; 1486 pounds from late planting, showing 31.6 per cent of lint; cost of seed, 75 cents per half bushel.

COCHRAN'S PROLIFIC.—Seed from Mark W. Johnson Seed Company, Atlanta, Ga. Early planting, first bloom, June 15, first open boll, July 28; late planting, first bloom, July 6, first open boll, August 27. *Description*: Resemble's Beck's Prolific in main characteristics. Yield seed cotton per acre, 1069 pounds from early planting, showing 29.2 per cent of lint; 1504 pounds from late planting, showing 30.7 per cent of lint; cost of seed, 90 cents per half bushel.

DRAKE'S CLUSTER.—Seed from R. W. Drake, Laneville, Ala. Early planting, first bloom, June 16, first open boll July 24; late planting, first bloom, July 5, first open boll, August 25. *Description*: Resembles Beck's Prolific in main characteristics. Yield seed cotton per acre, 1251 pounds from early planting, showing 31.5 per cent of lint; 1404 pounds from late planting, showing 31.2 per cent of lint; cost of seed, \$1 per half bushel.

HAWKINS' IMPROVED.—Seed from Alexander Drug and Seed Company, Augusta, Ga. Early planting, first bloom June 11, first open boll July 25; late planting, first bloom July 8, first open boll August 28. *Description:* Resembles Beck's Prolific in main characteristics. Yield of seed cotton per acre, 1229 pounds early planting, showing 29.3 per cent lint; 1248 pounds from late planting, showing 30.1 per cent of lint. Cost of seed, \$1 per half bushel.

HERLONG.—Seed from H. C. Prevost, New Orleans, La. Early planting, first bloom June 15, first open boll July 30; late planting, first bloom July 11, first open boll August 30. *Description:* Resembles Beck's Prolific in main characteristics. Yield seed cotton per acre, 1109 pounds from early planting, showing 29.4 per cent of lint; 1760 pounds from late planting, showing 30.1 per cent of lint. Cost of seed, 75 cents per half bushel.

PEERLESS.—Seed from H. C. Prevost, New Orleans, La. Early planting, first bloom June 11, first open boll July 31; late planting, first bloom July 7, first open boll August 28. *Description:* Stalk open, pyramidal in shape, long limbs with very short joints, bolls medium size, average height of plant 3½ feet, with light green foliage. Yield per acre seed cotton, 1230 pounds from early planting, showing 28.4 per cent of lint; 1248 pounds from late planting, showing 30.8 per cent of lint. Cost of seed, \$1 per half bushel.

WELBORN'S PET.—Seed from Jeff D. Welborn, New Boston, Texas. Early planting, first bloom June 11, first open boll July 21. *Description:* Long limbs put out from near the ground, bolls form in clusters along the main stalk and long limbs, average height of plant 3½ feet, with light green foliage. Yield seed cotton per acre, 1172 pounds, showing 32.7 per cent of lint. No late planting of this variety. Seed donated.

A sample of each variety of cotton was taken as it was ginned, numbered to correspond with the name of the variety, the sample thus numbered was sent to W. D. Cleveland & Co., Houston, Texas, for classification. The names of the varieties were retained at this office, and attached to the report as furnished by Mr. Cleveland. Below is given results of the work.

Planted April 10.

BOHEMIAN.—Fiber strong, color good, staple good; strict low middling.

ALLEN LONG STAPLE.—Fiber strong, color good and white; staple very good, shy extra; strict low middling.

COLTHARP'S EUREKA.—Rather weak fiber, color fair, staple good; low middling.

JONES' WONDERFUL.—Fiber strong, color fair, slightly spotted, staple good; low middling.

MATHEW'S EXTRA LONG STAPLE.—Fiber fairly strong, color fair, staple very good, shy extra; strict low middling.

BOHEMIAN.—Fiber strong, color good, staple fair; strict middling.

SOUTHERN HOPE.—Fiber strong, color good, staple very good; low middling.

JONES' IMPROVED.—Fiber weak, color good, staple fair; strict middling.

