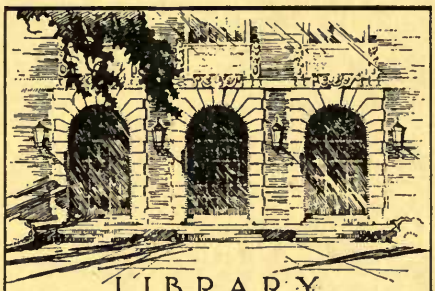

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UNIVERSITY OF ILLINOIS,

Agricultural Experiment Station.

URBANA, MARCH, 1896.

BULLETIN NO. 42.

CORN EXPERIMENTS, 1895.

Experiments with corn conducted at this Station and reported in this bulletin are comprised under the following numbers and titles:

No. 1. Corn, Testing Varieties.
No. 3. Corn, Time of Planting.
No. 5. Corn, Thickness of Planting.
No. 23. Rotation Experiment.
No. 90. Corn, Rate of Growth.

For the benefit of those who desire to consider the effect of meteorological conditions upon the experiments reported there is given on the next page a table of temperatures and rainfall as observed at this Station from January, 1889, to December, 1895, inclusive.

Experiment No. 1. Corn, Testing Varieties.

LAND.

The ground used in this experiment is deep, rich prairie soil, nearly level, and is as uniform as it was possible to select, any difference being in favor of the end at which the line in the diagram indicates the location of a tile drain. Plats 1 to 80, inclusive, occupy the ground that was used for the same experiment the year previous, and the last crop on plats 81 to 100 was wheat. It was plowed in the fall and well disked and harrowed before planting.

METEOROLOGICAL RECORDS, 1889–1895.

Temperature, Degrees, Fahrenheit.

	January.			February.			March.			April.		
	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.
1889	29.28	57	−2	23.36	53	−7.5	39.92	72	18	51.9	75	25
1890	33.5	66	−5	34.66	68	7	33.35	61	2	52.32	81	29
1891	30.26	57	6	30.45	61	−9	32.55	65	−1	52.78	81	22
1892	19.2	57	−15	33	55	*	36.1	69	*	48 6	70.5	26
1893	14.8	48	*	25.8	51	*	37.8	76	*	49.3	75	30
1894	29.4	64	−21	24.7	58	−5	43.5	77	10	51.4	85	25
1895	19.5	57	−8	17.9	65	−20.5	35.9	84	7	52.3	88	27
Whole period..	25.13	66	*−21	27.12	68	*−20.5	37.01	84	*−1	51.22	88	22

	May.			June.			July.			August.		
	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.
1889	59.2	91	28	65.5	88	40	72.7	90.5	50	69.2	89	29.5
1890	58.27	87	33	74.56	96	47	73.02	97.5	45	68.74	96	44.5
1891	58.4	91	30	71.9	93	49	70.12	93	42	70.21	99	40
1892	57.9	82	36	70.6	94	51	73.3	96.5	46	71.5	94	47
1893	57.4	84	37	70.5	93	53	76.4	98	48	71.1	96	37
1894	59.6	89	32	73.4	97	34	73.8	98	47	72 3	99	41
1895	59.4	95	28	73.3	98.5	42	71.3	94	43	73.2	97	48
Whole period..	58.60	95	28	71.39	98.5	34	72.95	98	42	70.89	99	29.5

	September.			October.			November.			December.		
	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.
1889	61.32	87.5	32	47.26	82	25	36.82	62	4	42.71	66	15
1890	60.46	89	33	52.07	76	27	42.62	68	21	30.91	58	8
1891	69.2	96	41	51.3	88.5	27	35.69	67	2	37	60	11
1892	63.9	87	42	53.6	88.5	19	34.8	64	7	27.7	60	−7
1893	66.5	97	31	53.3	84	18	37.3	75	6	30	63	−6
1894	65	94	38	51.9	84	28	35.9	67	12	32.9	59	−4
1895	67.7	94	32	45.9	75	12	38.2	73	4	31.1	59	−2
Whole period..	64.86	97	31	50.76	88.5	12	37.33	75	2	33.19	66	−7

Rainfall, Inches.

	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
1889	1.48	2.08	1.61	.61	5.52	6.81	5.81	.60	2.74	1.42	4.38	1.82	34.88
1890	5.26	1.87	2.70	4.11	3.56	3.80	2.83	1.93	1.19	2.35	1.63	.05	31.28
1891	.99	2.60	3.55	3.54	.89	2.08	1.41	2.86	.41	1.29	5.58	1 53	26.73
1892	.79	2.64	2.59	6.45	7.86	5.36	2.50	2.45	.93	93	4.95	1.62	39.05
1893	1.05	4.48	3.20	7.68	4.83	1.55	.59	.06	3.62	1.14	2.98	1.09	32.37
1894	1.95	1.32	2.41	1.86	3.32	1.78	1.08	2.06	4.21	.51	2.77	1.44	24 72
1895	1.36	.52	.70	2.42	2.20	2.24	3.61	1.81	5.27	.21	3 07	5 71	29.12
Ave..	1.84	2.21	2.39	3.81	4.02	3.37	2.54	1.68	2 62	1.12	3.62	1.89	31.16

*Record incomplete.

DIAGRAM OF PLATS.

100	99	98	97 ×	96	95	94	93	92 ×	91	90	89	88	87 ×	86	85	84	83 ×	82	81
77	73	69	65	61	57	53 ×	49	45	41	37	33	29 ×	25 ×	21	17	13	9	5 ×	1 ×
78 ×	74	70	66	62	58	54	50	46	42	38	34	30	26	22	18	14	10	6	2
79	75	71	67	63	59	55	51	47	43 ×	39	35	31	27	23	19	15	11	7	3
80	76	72	68 ×	64	60	56	52	48	44	40	36	32	28	24	20	16 ×	12	8	4

TREATMENT.

The accompanying diagram gives the position of the varieties under experiment each occupying a plat two rods square. All were planted the same date, in hills 3 ft. 8 inches apart each way, and were cultivated and treated alike in every particular. At a height of about six inches the crop was thinned to four stalks a hill. The entire area was surrounded by growing corn. The plats marked thus x were planted to the same variety, Boone county white.

