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TEXAS AGRICULTURAL EXPERIMENT STATIONS.

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**BULLETIN No. 49.**

*Agricultural Section—DECEMBER, 1898.—Field Crops and Live Stock.*

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PART I.

# CORN EXPERIMENTS.

COLLEGE STATION,

VARIETIES.

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BEEVILLE STATION,

VARIETIES.

METHODS OF PLANTING.

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PART II.

# BEST VARIETIES OF CORN.

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POSTOFFICE:

COLLEGE STATION, BRAZOS CO., TEXAS.

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J. J. PASTORIZA PRINTING & LITHO. CO.  
HOUSTON, 1899.

# TEXAS AGRICULTURAL EXPERIMENT STATIONS.

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NOTE.—*The main station is located on the grounds of the Agricultural and Mechanical College in Brazos County. The postoffice address is COLLEGE STATION, TEXAS. Reports from this station are sent to farmers of the State upon application to the Director.*

## PART I.

# FIELD TESTS WITH CORN

AT COLLEGE STATION AND BEEVILLE.

B. C. PITTUCK.

The following experiment with corn was carried on at College Station during the season of 1898:

1. Variety Test—Embracing 42 varieties.

The following field experiments with corn were carried on at the Beeville Station during the season of 1898:

1. Variety Test—Embracing 25 varieties; distance between rows 4 feet, and 20 inches in the drill.
2. Variety and Distance Test—Embracing 5 varieties, the distance varying between rows from 3 feet to 5 feet, and 2 1-2 feet to 3 feet in the drill.

### SUMMARY OF RESULTS.

#### COLLEGE STATION.

*Varieties*—With the varieties tested at College Station, Blount's Prolific, a Southern-grown (Virginia) seed corn gave the largest yield (40.7 bushels) per acre.

Second best yield (39.5 bushels) was made by St. Charles White, a Northern (Illinois) grown seed corn.

Third best yield (37.2 bushels) was made by a Delaware-grown seed corn.

By a comparison of yields during the past three and four years we find Blount's Prolific made the largest average yield over all other varieties. This indicates to us the pressing need of more distinct varieties of Southern-grown seed corn.

#### BEEVILLE SUB-STATION.

1. *Varieties*—The three varieties making largest yields at College Station also made largest yields at the Beeville Station, notwithstanding the difference in soil and seasons.

2. *Distance Test*—With corn planted at varying distances, three out of the five varieties gave largest yields when planted in rows four feet apart and two and one-half feet in the drill. With varying methods of preparation this distance gave largest yields in each case. These results indicate that with all

varieties and methods of preparation used in these two *soil sections* that the best average distance to be given corn is four feet by two and one-half feet, for seasons such as that experienced in 1898. This conclusion is also confirmed by the results of our previous experiments and observations.

*Best Yields*—Of the five varieties planted 3 feetx2 1-2 feet, Golden Beauty gave the largest yield. Of the five varieties planted 4 feetx2 1-2 feet, the 100-Day Bristol gave the largest yield. Of the five varieties planted 4 1-2 feetx3 feet, Forsyth's Favorite gave the largest yield. Of the five varieties planted 5 feetx3 feet, Thomas gave the largest yield.

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## EXPERIMENTS AT COLLEGE STATION.

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### VARIETY TEST.

All corn at College Station was planted March 24, 1898, and germinated evenly on April 7th. With most varieties the stand was good, however, no attempt was made to replant to perfect the stand. With some varieties the results are omitted owing to insufficient stand. Stands from which results have been taken varied from 75 per cent. to 95 per cent. All cultivation was shallow and thorough, as follows:

April 25—Plowed with 4-tooth cultivator.

May 2—Orrick harrow run between rows, set to a V shape.

May 9—Corn thinned and plowed with double shovel.

May 16—Corn plowed, using 14-inch sweeps.

May 20—Corn hoed.

May 30—Single sweeps (buzzard wings) run once to the middles.

The following table gives yield in bushels, per cent cob and grain, length of ear and number of rows of kernels to the ear:



Variety Test with Corn at College Station, Texas, 1898.

Plot No.	VARIETY	Yield in Bushels	Per cent Corn	Per cent Cob	No. ears to weigh 70 lb	No. lbs. Shelled Corn in 70 lbs. ears	Av. length of ear, in	Av. diam <sup>r</sup> of ear, in.	Av. No. rows on ear	Seed grown, State
1	Golden Beauty (chk)	29.8	80.7	19.3	140	56.5	9	2½	14	Ohio
2	St. Charles White	34.7	80.7	19.3	124	56.5	9½	2½	18	Ill.
3	Early Mastodon	25.8	80.7	19.3	120	56.5	9	2½	16	"
4	Iowa Silver Mine....	26.2	83.5	16.5	137	58.5	9½	2½	16	"
5	Cuban Giant Ensi'ge	28.9	79.2	20.8	128	55.5	9	2½	14	.....
16	Golden Beauty (chk)	19.6	80.0	20.0	138	56.0	9½	2½	14	Ohio
17	Champ'n Early Pearl	30.7	80.7	19.3	122	56.5	9	2½	16	Ill.
18	Old Cabin Home....	26.6	90.7	9.3	185	63.5	7½	1½	10	Dela.
19	So. White Gourd Seed	37.2	78.5	21.5	108	55.0	8½	2½	18	"
20	Penn. Yellow Flint	19.7	77.8	22.2	200	54.5	11	1½	8	"
21	White Cap Dent....	13.4	80.0	20.0	179	56.0	8	2½	22	Ohio
22	Leaming.....	22.4	81.4	18.6	157	57.0	9	2	16	Ill.
23	Early Pearl	5	75.0	25.0	230	52.5	7½	2	16	Ohio
24	Johnson's L. W. Field	21.6	70.0	30.0	129	49.0	9½	2½	16	.....
25	Early Eclipse	19.7	.....	.....	.....	.....	.....	.....	.....	Ill.
26	Jo'n's'n's Gt'nt Beay	23.6	82.8	17.2	118	58.0	8½	2½	22	.....
27	Unknown	19.5	71.4	28.6	133	50.0	9	2½	16	.....
28	Unknown	14.9	84.2	15.8	170	59.0	9½	2½	16	.....
29	Riley's Favorite....	22.7	82.8	17.2	143	58.0	9	2	14	Ind.
30	Golden Beauty (chk)	18.4	80.0	20.0	152	56.0	8	2	14	Ohio
41	Golden Beauty (chk)	24.5	80.1	19.9	145	56.0	8½	2	16	"
42	Murdock.....	26.7	80.1	19.9	150	56.0	8½	2	16	Ill.
43	Early Mastodon	27.2	77.8	22.2	120	54.5	9½	2	16	Ohio
44	Jo'n's'ns L. W. B. Corn	29.2	75.6	24.4	101	53.0	10	2½	20	Ga.
45	Dungans Prolific....	13.8	90.7	9.3	131	63.5	8½	2½	20	Mo.
46	Golden Beauty (chk)	9.2	80.0	20.0	151	56.0	9	2	14	Ohio
47	Marsfi'ld White Dent	4.8	.....	.....	.....	.....	.....	.....	.....	Mo.
48	Leaming.....	4.5	.....	.....	.....	.....	.....	.....	.....	Ohio
49	100-Day Bristol.....	19.5	80.0	20.0	154	56.0	10	2	14	.....
50	Early Red-cob Sugar Corn.....	13.1	82.1	17.9	105	57.5	9	2½	18	.....
51	Golden Beauty (chk)	28.2	82.1	17.9	127	57.5	10	2	14	Ohio
52	Golden Cable.....	16.0	85.7	14.3	205	60.0	6½	1½	14	Ill.
53	Blount's Prolific....	40.7	80.7	19.3	175	56.5	7	1½	10	Va.
54	Forsyth's Favorite..	26.5	80.7	19.3	95	56.5	7	2½	14	Ind.
55	Champ'n Yel'w Dent	25.7	80.1	19.9	125	56.0	9½	2½	18	.....
56	Golden Beauty (chk)	16.5	83.5	16.5	137	58.5	9	2	12	Ohio
57	Imp. Leaming.....	24.2	80.0	20.0	151	56.0	10	1½	14	.....
58	No. 1 Corn.....	27.9	80.0	20.0	...	56.0	11	1½	14	.....
59	Hickory King.....	26.3	.....	.....	.....	.....	.....	.....	.....	.....
60	St. Charles White...	39.5	84.2	15.8	160	59.0	7½	2	14	Ill.
61	New Golden.....	17.2	.....	.....	.....	.....	.....	.....	.....	.....
62	Imp. Golden Dent ..	30.9	70.0	30.0	165	49.0	8	2	14	.....

