

TEXAS AGRICULTURAL EXPERIMENT STATION

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS

W. B. BIZZELL, President

BULLETIN NO. 288

FEBRUARY, 1922

DIVISION OF COTTON BREEDING

COTTON VARIETY EXPERIMENTS, 1912-1920, SUBSTATION NO. 7, SPUR, TEXAS

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†As of February 1, 1921.

*In cooperation with School of Veterinary Medicine, A. and M. College of Texas.

**In cooperation with United States Department of Agriculture.

COTTON VARIETY EXPERIMENTS, 1912-1920.

SUBSTATION NO. 7, SPUR

BY

G. F. FREEMAN AND R. E. DICKSON.*

Substation No. 7 of the Texas Agricultural Experiment Station is located one mile west of Spur in the southern part of Dickens County. The average annual rainfall is 22 inches, the elevation is 2,274 feet above sea level, and the latitude and longitude are 33 N. and 100 degrees W., respectively. The soil consists, for the most part, of a heavy red clay loam, known technically as "Vernon heavy clay loam." There are also parts of the farm that consist of heavy silty clay loams of a chocolate color, known technically as "Foard heavy clay loams." It is fairly rich in plant food and lime, but is deficient in humus. Spur is located on the Wichita Valley Railroad and is sixteen miles east of the caprock bordering the plains of Northwest Texas. "The agricultural region served by this Substation is that of the red lands below the caprock of the plains, which is known as the Permian Red-beds Region."†

It is the purpose of this bulletin to record the results obtained in comparative tests of varieties of cotton which have been grown on Substation No. 7 during the past eight years. The data are presented in tables, each table representing the work of a single year. The yields are made up by averaging the data of duplicate or triplicate plats. The accuracy of the work is further safeguarded by using numerous soil checks to correct for soil variation, and guard rows are planted on the outside where necessary to protect from the influence of roads, etc. The work has been continuous, and each year is recorded separately. However, where the data are not dependable on account of some uncontrollable factor such as storms or flood or accident, they are omitted. Unwarranted conclusions are thus avoided.

The column headings in the tables are as follows: (1) T. S. Number, (2) Variety Name, (3) Per Cent. Stand, (4) Pounds of Seed Cotton per Acre, (5) Pounds of Seed per Acre, (6) Pounds of Lint per Acre, (7) Per Cent. Lint, and (8) Length of Lint Expressed in 16th of an Inch, and (9) Commercial Grade.

(1) When a package of seed is received at the Experiment Station it is given a serial acquisition number which, for convenience, is spoken of as its "T. S." or Texas Station number. A card is then made out and filed giving a complete history of the seed so far as known. Its name, source, history, purity, cost, etc., are set down. The T. S. number is given for each variety in order that it may be traced and

*Credit is also due A. B. Conner, E. P. Humbert, and A. H. Leidigh for supervising the recording, checking, compilation and calculation of much of the quantitative data contained herein.

†See introduction to Texas Bulletin No. 218 and Texas Agricultural Experiment Station Rept. No. 33 (1920), p. 57.

thus give to the reader an easy method of inquiry concerning that particular variety or lot of seed.

(2) The variety name given in the tables is the one given by the seed firm or individual furnishing the seed. Confusion is inevitable due to the fact that often the same variety is listed under several different names and likewise different and distinct varieties are listed under one name. The temptation is great to sell the seed of some unpopular variety under new and catchy titles and to sell odd lots of seed under the name of a popular variety. The naming of selections that are not distinct from the parent variety also adds to the confusion. It is not possible to properly place each and every variety; however, the real history of many of them is known and used in interpreting the data.

(3) Per cent. of stand obtained by count of stalks.

(4) The cotton weighed before ginning gives the pounds of seed cotton per acre. It includes the weight of the seed, the weight of the lint, and any dirt contained.

(5) After ginning, the seed is weighed to give pounds of seed per acre.

(6) This weight subtracted from the weight of seed cotton gives pounds of lint per acre. (Except for the year 1919, when the weight of the lint was also determined.)

(7) The weight of lint divided by the weight of seed cotton gives the per cent. of lint. (Except for the year 1919, when the per cent. of lint was found by dividing the weight of the lint by the sum of the weights of seed and lint.)

(8) Length of lint expressed in inches (stapled by expert cotton classer).*

(9) Commercial grades as given by an expert cotton classer.

1912.

The results for 1912 are shown in Table I and include thirty-two plots, of which six were check plots planted with seed of a long-staple variety grown on this Station in 1911, but coming originally from a Dallas seed house.

*The classing and stapling of these samples have been done, for the most part, by Mr. J. B. Beers, in charge of this work in the Extension Department of the Texas A. & M. College whose cooperation is hereby acknowledged with thanks.

Table No. I. Cotton varieties, Substation No. 7, Spur, 1912.

(Sequence of varieties as in the field.)

T. S. No.	Variety.	Per Cent Stand.	Pounds Seed Cotton Per Acre.	Pounds Seed Per Acre.	Pounds Lint Per Acre.	Per Cent Lint.	Per Cent of Average Yield of Seed Cotton.
128	Mebane's Triumph.....		370				92
15	Rowden.....	75	220	129	91	41.3	55
16	Crowder.....	75	330	198	132	40.0	82
24	Virgatus.....		426				105
	Check.....		343				85
77	Rowden.....	75	229	147	82	35.8	57
79	Jackson's Variety.....	75	339	199	140	41.3	84
78	Hendrick's Variety.....	75	220	124	96	43.6	55
11	Lone Star.....	75	440	260	180	40.9	109
	Check.....		330				82
1	Cleveland Big Boll.....	75	440	265	175	39.8	109
7	Burn's Long Staple.....	75	426	257	169	39.7	105
2	Bolivia Long Staple.....		440				109
3	Columbia Long Staple.....	75	426	302	124	29.1	105
	Check.....		343				85
14	Long Staple (Unknown).....		469				116
119	Keenan.....	75	516	356	160	31.1	128
118	Long Staple.....		550				136
5	Allen's Long Staple.....	75	591	378	213	36.0	147
	Check.....		371				92
8	Brabham.....	75	536	330	206	38.4	133
12	Floradora.....	75	477	342	135	28.3	118
74	Allen's Long Staple.....	75	550	344	206	37.5	136
76	Floradora.....	75	488	338	150	30.7	121
	Check.....		357				89
120	Burn's Long Staple.....	75	516	320	196	38.0	128
121	Allen's Long Staple.....	75	516	332	184	35.7	128
122	Cook's Long Staple.....	75	550	362	198	36.0	136
9	Brabham.....	75	481	370	111	23.1	119
	Check.....		385				96
10	Mit Afifi (Egyptian).....		110				27
17	Sea Island.....	75	130	87	43	33.1	32

Especial attention is invited to T. S. Numbers 119, 118, 5, 120, 121, and 122, which produced yields of more than five hundred pounds of seed cotton per acre. The good showing of the Upland long-staple varieties is also noteworthy. T. S. Numbers 10 and 17, being tropical long-staple varieties, made very slow growth and correspondingly light yields. The average yield from the ten plots of Upland long-staple Numbers 2, 3, 5, 7, 14, 74, 118, 120, 121, and 122 was 503 pounds per acre. The average of all plots was 403 pounds.