PEELER.—Fiber fairly strong, color good, staple good; low middling.

PETERKIN.—Fiber fairly strong, color fair, a little spotted, staple fair; strict low middling.

BOHEMIAN.—Fiber strong, color fair, staple fair to good; middling.

PETERKIN LIMBED CLUSTER.—Fiber weak, color fair, staple poor; low middling.

PETIT GULF.—Fiber strong, color fair, a little spotted, staple good; strict low middling.

TENNESSEE GOLD DUST (Tennessee Seed).—Fiber weak, color poor, slightly stained, staple fair; low middling.

TENNESSEE GOLD DUST (Texas Seed).—Fiber strong, color good, staple good; middling.

BOHEMIAN.—Fiber strong, color dull, a little stained; staple good; middling.

TEXAS STORM PROOF.—Fiber strong, color (stained) fair; staple fair; low middling.

TRUITT'S IMPROVED.—Fiber fairly strong, color good, staple good; good middling.

BECK'S PROLIFIC.—Fiber weak, color good, staple fair; middling.

COCHRAN'S PROLIFIC.—Fiber weak, color dull, poor, staple poor; low middling.

BOHEMIAN.—Fiber weak, color very good (clean and bright), staple fair; strict good middling.

DICKSON'S IMPROVED.—Fiber fairly strong, color good, staple fair; middling.

DRAKE'S CLUSTER.—Fiber weak, color good, staple poor; middling.

HERLONG.—Fiber weak, color good, staple poor; low middling.

PEERLESS.—Fiber fairly strong, color fair to good, staple fair; middling.

BOHEMIAN.—Fiber strong, color very good, staple fair; good middling.

WELBORN'S PET.—Fiber weak, color fair, staple fair; strict low middling.

HURLEY'S CHOICE.—Fiber strong, color fair, staple very good; low middling.

MARSTON.—Fiber weak, color slightly tinged and spotted, staple poor; strict low middling.

SURE FRUIT.—Fiber strong, color good, staple good; strict low middling.

BOHEMIAN.—Fiber strong, color good, staple good; strict middling.

BECK'S BIG BOLL.—Fiber strong, color fair to good, staple good; middling.

HAWKINS' IMPROVED.—Fiber fairly strong, color fair to good, staple fair; strict low middling.

MERIDIAN.—Fiber weak, color fair (slightly stained), staple poor; strict low middling.

KING'S IMPROVED.—Fiber weak, color good, staple poor; strict low middling.

BOHEMIAN.—Fiber strong, color good, staple good; middling.

BOHEMIAN.—Fiber strong, color good, staple good; strict middling.

DOOLEY'S IMPROVED.—Fiber weak, color good, staple fair; middling.

BOHEMIAN.—Fiber strong, color good, staple shy extra; middling.

Planted May 10.