Six varieties yielding above 30 bushels per acre:

Blount's Prolific.....	40.7 bushels
St. Charles White.....	39.5 "
Southern White Gourd Seed.....	37.2 "
St. Charles White.....	34.7 "
Improved Golden Dent.....	30.9 "
Champion Early Pearl.....	30.7 "

Twelve varieties yielding over 25 bushels per acre and under 30 bushels:

Golden Beauty.....	29.8 bu.	Old Cabin Home.....	26.6 bu.
Johnson's L. W. B. Corn	29.2 "	Forsyth's Favorite.....	26.5 "
Cuban Giant Ensilage...	28.9 "	Hickory King.....	26.3 "
No. 1 Corn.....	27.9 "	Iowa Silver Mine.....	26.2 "
*Early Mastodon .....	27.2 "	*Early Mastodon.....	25.8 "
Murdock.....	26.7 "	Champion Yellow Dent.	25.7 "

\* First mentioned grown in Ohio; latter grown in Illinois.

## CORN YIELDS AT COLLEGE STATION.

*Seasons 1894, 1895 and 1898 Compared.*

### BLOUNT'S PROLIFIC.

1894\*—Yield per acre, 12.4 bushels of corn; 100 pounds shucked ear corn yield 81.7 pounds grain.

1895—Yield per acre, 46.4 bushels of corn; 100 pounds shucked ear corn yield 87.8 pounds grain.

1898—Yield per acre, 40.7 bushels of corn; 100 pounds shucked ear corn yield 80.7 pounds grain.

*Average yield for three years, 33.2 bushels.*

### EARLY MASTODON.

1894\*—Yield per acre, 5.3 bushels of corn; 100 pounds shucked ear corn yield 83.6 pounds grain.

1895—Yield per acre, 41 bushels of corn; 100 pounds shucked ear corn yield 88.8 pounds grain.

1898—Yield per acre, 27.2 bushels corn; 100 pounds shucked ear corn yield 77.8 pounds grain.

*Average yield for three years, 24.5 bushels.*

### LONG YELLOW FLINT.

1894\*—Yield per acre, 6.1 bushels of corn; 100 pounds shucked ear corn yield 76.1 pounds grain.

1895—Yield per acre, 11.4 bushels of corn; 100 pounds shucked ear corn yield 76.1 pounds grain.

1898—Yield per acre, 19.7 bushels corn; 100 pounds shucked ear corn yield 77.8 pounds grain.

*Average yield for three years, 12.4 bushels.*

### THE LEAMING.

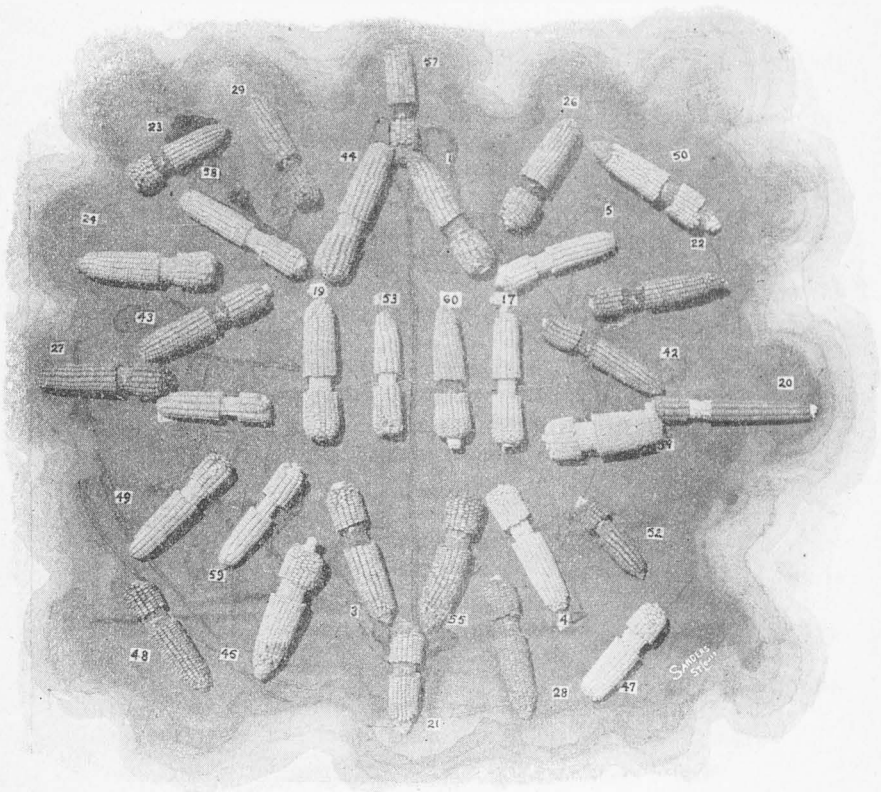
1894\*—Yield per acre, 10.6 bushels of corn; 100 pounds shucked ear corn yield 81.2 pounds grain.

1895—Yield per acre, 42.5 bushels of corn; 100 pounds shucked ear corn yield 88.5 pounds grain.

1898—Yield per acre, 22.4 bushels of corn; 100 pounds shucked ear corn yield 81.4 pounds grain.

*Average yield for three years, 25.1 bushels.*

\*All yields of 1894 reduced by hot winds of July 1st.



EARS OF CORN REPRESENTING VARIETIES GROWN AT COLLEGE STATION—1898.

*The numbers shown correspond with Plot Numbers found on page 1181.*

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## CHAMPION EARLY PEARL.

1894\*—Yield per acre, 9.6 bushels of corn; 100 pounds shucked ear corn yield 81.7 pounds grain.

1895—Yield per acre, 25.7 bushels of corn; 100 pounds shucked ear corn yield 88.5 pounds grain.

1898—Yield per acre, 30.7 bushels of corn; 100 pounds shucked ear corn yield 80.7 pounds grain.