1913.

In 1913, forty-six varieties of cotton were planted, but because of drouth did not come up until July. A number of the varieties lived through the dry weather, but the fall rains did not come early enough to enable them to mature a crop. The following fourteen varieties were noted as showing good drouth resistance:

T. S. No.	Variety
11.....	Lone Star.
14.....	Unknown Long Staple.
118.....	Long Staple.
128.....	Mebane Triumph.
169.....	Webber.
411.....	Hite's Early Prolific.
412.....	Foster Long Staple.

T. S. No.	Variety
413.....	Snowflake.
414.....	Durango.
443.....	Half and Half.
446.....	Simpkin's Prolific.
466.....	Webber.
469.....	Hawkins.
472.....	Peterkin.

1914.

The variety tests of cotton in 1914 consisted of a series of fifty-five plots, planned in duplicate. Of these, eleven plots of each set were planted to T. S. Number 804, Mebane, for use as soil checks. Two varieties, Sea Island (T. S. Number 958) and Webber (T. S. Number 477), failed completely.

In looking over the results of this test, one must keep in mind the fact that at no time during the growing period did any variety want for soil moisture. This is a very unusual condition for this section of the country.

The first and most striking thing to observe is that none of the Texas varieties hold a high place in yield.

The Mebane, which is generally considered to be the best variety for this section, ranks fifteenth, Triumph seventeenth, Chisholm nineteenth, Lone Star twenty-first, Rowden twenty-second, and Half and Half thirty-first.

The long-staple cotton varieties made a much better yield than was expected. Hendricks produced 562.79 pounds of lint cotton per acre and several of the long staples produced over 400 pounds.

The high-yielding cotton varieties had a large number of bolls per stalk. The King Cotton, although making a high yield, is not at all practical on account of the trouble in harvesting the small bolls.

Table No. II. Cotton variety test, Substation No. 7, Spur, 1914.

(Average of duplicate series.)

T. S. No.	Variety.	Per Cent Stand.	Pounds Seed Cotton Per Acre.	Pounds Seed Per Acre.	Pounds Lint Per Acre.	Per Cent Lint.	Per Cent Total Crop in First Picking.	Percentage of Average Yield of Seed Cotton.
958	Sea Island.....							
477	Webber.....							
495	Hendricks.....	108	1577.2	1014.41	562.79	36.00	72	115
504	Durango.....	102	1313.0	899.83	413.21	31.47	82	96
483	Columbia.....	108	1178.9	780.49	398.45	31.55	51	86
445	Webber.....	108	1006.5	715.15	291.38	28.92	46	74
348	Black Rattler.....	107	996.2	633.43	362.82	25.63	53	73
470	Sunflower Long Staple..	97	731.6	542.34	189.25	25.88	65	53
118	Unknown Long Staple..	86	1192.6	804.23	388.41	32.57	69	87
939	Floradora.....	111	1120.4	794.04	326.35	29.13	74	82
7	Burn's Long Staple.....	99	1399.0	988.11	410.88	34.21	69	102
498	Bolivia.....	112	1474.5	1032.17	442.37	30.00	63	108
414	Durango.....	77	1285.4	855.43	429.96	33.45	85	94
413	Snowflake.....	87	1304.9	900.25	404.64	31.99	68	96
466	Webber.....	84	948.4	644.85	303.60	32.01	64	69
114	Unknown Long Staple..	88	937.8	607.03	330.76	35.27	50	69
942	Lone Star.....	93	1206.5	733.48	473.01	39.21	70	88
130	Bank Account.....	80	1306.5	872.44	434.15	36.84	82	96
959	Chisholm.....	90	1329.8	817.46	512.39	38.53	78	97
494	Cannons' World Skinner	88	1598.0	1024.12	573.92	36.54	73	117

Table No. II. Cotton variety test, Substation No. 7, Spur, 1914—Continued.

(Average of duplicate series.)

T. S. No.	Variety.	Per Cent Stand.	Pounds Seed Cotton Per Acre.	Pounds Seed Per Acre.	Pounds Lint Per Acre.	Per Cent Lint.	Per Cent Total Crop in First Picking.	Percentage of Average Yield of Seed Cotton.
941	Triumph.....	107	1432.8	904.66	528.18	36.86	76	105
482	Bohler's Triple Jointed..	96	1460.9	934.98	525.92	36.00	69	107
496	Broadwell's D. Jointed..	108	1653.1	1049.23	603.86	36.52	80	121
940	Pemiscott.....	88	1244.4	878.98	365.47	29.77	58	91
16	Crowder.....	87	1684.1	1091.13	592.97	35.21	74	123
473	Red Leaf.....	94	831.1	539.71	291.38	35.06	79	61
77	Rowden.....	85	1333.7	880.11	453.59	34.01	78	98
443	Half and Half.....	93	1058.3	650.57	402.68	38.05	71	77
474	Truitt.....	109	1683.6	1111.73	571.87	33.99	77	123
479	Toole.....	105	1618.8	70	119
152	Mortgage Lifter.....	85	1312.9	874.55	438.39	33.39	78	96
958	Cook.....	94	1670.3	1075.99	594.36	35.58	87	122
476	Texas Oak.....	103	1673.4	1104.27	569.12	34.01	73	123
11	Lone Star.....	80	1147.5	757.50	390.05	33.99	76	84
472	Peterkin.....	94	1464.3	892.35	571.94	44.96	78	107
485	Cleveland Big Boll.....	75	1474.2	982.35	492.39	33.40	80	108
487	Dongola Big Boll.....	102	1608.5	1072.08	536.41	33.67	72	118
486	Robert's Big Boll.....	97	1601.9	1040.74	561.07	35.03	71	117
135	Union Big Boll.....	69	1237.2	820.72	415.52	33.67	73	91
480	Culpepper Big Boll.....	104	1759.7	1156.30	603.40	34.29	76	129
951	Cleveland Big Boll.....	108	1660.0	1049.49	610.55	36.96	85	122
481	Cooks Improved Big Boll	107	1642.8	1047.76	595.09	36.22	73	120
783	King.....	110	1680.2	1091.73	588.51	35.03	85	123
469	Hawkins.....	107	1543.2	1009.75	533.49	34.57	65	113
804	Mebane, Average of Check.....	107	1361.4	822.55	536.77	39.52	75	100

1915.