- BOHEMIAN.—Fiber strong, color good, staple good; good middling.
- ALLEN LONG STAPLE.—Fiber strong, color good, staple shy extra; middling.
- COLTHARP'S EUREKA.—Fiber strong, color good, staple very good; middling.
- JONES' WONDERFUL.—Fiber strong, color fair, staple extra; low middling.
- MATHEWS' EXTRA LONG STAPLE.—Fiber strong, color good, staple very good, shy extra; strict low middling.
- BOHEMIAN.—Fiber strong, color good, staple very good; middling.
- SOUTHERN HOPE.—Fiber soft weak, color poor, staple good; low middling.
- JONES' IMPROVED.—Fiber weak, color good, staple fair; middling.
- PEELER.—Fiber strong, color good, staple very good; strict low middling.
- PETERKIN.—Fiber weak, color slightly stained poor, staple fair; low middling.
- BOHEMIAN.—Fiber strong, color good, staple good; middling.
- PETERKIN LIMBED CLUSTER.—Fiber weak, color poor, staple fair; strict good ordinary.
- PETIT GULF.—Fiber strong, color good, staple fair; middling.
- TENNESSEE GOLD DUST (Tennessee seed).—Fiber fairly strong, color good, staple good; middling.
- TENNESSEE GOLD DUST (Texas seed).—Fiber strong, color poor, staple good; strict low middling.
- BOHEMIAN.—Fiber strong, color fair to good, staple good; middling.
- TEXAS STORM PROOF.—Fiber weak, color rather colored, staple fair; low middling.
- TRUITT'S IMPROVED.—Fiber strong, color good, staple good; strict low middling to middling.
- BECK'S PROLIFIC.—Fiber strong, color good, staple good; strict low middling.
- COCHRAN'S PROLIFIC.—Fiber fairly strong, color poor, staple fair; strict low middling.
- BOHEMIAN.—Fiber fair, color good, staple good; middling.
- DICKSON'S IMPROVED.—Fiber strong, color poor dull, staple fair; low middling.
- DRAKE'S CLUSTER.—Fiber fairly strong, color good, staple fair; low middling.
- HERLONG.—Fiber weak, color fair, staple poor; low middling.
- PEERLESS.—Fiber fairly strong, color fair, staple fair; strict low middling.
- BOHEMIAN.—Fiber fairly strong, color good, staple good; middling to strict middling.
- TYLER'S LIMBED CLUSTER.—Fiber strong, color good, staple good; strict low middling.
- HURLEY'S CHOICE.—Fiber strong, color good, staple very good; strict low middling.
- MARSTON.—Fiber strong, color good (clean and white), staple very good; low middling.

SURE FRUIT.—Fiber fairly strong, color good, staple good; low middling.

BOHEMIAN.—Fiber strong, color good, staple good; strict low middling.

BECK'S BIG BOLL.—Fiber fairly strong, color fair, staple good; middling.

HAWKINS' IMPROVED.—Fiber weak, color fair (a little spotted), staple fair; strict low middling.

MERIDIAN.—Fiber strong, color fair, staple fair; middling.

KING'S IMPROVED.—Fiber rather soft, color good, staple fair; strict middling.

BOHEMIAN.—Fiber strong, color good, staple good; middling.

BOHEMIAN.—Fiber weak, color good, staple fair; middling.

DOOLEY'S IMPROVED.—Fiber strong, color good, staple very good; middling.

DALKEITH'S EUREKA.—Fiber strong, color stained, staple very good; low middling.

Experiments in Varieties of Peas Planted at College Station.

A brief description including habit of growth, time of ripening, and yield per acre, of thirty varieties of cow peas planted on the grounds of Texas Experiment Station May 11, 1894, is given below. Seeds for planting were obtained from Pinckney Smith, Duncans, S. C., except where otherwise noted.

BLACK.—A black seed variety. Vine a vigorous grower, running low and near the ground. First ripe August 28; pods long and well filled with large firm black peas. Yield per acre 20.3 bushels.

BLACK EYE.—A white pea with black eye. Vine medium growth, erect and bunched. First ripe August 10. Pods medium length, imperfectly filled with very large peas. Yield per acre 13 bushels.

BLACK AND WHITE SPECKLED.—A black and white speckled variety. Vine a vigorous grower, running low and near the ground. Pods medium length, imperfectly filled with small peas. Yield per acre 8.6 bushels peas.

BROWN EYE.—A white pea with brown eye. Vine medium, growth erect and bunched. First ripe July 30. Pods medium length, imperfectly filled with peas of medium size. Yield per acre 9.3 bushels peas.

BROWN AND WHITE SPECKLED CROWDER.—A speckled crowder variety. Vines erect running vigorously. First ripe September 18. Pods long, well filled with brown and white speckled peas of medium size. Yield per acre 14 bushels peas.

CONCH.—Seed from Alexander Drug and Seed Co., Augusta, Ga. A small white seed variety. Vine a very vigorous grower, running very long and on the ground. Failed to mature any peas.

COFFEE.—A brown and white speckled variety with purple hull. Vine grows flat and vigorous. First ripe July 30. Pods long and well filled with brown and yellow speckled peas of medium size. Yield per acre 19.1 bushels peas.