Identical treatment of all varieties is open to objection. That form pursued here is manifestly unjust to both the very early and the very late. Any date which may be selected for planting subjects some varieties to possible unfavorable conditions. To say the least they are not the same to which they would be subjected under ordinary circumstances. Any uniform distance of planting will be unnecessarily great for the early and smaller varieties and tend to reduction of yield, or it will be unfavorably close for the gigantic later sorts or both. It is a question too whether the extremes are fully supplied with pollen, certainly not with the superabundance attending the period of fertilization of the medium varieties. These medium varieties seemed to be favored not only by climatic conditions but by the necessary circumstances of experiment, because any attempt to equalize opportunities by closer planting or by special conditions is manifestly not feasible.

MATURITY.

All varieties maturing before September 15th are classed as early, those maturing between September 15th and October 1st as medium, and those maturing after October 1st as late. It is certainly remarkable that under fairly uniform conditions of soil and treatment the same variety when raised on neighboring plats should range from early to late. See Diagram and Table 1, Boone county white. It is suggestive in this connection that from what-

TABLE I. VARIETIES OF CORN, THEIR CHARACTERISTICS.

Plat.	Name of variety.	Source of seed.	Color.	Maturing.
1	Boone county white	Experiment Station Farm	White	Late
5	Boone county white	Experiment Station Farm	White	Medium
16	Boone county white	Experiment Station Farm	White	Medium
29	Boone county white	Experiment Station Farm	White	Late
43	Boone county white	Experiment Station Farm	White	Early
53	Boone county white	Experiment Station Farm	White	Late
68	Boone county white	Experiment Station Farm	White	Medium
78	Boone county white	Experiment Station Farm	White	Medium
83	Boone county white	Experiment Station Farm	White	Late
87	Boone county white	Experiment Station Farm	White	Late
92	Boone county white	Experiment Station Farm	White	Late
97	Boone county white	Experiment Station Farm	White	Medium
25	Boone county white	James Riley, Thorntown, Ind.	White	Late
80	Brown	J. B. Martin, Atwood, Ill.	White	Medium
65	Burr's white	F. E. Burr, Philo, Ill.	White	Early
75	Burr's white-cranberry, cross	Experiment Station Farm	White	Medium
26	Calico	C. W. Bush, Putnam, Ill.	R. & W.	Medium
76	Champion white pearl	J. C. Suffern, Voorhies, Ill.	White	Late
14	Champion white pearl (*r.*)	W. T. Freeland, Windsor, Ill.	White	Medium
15	Champion white pearl (*s.*)	W. T. Freeland, Windsor, Ill.	White	Early
72	Champion white pearl, cross	Experiment Station Farm	White	Medium
36	Champion yellow dent	J. C. Suffern, Voorhies, Ill.	Yellow	Medium
61	Clark's Iroquois	Experiment Station Farm	Yellow	Medium
11	Charles Cloud	W. T. Freeland, Windsor, Ill.	White	Medium
45	John Cloud	W. T. Freeland, Windsor, Ill.	Yellow	Medium
41	Conqueror	N. B. & G. Co., Minneapolis	Yellow	Medium
30	Crowder	W. T. Freeland, Windsor, Ill.	Yellow	Medium
51	Cuban Queen	Nims Bros., Emerson, Iowa	Yellow	Early
24	Davis' improved	L. H. Davis, Earlville, Ill.	White	Early
6	Dungan's white prolific	Plant Seed Co., St. Louis, Mo.	White	Medium
32	Early Butler	J. C. Suffern, Voorhies, Ill.	Yellow	Early
58	Early eclipse	Plant Seed Co., St. Louis	Yellow	Medium
54	Early golden Cable	Plant Seed Co., St. Louis	Yellow	Late
69	Early Iowa	E. A. Riehl, Alton, Ill.	White	Early
34	Early Leaming	J. H. Beagley, Sibley, Ill.	Yellow	Medium
47	Early mastodon	J. A. Everitt, Indianapolis	Yellow	Medium
59	Edmonds	H. P. Edmonds, Taylor, Ill.	Yellow	Early
82	Edmonds-Burr's white, cross	Experiment Station Farm	White	Early
57	Edmonds-Murdock, cross	Experiment Station Farm	Yellow	Medium
20	Extra early Adams	D. M. Ferry & Co., Detroit, Mich.	White	Very early
31	Extra early Huron	Ford & Son, Ravenna, Ohio	Yellow	Very early
17	First premium	J. A. Everitt, Indianapolis	White	Medium
13	Fisk's white	E. C. Fisk, Havana, Ill.	White	Late
98	Flour corn	Wm. H. Maule, Philadelphia	White	Late
74	Forsyth's favorite	J. A. Everitt, Indianapolis	White	Late
22	J. J. Freeland	W. T. Freeland, Windsor, Ill.	White	Medium
27	Golden beauty	W. W. Barnard & Co., Chicago	Yellow	Medium
85	Golden beauty-Leaming, cross	Experiment Station Farm	Yellow	Medium
88	Golden beauty-Leaming, cross	Experiment Station Farm	Yellow	Late
81	Golden dent	Jas. Moore, Hanover, Ill.	Yellow	Early
44	Golden seal	J. A. Everitt, Indianapolis	Yellow	Early
4	Hickory king	W. W. Barnard & Co., Chicago	White	Early

STALKS, EARS, AND YIELDS OF SHELLED CORN PER ACRE, 1895.