The climatic conditions for 1915 were probably a little better than the average for this section, notwithstanding the fact that from June 9th to August 29th there was only an occasional summer shower, totaling 2.29 inches. These showers were of little or no benefit, as none of them penetrated through the deep soil mulch. The early spring rains, however, put an abundance of moisture in the soil and proper cultivation made a good crop possible. The rain which fell during the growing season was 1.83 inches below the normal.

During June, July, and August, the temperature was below normal and hot dry winds did little damage. On the other hand, the low temperatures prevented maximum growth. The last spring frost was April 3rd and the first killing autumn frost was November 14th, sixteen days later than the average. The late frost gave the crop more time to mature than usual.

Thirty-eight varieties of cotton were planted in duplicate on the 23rd of May. The rows were three feet apart and the plants thinned to 18 inches apart in the row. A good stand was secured. Three early cultivations were given with a harrow, one later with a lister cultivator, and two with an Oliver cultivator. The number of bolls per pound of seed cotton were obtained by counting the number of open bolls immediately before the first picking and dividing this by the yield. The cotton was ginned in March, 1916, and since the weather was very dry, the percentages of lint are high, due, doubtless, to the shrinkage in the weight of the seed.

Table No. III. Cotton variety test, Substation No. 7, Spur, 1915.

T. S. No.	Variety Name.	Pounds Seed Cotton Per Acre.	Pounds Seed Per Acre.	Pounds Lint Per Acre.	Pounds Lint	Per Cent Per Cent of Average Yield.	Average Number of Bolls Required to Make one Lb. of Seed Cotton.
1153	Cook	1180.8	755.0	425.8	36.06	149	69.0
1371	Boswick	805.0	475.4	329.6	40.94	101	76.3
1374	Durango	876.1	543.6	332.5	37.95	110	71.0
1276	Mebane Triumph	907.1	550.4	356.7	39.32	114	68.5
1260	Ricks	902.3	577.0	325.3	36.05	113	78.5
1370	Simpkins	811.6	492.7	318.9	39.29	102	87.3
1277	Rublee	856.2	561.3	294.9	34.44	108	66.5
1359	Russell	921.1	577.6	343.5	37.29	116	65.5
1361	Columbia	764.5	471.0	293.5	38.39	96	72.0
1375	Cleveland	1004.1	665.6	338.5	33.71	126	73.0
1364	Bank Account	834.3	529.0	305.3	36.59	105	101.0
1366	Toole	737.0	449.9	287.1	38.95	93	91.0
1151	Cleveland	877.5	564.9	312.6	35.62	110	69.5
1358	Texas Oak	847.2	530.5	316.7	37.38	107	94.0
1362	Cleveland	779.5	488.4	291.1	37.34	98	78.7
1357	Bates	833.3	519.2	314.1	37.69	105	98.5
1372	Mortgage Lifter	767.7	497.9	269.8	35.14	97	85.5
1275	Rowden	696.7	440.5	256.2	36.77	88	71.5
1379	Ferguson Mebane	871.4	558.3	313.1	35.93	110	63.5
1363	Money Maker	805.1	499.0	306.1	38.02	101	84.5
1263	Hartsville No. 9	631.6	365.0	266.6	42.21	79	74.7
1369	Cooke	659.3	406.7	252.6	38.31	83	90.5
1274	Huffman	811.0	526.5	284.5	35.08	102	70.0
1377	Cook 729	838.0	576.1	261.9	31.25	105	62.5
1376	Cleveland X Cook	944.0	655.6	288.4	30.55	119	77.7
1152	King X Triumph	786.4	522.7	263.7	33.53	99	81.5
1267	Ferguson Round Nose	907.5	626.7	280.8	30.94	114	60.5
1378	Ferguson Lone Star	801.0	538.5	262.5	32.77	101	73.5
1262	Webber No. 82	751.7	517.0	234.7	31.22	95	71.0
1360	Roberts	837.8	555.1	282.7	33.74	105	86.5
1261	Webber No. 49	678.9	450.3	228.6	33.67	85	79.0
1368	Texas Oak	874.0	568.6	305.4	34.94	110	102.0
1264	Goodson	644.8	421.1	223.7	34.69	81	77.5
1266	Virgatus	633.7	415.8	217.9	34.38	80	83.3
1373	Laytons Improved	628.2	405.0	223.2	35.53	79	102.5
1367	Truitt	686.5	457.6	228.9	33.34	86	83.5
942	Lone Star	572.9	365.5	207.4	36.20	72	70.5
473	Red Leaf	453.7	306.1	147.6	32.53	57	92.5
804	Mebane	882.0	519.5	362.5	40.11	110	71.6
1705	Lone Star	864.4	551.5	312.9	36.20	109	72.2

The highest yielding variety was Cook (T. S. Number 1153). This was also among the highest yielding varieties in 1914. Other high yielding varieties were Cleveland X Cook, Russell, Ferguson's Round Nose, Ricks, Mebane, and Cleveland. Attention may also be called to Durango, which made an excellent yield as well as a long staple.

T. S. Number 1705, Lone Star, was used as a check and gave a yield of 312.9 pounds lint per acre. On account of its exceedingly good storm-resistant qualities, it deserves careful consideration.

1916.

The 1916 cotton crop at Spur was a failure due to its having been destroyed by hail on June 9, 1916.

1917.

In the spring the ground remained cold so long that cotton made a very slow early growth. It was the latter part of June before growth amounted to much. In a very few places the cotton reached a height of twenty inches during the growing season. The summer was very

dry and caused cotton to shed a good many blooms and young bolls. Cotton set after the September rains did not mature. Since the early frost was followed by dry weather, there was but little loss from the decaying of bolls.

Like 1914, the year 1917 was characterized by the good showing of some of the long-staple varieties, noticeably Durango, Express, and Trice.