EVERLASTING.—Seed from J. S. Bowls, Belzona, Miss. A red variety. Vine flat, running, and very vigorous. First ripe August 25. Pods

medium length, well filled with small peas. Yield per acre 14.3 bushels peas. Torg pea with a new name.

EVERLASTING.—A straw colored variety. Vigorous, flat, and running vigorously. First ripe August 25. Pods medium length, well filled with small black peas. Yield per acre 14.1 bushels peas.

FLAT RED.—Vine erect and runs vigorously. First ripe September 20. Pods medium length, fairly well filled with small flat peas. Yield per acre 12.4 bushels peas.

GRANITE.—A purple speckled variety. Habit of vine flat and running. First ripe September 7. Pod medium length, fairly well filled with small peas. Yield per acre 12.4 bushels peas.

GREEN COLORED.—A greenish pea with vine very erect and running vigorously. First ripe September 18. Pods medium length, well filled with small peas. Yield per acre 17.5 bushels peas.

GREEN COLORED.—A white pea with black eye. Vine medium growth, erect and running. Pods medium length, imperfectly filled with peas medium size. First ripe July 25. Yield per acre 18.8 bushels peas.

LARGE RED.—A typical red variety. The vine is a vigorous grower, running low and near the ground. First ripe September 22. Pods long and well filled with large red peas. Yield per acre, 18.6 bushels peas.

LARGE WHITE.—Vine a vigorous grower, running low and near the ground. First ripe July 30. Pods long and well filled with large white peas. Yield per acre, 17 bushels peas.

LARGE WHITE OR PURPLE HULL.—A white pea with black eye. A vigorous grower of erect and running habit. First ripe August 15. Pods long and well filled with large, black-eyed peas. Yield per acre, 17 bushels peas.

MUSH OR RICE.—A white variety. Vine medium growth, running low and near the ground. First ripe July 24. Pods long and well filled with perfectly white peas of medium size. Yield per acre, 19.5 bushels peas.

PALE RED.—A pale red variety. Vine medium growth, erect, and bunched. First ripe September 25. Pods medium length, imperfectly filled with small, pale red peas. Yield per acre, 11.9 bushels peas.

RED CROWDER.—A typical crowder variety. Vine of only medium growth, stands erect, and has the running habit. First ripe September 7. Pods short and full of large peas. Yield per acre, 18.9 bushels peas.

RED-EYED RED POD.—A white pea with red eye. Vine made a moderate growth, running low and near the ground. First ripe September 7. Pods medium length, well filled with peas of medium size. Yield per acre, 14.3 bushels peas.

RED AND WHITE SPECKLED (RED POD).—A red pea with white specks. Vine vigorous, running low and near the ground. First ripe September 7. Pods medium length, imperfectly filled with peas of medium size. Yield per acre, 12.5 bushels peas.

SMALL LADY.—A white variety. Vine a moderate grower of erect and bunched habit. First ripe pea August 25. Pods short, well filled, with small, round, perfectly white peas. Yield per acre, 9.3 bushels peas.

SMALL RED OR TORY.—Vine of medium growth, running low and near the ground. First ripe September 8. Pods long, well filled, with small, red peas. Yield per acre, 16 bushels peas.

SPECKLED OR WHIP-POOR-WILL.—A brown and yellow speckled, standard variety. Vine of medium growth, erect, and bunched. Will run at

times when conditions are favorable. First ripe August 28. Pods long and well filled with brown and yellow speckled peas of medium size. Yield per acre 16.6 bushels peas.

UNKNOWN.—Seed from United States Department of Agriculture, Washington, D. C. A yellow variety. The vine is a very vigorous grower, of erect and running habit. Pods very long and well filled with very large, round, yellow peas. First ripe September 25. Yield per acre, 14.5 bushels peas.

WHITE AND BROWN SPECKLED.—A brown and yellow speckled variety. Vine made a moderate growth, erect and bunched. First ripe August 20. Pods long and well filled with peas of medium size. Yield per acre, 14.4 bushels peas.