Plat.	Height, in.		Stalks.		Ears.		Lb. of ears as husked to bu. air-dry.	Per cent. of cobs.	Shelled corn.		
	Stalk.	Ear.	Barren.	Total.	No. per a.	Wt. 100.			Wt. per acre.	Per cent. water.	*Bu. air-dry.
1	106	46	1500	11900	10500	41	73.7	18.4	3550	17	59
5	107	43	1800	11500	9300	35	70.4	17.1	2675	15	45.8
16	105	43	2500	11900	9900	39	73.3	18.2	3150	17	52.5
29	112	49	600	12200	11800	55	73	18.7	5325	16	89.7
43	107	44	2400	11800	9900	35	69.8	17.3	2875	14	49.8
53	116	48	600	12400	11600	57	68.3	18.9	5350	10	96.7
68	118	49	900	11800	10700	66	74.1	18.8	5700	17	95.2
78	105	38	2300	12800	9500	42	75.2	20.6	3150	16	53.2
83	109	50	2500	11800	9400	43	75.1	19.3	3250	18	53.6
87	113	48	900	12300	11200	58	72.7	18.5	5300	16	89.4
92	121	49	1700	13500	11100	65	71.9	17.6	5950	16	100.8
97	111	47	2800	14500	11800	63	73.4	18.6	6025	17	100.8
25	103	45	800	11800	10500	47	76.2	19.6	4000	19	65.3
80	96	37	3700	11300	8700	48	71.7	16.9	3450	16	57.9
65	95	38	1000	11900	11100	51	72	16.7	4725	16	79.2
75	89	34	4300	12500	8500	33	76.4	18.9	2250	20	36.3
26	107	41	1300	11600	11200	45	69.2	16	4200	14	72.3
76	107	44	1000	12700	11700	61	71.5	16.7	5950	16	100.3
14	98	37	1500	12100	10400	31	71.9	17.2	2650	16	44.5
15	98	43	2200	11800	9700	31	71.3	15.6	2575	17	42.8
72	99	40	1600	11800	10300	45	68.3	14.5	3975	15	68.1
36	94	32	1200	12600	10900	51	70.7	15.8	4650	16	78.2
61	119	48	1000	12100	12200	57	68	13.6	6000	15	102.5
11	102	43	2800	11600	8800	32	73.8	16.2	2325	19	37.6
45	111	42	700	12200	11400	54	70.8	16.4	5100	16	86.2
41	94	37	1900	10600	9500	51	76.2	20.2	3850	18	63.3
30	106	44	1500	12000	11100	53	72.2	16.2	4925	18	81.4
51	107	42	600	11200	11000	36	76.4	15 7	3350	23	52
24	90	36	1000	12600	11800	31	66.8	15.9	3025	11	53.9
6	110	47	2900	11200	7800	40	69.7	16.9	2575	14	44.5
32	90	35	1100	11500	11300	28	66	14.1	2750	12	48.5
58	112	48	2900	12300	10300	53	69.6	15.1	4625	16	78.3
54	104	42	3700	13700	11000	41	65.2	11.7	3950	14	68.6
69	98	32	700	13100	13200	35	68.4	18	3750	11	66.9
34	105	44	1700	12100	10500	46	68.7	16.7	4000	13	69.9
47	111	40	900	12000	10200	34	70.1	16.7	2875	15	49.2
59	99	40	900	11700	11600	50	67.7	14.2	4975	14	86.1
82	91	37	1300	10100	9700	37	72.5	16.8	2975	17	49.3
57	97	39	300	11800	12100	40	67.5	15.5	4150	13	71.9
20	69	18	400	10100	10800	19	70.7	20.7	1625	11	29
31	88	32	300	11800	11300	26	65.3	14.7	2475	11	44.4
17	101	40	1900	10300	8400	38	81	21.7	2525	21	39.8
13	106	42	2100	12200	10000	36	82.4	22.6	2800	21	44.3
98	114	52	5700	22000	14600	36	86.1	22.6	4025	25	60.4
74	105	40	2300	11800	9400	56	77.5	22.9	4050	17	67.7
22	98	37	2300	12200	9900	36	73.2	17.4	2975	18	49.2
27	101	45	1800	11200	8200	34	73.7	16.1	2350	19	38
85	92	42	2000	11900	9600	42	74.9	15.5	3400	17	56.4
88	102	46	1800	14700	13000	51	68.9	14.9	5700	15	97.2
81	89	33	1200	12900	10600	94	69.3	15.3	3450	15	58.8
44	96	36	300	12100	11300	38	67.9	15.7	3625	13	63.3
4	107	42	800	10500	8900	37	71.9	17.4	2725	16	45.9

TABLE I.—*Continued.* VARIETIES OF CORN, THEIR CHARACTERISTICS,

Plat.	Name of variety.	Source of seed.	Color.	Maturing.
67	Hickory king-Helms' Imp.,cross	Experiment Station Farm.....	White	Late
2	Illinois early white dent	J. C. Suffern, Voorhies, Ill.....	White	Medium
9	Illinois silver mine.....	J. H. Beagley, Sibley, Ill.....	White	Early
50	Illinois yellow dent.....	J. C. Suffern, Voorhies, Ill.....	Yellow	Medium
63	Improved Leaming.....	J. C. Suffern, Voorhies, Ill.....	Yellow	Medium
40	Iowa beauty	Samuel Wilson, Mechanicsville, Pa.	Yellow	Early
18	Iowa king.....	E. S. Teagarden, Boone, Iowa.....	White	Early
38	Leaming	W. T. Freeland, Windsor, Ill.....	Yellow	Medium
39	Leaming	E. E. Chester, Champaign, Ill.....	Yellow	Medium
96	Leaming	E. G. Meriwether, Shipman, Ill...	Yellow	Late
94	Leaming-Edmonds cross.....	Experiment Station Farm.....	Yellow	Late
89	Leaming-golden beauty, cross.	Experiment Station Farm.....	Yellow	Medium
55	Legal tender	Nims Bros., Emerson, Iowa	Yellow	Early
77	Little boss.	J. B. Martin, Atwood, Ill.....	White	Medium
66	Macoupin county white	E. G. Meriwether, Shipman, Ill...	White	Late
60	Mastodon	J. H. Beagley, Sibley, Ill.....	Yellow	Early
12	Mills county white.....	Nims Bros., Emerson, Iowa.....	White	Early
37	Minear's long grain	George Minear, Wing, Ill.....	Yellow	Medium
42	Mortgage lifter.	J. A. Everitt, Indianapolis.....	Yellow	Late
93	Murdock	Dr. C. H. Mills, Champaign.....	Yellow	Medium
64	Murdock's 90-day yellow.....	Plant Seed Co., St. Louis, Mo.....	Yellow	Early
23	New white cap yellow dent...	J. A. Everitt, Indianapolis	White	Early
52	Ohio Hendren.....	E. E. Chester, Champaign.....	Yellow	Late
71	Premium white..	E. E. Chester, Champaign.....	White	Medium
56	Pride of Columbia.....	J. H. Beagley, Sibley, Ill.....	Yellow	Early
95	Pride of the north.....	J. H. Beagley, Sibley, Ill.	Yellow	Early
90	Pride of Saline.....	Hiram Howard, Marshall, Mo.....	Yellow	Late
84	Queen of the prairie.....	J. W. Council, Fancy Prairie, Ill..	Yellow	Late
91	Reid's yellow dent.....	J. L. Reid, Delavan, Ill.....	Yellow	Early
28	Riley's favorite	James Riley, Thorntown, Ind.....	Yellow	Medium
8	St. Charles white....	J. C. Suffern, Voorhies, Ill.....	White	Late
100	Sanford flint.....	W. W. Rawson & Co., Boston, Mass	White	Medium
79	Short stalk.....	J. B. Martin, Atwood, Ill.....	White	Medium
49	Stanner's yellow dent.....	W. H. Stanner, St. Joseph, Ill....	Yellow	Medium
86	Star.....	S. P. Campbell, Loami, Ill.....	Yellow	Late
48	Sterling.....	T. J. Groves, Dana, Ind.....	Yellow	Medium
21	Storm.....	W. T. Freeland, Windsor, Ill.....	White	Medium
62	Van Dervoort's improved....	Wm. Van Dervoort, Ellsworth, Ill.	Yellow	Early
3	Van Meter's white.....	J. W. Council, Fancy Prairie, Ill..	White	Very late
10	Waggoner.....	W. T. Freeland, Windsor, Ill.	White	Medium
70	White corn.....	O. E. Chester, Champaign, Ill.....	White	Medium
19	White pearl.	J. H. Beagley, Sibley, Ill....	White	Early
7	White prolific.....	Sam'l Wilson, Mechanicsville, Pa..	White	Early
73	Wilson's 137 bu.....	J. B. Martin, Atwood, Ill.....	White	Early
33	Yantis.....	W. T. Freeland, Windsor, Ill.....	Yellow	Late
46	Yellow corn.....	E. C. Fisk, Havana, Ill.....	Yellow	Medium
35	Yellow.....	C. W. Bush, Putnam, Ill.....	Yellow	Early