Other high yielders were F. G. 33, Cook's Silk Long Staple, Matchless Extra Early Big Boll, Broadwell's Double Jointed, Half and Half, and Peterkin. Attention should be called to Boykin, which produced a good yield and also had very large bolls, requiring only fifty-four to make a pound of seed cotton. Attention is called to the fact that in spite of high yields, small-bolled cottons are not well adapted to the conditions of western Texas on account of their lack of storm resistance.

Table IV. Cotton variety test, Substation No. 7, Spur. 1917.

T. S. No.	Variety Name.	Pounds Seed Cotton Per Acre.	Pounds Seed Per Acre.	Pounds Lint Per Acre.	Per Cent Lint.	Length Lint 16th. inch.	Grades of Lint.	Average Yield Seed-Cotton.	Number of Bolls Required to Make One Lb. of Seed Cotton.
2456	Chisholm.....	382.00	241.04	140.96	36.80	8	L. M.	85	71
2457	Webb.....	430.00	276.06	153.94	35.80	10	L. M.	96	71
2458	Rowden.....	364.50	243.12	121.38	33.30	14	S. L. M.	81	64
2459	Mebane.....	443.50	275.86	167.64	37.80	12	S. L. M.	99	57
2460	Harvell.....	440.00	285.57	154.43	35.10	14	L. M.	98	64
2461	Acala.....	439.50	277.77	161.73	36.80	17	S. M.	98	72
2462	Improved Champion.....	367.50	234.10	133.40	36.30	12	L. M.	82	55
2463	Vandivers Heavy Fruiter.....	385.00	235.24	149.76	38.90	12	S. L. M.	86	52
2464	F. G. 33.....	529.00	324.81	204.19	38.60	12	M.	118	80
2465	Kaschs Improved.....	477.50	285.46	192.04	40.20	12	L. M.	106	55
2466	Cooks Silk Long Staple.....	532.50	348.79	183.71	34.50	10	S. L. M.	118	71
2467	Snowflake.....	409.00	278.94	130.06	31.80	19	S. G. O.	91	69
2468	Texas Progress.....	398.50	256.64	141.86	35.60	12	L. M.	89	62
2469	Ferguson Round Nose.....	385.00	242.94	142.06	36.90	12	S. M.	86	57
2470	Mebane Triumph.....	409.00	258.90	150.10	36.70	12	S. L. M.	91	56
2471	Boykin.....	488.00	289.39	198.61	40.70	12	L. M.	108	54
2472	Lone Star.....	457.00	279.69	177.31	38.80	14	S. L. M.	102	61
2473	Holdon.....	409.00	258.08	150.92	36.90	12	M.	91	49
2474	Wannamaker Cleveland.....	433.50	267.60	165.90	38.20	10	G. O.	96	66
2475	Cleveland 641.....	419.50	260.09	159.41	38.00	12	S. G. O.	93	74
2476	King X Triumph.....	392.00	250.88	141.12	36.00	12	S. G. O.	87	58
2477	Cook 919.....	484.50	280.53	203.97	42.10	12	L. M.	108	69
2478	Surecrop.....	512.50	331.08	181.42	35.40	12	S. G. O.	114	57
2479	Mortgage Lifter.....	412.50	266.48	146.02	35.40	10	S. G. O.	92	57
2480	Hastings Upright.....	437.00	280.96	156.04	35.70	12	G. O.	97	57
2481	Bank Account.....	457.50	298.75	158.75	34.70	12	L. M.	102	79
2482	Matchless Ex. Ea. B. B.....	536.00	346.26	189.74	35.40	10	L. M.	119	74
2483	Union Big Boll.....	402.00	264.11	137.89	34.30	14	S. G. O.	89	65
2484	Allen's Express.....	412.50	194.11	118.39	28.70	18	L. M.	92	91
2485	Hawkins.....	382.00	252.50	129.50	33.90	14	L. M.	85	65
2486	Cleveland.....	323.00	209.31	113.69	35.20	12	L. M.	72	75
2487	Simpkin's Prolific.....	405.50	243.30	162.20	40.00	12	L. M.	90	101
2488	Early King.....	412.50	269.36	143.14	34.70	8	S. L. M.	92	88
2489	Simpkin's Ideal.....	440.00	286.88	153.12	34.80	10	L. M.	98	85
2490	Rowden's Choice Prolific.....	295.50	194.73	100.77	34.10	16	S. L. M.	66	89
2491	Mebane Triumph.....	443.50	277.19	166.31	37.50	16	L. M.	99	82
2492	Jackson Big Boll.....	443.50	285.61	157.89	35.60	12	S. L. M.	99	61
2493	King's Early.....	455.50	303.23	152.27	33.80	14	S. G. O.	101	95
2494	Lone Star.....	464.00	305.32	158.68	34.20	18	G. O.	103	65
2495	Wannamaker.....	409.50	261.26	148.24	36.20	10	S. G. O.	91	52
2496	Hite's Prolific.....	447.00	284.74	162.26	36.30	12	S. G. O.	99	80
2497	Toole.....	443.50	281.18	162.32	36.60	14	L. M.	99	68
2498	Money Maker.....	492.00	304.54	186.46	37.90	12	G. O.	109	73
2499	Broadwell's Double Jointed.....	574.00	374.25	199.75	34.80	12	S. G. O.	128	73
2500	Mexican Big Boll.....	409.50	285.02	124.48	30.40	14	S. M.	91	76
2501	Durango.....	553.00	364.43	188.57	34.10	14	S. M.	123	69
2502	Express.....	732.00	527.04	204.96	28.00	18	S. L. M.	163	79
2503	Trice.....	615.50	407.46	208.04	33.80	18	S. L. M.	137	81
2504	Half and Half.....	667.00	421.54	245.46	36.80	16	M.	148	68
2505	Peterkin.....	653.00	425.76	227.24	34.80	12	M.	145	62
2969	Heavy Fruiter, Average of Check.....	442.37	279.14	163.23	36.90	98	60

1918.

The crop season of 1918 has probably been less favorable than for any other year since the Station was established. Men who have been in this country for many years claim it to be the hardest year since 1900. As there was a scant rainfall in 1916 and 1917, there was an accumulated deficiency of moisture. There was not enough moisture in the ground at planting time to germinate seed. Throughout the growing season there was only one rain of over one inch. Planting followed this rain; therefore, much of the moisture was lost as the planting was done with lister planter. Forty-one varieties of cotton were planted in duplicate on Acre C 51-60 and 61-70, but as Acre C 51-60 was a complete failure, the results obtained on the latter acre only are tabulated. The yields on Acre 61-70 are due largely to the fact that this acre is on overflow land and received a good soaking in the fall of 1917 and another in June of 1918. The water, however, was not distributed uniformly over the acre. In order to judge the comparative values of the different varieties, a correction in the yields for the favored and unfavored parts of the field must be made. This is rendered possible by the fact that one variety, T. S. Number 804, Mebane, was repeated twelve times at regular intervals through the field and thus gave a constant soil check. By correcting to this constant, the following observations may be made. (See column of corrected relative yields in Table V.)