*Average yield for three years, 22 bushels.*

## FORSYTH'S FAVORITE.

1894\*—Yield per acre, 14.2 bushels of corn; 100 pounds shucked ear corn yield 80.7 pounds grain.

1895—Yield per acre, 43.2 bushels of corn; 100 pounds shucked ear corn yield 88.5 pounds grain.

1898—Yield per acre, 26.5 bushels of corn, 100 pounds shucked ear corn yield 80.7 pounds grain.

*Average yield for three years, 27.9 bushels.*

## GOLDEN BEAUTY.

1894\*—Yield per acre, 11.9 bushels of corn; 100 pounds shucked ear corn yield 82.3 pounds grain.

1895—Yield per acre, 47.4 bushels of corn; 100 pounds shucked ear corn yield 87.1 pounds grain.

1897—Yield per acre, 23.7 bushels of corn; 100 pounds shucked ear corn yield 80.7 pounds grain.

1898—Yield per acre, 29.8 bushels of corn; 100 pounds shucked ear corn yield 80.7 pounds grain.

*Average yield for four years, 28.2 bushels.*

## MURDOCK.

1894\*—Yield per acre, 18.2 bushels of corn; 100 pounds shucked ear corn yield 84 pounds grain.

1895—Yield per acre, 43.8 bushels of corn; 100 pounds shucked ear corn yield 89.5 pounds grain.

1898—Yield per acre, 26.7 bushels of corn; 100 pounds shucked ear corn yield 80.1 pounds grain.

*Average yield for three years, 29.5 bushels.*

## SOUTHERN WHITE GOURD SEED.

1894\*—Yield per acre, 7.5 bushels of corn; 100 pounds shucked ear corn yield 85.8 pounds grain.

1895—Yield per acre, 28.4 bushels of corn; 100 pounds shucked ear corn yield 81.5 pounds grain.

1898—Yield per acre, 37.2 bushels of corn; 100 pounds shucked ear corn yield 78.5 pounds grain.

*Average yield for three years, 24.3 bushels.*

## HICKORY KING.

1894\*—Yield per acre, 15.2 bushels of corn; 100 pounds shucked ear corn yield 82.2 pounds grain.

\*All yields of 1894 reduced by hot winds of July 1st.

1895—Yield per acre, 40 bushels of corn; 100 pounds shucked ear corn yield 86.5 pounds grain.

1896—Yield per acre, 26.3 bushels of corn; 100 pounds shucked ear corn yield . . . pounds grain.

*Average yield for three years, 27.1 bushels.*

RILEY'S FAVORITE.

1894\*—Yield per acre, 15.5 bushels of corn; 100 pounds shucked ear corn yield 77.7 pounds grain.

1895—Yield per acre, 33.9 bushels of corn; 100 pounds shucked ear corn yield 82 pounds grain.

1898—Yield per acre, 22.7 bushels of corn; 100 pounds shucked ear corn yield 82.8 pounds grain.

*Average yield for three years, 24 bushels.*

## EXPERIMENTS AT BEEVILLE.

While the greatest possibilities of that section of Texas embracing Bee and adjoining counties lies in stock breeding and fruit and vegetable growing, we must not underestimate the importance of field crops. Climatic conditions make irrigation a necessary adjunct to the growth of vegetables. In this connection irrigation can be used successfully and profitably. But with field crops it is different and other methods of combatting the severe drouths must be adopted. All possible moisture must be retained in the soil by methods of preparation and cultivation to insure a full crop. The custom of late and shallow preparation generally prevails in this section, together with deep cultivation during the growing period. Consequently the moisture contained in the soil is given favorable opportunity for evaporating. During the few years work of the Beeville Experiment Station, we have steadily pursued the policy of early plowing (fall plowing, if possible), and frequent, clean and shallow cultivation. Our general field crops have suffered less from drouth and insects than the crops of adjoining fields, and the yield in every case was much larger.

Deep preparation followed by harrowing at intervals up to the time of planting, and frequent, but shallow cultivation during the growing period, serve to retain the moisture. To evolve some method of "beating the drouth" in this section is a long felt want. With corn and cotton the question of season is of grave importance, and, as the summer conditions surrounding the farmer in this section do not supply the neces-

\*All yields of 1894 reduced by hot winds of July 1st.

sary amount of moisture during the growing period, we must pursue methods that will retain the moisture contributed by the fall and early spring rains.

In Kansas and Nebraska extensive experiments have been made with different methods of preparation and cultivation for the conservation of moisture in the soil. Necessity demanded these experiments. The Campbell system of plowing, packing and cultivating in these two states has given the most favorable results. Whether or not our soil will yield the best results with this system remains to be seen. No safe conclusions can be drawn from the use of it this year, as the sub-surface packer arrived very late and plowing was carried on under very unfavorable conditions.

#### VARIETY AND DISTANCE TEST.

Different varieties require different distances given between the rows and in the drill, for best results, occasioned by the difference in root growth and development. While seasons, to a certain extent, effect the influence of distance, yet we may find an average distance for an average season. For this purpose an experiment was planned, including five varieties, using Thomas corn (the common field corn of this section) as a check on yields. The distance planted varied from 3 feet to 5 feet in the row and 2 1-2 feet to 3 feet in the drill.

Preparation and cultivation was as follows:

Land was plowed between January 1st and 10th using Canton disc plow, running to a depth of 7 inches, and harrowed twice with steel smoothing harrow previous to planting.

Rows were marked off five inches deep with 10-inch John Deere turning plow, and corn planted with Avery corn and cotton planter.

Variety and distance test was planted February 23d.

Corn on all plots germinated to good stand in 8 days.

March 23d, all corn was harrowed with steel smoothing harrow.

March 25th, cultivated with 6-shovel corn plow.

April 6th, corn was thinned to the following distances: Plots No. 1, 2, 3, 4, 5—3 feet by 2 1-2 feet; plots No. 11, 12, 13, 14, 15—4 feet by 2 1-2 feet; plots No. 21, 22, 23, 24, 25—4 1-2 feet by 3 feet; plots No. 31, 32, 33, 34, 35—5 feet by 3 feet.

April 15th, cultivated with 6-shovel riding plow, substituting 10-inch sweeps for inside shovels.

April 21st, cultivated with 6-shovel riding plow, substituting 12-inch sweeps for middle shovels.

April 26th, 22-inch sweep run once to the row.

May 3d, cultivated with double stock, using 12-inch sweep next to corn and 8-inch shovel on left hand side.

May 14th, cultivated with 5-tooth cultivator.