WHITE CROWDER.—A white pea with brown eye. Vine a vigorous grower, erect and running. First ripe August 30. Pods short and full of very large, round, white peas with brown eyes. Yield per acre, 12.9 bushels peas.

WONDERFUL.—Same as Unknown. See above.

PEARSON BEAN.—Sword Bean or Horse Bean. Seed from P. Pearson, Starkville, Miss. A black-eyed white bean. Vine of great vigor, from two to three feet in height, very erect and slightly running. First ripe September 20. Pods 9 to 14 inches long, $\frac{3}{4}$ to 1 inch in diameter, and well filled with black-eyed, white beans. Yield per acre, 35 bushels.

Experiment in Field Peas, 1894.

Name of variety.	Yield per acre in bu.	First ripe.
Black	20.3	Aug. 28.
Black Eyed	13.0	Aug. 10.
Black and White Speckled	8.6	July 15.
Brown Eyed	9.3	July 30.
Brown and White Speckled	14.0	Sept. 18.
Couch (Alex. D. & S. Co.)* .....	.....	.....
Coffee (Purple Hall)	19.1	Aug. 15.
Everlasting (Miss.)	14.3	Aug. 25.
Everlasting (N. C.)	14.1	Aug. 25.
Flat Red	12.4	Sept. 20.
Granite	12.4	Sept. 5.
Green Colored	17.5	Sept. 18.
Green Colored (medium early)	18.8	July 25.
Large Red	18.6	Sept. 22.
Large White	17.0	July 30.
Large White Red Pod	17.8	Aug. 15.
Mush or Rice	19.5	July 25.
Pale Red	11.9	Sept. 25.
Red Crowder	18.8	Sept. 7.
Red Eyed Red Pod	14.3	Sept. 7.
Red and White Speckled Red Pod	12.5	Sept. 7.
Small Lady	9.3	Aug. 25.
Small Red	16.0	Sept. 8.
Speckled, or Whip-poor-Will	16.6	Aug. 28.
Unknown (U. S. Dept.)	13.7	Sept. 25.
Unknown	14.5	Sept. 25.
White and Brown Speckled	15.4	Aug. 20.
White Crowder	12.9	Sept. 25.
Wonderful	15.4	Sept. 25.
Pearson Bean	35.0	Sept. 20.

* Failed to mature.

Test of Grasses, Forage Plants, etc., at College Station.

A fall planting of a large number of grasses and clovers, for experimental test, was made on the Station grounds at College Station, November 22, 1893. All of the seed were carefully sown by hand in drills six inches apart, and when necessary were cultivated lightly to free them from natural grasses and weeds. The greater number of seed planted came up promptly before the end of November, or before the middle of December. The soil upon which these experiments were made is a dark sandy loam with a clay subsoil lying 9 to 12 inches under the surface, and known as "post oak" land throughout this section. The greater part of the seed planted were obtained of Plant Seed Company, St. Louis, Mo., but where seed were obtained from other sources, explanation is made in such cases.

RED CLOVER (*Trifolium pratense*).

Seed germinated well and the growth was very satisfactory, considering that it was the first year from the seed. The plants reached a height of eight or ten inches; blooms first appeared May 20. A serious difficulty presents itself in growing this clover here in that the early summer sun kills it down to one-fourth or one-fifth of a stand. We can not look upon it as probably successful.

ALSIKE CLOVER (*Trifolium hybridum*).

This made a good growth during the spring of 1894, reaching a height of 8 to 10 inches, showing first bloom May 25, and died down in the heat of summer. The plant maintained a good stand through all conditions, and we look upon it as one of the most promising members of the clover family.

YELLOW TREFOIL CLOVER (*Medicago lupulina*.)

A good stand of this clover was not obtained in the fall planting, but the growth was unsatisfactory, at no time exceeding 4 inches in height.

CRIMSON CLOVER (*Trifolium incarnatum*).

