OKLAHOMA
AGRICULTURAL AND MECHANICAL COLLEGE
AGRICULTURAL EXPERIMENT STATION

# *COTTON VARIETY TESTS*

## *With Suggestions for Growing Cotton Under Boll Weevil Conditions*

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# *Cotton Variety Tests*

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This bulletin gives the results for 1916 to 1922, inclusive, of the cotton variety tests conducted at the Oklahoma Experiment Station. These tests were not made or published with the idea of advertising one or more varieties of cotton but to show in a comparative way and to emphasize the fact that differences do exist in varieties and that as one of the factors of better farming attention should be given to the best variety or varieties that are posible to be secured.

Most coton growers are interested in the best variety or varieties of cotton that are adapted to their particular locality. For this reason it is nct uncommon to find from two to twenty different varieties grown in the same community, all being an endeavor to find the best one adapted to local conditions. However, in most cases all these varieties are ginned at the same custom gin and become more or less mixed in the process of ginning until few persons have a variety that is better than or distinct from his neighbor.

Only the southeast two-thirds of Oklahoma lies within the cotton belt of the United States but in this area sufficient cotton has been produced to place the state recently to fourth place among the cotton producing states. The cotton area of Oklahoma is the northern limit of cotton production and until last year the greater part of this area had not been invaded by the cotton boll weevil.

Cotton is the most valuable cash crop in Oklahoma and for this reason if for no other, a study of varieties should be of great importance, in order that the undesirable and less valuable varieties be eliminated and the more profitable varieties be given a more prominent place on the Oklahoma farms. There are a number of good varieties of cotton grown in Oklahoma, each, perhaps, being well adapted for a particular section or condition. In a state that is as varied in soil and climatic condition as this one there cannot be one variety that is best for all growers. However, it is possible that one variety may be found that is best for a certain locality and in general that might be fairly well adapted to conditions existing over a large part of the cotton section of the state.

All growers desire a variety that gives large yields, a high percentage of lint, and recently have also become desirous of one with a fairly good length of staple and one comparatively early. The last factor is important in order to escape frost injury which comes early in this northern limit of production and on account of the likelihood of greater boll weevil damage to late maturing varieties. Contrary to prevailing opinion, much of Oklahoma cottons are sold at a premium on the eastern markets. They stand in a class to themselves, holding a position relatively between the long lint varieties (known as staples) and the shorter Uplands east of the Mississippi river.

There is a great difference in the yield of different varieties and there is also a difference in the same varity in diffrent seasons and located in different parts of the state or on different soils. It is therefore not a good practice to select a variety of cotton simply because it heads the list one year, but to investigate back through a series of years and select the variety that has made the best average.

Too much stress cannot be attached to the importance of planting the very best variety of cotton obtainable. However, one should select a variety that has been thoroughly tested by disinterested and reliable parties. There has been almost worthless varieties of cotton on the market under great claims that are not justified by honest tests. For these reasons the Agronomy Department of the Oklahome Experiment Station has been testing a number of varieties for a period of years with

*Acknowledgement is made of assistance given by Dr. M. A. Beeson in connection with this experiment while he was head of the Department of Agronomy.

the expectation of finding the variety or varieties best adopted to conditions similar to those existing at this location. It is expected that the better varieties will be propagated and multiplied until sufficient seed will become available for distribution among interested farmers.

## EXPERIMENT STATION FARM

The Agronomy Farm of the Oklahoma Experiment Station is situated nearly two miles west of Stilwater in Payne county. It is nearly at the extreme northern limit of cotton production and twenty-five miles north of the farm there is hardly a coton field to be found.

The soil upon which the tests mentioned in this bulletin were conducted is a reddish brown or chocolate colored loam underlaid with a very heavy red clay. The land is upland nearly level and drains fairly well. It is not known as good cotton land but is better than some of the poorest land in the state used for growing cotton.