The following table gives yield in bushels, also per cent. shuck, grain and cob at varying distances:

Plot	VARIETY	Yield Shuck Corn	% Shuck	% Grain	% Cob
Group I Planted 3 ft. x 2½ ft.	1 Thomas (check).....	14.3	18	66	16
	2 Leaming .....	14.7	10	66	24
	3 Golden Beauty .....	20.1	9	73	18
	4 The 100-day Bristol.....	18.3	10	69	21
	5 Forsyth's Favorite .....	15.9	12	67	21
Group II Planted 4 ft. x 2½ ft.	11 Thomas (check).....	18.0	15	70	15
	12 Leaming .....	12.6	9	68	23
	13 Golden Beauty .....	18.0	10	70	20
	14 The 100-day Bristol.....	18.7	7	70	23
	15 Forsyth's Favorite .....	17.2	10	69	21
Group III Planted 4½ ft. x 3 ft.	21 Thomas (check).....	14.8	18	68	14
	22 Leaming .....	9.7	11	67	22
	23 Golden Beauty .....	16.6	12	71	17
	24 The 100-day Bristol .....	16.1	12	70	18
	25 Forsyth's Favorite .....	17.0	10	72	18
Group IV Planted 5 ft. x 3 ft.	31 Thomas (check).....	17.2	16	69	15
	32 Leaming .....	10.9	8	69	23
	33 Golden Beauty .....	16.2	12	71	17
	34 The 100-day Bristol.....	15.9	8	70	22
	35 Forsyth's Favorite .....	14.7	13	66	21

The following table is taken from the preceding one, and enables us to compare the yield of each variety at varying distances more readily:

DISTANCE PLANTED	Thomas (check)	Leaming	Golden Beauty	The 100-day Bristol	Forsyth's Favorite
Group I—3 feet x 2½ feet .....	14.3	14.7	20.1	18.3	15.9
Group II.—4 feet x 2½ feet .....	18.0	12.6	18.0	18.7	17.2
Group III.—4½ feet x 3 feet.....	14.8	9.7	16.6	16.1	17.0
Group IV.—5 feet x 3 feet .....	17.2	10.9	16.2	15.9	14.7

#### RESULTS OF DISTANCE TEST.

Both Golden Beauty and Leaming did best when planted close, while Thomas, 100-day Bristol and Forsyth's Favorite did best in 4-foot rows and 2 1-2 feet apart in the drill. The best average for the five varieties at any one distance was given in Group II, followed in turn by Group I, Group IV and Group III. This indicates that Group II represents the best average distance to be given corn in this section.

#### VARIETY TEST.

This test included twenty-five varieties of corn. Preparation



of land and cultivation was identical with that of Variety and Distance Test. The following table gives yield per acre, also per cent. corn, cob and shucks:

Plot	VARIETY	Distance	Yield of Corn in Shuck	% Shuck	% Grain	% Cob
41.	Marsfield White Dent .....	4x1 $\frac{3}{4}$ ft.	7.5	12	56	32
42.	Champion Early Pearl.....	"	12.5	10	68	22
43.	Champion White Pearl .....	"	15.7	12	72	16
44.	Dungan's Prolific .....	"	14.3	8	70	22
45.	Mosby's Prolific .....	"	9.9	20	64	16
46.	Old Cabin Home .....	"	14.6	10	78	12
47.	Southern White Gourd Seed....	"	16.4	10	68	22
48.	St. Charles White .....	"	16.7	8	74	18
49.	Iowa Silver Mine .....	"	12.8	9	72	19
51.	Blount's Prolific.....	"	16.9	8	76	16
52.	Red Cob Ensilage .....	"	13.7	8	73	19
53.	Early Mastodon .....	"	16.3	10	75	15
54.	Early Eclipse .....	"	15.2	9	76	15
55.	Early Mastodon.....	"	15.2	10	72	18
56.	Pride of the North.....	"	11.9	10	72	18
57.	Early Pearl .....	"	10.1	6	72	22
58.	Murdock .....	"	11.3	8	74	18
59.	Riley's Favorite.....	"	13.0	10	73	17
60.	Farmers' Favorite Golden Dent.	"	14.9	10	72	18
61.	Leaming .....	"	12.5	8	71	11
62.	Golden Cable .....	"	7.5	8	76	16
63.	Giant Beauty .....	"	14.8	8	73	19
64.	White Cap .....	"	9.6	8	76	16
65.	Penn. Yellow Flint .....	"	11.9	7	70	23

## RESULTS OF VARIETY TEST, 1898.

Comparing the results as given in the previous table with the results at College station and we find Blount's Prolific, St. Charles White and Southern White Gourd Seed corn gave the best results at both places. A further comparison of yields shows a remarkable conformity between the two notwithstanding the difference in soil and climate in these two sections.

## PART II.

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# BEST VARIETIES OF CORN.

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J. H. CONNELL AND B. C. PITTSUCK.

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Perhaps it may be of interest to some Southern farmers to know that very few distinct varieties of Southern grown seed corn are offered for sale by seed houses. The question of the relative value of Northern grown and Southern grown seed corn for this latitude has been discussed through the agricultural press of the State, and yet the farmers are not generally agreed. For extra early maturing varieties, seed grown in Northern latitudes gives the desired results with greater uniformity than seed grown in the South, because such corn often matures before the late summer drouths which sometimes catch our native varieties at a critical period and materially shorten the yield. The seasons and general conditions affecting the growth of Northern corn, are conducive to rapid growth and early maturity; the life period is short, and the rapid growth and early maturity of seed are made at the expense of final plant growth and root development. The smaller stalk-growth from Northern than from Southern grown seed is well known; *the corresponding lack of root development in corn from Northern seed* is not so well known. Our Southern varieties being acclimated to our longer seasons, and to the extreme sun heat that often prevails in nearly all parts of Texas, and the South, devote a good part of their energy in preparing for the inevitable, by developing a large and penetrating root growth, thus enabling them to withstand drouths that would be fatal to Northern grown varieties in a similar stage of development. It occasionally occurs that drouth injures our Southern varieties while those grown from Northern seed have already so far matured as to suffer but little injury. It also occasionally happens that an *early* drouth seriously injures corn from Northern seed, while our native sorts pass through unscathed. The sole advantage of Northern seed for field corn is in its early maturity. In seasons *favorable* to the naturalized Southern varieties there can be no question as to their generally larger yield, both of grain and fodder. (See results of experiments by Alabama, Mississippi and Louisiana Stations.)

Inasmuch as modern experimentation has developed methods of conserving soil moisture and selection of seeds, comparatively unknown a few years ago, our summer drouths are now far less destructive to the corn crop than they once were. Our climatic conditions tend to produce large ears grown upon large stalks, supported by a widespread root system, and, we have been unable, in this climate, to dwarf the stalk without reducing the size of the ear and the final yield. Extra early varieties from the North, or varieties grown far North, where rapid development is a requirement of the season, are not adapted to the Southern requirements, provided the water supply is abundant. In some sections of Texas we have seasons where Northern seed may be expected to produce quite as well as Southern seed.

Last season (1897) in this particular section proved favorable to Northern varieties. Earliness of maturity is of itself a virtue, but not the only one that can be made to inhere in distinct varieties. Size and form of ear, kernel and cob, resistance to rot and weevil, number of rows of kernels per ear, and relative weight of grain to other parts of the plant, may all be influenced or controlled by the careful breeder of varieties. We believe that herein may be found a useful and profitable field for the enterprising and competent Southern farmer.

Through the kindness of many of the firms from whom we purchased seed we are able to furnish a partial list of States in which each variety was grown. Understanding the season prevailing in this immediate section as shown on p. 1194, and also the difference in development of the different parts of the plants in Northern and Southern latitudes, we can readily see why Northern grown seed corn proved equally as good as our late Southern varieties at this Station during the season of 1898. For localities not in this rain belt other kinds are recommended. (See pp. 1197-1201.)