A good stand was secured December 20, but this was killed by the unusual freeze of March.

WHITE CLOVER (*Trifolium repens*).

A perfect stand was secured early in the season, but the growth was unsatisfactory. It did not spread out nor rise from the ground, and died down with the hot sun of spring before making growth of any value. By June 25 there was only one-fifth of the stand remaining.

MEADOW FESCUE (*Festuca elatior*).

A full stand was secured December 18, and the plants successfully withstood the severe freeze of March and the hot sun of May. It made a growth of 6 inches in depth on the land, and must be placed at the head of the cultivated grasses (proper) reported upon in this experiment. Upon fairly fertile, moist lands we believe it will make a valuable pasture mixture, growing well into June and July before maturing seed.

ENGLISH PERENNIAL RYE (*Lolium perene*).

A good stand was secured December 18, and the plants withstood the severe freeze of March and the hot sun of May successfully, growing to a height of 5 inches. First blossoms appearing May 20. One of the most promising of the grasses (proper) tested.

ORCHARD GRASS (*Dactylis glomerata*).

A good stand was secured and a satisfactory growth of 6 or 8 inches was made until the latter part of May, when rust attacked the plants so seriously that the stand was seriously injured and growth of the entire plot arrested. A number of the bunches remained green during the summer and were growing thriftily during the fall and much of the winter.

TALL MEADOW OAT (*Avena elatior*).

A good stand was secured December 18 from fall planting, and the growth was very satisfactory during the following spring. It did not suffer severely from the freeze of March. Was not attacked by rust, and did not die down under summer sun. It bloomed the latter part of May, and must be named as one of the promising varieties of grasses suited to soils of this character.

TIMOTHY (*Phleum pratense*).

A full stand was secured December 18, and the plants were not injured by the freeze of March. The rust attacked this grass so seriously the latter part of April that the stand was destroyed, with the exception of a few plants. These survived the summer and made a fair growth during the fall of 1894, and have appeared green at several times during the winter. Would be successful but for rust.

SHEEP FESCUE (*Festuca ovina*).

A good stand was not secured in the beginning, and the growth was very scant during the entire spring. Appears to be worthless in this section of the State.

MEADOW SOFT GRASS (*Bromus sicalinus*).

Seed were planted and stand secured, but no growth was made worthy of mention.

MEADOW FOXTAIL (*Alopecurus pratensis*).

A good stand was secured early in December, and the plants withstood the freeze of March, but were almost entirely destroyed by the rust which attacked them seriously May 28. None of the plants made satisfactory growth.

SWEET VERNAL (*Anthoxanthum odoratum*).

A full stand was not secured. The plants withstood the freeze of March, but were sun-killed in May before making satisfactory growth. It stood 6 to 8 inches high upon the land before the sun affected it.

HARD FESCUE (*Festuca duriuscula*).

A full stand was not secured from the first planting, and no satisfactory growth was made at any time by this variety.

CRESTED DOGSTAIL (*Cynosurus cristatus*).

A good stand was not obtained, and this grass made little growth during the spring until sun-killed in May. Not promising.

KENTUCKY BLUE GRASS (*Poa pratensis*).

A full stand was secured during December, but the plants were killed by the severe freeze of March to such an extent that not more than one-fifth of a stand was left upon the ground. The remaining plants made meagre growth during the spring and summer. In the fall of 1894 some of the plants were still green and remained so during the winter.

RED TOP (*Agrostis vulgaris*).

A good stand was secured in December, and the plants made satisfactory growth in the following spring, the grass standing as high as one foot. The first blooms appeared May 20, and after seeding the plant died out before the hot weather of summer. A very promising grass for moist soils.

ROUGH STALKED MEADOW GRASS (*Holcus lanatus*).

A poor stand was secured, and nearly all of the plants were killed by the severe freeze of March.

RESCUE GRASS (*Bromus unioloidies*).

A poor stand was secured, and nearly all of these plants were killed down by the freeze of March. The spring planting succeeded better.