*Air-dry, containing eleven per cent. of moisture.

STALKS, EARS, AND YIELDS OF SHELLED CORN PER ACRE, 1895.

Plat.	Height, in.		Stalks.		Ears.		Lb. of ears as husked to bu. air-dry.	Per cent. of cobs.	Shelled corn.		
	Stalk.	Ear.	Barren.	Total.	No. per a.	Wt. 100.			Wt. per acre.	Per cent. water.	*Bu. air-dry.
67	110	54	1000	9600	8400	49	78	15.8	3475	24	52.9
2	96	36	1700	12000	10100	31	70.5	16.8	2600	15	44.3
9	90	37	2000	11100	9500	35	71.3	15.7	2825	18	47
50	108	46	1100	12000	11300	56	71.4	17.3	5275	16	89.3
63	109	42	1300	11300	10400	64	72.8	17.2	5525	17	91.7
40	105	42	500	12700	12400	36	67.2	15.7	3750	12	66.2
18	91	35	1700	11700	9500	31	71.4	17.2	2400	16	40.6
38	104	46	1000	12600	12500	36	65.9	13.9	3825	12	67.9
39	105	42	100	12000	11700	40	66.5	13.2	4100	14	71.1
96	112	48	3800	15100	11200	68	75.2	19.1	6150	18	101
94	98	40	3700	15300	11800	48	71.5	16.7	4725	16	79.4
89	105	45	1200	12900	12700	50	68.6	14.6	5400	15	92.5
55	102	41	600	13300	10800	52	70.3	15.6	4725	16	80
77	106	33	800	11800	11000	41	73.9	19.4	3625	16	60.9
66	121	52	800	12400	12400	63	80.8	22.4	6050	21	96.5
60	103	42	500	11600	11400	60	73.4	17.2	5625	18	93
12	97	40	1300	10500	9500	35	69	15.8	2800	14	48 2
37	110	46	800	11900	11200	49	67.1	14.5	4725	13	82.4
42	104	39	2100	12500	10900	36	68	14.6	3350	14	57.7
93	110	46	700	12200	11900	49	68.4	16.6	4900	13	85.9
64	92	31	1100	11900	11800	34	64.8	13	3525	12	62.5
23	91	32	1200	11500	9900	29	68.2	16.8	2350	12	41.4
52	113	47	1800	11700	9900	53	77.6	19.6	4200	20	67.3
71	106	40	900	11900	11100	65	75.3	17.2	6000	20	96.3
56	87	34	1000	12800	11400	38	66.2	13.1	3775	13	66.1
95	94	39	1700	12800	11200	45	65.2	13.4	4350	12	77.1
90	125	58	2000	12000	10000	64	77.1	18.6	5250	21	83.7
84	116	49	1600	12200	9800	53	76.1	17.7	4300	20	68.7
91	93	41	1000	12400	11500	56	68	14.5	5475	14	94.1
28	104	40	2000	12500	11100	32	67	13.6	3025	14	52.2
8	108	45	300	4200	2900	67	82.3	24.4	1475	20	23.7
100	98	33	9300	22600	14100	33	70.1	19.1	3775	12	67
79	96	37	2400	13100	10300	41	77.2	20.4	3325	19	54.1
49	106	45	700	11200	11400	55	72.7	17.9	5150	16	86.7
86	115	48	1700	12200	10200	59	79.1	19	4900	22	76.5
48	103	41	3200	12700	9600	36	70.3	15.1	2925	16	49.4
21	103	39	1200	11500	10100	44	76	18.9	3625	19	58.9
62	104	41	1200	12200	11000	55	69	15.6	5125	14	88.1
3	103	49	3900	12100	7300	43	78.9	17.6	2550	23	39.6
10	94	42	2500	11700	9000	35	77.4	18 9	2575	21	41
70	102	40	2000	13000	11500	55	73	18.7	5125	16	86.3
19	90	34	1700	12100	9600	27	67.3	13.7	2200	14	37.9
7	92	37	500	11200	10200	35	72.4	16.8	2850	14	49.4
73	110	44	700	12700	11900	56	76.4	19.9	5325	18	87.4
33	110	45	300	10100	10800	57	71.7	16.3	5125	17	85.4
46	100	39	2100	9800	8400	53	72.8	16.3	3725	18	61.1
35	86	34	800	12500	11600	43	67 6	15.6	4200	13	73.6

TABLE 2. SYNOPSIS OF VARIETIES OF CORN, 1895.

