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Agricultural Experiment Station

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CORN, WHEAT AND OATS.

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EXPERIMENTS WITH CORN.

Eighteen thoroughbred varieties of corn were planted, in plots, upon land practically uniform in productiveness. Four hundred pounds of cotton seed meal were broadcasted, per acre, before breaking the land. After breaking thoroughly with Stark Dixie turn plows, furrows were opened with shovel plow four feet apart. In these, 2,000 pounds of compost (of cotton seed, stable manure and acid phosphate mixed by the "corn formula," viz: 500 pounds acid phosphate and 750 pounds each of cotton seed and stable manure, per acre,) were applied and mixed with the soil by one "bull tongue" furrow. The corn was then dropped every two feet in the drill. This gave eight square feet to each hill of corn. Upon half of the space occupied by each variety two stalks were left to each hill and one stalk on the other half.

The piece of land selected for this experiment was dry sandy branch bottom. The branch dries up in the summer. The seasons were very favorable until the plants were in flower, when a drouth of several weeks duration seriously injured the crop.

The cultivation was shallow throughout—done with 30-inch Terrell heel scrapes. Hoes were not used at all. The uniformly increased yield from two stalks to the hill indicate the propriety of thick planting upon soil deeply and thoroughly prepared, heavily fertilized and judiciously cultivated.

The Experiment Station yellow and the Clayton bread corn were very slightly injured by weevil. Some of the early gourd seed varieties were rendered valueless by their attack.

The Experiment Station yellow has been very much improved by selection of seed, from the top ear of stalks bearing two well developed ears, during the last seven years.

Careful hands pass through the field and select the seed from the double eared stalks in the shuck. This is stored to itself. When shucked, only the well developed ears, having the cob

covered with grain typical of the variety, are selected for seed. This has resulted in very great improvement, both in the productiveness and adaptation of this variety to this soil and climate.

The yields reported in the following table represent the weights of *thoroughly dried, shelled* corn.

The Welborn's Conscience variety was reduced in yield by the influence of the roots of a tree in an adjoining field.

VARIETIES OF CORN COMPARED ON PLOTS.

Names of Varieties.	Number of stalks to to the hill.	Yield per acre. Bushels sound shelled corn.	Bushels rotten shelled corn.	Total bushels shelled corn.	Pounds of fodder.
Blount's Prolific	1 Stalk	36 21	1.71	37.92	1060
	2 "	63.64	1.50	65.14	2000
Bullock's Prolific	1 "	27.78	.....	27 78	1148
	2 "	54 28	1.93	56.21	2336
Clayton Bread	1 "	26.28	.35	26 63	1244
	2 "	62.14	....	62.14	2504
Early Mastadon	1 "	25.64	4.57	30.21	780
	2 "	34 64	4.43	39.07	1440
Experiment Station Yellow.	1 "	38.93	.35	39.28	1200
	2 "	64.07	.43	64.50	2400
Giant Broad Grain	1 "	30 93	.85	31.78	620
	2 "	52.00	1.71	53.71	1000
Golden Beauty	1 "	29.65	.35	30 00	520
	2 "	47.35	3.43	50.78	860
Golden Dent	1 "	32 64	.14	32.78	560
	2 "	58.50	.....	58.50	1080
Hickory King	1 "	27.50	.....	27.50	640
	2 "	50.93	.50	51.43	1120
Hunnicutt	1 "	39.21	1.36	40.57	800
	2 "	54.08	1.21	55 29	1160
Improved Gourd Seed	1 "	29.79	1.07	30.86	440
	2 "	50.00	6.64	56 64	900
Improved Learning	1 "	27.21	1.15	28.36	240
	2 "	43.93	2.14	46.07	440
Mobley's Red Cob	1 "	30.35	1.43	31.78	600
Lindsay's Horse Tooth	1 "	28 71	.36	29.07	1000
	2 "	44.43	1.57	46.00	1780
Piasa King	1 "	29 36	3.43	32 79	988
	2 "	41.93	3.64	45.57	1880
Welborn's Conscience	1 "	24.14	1.57	25.71	960
	2 "	34.86	1.43	26.29	2080
Tennessee Valley	1 "	28.78	.....	28 78	1120
	2 "	53.36	.35	53.71	2200
Hawkins' Improved	1 "	23.00	....	23 00	1120
	2 "	48.00	.42	48 42	1840

The following six varieties were planted on a larger scale, in the general field crop with results as shown in the statement which follows. The land upon which they were planted was uniform in character, except plot 7, which was thinner than the others, but was more heavily fertilized than any except plot 6, which was similarly manured.