Seeds were purchased as follows:

T. W. WOOD & SONS, RICHMOND, VA.

Blount's prolific. Seed grown in Virginia.

TEXAS SEED & FLORAL CO., DALLAS, TEXAS.

Champion Early Pearl. Seed grown in Illinois.

Early Mastodon. Seed grown in Illinois.

Iowa Silver Mine. Seed grown in Illinois.

St. Charles White. Seed grown in Illinois.

PLANT SEED CO., ST. LOUIS, MO.

Dungan's Prolific. Seed grown in Missouri.

Early Eclipse. Seed grown in Illinois.

Golden Cable. Seed grown in Illinois.

Leaming. Seed grown in Illinois.

Murdock. Seed grown in Illinois.

Piasa Queen. Seed grown in Illinois.  
 Pride of the North. Seed grown in Illinois.

D. E. WOODLING, BEACH CITY, OHIO.

Early Pearl. Seed grown in Ohio.  
 Leaming. Seed grown in Ohio.  
 White Cap. Seed grown in Ohio.

STORRS & HARRISON, PAINESVILLE, OHIO.

Early Mastodon. Seed grown in Ohio.  
 Golden Beauty. Seed grown in Ohio.

JOHNSON & STOKES, PHILADELPHIA, PA.

Farmers' Favorite. Seed grown in Pennsylvania.  
 New Giant Beauty. Seed grown in Pennsylvania.  
 Red Cob Ensilage. Seed grown in Pennsylvania.  
 100-Day Bristol. Seed grown in Pennsylvania.

J. A. EVERITT, INDIANAPOLIS, IND.

Forsyth's Favorite. Seed grown in Indiana.  
 Riley's Favorite. Seed grown in Indiana.

MARK W. JOHNSON, ATLANTA, GA.

Johnson's Large White Bread Corn. Seed grown in Georgia.  
 Shaw's Improved. Seed grown in Georgia.

HOLLOWAY & CO., DALLAS, TEXAS.

Marsfield White Dent.

W. ATLEE BURPEE & CO., PHILADELPHIA, PA.

Waterloo Dent. Seed grown in Nebraska.  
 White Cap Dent. Seed grown on shore of Lake Erie.

D. LANDRETH & SONS, BRISTOL, PA.

Southern White Gourd Seed. Seed grown in Delaware.  
 Old Cabin Home. Seed grown in Virginia.  
 Long Yellow Flint. Seed grown in Virginia.

## CONCLUSIONS.

As experimentors working for the best interest of the farmers we cannot allow ourselves to hold to pet theories, nor show favoritism to any variety, seedsman or soil section. We present herewith certain data that has accumulated here for ten years past and draw from it only such conclusions as appear absolutely safe where conditions have been accurately noted and the climatic and soil differences of Texas are borne carefully in mind.

### RAINFALL BELTS IN TEXAS.

The difference in results obtained at this Station (Brazos

county) is not strongly in favor of selecting either early or late varieties, because the wet and dry Julys (the last thirty days' growth of late corn) seem nearly evenly divided here. (See p. 1196.) For planters in the *rain belt* of this latitude, we would advise that the map, or weather chart, for Texas found on page 1192 be consulted to learn the average rainfall of his particular locality. If living east of College Station, the rainfall in July (and for the entire season) will probably be larger than here recorded for this place, and will therefore prove favorable to the best strains of Southern grown seed corn—such as Blount's Prolific, Welborn's Conscience and Mosby's Prolific; if living decidedly west of us, the July rainfall will probably be less for any season and the chances then strongly favor large stalked Northern grown varieties, such as Hickory King, Golden Beauty and Champion White Pearl.

It must be clearly borne in mind that it is the last thirty days' growth that determines the success of corn in Texas. It must be grown to "beat the drouth." With early maturing kinds, this falls within the thirty days extending from the ninetieth to the one hundred and twentieth day from germination; while with late varieties, the crucial test is to be expected between the one hundred and twentieth and the one hundred and fiftieth day after germination.

*Time of Planting*—In some portions of Texas, the month of July is not the last critical month for growing corn. Further south of this latitude, the rainfall available for corn in *June* will determine the success or failure of the crop grown from Northern seed, because corn is planted twenty or thirty days earlier than throughout this latitude. Three hundred miles to the south, there is but a small section (comparatively) that enjoys the necessary rainfall in *June* for maturing corn. For farms lying far north of us, the *latter part of July* may be considered the "crisis period" for early planted Southern corn. In the *eastern* portion of that section, known as "North Texas," the amount of rain assumed necessary for maturing corn during its last thirty days' growth may be reasonably expected every season—indicating the choice of large stalked late maturing varieties.

*Drouthy Soils*—We have assumed that 1.5 inches is necessary for corns maturing at College Station during the latter part of July (for such as Blount's Prolific), but there are three important factors that tend to increase and decrease this necessary amount: (1) *Upon how equally the rain be distributed throughout the month.* (2) *Varying capacity of soils to retain water.* (3) *The activity of evaporation as controlled by temperature, wind, etc.* (See table, p. 1194.)

July rains often come here in torrents instead of well-distributed showers; our College Station has a surface soil that



parts with its water quickly; the sun's rays and summer winds often rob our soil of water that will soon be wanted by the growing crop. These conditions all tend to render our Station ground thirsty, thus calling for a rather larger rainfall to mature the crop than upon the black and sandy soils of the State. Therefore, it is safe to assume that upon bottom lands (and other types of moist soils) *an inch and one-half* of rain for the *last thirty days* growth is the *maximum* amount needed.

*Seasons*—The rainfall at College Station during the season of 1898 was well distributed, and favorable to the successful maturity of both Northern and Southern grown seed corn. The rain chart given below for 1898 shows an average monthly rainfall for March, April, May, and June, of 4.43 inches, followed by 2.6 inches for July and .21 inches for August. Bearing this fact in mind and recalling the vigorous growth of all varieties of the past season we must conclude that the rainfall available for growth of corn during the first 90 days was sufficient for all kinds tested. July's rainfall of 2.6 inches was well distributed.

RAINFALL DURING 1898.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Tot'l		
Jan..																																	3.82	
Feb..										1.98	1.65				.68		.72	.40							T								5.43	
Mar..	.69						1.22				T	.53				T												.78	1.29			4.51		
Apr..			T									3.44	.10										.83						.32			4.69		
May..	.10				1.82				12	.51									T				T									3.38		
June..		.10			.40					.20		.90	.78	.69		.21										.02	.50		1.25	.10		5.15		
July..	.35	.21								.34						.11										.88	.21	.50					2.60	
Aug..								.14	.02																	.05							.21	
Sept..	.82																	T	.20		T												1.02	
Oct..					.40							T						.60		1.48													2.48	
Nov..									.90			.90														.38								2.18
Dec..								.48									.58	1.40			1.65		1.90										6.01	
																																	41.48	

TEMPERATURE TABLE.—1898.