## CLIMATIC CONDITIONS UNDER WHICH TESTS WERE CONDUCTED

Weather has much to do with the amount and the quality of coton grown in a year. It also has much to do with the securing of information sought in testing varieties. For instance, the late wet spring of 1917 and 1918 made it almost impossible to secure a uniform stand. The variety tests were so late in getting started that they had not matured at frost time in the fall and the yields were very low for those years. Only the very early varieties produced anything like a crop and they bore only a very light one.

The frost free season at Stillwater has been found to be about 212 days on an average and extends from about April 1 to October 29. However, the available season for cotton growin gis only about 173 days or from April 21 to October 11 as the weather before and after these dates is generally cool and not conducive to the growth of the cotton plant.

As yields are so greatly dependent upon the rainfall and its distribution Table I is given to show the rainfall by months for the years 1916 to 1921 at Stillwater, Oklahoma. The average rainfall here for the six-year period is approximately 35 inches.

TABLE I

Rainfall by months for the years 1916 to 1921 at Stillwater, Oklahoma:

| Month | 1916 | 1917 | 1918 | 1919 | 1920 | 1921 | Average |
|---|---|---|---|---|---|---|---|
| January | 3.18 | 0.27 | 1.48 | 0.21 | 0.81 | 1.74 | 1.28 |
| February | 0.29 | 0.90 | * | 2.47 | 0.12 | 0.92 | 0.78 |
| March | 1.70 | 0.34 | 1.63 | 1.65 | 5.04 | 4.84 | 2.63 |
| April | 3.77 | 3.26 | 3.86 | 4.18 | 3.86 | 5 87 | 4.13 |
| May | 0.94 | 2.80 | 7.10 | 4.07 | 6.73 | 3.06 | 4.12 |
| June | 9.49 | 2.58 | 3.86 | 5.14 | 3.41 | 9.14 | 5.60 |
| July | 0.18 | 2.34 | 1.26 | 0.40 | 6.02 | 3.23 | 2.34 |
| August | 0.72 | 9.19 | 1.40 | 1.88 | 5.75 | 1.06 | 3.37 |
| September | 1.81 | 0.50 | 5.36 | 2.48 | 2.43 | 6.43 | 3.17 |
| October | 2.11 | * | 5.88 | 6.67 | 7.51 | .41 | 3.76 |
| November | 2.89 | 2.45 | 4.65 | 3.76 | 2.01 | .23 | 2.66 |
| December | 0.93 | 0.03 | 3.37 | 0.25 | 3.75 | .17 | 1.42 |
| Total | 28.01 | 24.66 | 39.85 | 33.16 | 47.44 | 38.10 | 35.06 |

*Trace.

## METHOD OF CONDUCTING TEST

The varieties tested were planted in most years in the early part of May. They included all the well known varieties grown in Oklahoma as well as several others. In all some forty varieties have been tested over a period of three to six years. Each variety tested was planted in duplicate rows which together made a little less than one-twentieth of an acre. The seed were planted at the rate of one-half bushel per acre with an ordinary two-row cotton planter with demountable boxes so that the seed boxes could be thoroughly and quickly cleaned after planting each row and in this way mechanical mixing of seed could not result. The rows were planted 42 inches apart and the stand thinned to 12 to 18 inches between stalks in the row when the plants were about 6 inches apart.

Field notes were taken at intervals during the growing season and varietal differences noted. Records of measurements were made in regard to vegetative and lint and seed characteristics of the plants. In order to determine such characteristics as size of boll, percent of lint, length and strength of fiber, etc., 20 bolls of each variety were taken, all from separate plants, in order to secure representative samples, and these were tested in the laboratory.

The varieties were all planted on a uniform series of soil and all given the same cultural treatment, keeping as far as possible all factors alike with the exception of that due to varietal differences.

## VARIETY CHARACTERISTICS

Vegetative characteristics of the different varieties are shown in Table II which gives the average number of measuremnts of th height of plant, height of first branch from the ground, vegetative branches, fruiting branches, length of main stem internodes, length of fruiting branch internodes, and storm resistance. It is generally considered that a plant of medium height, branching close to the ground, with none too few vegetative branches, several fruiting branches and short internodes in the main stem and fruiting branches, and with good storm resistance is the type of stalk that gives a large yield and is fairly early in maturing.