				Yields.	
Early (61.1 bu.)	Yellow (70 bu.)	Smooth	Reid's yellow dent	94	91
			VanDervoort's improved	88.1	
		Rough	Cuban queen	52	66.5
			Early Butler	48.5	
			Edmonds	86.1	
			Extra early Huron	44.4	
			Golden dent	58.8	
			Golden seal	63.3	
			Iowa beauty	66.2	
			Legal tender	80	
			Mastodon	93	
			Murdock 90-day	62.5	
			Pride of Columbia	66.1	
			Pride of the north	77.1	
	White (51.5 bu.)	Smooth	Champion white pearl, smooth	42.8	55.1
			Early Iowa	66.9	
			Extra early Adams	29	
			White prolific	49.4	
			Wilson's 137 bu	87.4	
		Rough	Burr's white	79.2	49.2
			Davis' improved	53.9	
			Hickory king	45.9	
			Illinois silver mine	47	
			Iowa king	40.6	
			Mills county white	48.2	
			New white cap yellow dent	41.4	
			White pearl	37.9	
Medium (64.8 bu.)	Yellow (72.9 bu.)	Smooth	John Cloud	86.2	75.2
			Conqueror	63.3	
			Crowder	81.4	
			Golden beauty	38	
			Improved Leaming	91.7	
			Leaming (ave. 3 plats)	80	
			Murdock	85.9	
		Rough	Champion yellow dent	78.2	71.2
			Clark's Iroquois	102.5	
			Early eclipse	78.3	
			Early Leaming	69.9	
			Early Mastodon	49.2	
			Illinois yellow dent	89.3	
			Minear's long grain	82.4	
			Riley's favorite	52.2	
			Sterling	49 4	
			Yellow corn	61 1	
	White (54.9 bu.)	Smooth	Boone Co. white (ave. 13 plats)	73.2	57.8
			J. J. Freeland	49.2	
			Sanford's flint	67	
			Storm	58.9	
			Waggoner	41	
		Rough	Brown	57.9	53.3
			Champion white pearl, rough	44.5	
			Chas. Cloud	37.6	
			Dungan's white prolific	44.5	
			First premium	39.8	
			Illinois early white dent	44.3	
			Little boss	60.9	
			Premium white	96.3	
			Short stalk	54.1	
Late (67.1 bu.)	Yellow (72.5 bu.)	Smooth	Ohio Hendren	67.3	70.8
			Queen of the prairie	68.7	
			Star	76.5	
		Rough	Early golden cable	68.6	73.8
			Mortgage lifter	57.7	
			Pride of Saline	83.7	
			Yantis	85.4	
	White (61.8 bu.)	Smooth	Flour corn	60.4	78.4
			Macoupin county white	96.5	
		Rough	Champion white pearl	100.3	55.1
			Fisk's white	44.3	
			Forsyth's favorite	67.7	
			St. Charles white	23.7	
			Van Meter's white	39.6	

ever cause this variation within the variety arose it was connected with the yield, for the one plat classed as early gave a yield of 49.8 bu.; the five classed as medium, an average yield of 69.5 bu.; and the seven classed as late, an average yield of 79.2 bu. The suggestion is that the labor the corn plant is able to do is to a considerable extent dependent on the time through which its energies are extended. This principle has support from Table 2 in which the varieties classed as late have upon the average the highest yield, even though two or three suffered from failing to mature.

Except in 1892 and the present year, the highest yield has been from the medium maturing varieties, the average yields for eight years being early 56.2; medium 65.1; and late 59.8; from which we infer that the chief danger for late varieties is interruption by frost before their labors are finished, but that they have the capacity for the greatest total results.

That the late varieties are capable of outyielding all others does not argue for their adoption. The element of certainty that attends the growth of medium maturing varieties more than compensates for the possible greater average of later sorts in favorable seasons. The ability to produce a paying crop in an unfavorable season is a chief recommendation for a variety, even though for a period of years its yield might be exceeded by a later sort.

Color.

Contrary to the general fact the yellow varieties largely outyielded the white in 1895, the yellow varieties yielding an average of 71.8 bu., and the white, 55 bu. Up to this time the average yield for all yellow varieties for seven years was 60.3 bu., and for all white varieties 61.8 bu.

Barren Stalks.

Actual count was made of the number of fruitful stalks, of barren stalks, and the total number of ears upon so much of each plat as would constitute one one-hundredth of an acre. These numbers multiplied by 100 appear in Table 1 as the approximate figures per acre.

The reader will be struck by the increased number of barren stalks, amounting to 13 per cent., and will ask: What is the cause? Is it due to a circumstance that may be controlled, or is it an attendant end that must be endured? Are certain varieties more afflicted with barrenness than others? A casual glance at Table 1 would give this impression, but exceeding wide variations in this matter are seen within the single variety, Boone county white.

The Sanford flint variety with 9300 barren stalks also shows the largest total number of stalks, with one exception the largest number of ears, and a very satisfactory yield. This strongly suggests that suckers freely appeared, for in thinning to four kernels to the hill the total number of stalks to the acre is less than 13,000. Whether we are to look upon suckers, improper fertilization, or other accident as the great source of barren stalks, or whether there be an inherent tendency from the seed are interesting questions, yet unanswered, and are questions upon which the Station is working.

Number of Ears to the Stalk.

Upon comparing the total number of fruitful stalks with the number of ears produced per acre it is evident that the rule is that one stalk produces but one ear and that there are by no means enough twin ears to make good the number of barren stalks. The fact that in a few cases the number of ears is less than the number of estimated fruitful stalks shows an error at some point in the work, and most likely it is that a few barren stalks escaped notice. Manifestly the column showing total number of stalks per acre is least open to error, and that showing barren stalks the most fruitful of error by oversight.

Yields.

The corn was husked by hand, care being taken to secure all ears and nubbins. The weight of ear corn, cobs, and of shelled corn was taken immediately and a quart sample from each plat was put in glass cans for determination of moisture. This work was performed in duplicate by Mr. C. G. Hopkins, chemist of the Station. The final yields are expressed in terms of air-dry grain, containing eleven per cent. of moisture.

It will not do to credit all these variations in yield to varietal differences. A glance at the wide differences in the yield of Boone county white will confirm the truth of this statement. So unaccountable are these extreme variations in yield that it seems necessary to resort to systematic duplication, reducing the number of varieties if need be to give anything like a just comparison for a single season.

While yields vary greatly with the season it is likely true that those of different varieties do not vary together; that is to say, that different varieties of corn, like different plats of ground, are differently affected by season.

It is therefore only after a long series of years and from plantings in a variety of plats that anything like a true comparison can be established. The yields of the more prominent varieties for several years and from different plats are given in Table 3.

TABLE 3. YIELD IN BUSHELS OF AIR-DRY CORN FOR A SERIES OF YEARS.