	Maximum	Minimum	Daily Mean	Monthly Mean	No. Fair Days	No. Clear Days	No. Cloudy Days
January .....	78	26	..	..	11	7	13
February .....	78	28	66	55	8	14	6
March .....	82	34	68	60.8	7	5	19
April .....	82	40	70	65.5	12	10	8
May .....	91	46	76	74	13	10	8
June .....	93	69	81	77	18	4	6
July .....	98	81	90	87	14	12	5
August .....	97	85	91	90	4	24	3
September .....	93	78	88	85	9	16	5
October .....	93	39	70	66	8	19	3
November .....	83	28	68	60	8	10	12
December .....	70	17	60	48	8	12	11

January 1, 2, 3, 16, 20, 26, killing frosts; 23d, light frost.      November 22, 23, light frosts.  
 February 3, 4, 21, 22, killing frosts; 20th, light frost.      December 5, 6, 23, 24, 26, killing frosts.      December 9, 10, snow.



Below we give a table showing the rainfall available for *growth of corn* from the season of 1890 to the present date. This table is of considerable importance, showing the position of our corn growing seasons for the past ten years bearing upon the occurrence of the drouth period annually.

*Ten Years' Rainfall for College Station—Spring and Summer Months.*

Rainfall in inches	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898
for March, April, May and June . . .	4.13	4.69	2.87	*	4.04	2.33	5.33	1.77	2.62	4.43
Rainfall in inches for July . . . . .	2.47	.45	1.36	.75	.45	1.64	1.51	.48	1.45	2.60
Rainfall in inches for August† . . . . .	1.19	.75	.09	3.99	1.85	7.01	2.81	.60	4.68	.21

\* Data for first three months missing.

† Except with late plantings, August rainfall has no effect on maturity of corn planted here.

*"Seasonable Rainfall"*—In this latitude the successful maturity of distinct varieties of Southern grown seed corn depends upon the amount of moisture in the soil during July. The transpiration of moisture during this month is greater than at any other time, and maturity cannot take place unless a sufficient amount of water is available in the soil during July. Early and extra early varieties have no fear of the July drouth since they mature during the latter part of May, or in June.

Considering the importance of July conditions upon the growth of late corn we desire to call attention to the following facts:

During 1894 the July rainfall amounted to 1.64 inches, which, had it not been for the unusual hot winds during the early part of July would probably have been sufficient to properly mature all late corn. As it was, a fine promise was ruined in a day, and no amount of water following these winds could revive the corn. While all Southern varieties were cut short, still the early varieties were also reduced in yield.

During 1895, the July rainfall amounted to 1.51 inches; July, 1897, 1.45 inches, and July, 1898, 2.6 inches. During the past ten years these three seasons were distinctly favorable to late maturing varieties, and during each year the best Southern varieties gave largest yields upon our College trial grounds.

These results indicate that if given a moist soil on July 1st, that about 1.5 inches rainfall during that month will prove sufficient for maturity of late corn. Perhaps further experiments here may show that a smaller amount will be sufficient. Upon less drouthy soils we may assume that an inch would prove enough if the rainfall were well distributed.

Taking this amount as a standard we find the favorable years for early (Northern) seed corn in this rain belt and latitude were, 1890, 1891, 1892, 1893, and 1896; while both late and early corns did well during 1896. For late (Southern) corn 1889, 1894, 1895, 1897 and 1898 were favorable years.

For all seasons we have prepared our land by deep plowing, have planted as early as frost would permit, and given thorough and frequent shallow cultivation to keep crop clean and protect against dry seasons and a naturally thirsty soil. During each season all varieties have been planted at one time and all were treated alike except in the matter of distance.

#### EFFECT OF TEMPERATURE.

In this discussion more particular attention is paid to the effect of *rainfall* upon the growth and maturity of corns derived from all sources than is given to the influence of *temperature* upon such varieties, because we feel assured that temperature does not influence the growth of corn in any other way so much as through the control of the supply of water in the ground. Thus, such varieties as the *dwarfed kinds* grown in the extreme Northern portions of the United States have very shallow root systems and such varieties, of course, are more quickly subject to the drying out effect of our hot suns than the larger stalked, deeper rooting kinds originating in this section or latitude.

If the *smallest* dwarf varieties from the North be planted in the extreme South they will in many cases fail to grow as much as 3 feet in height, and very often fail to mature any seed the first season, probably because of the fact that the shallow stratum of soil in which the roots are found is thoroughly dried out under the influence of our warm April and May suns, thus checking, or completely stopping, plant growth during the average season in the South.

Therefore, we think it fair to assume that heat is a controlling factor in determining the success or failure of varieties in the South, merely because such heat controls the moisture supply, quickly influencing dwarfed Northern varieties, having some effect upon large Northern varieties, but injuring vigorous kinds of Southern origin least, because of deeper and more vigorous root system.

As another evidence of the fact that in this section heat exerts its most active influence upon plant growth through the circulation of sap by controlling soil moisture near the surface, attention is called to the fact that but little corn is ever planted in the South during late summer (for the purpose of growing table corn, etc.), because, as it is often said, the heat is too intense. But since the introduction of the more vigor-

ous and hardy "Mexican June Corn," which is a pure type of the *Zea Mays*, late summer planting is coming more into use since it has been found that the hot weather, so injurious to ordinary varieties, does not dry out the land sufficiently to stop all growth in this vigorous and deep-rooted variety. For the same reason it is being largely used for late spring planting to follow such crops as oats, Crimson clover, etc., that have occupied the land during the winter months.

In the extreme Northern portion of the Union, temperature has another important effect upon the adaptability of varieties of corn to that section since the large stalked and late maturing kinds do not have time to ripen before the early frosts (occurring towards the end of the brief summer season) occur and kill the plant.

In addition to the factors "temperature" and "water supply," there are probably other meteorological conditions that directly influence the habits of growth of our cultivated plants, but our knowledge of such conditions has not yet reached a practical form.

#### VARIETIES SUITED TO TEXAS.

It has been evident for a long time that the proper selection of corn best suited to various soils and variable climatic conditions is not a simple problem, and has furnished the text for many newspaper articles advising what to plant and what not to plant. Results have varied with seasons, with culture, with soils, with time of planting, and with latitude. The problem has been especially complex to the Texas farmer because the range of these conditions is the widest obtaining in any other State. But may we not reasonably determine the adaptability of any fixed variety of corn to any well-known soil and locality of the State if given: (1) *Its time of growth in which it reaches maturity*; (2) *The natural size of stalk and ear, and* (3) *character and quality of the grain?*

From the data presented in the foregoing pages concerning rainfall, soils, and the characteristics of many varieties of corn, we reach logical conclusions as to the style of corn best suited to various rainbelts and soils of Texas, which, we believe, are in harmony with not only the experiments conducted by this Station in several portions of the State but agree with the results obtained by careful farmers who have made a study of this subject covering several years' trial of fixed types of corn. For convenience, we divide the *corn growing districts* of Texas according to "Rain Belts" into (1) "*East and South-East Texas Belt*;" (2) "*Middle belt*;" (3) "*Western belt*." These rainbelts extend across the State in an irregular north and south line, and have been determined by the State Weather Bureau, (see chart, page 1192.)

"*Rainbelt I*"—In the *Eastern* portion of the State, including the *South-East*, the best results may be expected when planting *improved late maturing varieties* of corn, which are of Southern origin—upon both uplands and lowlands—because the rainfall of that portion of the State is heavy, rendering this the safest corn growing section of Texas, and for many years it was considered the only portion in which corn of any kind could be safely grown.