Table II also gives the number of years each variety was under test, original source of seed, the average weight of 100 seed, number of seed in one pound of cotton seed, number of bolls required to make a pound of seed cotton, tensile strength of fiber and the approximate lint index of each variety. The number of bolls required to make a pound of seed cotton is an index to the size of the bolls and to a certain extent to the ease in picking.

The tensile strength shows something in regard to the spinning value of the variety as a fiber with a low tensile strength breaks easily and is "wasty" in spinning. "The lint index* is the weight in grams of the fiber produced by 100 seeds and may be said to be a measure of the abundance of the fiber rather than a measure of the relation between the weight of the fiber and the weight of the seed, as is the percentage of lint."

*Meloy, G. S., U. S. Department of Agriculture, Bulletin No. 644, "Lint Percentage and Lint Index of Cotton and Methods of Determination," p. 2.

## TABIE II—AVERAGE VEGETATIVE, SEED AND LINT CHARACTERISTICS OF DIFFERENT VARIETIES

| VARIETIES | No. years tested | Original source of seed | Av. height of plants in inches | Av. height to first branch in inches | Av. number of vegetative branches | Av. number of fruiting branches | Av. length main-stem internodes in inches | Av. length fruiting branch internodes, inches | Av. Storm resistance | Av. Wt. 100 ginned seed in grams | Av. No. seeds in one lb. of cotton seed | Av. No. bolls per lb. of seed cotton | Av. tensile strength of fiber in grams | Approx. Av. lint index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trice | 6 | U. S. D. A. | 38.8 | 4.18 | 3.40 | 8.54 | 1.85 | 3.61 | Poor to Medium | 12.34 | 3671 | 78.8 | 5.01 | 6.16 |
| Half and Half | 6 | U. S. D. A. | 42.0 | 3.55 | 1.98 | 9.82 | 1.76 | 3.44 | Medium to Good | 10.98 | 4126 | 69.5 | 5.53 | 7.35 |
| Ideal | 6 | U. S. D. A. | 38.8 | 3.80 | 2.32 | 9.82 | 1.72 | 3.30 | Medium | 11.68 | 3878 | 81.4 | 5.84 | 5.92 |
| King | 6 | U. S. D. A. | 39.5 | 2.46 | 2.56 | 9.34 | 1.82 | 3.59 | Medium to Good | 9.04 | 5011 | 87.8 | 4.68 | 4.63 |
| McLendon's Early | 6 | U. S. D. A. | 39.9 | 2.95 | 3.16 | 8.52 | 1.76 | 3.23 | Medium to Good | 11.44 | 3960 | 74.6 | 5.86 | 5.92 |
| Simpkins' Early Big Boll | 6 | U. S. D. A. | 46.5 | 3.53 | 2.60 | 10.60 | 1.78 | 3.32 | Medium to Good | 12.40 | 3653 | 73.8 | 3.60 | 6.16 |
| Bennett's Lone Star | 6 | U. S. D. A. | 40.8 | 4.23 | 2.16 | 8.58 | 2.03 | 2.91 | Medium to Good | 13.06 | 3469 | 66.7 | 5.52 | 7.30 |