Varieties.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	Ave.
Champion white pearl,	70.0	94.8	74.9	76.5	65.0	37.3	51.0	100.3	71.2
Leaming	86.6	80.6	69.4	67.3	70.1	34.6	62.1	80.0	68.6
Burr's white	85.9	75.7	67.7	67.7	64.2	38.6	69.7	79.2	68.6
Clark's Iroquois	68.5	81.9	59	65.4	72.9	30.7	44 3	102.5	65.6
Legal tender	84.2	68.9	60	56.8	60.3	33.8	57.0	89	63.7
Murdock	80.3	65.0	61.6	59.8	57.6	35.7	48.1	85.9	61.7
Edmonds	83.7	66.3	55.9	58.6	58.4	28.3	54.3	86.1	61.4
Riley's favorite	81.8	66.1	53.3	56.1	74.1	38.1	62.8	52.2	60.5

Varieties.			1890.	1891.	1892.	1893.	1894.	1895.	Ave.
Boone county white			74 6	89.3	85.5	33.8	74.3	73.2	71.8
Champion white pearl,			74.9	76.5	65	37.3	51	100.3	67.5
Burr's white			67.7	67.7	64 2	38.6	69.7	79.2	64.5
Leaming			69.4	67.3	70.1	34.6	62.1	80.0	63 9
Clark's Iroquois			59	65.4	72.9	30.7	44.3	102.5	62 5
Legal tender			60.0	56.8	60 3	33.8	57.0	89.0	59.5
Murdock			61.6	59.8	57.6	35.7	48.1	85.9	58.1
Edmonds			55.9	58.6	58.4	28.3	54.3	86.1	56.8
Riley's favorite			53.3	56.1	74.1	38.1	62.8	52.2	56.1
Golden beauty			53.0	75.8	63.1	36.4	31.6	38.0	49.6

Experiment No. 3. Time of Planting.

Nine plantings of the same variety of corn were made at different dates one week apart, and at different rates of seeding from two stalks per hill to five, inclusive. Although an excess of seed was planted to be thinned when six inches high, in but few cases was a full stand secured and the actual seeding is less than the plan provided. See Table 4.

The land for all plantings had been treated the same for many years. It had raised a crop of corn the previous season, and each planting was on ground freshly plowed and harrowed.

All plantings were cultivated with the same tool and upon the same day excepting that plantings 6 and 7 were rolled, and 7 and 8 were harrowed before cultivating.

A killing frost on May 14, cut the first and second plantings to the ground, a disaster from which they never fully recovered.

The different plantings show marked differences in disposition to attain size, and the attempt was made to secure comparative growth in terms of height of plant. Though it is difficult to express such data accurately in figures the results given are the averages of many measurements, and express fairly well the development of the different plantings. See Table 5.

The first planting attained a height of 10 inches within 39 days after planting. That of May 6th passed this point sometime between the 25th and the 31st day, and practically with the first planting made 14 days before, whose development it exceeded and

TABLE 4. RESULTS FROM PLANTING ON DIFFERENT DATES AND WITH VARYING AMOUNTS OF SEED, 1895.

Plat No.	Date of planting.	Stalks per hill.	Per cent. full stand.	Field wt. ear corn.	Wt. shelled corn.	Per cent.		Yield, bu. air-dry 11 % moisture.
						Cobs.	Dry matter, shelled corn.	
1		5	65.6	34.75	30	13.7	87.02	52 2
2	*April 22 ...	4	63.3	28.75	24.75	13.9	86.62	42.8
3		3	42.7	12.5	10.5	16	87	18.2
4		2	4.7	1	.75	25	84.76	1.3
5		5	92.5	45.25	39	13.3	85.89	67
6	*April 29 ...	4	93.7	43.5	37	14.9	86 04	63.6
7		3	63.5	26.25	22	16.2	85.25	37.5
8		2	62.5	23.5	20	13.8	84.62	33.8
9		5	82.5	45 25	38.25	15.5	82.76	63.3
10	May 6.....	4	91.4	41.5	35.25	15.1	83.38	58.8
11		3	100	46	39	14.7	83.34	65
12		2	100	40	33.25	16.2	83.90	55.8
13		5	88.8	39.25	33	15.9	81.64	53.8
14	May 13.....	4	90.6	36.75	31.25	14.9	83.65	52.3
15		3	93.7	39.5	33 25	15.2	83.46	55.5
16		2	103.1	43.75	36 5	16.6	82.23	60
17		5	88.1	44.75	37.75	15.6	82.48	62.2
18	May 20.....	4	84.4	40.75	34.5	15.3	82.39	56.8
19		3	92.7	45.5	38	16.5	81.64	62
20		2	109.4	41.5	34.25	16.9	81.93	56.1
21		5	74.4	37	30.25	17.6	75.73	45.8
22	May 27.....	4	63.3	25.75	20	22.3	72.04	28.8
23		3	77.1	32.25	24.5	23.3	69.31	33.9
24		2	90.6	25.5	19.75	22.5	70 30	27.8
25		5	69.8	25	19.75	21	74.78	29.5
26	June 3.....	4	76.6	23.75	18.5	22.1	72.88	26.9
27		3	85.4	25	19.25	23	65.72	25.3
28		2	79.7	19.5	14.75	24.4	70.39	20.7
29		5	75.6	23.25	17	26.9	62.45	21.2
30	June 10.....	4	81.2	25	18 75	24	66.36	24.8
31		3	86.5	21	14.75	29.8	63.27	18.6
32		2	81.2	22.5	15 75	30	61	19.2
33		5	76.9	22	15.5	29.5	58.70	18.2
34	June 17.....	4	81.2	18.75	13.25	29.3	55.86	14.8
35		3	91.7	24.75	17	31.3	63.01	21.4
36		2	93.7	22.5	15	33.3	59.64	17.8

*Killed to the ground by frost, May 14th.

whose yield it beat by more than 10 bushels per acre. The planting of May 20th reached a height of 10 inches in 17 days from date of planting, and matured with the planting of May 6th, which it practically equaled in yield.

With this planting we seemed to have passed the point when the corn was able to gain by rapid development sufficient time for a maximum crop, and although the planting of the 27th equaled it did not appear able to exceed the record of its earlier planted neighbor for rapid early development. It gradually fell behind in yield and was clearly distanced, and all later plantings failed to

TABLE 5. AVERAGE HEIGHTS AND RATE OF GROWTH OF DIFFERENT PLANTINGS IN INCHES TO TIP OF TASSEL AND LEAF, 1895.