The general crop was fertilized with 250 pounds cotton seed meal and 1,000 pounds compost per acre. No. 6 had 476 pounds of cotton seed meal and 1,000 pounds compost per acre, and No. 7 450 pounds cotton seed meal and 1,000 pounds compost per acre, all applied in the drill.

The growing season was favorable for the development of the plant, but the yield of corn was seriously impaired by a severe drouth which extended through the flowering season. The cultivation was flat and shallow and done entirely with heel scrapes—four furrows to the row constituted the entire cultivation. The results obtained upon the small plots are sustained in the field.

VARIETIES OF CORN COMPARED ON A FIELD SCALE.

	Name of Variety.	Yield per acre. Shelled.
1	Lindsay's Horsetooth	25⅛ bushels.
2	Improved Virginia Gourd Seed	23 "
3	Hunnicutt	24 2-12 bushels.
4	Welborn's Conscience	17 47-72 "
5	Experiment Station Yellow	25 13-18 "
6	Clayton Bread	27 11-72 "
7	Experiment Station Yellow	28 17-72 "

Experiments with Top-dressing Oats.

On November 27th, 1890, 300 pounds of cotton seed meal and 200 pounds of acid phosphate were broadcasted over an acre intended to be sown to oats.

January 7th, 1891, 700 pounds of compost were added, ap-

plied broadcast, and two bushels of Ewing oats sown and plowed in with scooter.

March 24th, 1891, plots of 1-16 acre each were measured and the following top-dress applied, with results as stated below:

Plot No.	Fertilizers Used for Top-Dressing per Acre.	Yield of Clean Oats per Acre in pounds.	Yield of Clean Oats per Acre in bushels.
1	200 pounds cotton seed meal	1105.6	34.55
2	150 pounds nitrate soda	1164.8	36.40
3	Without top-dressing	934.4	29.20
4	200 pounds acid phosphate 150 pounds nitrate soda	915.2	28.60
5	200 pounds cotton seed meal 200 pounds acid phosphate	814.4	25.45
6	150 pounds kainit	1000.	31.25

Upon a soil of entirely different character—the first foot composed largely of drift pebbles—600 pounds of cotton seed meal, and 400 pounds of acid phosphate, per acre, were sown broadcast, and thoroughly incorporated with the soil by means of scooter plow and harrow.

November 17th, 1890, four bushels per acre of Mexican Rust-proof oats were broadcasted and plowed in.

March 30th, 1891, using 1-9 acre plots, the following experiment with top-dressing was instituted with results as stated below:

Plot No.	Fertilizer Used as Top Dressing per Acre.	Yield per acre in clean Oats, in lbs.	Yield per Clean Acre Oats, bushels.
1	150 pounds Nitrate Soda	1260	39.37
2	Without Top-Dressing	945.9	29.55
3	200 pounds cotton seed meal	868 5	27.14

The results obtained from the top-dressing will be disappointing to all who saw the oats while growing. Visitors very commonly estimated the yield, where nitrate of soda was used, at double that not top-dressed. The application of nitrate of soda was excessive, causing extraordinary development of straw and deepening the green color of the leaves.

The straw made such succulent growth that, before ripening the grain, it lodged and the small yield, compared with the previous promising appearance, resulted.

Kansas and Texas Rust Proof Oats.

As Texas Rust Proof Oats were selling much higher than the Kansas Rust Proof for seed, it was deemed proper to compare them to determine the propriety of such difference in price. The following tabulation furnishes the results. The results indicate that the difference in price was not justifiable.

Comparison of Kansas and Texas Rustproof varieties—seed purchased of Alliance Store, Opelika, Alabama, and planted January 27th, 1891.