Cook's 931 (T. S. Number 3030) ranks first, followed by two Triumph strains. The Cook cottons have held a prominent place for several years, ranking high for the years 1914, 1915, 1917, and 1918. It is poor in storm resistance and in staple length and quality. These are defects which go to offset its good yielding qualities. Lone Star, F. G. 33, and Mebane have been making really good showings.

The following varieties of cotton may be listed as being poor in storm resistance in 1918:

T. S. No.	Variety
2995.....	Union Big Boll.
2996.....	Hastings' Upright (very poor).
2997.....	Matchless Extra Early.
2998.....	Vandiver's Heavy Fruiter.
3021.....	Hastings' Mortgage Lifter.
3022.....	Bank Account.
3023.....	Wannamaker.
3026.....	Cook's Silk Long Staple.
3027.....	Wannamaker.
3028.....	Cook's 588.
3030.....	Cook's 931.
2990.....	Snowflake.
2989.....	King's.
3033.....	Ideal.
3045.....	Allen's Express.
3044.....	Cleveland Big Boll.
3047.....	Simpkin's Prolific.
3046.....	Early King.
3061.....	Durango.
3062.....	Express (very poor).

Table V. Cotton variety test, Substation No. 7, Spur, 1918.

T. S. No.	Variety Name.	Pounds Seed Cotton Per Acre. Actual Yields.	Relative Yields Corrected* Per Cent.
2994	Texas Progress.....	570.62	102
3056	Improved Champion.....	605.00	116
3000	F. G. 33.....	708.12	153
2995	Union Big Boll.....	605.00	125
2996	Hasting's Upright.....	350.62	82
2997	Matchless Ex. Ea. Big Boll.....	343.75	85
3004	Webb.....	412.50	112
3001	Chisholm.....	446.87	137
3003	Rowden.....	302.50	88
3002	Mebane.....	323.12	103
2998	Vandiver's Heavy Fruiter.....	288.75	91
3005	Lonestar.....	240.62	69
3006	Mebane Triumph.....	364.37	101
3021	Mortgage Lifter.....	343.75	89
3022	Bank Account.....	268.12	70
3020	Surecrop.....	330.00	69
3023	Wannamaker.....	343.75	99
3025	Acala.....	206.25	67
3026	Cook's Silk Long Staple.....	261.25	83
3027	Wannamaker.....	247.50	89
3028	Cook 588.....	343.75	165
3030	Cook 931.....	412.50	209
3029	King X Triumph.....	371.25	170
2990	Snowflake.....	261.25	112
2991	Holdon.....	240.62	125
2989	King.....	240.62	116
3057	Rowden.....	151.25	69
3039	Mebane Triumph.....	158.12	77
3038	Boykin.....	185.62	107
3034	Ferguson Round Nose.....	247.50	142
3033	Simpkin's Ideal.....	103.12	62
3035	Mebane Triumph.....	254.37	186
3036	Lonestar.....	206.25	160
3037	Mebane Triumph.....	89.37	61
3040	Mebane Triumph.....	144.37	91
3045	Allen's Express.....	110.00	49
3044	Cleveland Big Boll.....	103.12	56
3047	Simpkin's Prolific.....	158.12	106
3046	Early King.....	55.00	35
3048	Kaschs Improved.....	130.62	105
3061	Durango.....	96.25	77
3062	Express.....	55.00	38
3063	Trice.....	68.75	60
804	Mebane.....	96.25	99
804	Mebane, Average of Check.....	271.56	104

*Relative yield using the average of all plats as 100 per cent, after correcting the yields of each plat to a standard based on the ratio which its nearest check plat bears to the average of all of the check plats (Mebane T. S. 804). This was made necessary by unevenness of water supply, due to flooding of a part of the field (see text).

1919.

The year can be considered a very favorable one for cotton production. The early part of the year was some colder than desirable, and moisture conditions were such as to promote a large and vigorous growth of weeds that gave considerable trouble and did not permit the best cultivation.

During the blooming period and fruiting stage, conditions were good. The latter part of August and the first of September were dry and caused all varieties to shed the young fruit and prevented the full development of the older bolls. The low grades and short staple are due in a large part to this dry spell.

Harvesting conditions were not ideal, as the fall months were wetter and colder than normal, but as there were several periods of warm dry days, the cotton was harvested with little damage and no loss. As the dry spell stopped the growth in late August and September, there was but little "Bollie" cotton.

Forty-four varieties were tested in duplicate plats. Mebane gave the highest single plot yield. Other high yielders were Belton, Acala (T. S. Number 3658), Chisholm, Snowflake, and Cook.

Cook has consistently been a high yielder, but it is very poor in storm resistance.

The earliest varieties are Truitt, Mebane, Boykin, Buckelew, Kasch, and Acala. Among those showing a high ginning out-turn may be mentioned Cook, Kasch, and Triumph, with 40 per cent., Mebane with 39 per cent., and Willis, Acala, and F. G. 33 with 38 per cent.

Varieties which have been best in storm resistance are Lone Star, Kasch, and Rowden. Those very poor in storm resistance are Cook, Half and Half, Union Big Boll, Foster, Kekchi, and Buckelew.

Those varieties which shed the least fruit during the August dry spell may be listed as follows in their order of resistance to drouth: Lone Star, Gilstrap, Mebane Triumph, Mebane, Triumph, and F. G. 33.

Cook, Belton, Lone Star, and Snowflake produced the tallest, and Bennett had the shortest stalks of the cotton varieties tested. Snowflake and Durango had the longest staple. Lone Star was one of the most promising varieties, but it had rather too much tendency to produce a crop of "bollies" at this Station. Acala, Boykin, and F. G. 33 appeared to be promising varieties. Mebane again demonstrated its reliability as a cotton for this section. It does not always stand at the head of the list in yields, but it is usually above the average in both good and bad years.

Table VI. Cotton variety test, Substation No. 7, Spur, Texas, 1919.