Date of planting.		May.	June.				July.				August.					September.		
		31	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20
April 22	Leaf.....	10	18	25	40	57	70	83	93	97	99	97	95	93	87	..	..	..
	Tassel ...	..	..	..	..	..	..	77	87	95	92	96	95	94	89	..	..	..
April 29	Leaf.....	8	17	28	44	57	74	81	99	106	105	105	104	102	93	..	..	..
	Tassel ...	..	..	..	..	..	..	74	94	103	102	101	102	101	95	..	..	..
May 6	Leaf.....	7	13	23	36	46	54	73	88	104	105	105	104	103	96	..	..	..
	Tassel ...	..	..	..	..	..	..	..	69	103	107	107	106	107	100	..	..	..
May 13	Leaf.....	6	12	21	33	45	60	74	91	107	108	107	107	105	99	..	..	..
	Tassel ...	..	..	..	..	..	..	..	75	104	107	106	107	106	103	..	..	..
May 20	Leaf.....	4	11	20	31	44	56	72	87	104	107	107	107	106	101	..	..	..
	Tassel ...	..	..	..	..	..	..	..	70	100	108	108	109	109	106	..	..	..
May 27	Leaf.....	..	..	10	13	21	31	44	59	79	89	97	101	101	95	97	..	..
	Tassel ..	..	..	..	..	..	..	..	..	82	98	94	97	101	95	94	..	..
June 3	Leaf.....	..	..	3	7	12	21	30	42	61	70	83	89	89	87	90	..	..
	Tassel ...	..	..	..	..	..	..	..	..	..	59	86	91	88	88	87	..	..
June 10	Leaf.....	..	..	..	3	5	10	17	27	45	64	70	78	81	83	86	85	..
	Tassel ...	..	..	..	..	..	..	..	..	..	.	..	89	77	80	83	82	..
June 17	Leaf.....	..	..	..	..	..	9	10	16	32	42	55	64	65	68	72	73	73
	Tassel ...	..	..	..	..	..	..	..	..	..	..	..	..	60	68	72	73	77

mature. Moreover these last plantings betrayed a lessened energy in the matter of rapid early growth, a tendency to take on a less complete development and at little or no saving of time. It seemed a clear case of their inability to make a crop, or even to make the most of the time at their disposal. In other words the last plantings did not accomplish so much in a given time as the earlier ones.

The average of eight seasons is the same for plantings ranging from May 4th to 18th with tendencies slightly favoring the later dates. See Table 6.

TABLE 6. RESULTS FROM PLANTING AT DIFFERENT DATES, 1888–1895.

Dates.	Bushels air-dry corn per acre.								
	1888.	1889.	1890.	1891.	1892.	1893	1894.	1895.	Ave.
April 22–26.....	..	52	..	51	..	..	58	29	48
April 27–May 4.....	80	44	67	50	**72**	..	60	50	60
May 4–11.....	**87**	51	71	48	70	47	**61**	**61**	62
" 11–18.....	86	**56**	**75**	50	63	**48**	60	55	62
" 19–25.....	**87**	50	71	**52**	66	40	**61**	59	61
" 26–June 1.....	83	55	74	34	59	37	40	34	56
June 1–8.....	81	50	61	37	68	34	42	26	50
" 8–15.....	50	50	60	19	49	38	21	21	39
" 17–22.....	..	..	..	..	30	22	12	18	21

Experiment No. 5. Thickness of Planting.

The plantings made at successive dates in Experiment No. 3 were made to be thinned to four rates of seeding, viz., 2, 3, 4 and

5 kernels to the hill. In most cases a full stand was not secured, though manifestly less difficulty was encountered with the thinner seedings.

Table 7 gives the per cent. of a full or desired stand and the yield of each, disregarding the extreme plantings as outside the range of agricultural practice. It will be noticed that the average yield declines from the greatest to the least seeding, but it will also be noticed that the actual seeding was considerably thinner than the nominal.

In three out of the six seedings the 5 kernels (actually but 4½ kernels) was most successful. Once three kernels, and once 2 kernels secured the highest yield, but in both cases the stand was full.

TABLE 7. INFLUENCE OF THICKNESS OF PLANTING UPON YIELD.

Date of planting.	Per cent. of full stand.				Yield.			
	5 ker.	4 ker.	3 ker.	2 ker.	5 ker.	4 ker.	3 ker.	2 ker.
April 29	92.5	93.7	63.5	62.5	**67**	63.6	37.5	33.8
May 6	82.5	91.4	100	100	63.3	58.8	**65**	55.8
May 13	88.8	90.6	93.7	103.1	53.8	52.3	55.5	**60**
May 20	88.1	84.4	92.7	109.4	**62.2**	56.8	62	56.1
May 27	74.4	63.3	77.1	90.6	**45.8**	38.8	33 9	27.8
June 3	69.8	76.6	85.4	79.7	29.5	26.9	25 3	20.7
Average	82.7	83.3	85.4	91	53.6	47.8	46.5	42.3

In nearly every case more nubbins appeared in the thicker seeding, and generally more good ears in the medium seeding, but the total yield shows a disposition to follow the nubbins rather than the highest number of large ears, although in the seeding of May 13th the largest yield accompanied the fewest ears of all, 6900, raised from two stalks to the hill.

Planting 3 ft. 8 inches each way provides 3240 hills per acre. This shows that two stalks per hill, each bearing a good ear, are capable of a fair yield of corn, but the result is seldom attained; and most of the fair yields, and all the great ones are from at least 10,000 ears per acre.

Experiment No. 23. Rotation Experiment.

Table 8 gives full results of experiments with corn in rotation, with oats alone and with both oats and clover, as compared with corn raised continuously both with and without manure. The principal facts are more clearly set forth in Table 9, in which each method is compared with corn raised continuously without manure.

TABLE 8. CONTINUOUS CROPPING WITH CORN, AND ROTATION, 1888–1895.