The list of varieties from which we must select in planting Southern corn is very limited. These varieties represent two distinct classes, viewed from the farmer's standpoint: (1) The small eared, "prolifics;" (2) The large eared, "gourdseeds." There are some strains that occupy an intermediate place between these two extremes. All are generally large stalked, late maturing kinds, but differ among themselves somewhat in this particular. They ripen in 140 to 170 days from the time of planting—130 to 150 days from time of germination.

We have grown at College Station, Beeville, McKinney, and Wichita Falls under experiment within the past five years the following fairly distinct varieties of Southern seed corn:

Alabama Station Yellow, 142 days (Ala.).

Bigseed, 142 days (Tenn.).

Clayton Bread, 142 days (Ala.).

Cocke's Prolific, 133 days (Va.).

Hawkins Improved, 142 days (Ala.).

Mosby's Prolific, 133 days (Miss.).

North Texas Yellow\*, 142 days (Texas).

Poorland, 142 days (Fla.).

Welborn's Conscience, 142 days (Texas).

White Rockdale, 130 days (La.).

White Southern Bread, 150 days (Ga.).

White Southern Gourd Seed, 149 days (Del.).

Mexican June Corn, (Texas).

These varieties of corn can be procured by addressing seedsmen, whose names appear on pages 1206 and 1207.

The best tested varieties of those above mentioned, are:

Mosby's Prolific,

Welborn's Conscience,

Mexican June Corn.

The use of the latter is limited severely by practical conditions.

"*Rainbelt II*"—For *Middle Texas*, the better varieties of late maturing corn are recommended, with certain exceptions. For the bottoms, and more moist soils—such as are found in the vicinity of Denton, Dallas and Navarro Counties, the late corns are to be preferred because there is usually an abundance of moisture available during the last months of maturity of

\* Received from Pennsylvania two seasons before tested by this station.

the corn crop. Further to the South and to the West, in this "Middle rainbelt," the soils and the average rainfall favor the quicker maturing varieties, described as "medium early." This statement refers generally to the lands lying in and near the counties of Jack, Parker, Hill, Hays, Lavacca and Nueces, which usually respond best to such varieties as Hickory King, Golden Beauty, and Forsyth's Favorite, that mature in 113 to 123 days from germination. This type of corn seems to have originated in the States of Kansas, Iowa, and Nebraska, and when grown one season in Texas it loses in earliness and gains in size of stalk and, sometimes, in the size of the ear. When grown two seasons in this latitude without selection, the type changes to a late variety and becomes, essentially, Southern in characteristics.

The "medium early" varieties are also suggested for those who cultivate the dry uplands of Clay, Tarrant, Limestone, Brazos, Colorado, Wharton and adjoining counties in "Rainbelt II." We have received many reports of successful changes in this district from the "late" to "medium early" varieties of corn for such uplands. We need not expect, however, that in this rainbelt and on the dry soils that the medium early kinds will give the largest yield over late corns *every year*. Occasionally we have a season in "Rainbelt II" decidedly more favorable to late corn, but for average annual yield, extending over several years, the data gathered by this station show that the early corn is the more reliable.

For the bottom lands of *Middle and East Texas*, we think these medium early and medium sized varieties little suited, because of a decided tendency to rot or develop "black heart," when grown among the tall weeds and in the moist atmosphere of such localities. The same tendency to rot during wet seasons has been noticed and reported where the very soft "gourd-seed" or "shoe peg" types are grown on bottom lands receiving heavy rains in July and August.

We conclude that for the *northern portion* of "Rainbelt II," late maturing varieties will give largest yields per year upon the naturally moist soils of that section, while for the *drier lands* of that district and for the *southern portions* of this important rainbelt—the medium early varieties will rarely fail and, in the long run, will average larger yields than will the late kinds. The Southern portion of "Rainbelt I" receives its rainfall too late for the successful maturity of those varieties of corn that require more than 130 days for maturity.

We have grown a number of fairly distinct, early maturing kinds of corn at the places already mentioned, and it will be noted that nearly all of these originated to the north of this State. The distinct varieties are here listed (for full description see pages 1203-4.)

\*Blount's Prolific, 127 days (Va.).  
Clark's Mastodon, 120 days (Va.).  
Dungan's Prolific, 130 days (Mo.).  
Early Eclipse, 122 days (Mo.).  
First Premium, 127 days (Ind.).  
\*Golden Beauty, 123 days (Ohio).  
Golden Cable, 127 days (Mo.).  
Iowa Silver Mine, 125 days (Iowa).  
Hundred Day, 122 days (Pa.).  
\*Hickory King, 133 days (Kansas).  
Kansas King, 133 days (Kansas).  
Marsfield White Dent, 131 days (Indiana).  
Riley's Favorite, 133 days (Ind.).  
St. Charles' White, 127 days (Mo.).  
Wilson's Prolific, 127 days.  
White Pearl, 127 days (N. Y.).  
White Cap Dent, 120 days (Pa.).

Many other so-called varieties have been tested, belonging to this class of medium early varieties, but we think that those given cover the entire list of distinct varieties tested, since many of the seed bearing different names have proven, upon trial, to be different in name only from well-established and better advertised strains of corn.

It will be noticed that none of these medium early varieties have originated in the extreme Northwest, where our corn growing season is shortest. They are best described as "stalk, medium," and "ear varying from medium to large," as shown upon pages 1202-4 of this bulletin. Nearly all are classed as "dents," and in the corn growing belts of the United States would be considered "late maturing." For Texas conditions, we class them as "medium early."

The very early varieties of corn (they are usually "flints") from which we have tested many sorts, are too much dwarfed because of maturing too quickly to be recommended for field purposes in Texas. Such varieties do not root deep enough at any time to supply themselves with sufficient water during the warm spring days, if grown in any portion of this state. No varieties thus far tried that mature in less than 100 days are adapted to Texas conditions, except for early roasting ears and canning purposes.

"*Rainbelt III*"—The western limit of the growth of corn in this State is marked by the north and south line that shows where less than twenty inches of rain falls annually. Even within "*Rainbelt III*" corn growing is not universally practiced because of the uncertain rainfall. In the western portion of that belt, and further west, the growth of Kaffir corn, Milo maize, and other sorghums take the place of corn and are now

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\*One of the most valuable medium early varieties for planting in Middle Texas.



being successfully grown and fed to stock. When corn is to be grown under irrigation, and the supply of water is abundant, we would suggest a choice of the "late" varieties mentioned in the discussion of "Rainbelt I." As to the adaptability of varieties of corn to the irrigated districts of the State, little has yet been developed, though seed of the Southern type is used, and in many cases June corn has been selected as a variety best suited to such conditions, especially in localities in the vicinity of the Rio Grande River.

#### VARIETIES AS TO USE.

In selecting a variety of corn for planting, the matter of *yield per acre* is not always the point of greatest importance, and some suggestions are therefore mentioned for the purpose of indicating the better varieties for storing, milling, and feeding to work stock and other animals.

The late maturing corns have deeply marked "dents" and in many cases the grain is so pinched as to form a double wedge, as in the case of the "gourdseed" kinds. This type furnishes the best quality of milling corn for bread making purposes because of the soft flour-like meal produced. The absence of the hard, outer coat renders this type an easy prey to the attacks of insects, such as the grain and bean weevil. For milling purposes, we recommend "Welborn's Conscience," "Mosby's Prolific," "White Southern Bread," and "Mexican June Corn." These varieties represent a desirable type of corn for feeding work mules and horses and many prefer them for this purpose in preference to the flinty kinds because they are more easily broken in the mouths of stock when fed upon the ear or as shelled corn.