WOOD MEADOW GRASS (*Poa nemoralis*).

This made but little growth during the spring, although conditions were favorable, except for slight attack of rust during the latter part of May.

WATER MEADOW (*Poa aquatica*).

The stand was destroyed by the freeze of March, and the spring planting did not prove a success.

SPRING PLANTING.

The severe freeze of March proved so disastrous to a large number of the grasses and clovers reported upon above, it was thought necessary to repeat the experiment by making a spring planting of all of the varieties that had been sown the fall before. A number of others were also added to the list. The land was prepared and seed were planted on March 12, and in nearly all cases good stands were secured. Below we report upon their history up to January 1, 1895, for each of these.

RED CLOVER (*Trifolium pratense*.)

Full stand was secured March 18, and on May 2 the plant stood some 5 inches high and very thick upon the plot. The spring planting succeeded better than did that of the fall, but the plants now appear to have been killed out entirely by the hot sun of summer.

WINTER VETCH (*Vicia velosa*).

Stand secured March 23, and a growth of some 6 inches in height was obtained before the plants died down about June 25. Seed were probably sown too late to afford the best opportunity for growth.

BOKHARA, MELILOTUS, OR SWEET CLOVER (*Melilotus alba*).

Full stand was obtained April 3, and the plants made a very satisfactory growth until midsummer. They reached the height of 15 to 20 inches, and stood very thick upon the ground. One of the most promising of the spring planted clovers.

SPURRY (*Spergulum maxima*).

Full stand was secured March 21, but the growth was insignificant, plants standing no higher than 4 inches during the entire season. Seed were probably planted too late.

CRESTED DOGSTAIL (*Cynosurus cristatus*).

Full stand was secured March 20, but the growth was very poor until it died out the 1st of June. Failure.

ALSIKE CLOVER (*Trifolium hybridum*).

A full stand was secured March 20, and the plants withstood the sun well, but their growth was very slight. Did not succeed so well as did the fall planting.

YELLOW TREFOIL CLOVER (*Medicago lupulina*).

Did not make satisfactory growth, and died down almost completely before the 1st of June. It was attacked by rust May 25 and injured somewhat.

JAPAN CLOVER (*Lespedeza striata*).

Seed sown March 16 showed a good stand April 4. The plants grew slowly because of dry weather, but none of them were sun-killed by the drouth or sun of summer and a large quantity of seed were matured. These have scattered naturally over several adjoining plots, and have germinated during the present winter, 1894-1895. Promises well for grazing purposes under favorable conditions.

ALFALFA (*Medicago sativa*).

Full stand secured March 20, and a highly satisfactory growth was obtained during the spring season. Plants grew to a height of 18 inches and stood thick upon the land. The stand was not affected by the hot sun or drouth. Plants revived in the fall with the late rains and made some growth before winter. One of the most reliable of the clovers.

WHITE CLOVER (*Trifolium repens*).

Full stand was secured March 18, but the growth was small and unsatisfactory in this case, as when the seed were planted in the fall. The stand remained perfect until past the growing season, however, and made some attempt at growth all of the while until it had matured seed.

SACALINE (*Polygonum sachalinense*).

Seed obtained from Vilmorin & Andrieu, Paris, France. Sown February 7; germinated February 15. The plants resemble, when young, small cottonwood trees. Seeds were transplanted into beds, but in no case was there more than 10 inches of stalk produced during the first season. This plant is being very much advertised as a wonderful forage plant, adapted to semi-drouthy conditions. But its growth with us for the past twelve months has been unsatisfactory. We have already secured seeds and root cuttings from several other sources, and hope to be able to make a more complete report at the end of the coming season.

ENGLISH PERENNIAL RYE.

Complete stand secured March 20, but the growth for the season (unlike that of the fall sowing) was unsatisfactory. The indications are that fall seeding will prove more favorable for this grass.

COLORADO BOTTOM GRASS (*Panicum texanum*).