T. S. No.	Variety Name.	Pounds Seed Cotton Per Acre.	Pounds Seed Per Acre.	Pounds Lint Per Acre.	Lint and Loss.	Per Cent Lint.	Per Cent Average Yield Seed Cotton.	Lint Length 16ths of an Inch.	Grade.	Character of Staple.	Number Bolls Required to Make One Pound of Seed Cotton.
804	Mebane.....	1278.20	768.90	437.25	72.05	36.25	134				
3632	Mebane.....	941.60	550.11	319.44	72.05	36.74	99	12	Boller	Poor	92
3633	Mebane.....	948.20	588.12	325.98	34.10	35.66	100	12	Boller	Fair	87
3634	Mebane.....	1137.40	684.26	422.34	30.80	38.16	120	12	L. M.	Poor	69
3635	Mebane.....	1041.15	670.01	371.14	00.00	35.65	109	12	S. L. M.	Poor	73
804	Mebane.....	952.05	583.55	325.05	43.45	35.77	100				
3676	Mebane.....	1085.70	604.78	384.67	96.25	38.88	114	12	M.	Poor	79
3677	Mebane.....	979.55	578.00	364.15	37.40	38.65	103	12	S. L. M.	Poor	84
804	Mebane.....	1006.50	642.62	333.08	30.80	34.14	106	12	L. M.	Poor	67
3636	Mebane.....	1007.05	577.89	478.01	51.15	39.54	106	14	L. M.	Fair	83
804	Mebane.....	876.15	517.22	294.03	64.90	36.24	92				
3642	Lone Star...	1003.75	619.19	350.46	34.10	36.14	106	14	L. M.	Soft	71
3643	Lone Star...	841.50	518.93	281.32	41.25	35.15	88	12	S. L. M.	Good	102
3644	Lone Star...	876.15	560.51	284.84	30.80	33.69	92	14	L. M.	Fair	85
3645	Lone Star...	1007.05	623.65	332.25	51.15	34.76	106	12	L. M.	Fair	73
804	Mebane.....	996.05	600.00	341.60	54.45	36.28	105				
3646	Lone Star...	917.40	612.87	284.73	19.80	31.72	96	16	S. L. M.	Good	79
3648	Lone Star...	731.50	443.58	257.12	30.80	36.69	77	12	M. Spot	Fair	125
3150	Lone Star...	838.20	522.23	288.47	27.50	35.58	88	14	L. M.	Fair	90
3637	Kasch.....	797.50	461.34	312.51	23.65	40.38	84	12	S. L. M.	Good	108
804	Mebane.....	879.45	532.68	302.22	44.55	36.20	92				
3650	Rowden.....	879.45	557.26	298.54	23.65	34.88	92	14	M.	Fair	98
3651	Rowden.....	1003.20	636.46	353.54	13.20	35.71	106	14	S. L. M.	Good	79
793	Belton.....	944.90	580.91	319.44	44.55	35.48	99	16	L. M.	Good	81
3653	Belton.....	1123.65	727.76	360.69	35.20	33.14	118	12	L. M.	Good	65
804	Mebane.....	954.80	575.52	324.83	54.45	36.08	100				
3638	Boykin.....	1058.20	643.06	381.04	34.10	37.21	111	12	L. M.	Good	66
3657	Acala.....	755.70	446.66	278.24	30.80	38.38	79	16	S. L. M.	Fair	94
3658	Acala.....	1174.80	721.33	370.97	82.50	33.96	124	16	S. L. M.	Fair	61
3659	Acala.....	972.40	577.61	357.39	37.40	38.22	102	16	S. L. M.	Fair	66
804	Mebane.....	989.45	589.27	335.28	64.90	36.26	104				
3639	Webb.....	954.80	607.48	315.92	31.40	34.21	100	12	L. M.	Good	71
3640	Bennett.....	845.35	498.41	302.39	44.55	37.76	89	14	S. L. M.	Fair	98
3647	Jackson.....	1009.80	625.41	346.99	37.40	35.68	106	14	L. M.	Fair	70
3649	Holden.....	986.15	614.24	320.76	51.15	34.30	104	14	S. L. M.	Fair	76

Table No. VI. Cotton variety test, Substation No. 7, Spur, 1919—Continued.

T. S. No.	Variety Name.	Pounds Seed Cotton Per Acre.	Pounds Seed Per Acre.	Pounds Lint Per Acre.	Dirt and Loss.	Per Cent Lint.	Per Cent Average Yield Seed Cotton.	Lint Length 16ths of an Inch.	Grade.	Character of Staple.	Number Bolls Required to Make One Pound of Seed Cotton.
804	Mebane.....	889.90	529.76	298.54	61.60	36.04	94				
3654	Willis.....	897.05	512.49	319.66	64.90	38.41	94	12	S. L. M.	Fair	80
3655	Round Nose.....	1085.70	687.61	350.24	47.85	33.75	114	12	M.	Good	69
3660	Truitt.....	1089.00	656.70	388.30	44.00	37.16	114	14	S. L. M.	Fair	68
3661	Chisholm....	1151.15	739.26	364.04	47.85	32.99	121	14	Spot M.	Fair	65
804	Mebane.....	880.00	524.37	297.33	58.30	36.18	92				
3662	Harvell.....	707.85	443.41	223.19	41.25	33.48	74	12	M.	Fair	114
3664	Gilstrap.....	910.25	502.26	284.79	123.20	36.18	96	12	S. L. M.	Fair	99
3665	Buckelew....	920.70	558.31	331.59	30.80	37.26	97	14	S. L. M.	Good	84
3666	Durango.....	652.85	426.36	198.99	27.50	31.82	69	17	S. L. M.	Fair	83
804	Mebane.....	892.80	543.57	308.93	47.30	36.24	95				
3668	Foster.....	673.20	454.25	202.45	16.50	30.83	71	16	L. M.	Good	88
3669	Kekchi.....	927.85	605.28	285.17	37.40	32.02	98	16	S. L. M.	Good	74
3670	Snowflake....	1123.65	701.42	367.23	55.00	34.36	118	16	Boller	Fair	57
3673	Cleveland....	952.05	591.36	312.29	48.40	34.56	100	14	L. M.	Fair	70
804	Mebane.....	865.70	513.15	290.95	61.60	36.18	91				
3674	Union B. B....	944.90	570.46	305.69	68.75	34.89	99	12	L. M.	Soft	61
3675	Half and Half	920.70	570.08	299.47	51.15	34.44	97	12	L. M.	Good	57
3707	Cook.....	1082.40	601.87	408.48	72.05	40.43	114	12	S. L. M.		
3000	F. G. 33....	1003.20	576.29	353.76	73.15	38.04	106	14	Spot M.	Soft Good	60
804	Mebane.....	883.30	522.39	296.01	64.90	36.17	93				61

1920.