For storing purposes, we prefer the varieties having hard, flinty, outer coats or bran, which seems to partially protect them from weevils, though there is no variety that is "weevil proof," as sometimes advertised. We have very generally recommended carbon bisulphide ("high life") as a remedy for weevils in corn cribs, and naphthaline as a preventive treatment, and many persons report successful use of this material after the manner described by us. Recently, we have failed in some efforts to kill weevil by careful use of this material and have had others report similar results. We can only account for this upon the supposition that the material now being sold at less than twelve cents per pound in this State is adulterated largely with benzine or other volatile matter. Consumers or users of this material should be protected by a state law fixing a standard of purity and requiring that each package bear correct statements as to quantity and quality of its contents.

## DESCRIPTION OF TYPICAL VARIETIES.

## LATE MATURING VARIETIES.

*Alabama Experiment Station Yellow.*—Seed from Experiment Station, Auburn, Ala. Donated. A yellow flint variety. Matured in 142 days. Stalks large and vigorous. Ears medium size.

*Big Seed.*—Seed from I. N. Shannon, Goodlettsville, Tenn. Price per gallon, 50 cents. A white dent variety. Matured in 142 days. Stalk large and vigorous. Ear and grain very large.

*Clayton Bread.*—Seed from Experiment Station, Auburn, Ala. Donated. A white flinty variety. Matured in 142 days. Stalk very large and vigorous. Ear above medium size.

*Cocke's Prolific.*—Seed from T. W. Wood & Son, Richmond, Va. Price per gallon, 25 cents. A white flint variety. Matured in 133 days. Stalk and ear small; from two to four ears on each stalk. Yield per acre, 39.9 bushels.

*Hawkins' Improved.*—Seed from Hiram Hawkins, Hawkinsville, Ala. Donated. A white gourd seed variety. Matured in 142 days. Stalk large and vigorous. Ears short and firm; very long grain.

*Mexican June Corn.*—Seed from Austin Seed and Floral Co., Austin, Texas. A white flint variety. Matured in 140 days. Stalk very large with large leaf growth; ears small, grains small.

*Mosby's Prolific.*—Seed from J. K. Mosby, Lockhart, Miss. Price per gallon, 43 cents. A white gourd seed variety. Matured in 133 days. Stalks large. Ears small, one to two ears on each stalk.

*North Texas Yellow.*—From O. C. Scott, Mellissa, Texas. Donated. A yellow dent variety. Ear and stalk medium size. Matured in 142 days.

*Girardeau's Poor Land.*—Seed from W. M. Girardeau, Monticello, Fla. Price per gallon, \$1. A white dent variety. Matured in 142 days. Stalk large and vigorous. Ears long and medium size.

*Welborn's Conscience.*—Seed from Jeff D. Welborn, New Boston, Texas. Donated. A white gourd seed variety. Matured in 142 days. Stalk very large and vigorous. Ears short and very large. Grain extra long and very soft.

*White Rockdale.*—Seed from Richard Frotscher, New Orleans, La. Cost, \$1.25 per half-bushel. A white, flinty, dent variety. Stalk very large and vigorous. Ear large, firm and heavy. Grain, large and hard. Matured in 130 days.

*Johnson's Large White Southern Bread.*—Seed from Mark W. Johnson, Atlanta, Ga. Cost 50 cents per half bushel. A



white flinty dent variety. Ear very large and firm. Stalk large and vigorous. Matured in 150 days.

*Southern White Gourd Seed*.—Seed from D. Landreth & Sons, Philadelphia, Pa. Cost \$1.63 per half bushel. A white, flinty, dent variety. Matured in 149 days. Stalk and ear, both medium size.

#### MEDIUM EARLY VARIETIES.

*Blount's Prolific*.—Seed from T. W. Wood & Son. Price per gallon, 25 cents. A white flint variety. Matured in 127 days. Ear medium size; from two to four ears on each stalk.

*Clark's Mastodon*.—Seed from T. W. Wood & Son, Richmond, Va. Price per gallon, 25 cents. A yellow dent variety. Matured in 120 days. Stalk and ear both small. Grain long and soft. Yield per acre, 31.1 bushels at McKinney.

*Dungan's Prolific*.—Seed from Plant Seed Co., St. Louis, Mo. Cost, 90 cents per half bushel. Stalk, large and vigorous. Ear, medium size, very firm and heavy. Matured in 130 days.

*Long White Flint*.—Seed from J. M. Thorburn & Co. Price per gallon, 30 cents. A white flint variety, matured in 103 days.

*Mercer Yellow*.—Seed from Northrup, Braslan, Goodwin Company.

*First Premium*.—Seed from J. A. Everitt, Indianapolis, Ind. Price per gallon, 50 cents. A white dent variety. Matured in 127 days. Stalk and ears medium. Grain very white, large and fine.

*Golden Beauty*.—Seed from Storrs, Harrison & Co., Painesville, Ohio. Price per gallon, 30 cents. A yellow dent variety. Matured in 133 days. Stalk and ear medium size. Grain very broad, deep and firm.

*Golden Cable*.—Seed from Plant Seed Co., St. Louis, Mo.; cost, 90 cents per half-bushel. A yellow gourd seed variety. Matured in 127 days. Stalk and ear both medium size; yield per acre, 27.3 bushels of corn.

*Iowa Silver Mine*.—Seed from J. A. Everitt, Indianapolis, Ind. Price per bushel, \$1.25. A white dent variety. Matured in 125 days. Grain pure white and deep, cob white and small.

*100-Day Bristol*.—Seed from Johnson & Stokes, Philadelphia, Penn. A yellow, white cap flinty dent variety. Matured in 122 days. Stalks medium size; ear very long and firm. Grain yellow, very firm, with white cap.

*Hickory King*.—Seed from Texas Seed and Floral Company, Dallas, Texas. Price per bushel, 40 cents. A white dent variety. Matured in 133 days. Stalk and ear medium size. Grain very broad and deep.

*Kansas King*.—Seed from Texas Seed and Floral Company,

Dallas, Texas. Price per gallon, 40 cents. A white dent variety. Matured in 133 days. Stalk and ear medium size.

*Marsfield White Dent*.—Seed presented by Holloway & Co., Dallas, Texas. A white, flinty dent variety. Matured in 131 days. Stalk and ear both medium size.

*Riley's Favorite*.—Seed from J. A. Everitt, Indianapolis, Ind. Price per gallon, 33 cents. A yellow dent variety. Matured in 133 days.

*St. Charles White*.—Seed from Plant Seed Company, St. Louis, Mo. A white dent variety. Stalk and ear medium size. Matured in 127 days.

*Wilson's Prolific*.—Seed from Perry Seed Store, Syracuse, N. Y. Price per gallon, 15 cents. A white flint variety. Stalk and ear both small. Grain broad and short. Matured in 127 days.

*White Cap Dent*.—Seed from Atlee W. Burpee, Philadelphia, Pa. Cost \$2.25 per half-bushel. A yellow dent variety. Matured in 130 days. Stalk and ear both medium size. Grain medium size with white cap.

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