In corn annually since 1876.						In rotation since 1876						No manure or commercial fertilizers of any kind.											
Barnyard manure applied annually.		Comercl'l fertilizers applied annually.		No fertilizers.		Corn and oats alternating.			Corn, oats, and clover.														
						Plat No. 4.			Plat No. 5.			Plat No. 6.			Plat No. 7.			Plat No. 8.			Plat No. 9.			Plat No. 10.		
Plat No. 1.		Plat No. 2.		Plat No. 3.																			
						Crop.	Grain, bu.	Stover, lb.	Crop.	Grain, bu.	Stover, lb.	Crop.	Grain, bu.	Stover, lb.	Crop.	Grain, bu.	Stover, lb.	Crop.	Grain, bu.	Stover, lb.	Crop.	Grain, bu.	Stover, lb.	Crop.	Grain, bu.	Stover, lb.
1888	66.7	4640	57.4	3840	54.3	Corn	49.5	3970	Oats	48.6	2145	48	1665	Cl'v'r	....	3030	Cl'v'r	....	3045	Corn	61.2	3120	Corn	46.4	3750
1889	77.4	....	45.9	....	43.2	Oats	37.4	1775	Cl'v'r	....	8080	....	6665	Cl'v'r	....	3060	Corn	....	....	Corn	50.3	....	Oats	59	3650
1890	51.1	3392	41.5	2680	48.7	Corn	54.3	1332	Cl'v'r	....	3010	Cl'v'r	2900	Corn	61.9	2988	Corn	58.2	2664	Oats	....	....	Cl'v'r	....	4680
1891	44.1	3384	29.2	2400	28.6	Corn	33.2	2100	Cl'v'r	....	2910	Corn	2554	Corn	33.9	2246	Oats	55.3	1930	Oats	54.4	1748	Cl'v'r	....	5186
1892	60.5	2610	32.7	1530	33.1	Oats	37.2	1710	Corn	67.6	2920	Corn	2636	Oats	41	2090	Cl'v'r	....	2812	Cl'v'r	....	3332	Cl'v'r	....	4450
1893	24	3072	19.3	1792	21.6	Corn	29.6	1802	Corn	34.1	2216	Oats	2160	Oats	29.8	1438	Oats	24	1334	Corn	42	2500	Corn	49.6	2198
1894	32.5	3682	39.8	2662	34.8	Oats	57.2	1936	Oats	65.1	2308	Oats	1816	Oats	52.5	2036	Oats	52.3	1992	Corn	55.6	2918	Corn	65	4354
1895	18.3	2187	18.9	1752	21.1	Corn	20.8	1760	Oats	11.1	624	Oats	704	Oats	11.3	596	Corn	17.7	1519	Corn	25.2	2075	Oats	57.5	2268

EFFECT OF CONTINUOUS CROPPING.

Table 9 is capable of but one interpretation upon this point, viz., that the yield from unmanured land continuously in corn is slowly, but surely decreasing. This decrease is not gradual, but the yield as it rises and falls in response to season sinks into a deeper trough with each recurring unfavorable year, from which it fails to emerge with its former vigor. (See next page.)

VALUE OF BARNYARD MANURE.

Nothing could be clearer than the benefit of liberal dressings of barnyard manure except in exceedingly dry seasons when it is inoperative or positively injurious. It shows in this experiment in one instance a benefit of nearly 80 per cent. advance in yield, and an average of 11.6 bu. or over 30 per cent.

VALUE OF COMMERCIAL FERTILIZERS.

Though applied in great variety, but in moderate amounts no benefit to yield can be as yet discovered, either in actual increase or in tendency.

BENEFIT OF ROTATION.

While the plat under rotation between corn and oats showed at first a less ability to yield than did the plat continuously in corn, the later yields have been decidedly in favor of the rotation plat,

TABLE 9. CORN CONTINUOUS AND IN ROTATION.

Continuous.						In rotation.					
Year.	Without manure.	Barnyard manure.	Gain or loss.	Commercial fertilizers.	Gain or loss.	With oats.	Gain or loss.	1st crop after clover.	Gain.	2nd crop after clover.	Gain.
1888	54.3	66.7	12.4	57.4	3 1	49.5	−4.8	....	....	....	....
1889	43.2	77 4	34 2	45.9	2.7	Oats	....	56.4	13.2	....	....
1890	48.7	55.1	6 4	41.5	−7.2	54.3	5.6	61.9	13.2	58.2	9 5
1891	28.6	44.1	15.5	29.2	.6	33.2	4.6	43.8	15.2	33.9	5.3
1892	33.1	60.5	27.4	32.7	−.4	Oats	....	67.6	34.5	56.5	23.4
1893	21.6	24	2.4	19.3	−2.3	29.6	8	45.8	24.2	34.1	12.5
1894	34.8	32.5	−2.3	39 8	5	Oats	....	..	....	60.3	25.5
1895	21 1	18.3	−2.8	18.9	−2.2	20.8	−.3	....	....	...	....
Ave ..			11 6		−.1		2.6		20		15.2

with an average of 2.6 bu. per year. This is perhaps scarcely enough pronounced to warrant the statement that a rotation with oats is a substantial relief, but it affords strong presumptive evidence.

BENEFIT OF CLOVER.

He who runs may read not only a decided increase every year in which corn follows clover, amounting to an average of 20 bushels, but that the second crop after clover is substantially benefited, amounting to an average of 15.2 bushels.

Experiment No. 90. Rate of Growth.

Data upon this matter are tabulated in Table 5 to which the student is referred. It can scarce fail of notice that the rate of growth not only varies greatly throughout the life time of the plant, but that the corn plant passes through the same stages of development much more rapidly at some seasons than at others, and that the rate of growth is to a considerable degree independent of temperature.

SUMMARY.

Commonly medium maturing varieties have given slightly the highest average yield but in the season of 1895 the heaviest average yield was from the late varieties.

The earliest plantings did not secure the greatest yield.

Corn frozen to the ground recovered, and yielded a fair crop, though some of the earliest planting was killed outright.

Medium plantings grow faster, attain a greater development, and secure a higher yield than extremely early or extremely late plantings.

Thicker plantings give the higher yields, but smaller ears and more nubbins.

A considerable number of stalks are barren, usually for all varieties about 11 per cent.

Barrenness varies greatly with both variety and season for unknown reasons.

Maximum yields are generally from about 10,000 ears per acre.

The same variety raised on neighboring plats varies from early to late, and from 45.8 bushels to 100.8 bushels in yield per acre.

Land continuously in corn without addition of fertility shows a decided tendency to decrease of yield.

Barnyard manure applied annually has added to yield, but is no advantage in extremely dry seasons.

Commercial fertilizers have exerted no effect in these experiments.

In rotation with oats corn shows the same tendency to decrease of yield, but apparently in a lessened degree.

Land under a rotation containing clover gives decidedly superior yields.

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