The cotton variety plots at Spur were planted May 22 and were up May 29th. They were then destroyed by a hailstorm on June 19th. The plots were replanted June 24th and the cotton was up by June 30th. Between August 25 and September 10 practically all bolls set were destroyed by worms. Such as were finally produced were, for the most part, too late to open. Only six of the varieties, namely, Mebane, Rowden, Kasch, Bennett, Lone Star, and Belton matured any cotton at all. These yields were too small to warrant their use for comparison of the productivity or earliness of the varieties.

SUMMARY.

Table VII has been prepared as a means of summarizing the results of the variety tests of cotton at Spur from 1912 to 1920. All of the varieties tested during this period are listed in the left hand column. The next six columns give the results for the years 1918, 1912, 1917, 1915, 1919, and 1914, respectively.

The years are arranged in ascending order according to the average acre yields of seed cotton of the varieties tested in that season. Thus in 1918, the average yield per acre was 269 pounds, being the smallest of the six years, whereas the greatest average yield, 1366 pounds per acre, was produced in 1914. As previously noted, the cotton crop failed entirely at Spur during three years of the period, i. e., in 1913, 1916, and 1920.

Now for each given season the average yield of all of the varieties is taken as 100 per cent. Then by dividing the yield of each variety, in turn, by this average yield, we obtain their comparative yields as percentages of the average. This enables us to average the results of good and bad years without giving too great emphasis to the good years.

In fact, the best varieties for general growing are those which made fair yields on favorable years and which are most likely to make a profitable crop on bad years. Thus if one year is more important than another in determining the choice of varieties, it is certainly the bad year on which emphasis should be laid.

In the columns showing the comparative yields are small figures in parentheses. These indicate the length of staple expressed in sixteenths of an inch where such was determined.

The last three columns indicate average length of staple, number of years tested and the average comparative yield. It should here be emphasized that a test extending over four or five years gives a much better estimation of the value of a variety than one which includes but one or two trials. Accidents or the peculiar climatic conditions of a given year may favor a variety and give it a high yield for one year in spite of the fact that this variety might be wholly unadapted to general planting, year after year in that section. One year's test, therefore, gives only a preliminary indication, but where a variety does well for several years and keeps near the top on bad as well as good years, we may then be assured that it is safe and worthy of general planting.

CONCLUSIONS.

In Table VII, our attention is first called to Cook, which has yielded well above the average for all five years tested. Were it not that this variety is poor in storm resistance it could be recommended without hesitation for the conditions at Spur. F. G. 33 is also consistent in high yields. Round Nose has made a good showing, but its yields are somewhat erratic. Chisholm, Boykin, and Truitt are also worthy of mention. Lone Star is very interesting in that its best showings were made on bad years. Its order of merit seems to rise in proportion to the unfavorableness of the season. It is also probably the most storm resistant of the varieties tested. Among those averaging more than an inch in staple length, Snowflake and Durango have made the best showing. Acala seems to do well in favorable seasons, but its average is reduced by its comparative low yields in seasons of great drouth. Mebane and Mebane Triumph, throughout, have shown consistent good yields on both favorable and unfavorable seasons. For a number of years they have been popular varieties in this section. Unless, therefore, future test should demonstrate the decided superiority of some other variety, it would not be advisable to recommend to the farmers to discontinue the planting of Mebane.

However, no cotton tested has a combination of characters that make it ideal for this section of the country. Selection work is, therefore, under way to develop a cotton which is peculiarly adapted to the region served by this Station.

COTTON VARIETY EXPERIMENTS, 1912-1920.

15

Comparative yields of seed cotton varieties at Substation No. 7, Spur, 1912-1920.

(The years 1913, 1916 and 1920 were complete failures)

Year	1918	1912	1917	1915	1919	1914	Length of Lint 16ths Inch.	No. Years Tested.	Averag Relative Yield Per Cent
	269= 100%	403= 100%	450= 100%	795= 100%	951= 100%	1366= 100%			
Average Yield of Seed Cotton Per Acre Taken as 100	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent			
Allen's Long Staple.....		137						1	137
Cook's Long Staple.....		136						1	136
Culpepper Big Boll.....						129		1	129
Cook.....	187		108 (12)	111	114 (12)	121	12	5	128
Keenan.....		128						1	128
Peterkin.....			145 (12)			107	12	2	126
F. G 33.....	153		118 (12)		106(14)		13	3	126
Brabham.....		126						1	126
Broadwell's Double Jointed.....			128 (12)			121	12	2	125
King.....	116					123		2	120
King X Triumph.....	170		87 (12)	99			12	3	119
Cleveland X Cook.....				119				1	119
Dongola Big Boll.....						118		1	118
Cannon's World Skinner.....						117		1	117
Russel.....				116				1	116
Texas Oak.....				109		123		2	116
Round Nose.....	142		86 (12)	114	114,(12)		12	4	114
Bolivia Long Staple.....		119				108		2	114
Ricks.....				113				1	113
Roberts.....				105		117		2	111
Chisholm.....	137		85 (8)		121 (14)	97	11	4	110
Burn's Long Staple.....		117				102		2	110
Belton.....					109 (14)		14	1	109
Boykin.....	107		108 (12)		111 (12)		12	3	109
Rublee.....				108				1	108
Truitt.....				86	114 (14)	123	14	3	108
Holdon.....	125		91 (12)		104 (14)		13	3	107
Half and Half.....			148 (16)		97 (12)	77	14	3	107
Bohler's Triple Jointed.....						107		1	107
Money Maker.....			109 (12)	101			12	2	105
Bates.....				105				1	105
Columbia Long Staple.....		105						1	105
Snowflake.....	112		91 (19)		118 (18)	96	13½	4	104
Toole.....			99 (14)	93		119	14	3	104
Webb.....	112		96 (10)		100 (12)		11	3	103
Crowder.....		82				123		2	103
Matchless Big Boll.....	85		119 (10)				10	2	102
Huffman.....				102				1	102
Mebane.....	102		99 (12)	111	102 (12)	100	12	5	103
Express.....	38		163 (18)				18	2	101
Boswick.....				101				1	101
Hawkins.....			85 (14)			116	14	2	101
Union Big Boll.....	125		89 (14)		99 (12)	91	13	4	101
Mebane Triumph.....	103	92	95 (12)						
			(16)	112		105	14	5	101
Cook's Silk Long Staple.....	83		118 (10)				10	2	101
Floradora.....		120				82		2	101
Simpkin's Prolific.....	106		90 (12)	102			12	3	99
Lone Star.....	115	109	103 (14)						
			(18)	105	93 (14)	86	15	6	102
Hite's Prolific.....			99 (12)				12	1	99
Improved Champion.....	116		82 (12)				12	2	99
Kekchi.....					98 (16)		16	1	98
Cleveland.....			83 (12)	111	100 (14)		13	3	98
Bucklew.....					97 (14)		14	1	97
Jackson.....		84	99 (12)		106 (14)		13	3	96
Gilstrap.....					96 (12)		12	1	96
Texas Progress.....	102		89 (12)				12	2	96
Kasch.....	105		106 (12)		84 (12)		12	3	95
Durango.....	77		123 (14)	110	69 (17)	95	16½	5	95
Willis.....					94 (12)		12	1	94
Mortgage Lifter.....	89		92 (10)	97		96	10	4	94
Wannamaker.....	94		94 (10)				10	2	94
Cleveland Big Boll.....	56	109				115		3	93
Bank Account.....	70		102 (12)	105		96	12	4	93
Virgatus.....		105		80				2	93
Vandiver's Heavy Fruiter.....	91		92 (12)				12	2	92
Sure Crop.....	69		114 (12)				12	2	92
Mexican Big Boll.....			91 (14)				14	1	91
Columbia.....				96		86		2	91
Pemiscott.....						91		1	91
Hasting's Upright.....	82		97 (12)				12	2	90
Trice.....	60		137 (18)				18	2	89
Acala.....	67		98 (17)		102 (16)		16½	3	89
Bennett.....					89 (14)		14	1	89