Kansas seed weighed per bushel.....32 pounds.

Texas seed weighed per bushel.....29.3 pounds.

$\frac{1}{4}$ of acre was planted with 16 pounds of Kansas.

$\frac{1}{4}$ of acre was planted with 14.6 pounds of Texas.

On April 7th the above $\frac{1}{4}$ acre plots were divided into $\frac{1}{8}$ acre plots, and top dressed as follows:

Plot number.	Fertilizer Used for Top Dressing per Acre.	Yield of Clean Oats per Acre in Pounds.	Yield of Clean Oats per Acre in Bushels.
1	64 pounds Nitrate Soda (Kansas).....	576.	18.00
2	64 pounds Nitrate Soda (Texas).....	553.6	17.30

VARIETIES OF WHEAT PLANTED DECEMBER 1ST, 1890.

Plot Number.	NAMES OF VARIETIES.	Time of Ripening.	Average height in feet.	Average length of heads in inches.	Bearded or smooth	Number of grains to the mesh.
1	Anglo Canadian*	Jan. 13	3¾	5	Bearded	2 to 3
2	Bird Proof*	" 16	3½	2¾	Smooth.	2 to 3
3	Earliest of All†	" 4	3	5¼	"	1 to 2
4	Flour Ball†.	" 15	3½	2¾	"	2 to 3
5	Holborn's Wonder*.	" 16	2¾	4¼	"	1 to 2
6	Hundred Fold.	" 16	2¾	4¼	"	2 to 3
7	Miller's Delight*	" 13	3½	4¼	"	2 to 4
8	Pearl*	" 15	3½	4¼	"	2 to 3
9	Pride of the Market*	" 15	3¼	4	"	2 to 3
10	Prince of Wales†	" 16	3¼	2¾	"	2 to 3
11	Queen*	" 15	3¼	3½	"	2 to 3
12	de Reiti†.	" 13.	3	5	Bearded.	2 to 3
13	Stand-Up*	" 8	2¾	2¾	Smooth	2 to 3
14	White Richelle de Naples†	" 8	3¼	5¼	"	2 to 4

* Presented by Jas. Carter & Co., High Hilborn, London, England.
† Presented by U. S. Secretary of Agriculture.

Small packets of the above varieties marked with an asterisk were presented by James Carter & Co., of High Holborn, London, for the purpose of having their adaptation to this soil and climate tested. Similar quantities of three other varieties were also planted as shown. The area planted in each was too small to compare yields. The late ripening varieties were somewhat injured by rust, while those which ripened early escaped.

Two varieties of wheat were received from the Assistant Secretary of Agriculture in 1890 for experiment, viz:

White Richelle de Naples, a very fine smooth headed variety, having plump white berries, and de Reiti, a red bearded variety.

Thirty pounds of each of these were sown upon half an acre fertilized with 300 pounds of cotton seed meal and 200 pounds of acid phosphate per acre. The seed were sown November 29th, 1890, and harrowed in. April 7th, 1891, each half acre was divided into three equal plots, one of which was top-dressed with 200 pounds cotton seed meal per acre, one with

100 pounds of nitrate of soda per acre, and one left without top-dress.

The results indicate that the top-dressing produced no effect.

	Yield per acre in bushels.	
	Red de Rieti.	White Richelle de Naples.
Top-dressed with 200 lbs. C. S. meal per acre	10 77	12 37
Without top-dress.	11 15	12 35
Top-dressed with 100 lbs. nitr. soda per acre.	10 38	11 91

These two varieties were imported by the Secretary of Agriculture from the South of France, where they were very popular. Their yield and quality were so satisfactory here that they were deemed worthy of more thorough trial.

In addition to more extended trial on this Station, one peck was sent to each of forty experimenters cultivating different typical soils of the State. Small quantities have also been presented to the Stations in South Carolina and Mississippi.

The varieties received from Jas. Carter & Co. have been planted again. Though planted late last year some of these varieties produced well and were entirely free from rust and smut. Some of the late ripening varieties rusted, but proved productive and promise to do well after acclimation.