Seed planted March 15, showed a stand April 5. The grass grew slowly at first, but during the warm summer months showed a dense mass of hay standing two feet high. One of the best of the spring sown grasses here reported upon.

AWNLESS BROME GRASS (*Bromus inermis*).

Stand complete March 21, but the spring growth was weak, as expected. It is claimed for this grass that after the first year it will, if well established, make luxuriant growth upon poor land and without good rainfall. This crop remained green until well in the summer, and we believe promises well for this locality. Seed bought of Holloway & Co., Dallas, Texas.

BERMUDA GRASS (*Cynodon dactylon*).

Seed were sown March 23, and a stand was secured April 20. The early growth of the plants was slight, but stimulated by the warm weather and late summer rains it formed a perfect mat 6 and 8 inches deep and runners were formed 4 and 5 feet long. This experiment was made to test the practicability of sowing Bermuda seed for sodding land to this grass instead of the ordinary method of transplanting sod. The results were highly satisfactory.

MEADOW FOXTAIL (*Atopocurus pratensis*).

Stand secured March 20, but made small growth because it was attacked by rust in April or May.

HARD FESCUE (*Festuca duriuscula*).

The spring sowing, like that of the fall, made scant growth and proved unpromising.

MEADOW FESCUE (*Festuca elatior*).

The same report as for Hard Fescue.

TIMOTHY (*Phleum pratense*).

Full stand was secured March 20, but because of attacks by rust April 20 no satisfactory growth was made for the season.

SHEEP FESCUE (*Festuca ovina*).

A good stand was secured, but the growth was unsatisfactory throughout the spring season.

ORCHARD GRASS (*Dactylis glomerata*).

Full stand was secured, but the plants were almost destroyed by rust, as was the case with the seed from fall planting.

KENTUCKY BLUE GRASS (*Poa pretensis*).

Stand complete March 18, and though not sun-killed seriously, the growth was unsatisfactory for the first season.

RED TOP (*Agrostis vulgaris*).

Full stand was not secured until March 17, and though not sun-killed, it made poor growth for the season.

TEOSINTE (*Euchloena luxurians*).

The plant somewhat resembles sorghum and corn in its growth, stooling out very heavily from a single seed planted. Stand was secured April 10. Plots were not cultivated, and therefore the stalks did not grow more than 3 or 4 feet in height. It does not mature seed in this climate, and is, therefore, of little practical value. The seed usually cost \$1 per pound.

DWARF ESSEX RAPE (*Brassica campestris*).

Seed sown March 30; germinated April 6. The plants were allowed to stand too thick upon the plot, and a very heavy growth of green feed was made, plants measuring 12 to 20 inches in height, and we think this would be successful for sheep pasture, and probably for other stock in this latitude.

NON-SACCHARINE SORGHUMS.

RED KAFFIR CORN.

Planted March 23, and stand was secured April 4. The stalks grew to the height of 6 feet by June 25, with heads 8 to 12 inches long, standing erect. Yield of fodder and seed were both large, but the size of the plot would not allow an estimate of yield per acre. Seed from Holloway & Co., Dallas, Texas.

JERUSALEM CORN.

Seed planted April 20, showed a good stand April 28. The stalks grew to the height of 4 feet and were heavily loaded with large drooping heads of grain. Yield per acre not calculated. Seed from Holloway & Co., Dallas, Texas.

FIBER PLANTS.

SUNN HEMP (*Crotalaria juncea*).

Seed obtained from the Department of Agriculture at Washington. Planted March 15, stand secured March 23. First blooms appeared April 29, at which time a growth of some five feet was secured. Another plot of seed planted April 16 germinated April 24. Bloomed first May 24, but grew only 4 feet high. Stalks of this plant were put in water with the intention of rotting to separate the fiber from the stalk, but the operation was interrupted by the removal of the stalks by some unknown person.

KENTUCKY HEMP (*Urtica Canadensis*).

Seed sown March 23 and stand secured April 4. Plants grew from 4 to 6½ feet in height, and seemed to thrive under all conditions. First blooms appeared May 10.