Comparative yields of seed cotton varieties at Substation No. 7, Spur, 1912-1920—Continued.

(The years 1913, 1916 and 1920 were complete failures.)

Year	1918	1912	1917	1915	1919	1914	Length of Lint 16ths Inch.	No Years Tested.	Average Relative Yield Per Cent
Average Yield of Seed Cotton Per Acre Taken as 100	269= 100%	403= 100%	450= 100%	795= 100%	951= 100%	1366= 100%			
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent			
Unknown Long Staple		98				78		2	88
Harvell			98 (14)		74 (12)		13	2	86
Webber No. 49				85				1	85
Hendricks		55				115		2	85
Webber No. 82				95		72		2	84
Rowden	79	56	74 (14) (16)		88 81	99 (14)	98	14½	6
Goodson								1	82
Simpkin's Ideal	62		98 (10)				10	2	81
Hartsville No. 9				79				1	80
Layton's Improved				79				1	79
Black Rattler						73		1	79
Allen's Express	49		92 (18)				18	2	71
Foster					71 (16)		16	1	71
Early King	35		97 (11)				11	2	66
Red Leaf				57			61	2	59
Sunflower Long Staple						53		1	53
Sea Island		32						1	32
Mit Affi		27						1	27

Table VIII. Precipitation at Substation No. 7, Spur, 1911-1920

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Average Yield Cotton
1911				1.28	1.15	.56	4.97	1.69	1.34	1.03	.39	2.89		
1912	T	1.15	1.02	1.05	1.99	3.14	.53	1.66	2.04	1.87		.60	15.05	403
1913	.04	.41	1.23	.77	.44	4.35	.70	.07	5.72	2.94	3.64	1.89	22.20	*All failure
1914	.09	.19	.33	1.99	10.58	1.28	4.70	5.89	1.41	5.23	.87	1.57	34.13	1366
1915	.40	2.10	3.20	7.64	2.31	4.08	.78	1.48	7.65	5.17	T	1.05	35.86	795
1916	T	T	.43	2.35	1.31	†2.36	.56	4.01	1.12	2.63	.82	T	15.59	Destroyed by hail
1917	.22	.51	T	1.27	1.71	.14	2.17	1.58	4.12	.12	.07		11.91	450
1918	T	.64	.30	.62	2.44	1.97	.44	1.42	.92	2.60	.20	1.37	12.92	269
1919	.28	.21	3.56	3.78	4.37	2.03	2.60	2.44	4.26	7.48	.80	T	31.81	951
1920	1.31	T	.16	.99	6.91	3.36	.75	8.34	2.20	2.49	1.11	.38	28.00	†
Average.	.26	.58	1.14	2.17	3.32	2.33	1.82	2.86	3.08	3.16	.79	.98	22.49	

*Planted July 7

†Destructive hail storm, June 9th

‡Destroyed by hail June 19th Replanted June 24th, too late for maturity

RELATION BETWEEN YIELD AND RAINFALL.

A study of Table VIII shows that the cotton did not suffer seriously for moisture at any time during the growing season in the years 1914 and 1919, resulting in yields of 1366 and 951 pounds seed cotton per acre, respectively. Nineteen fifteen was also favorable except for the month of July, in which less than an inch of rain fell. Its effect in the reduction of the yields for that year to 795 pounds is marked. Nineteen seventeen was a poor year on account of a dry spring. Only two inches of rain fell between January 1 and May 1. The rain in May was less than two inches and there was only .14 inch in the critical month of June. In spite of the unfavorable conditions, an average yield of 450 pounds per acre was obtained. In 1912 the rains were evenly distributed but were very light. This was followed by a dry August, and re-

sulted in a further reduction of the yield to an average of 403 pounds per acre. Again, in 1918 the early spring was dry, followed by light rains in May and June and a very dry July. The crop was, therefore, reduced to an average of 269 pounds of seed cotton per acre. Finally, in 1913, the spring was so dry (only 2.49 inches since January 1) that the cotton did not come up until July. The record shows a good rainfall for June, but this came in heavy storms after the 20th of the month and was followed by July and August with less than an inch of rain. A large proportion of the plants lived over the drouth, but they were so late that the ample September rains were without value in bringing them to maturity. The crop for this year was therefore a failure. In the nine years we, therefore, have three years of failure; one due to lack of rainfall and two to destructive hailstorms in June (1916, 1920). These hailstorms are usually quite local and seldom cover more than a restricted area either as an isolated spot or as long narrow strips. In the other six years there was one year of low yields due to lack of moisture, two years of medium yields, and two years of good yield, and one year of excellent yield. Now, even counting the three years of total failure, the average yield of cotton for the nine years was 481 pounds of seed cotton per acre. This is greater than the average yield of seed cotton per acre in the State as a whole. We may, therefore, conclude that if the farmer is prepared to withstand an occasional year of failure his average results with cotton in Dickens and surrounding counties are at least as good or even better than the average for the State.