| Durango | 6 | U. S. D. A. | 41.3 | 4.25 | 2.16 | 11.54 | 1.97 | 3.61 | Medium to Good | 11.96 | 3788 | 71.9 | 3.70 | 5.38 |
| Cleveland | 6 | U. S. D. A. | 42.1 | 5.29 | 2.70 | 9.20 | 1.71 | 3.38 | Medium | 12.82 | 3534 | 71.5 | 5.08 | 6.41 |
| Kekchi | 6 | U. S. D. A. | 39.3 | 3.50 | 2.90 | 8.70 | 1.78 | 2.67 | Medieum to Good | 12.80 | 3539 | 65.7 | 4.61 | 6.71 |
| Triumph U. S. | 6 | U. S. D. A. | 41.3 | 3.63 | 3.86 | 7.36 | 1.81 | 3.33 | Medium to Good | 12.26 | 3695 | 68.4 | 6.18 | 7.33 |
| No. 624 | 6 | U. S. D. A. | 36.3 | 3.64 | 3.10 | 8.52 | 1.68 | 3.20 | Good | 13.16 | 3442 | 62.4 | 4.50 | 6.41 |
| Express | 6 | U. S. D. A. | 41.8 | 5.18 | 2.44 | 9.22 | 1.94 | 2.81 | Poor to Good | 12.46 | 3636 | 79.9 | 4.04 | 4.86 |
| Lone Star | 6 | U. S. D. A. | 39.3 | 3.90 | 3.92 | 8.48 | 1.70 | 3.24 | Medium to Good | 12.94 | 3501 | 64.1 | 5.25 | 7.30 |
| Holdon | 6 | U. S. D. A. | 40.8 | 3.14 | 1.72 | 10.98 | 1.63 | 3.44 | Medium to Good | 14.36 | 3155 | 65.5 | 4.64 | 6.51 |
| Tuxtla | 6 | U. S. D. A. | 42.3 | 3.79 | 4.06 | 10.18 | 1.72 | 3.353 | Medium to Good | 13.38 | 3383 | 68.6 | 4.32 | 6.95 |
| Snowflake | 6 | U. S. D. A. | 45.8 | 4.19 | 2.56 | 10.20 | 2.01 | 3.88 | Medium to Good | 12.38 | 3695 | 78.0 | 4.98 | 5.62 |
| Lewis | 6 | U. S. D. A. | 41.3 | 3.48 | 2.14 | 8.88 | 1.86 | 3.73 | Poor to Medium | 12.30 | 3684 | 75.9 | 5.17 | 5.36 |
| Foster | 6 | U. S. D. A. | 38.0 | 5.29 | 4.66 | 6.48 | 1.93 | 4.01 | Medium to Good | 11.96 | 3789 | 75.8 | 4.79 | 4.43 |
| Acala | 6 | U. S. D. A. | 40.6 | 3.16 | 3.94 | 8.34 | 1.56 | 2.84 | Medium to Good | 12.00 | 3775 | 73.7 | 4.59 | 6.46 |
| Keenan | 6 | U. S. D. A. | 45.4 | 4.21 | 2.90 | 8.98 | 2.17 | 3.64 | Poor to Good | 13.14 | 3747 | 67.9 | 5.10 | 6.11 |
| Blackseed | 6 | U. S. D. A. | 42.4 | 4.11 | 3.36 | 9.18 | 1.81 | 3.64 | Medium | 13.06 | 3469 | 74.1 | 5.32 | 5.57 |
| Dixie | 6 | U. S. D. A. | 42.5 | 4.03 | 2.96 | 8.10 | 1.75 | 3.57 | Medium to Good | 10.84 | 4178 | 83.9 | 5.94 | 5.42 |
| Columbia | 6 | U. S. D. A. | 41.5 | 3.91 | 2.32 | 9.06 | 1.78 | 3.35 | Medium to Good | 12.90 | 3512 | 70.5 | 4.63 | 5.84 |
| Rowden | 6 | U. S. D. A. | 43.0 | 2.74 | 3.28 | 10.04 | 1.92 | 3.42 | Medium to Good | 12.74 | 3635 | 69.8 | 6.10 | 6.74 |
| Egyptian | 6 | U. S. D. A. | 57.3 | 4.14 | 2.52 | 9.14 | 2.09 | 4.81 | Medium | 13.70 | 3307 | 108.3 | 3.89 | 6.65 |
| Mebane's Triumph | 5 | Lockhart, Tex. | 39.0 | 2.95 | 5.28 | 7.18 | 1.70 | 3.27 | Medium to Good | 12.09 | 3775 | 62.0 | 6.32 | 6.46 |
| Wannamaker | 5 | So. Carolina | 38.0 | 5.59 | 3.74 | 6.92 | 2.07 | 3.43 | Medium to Good | 12.68 | 3573 | 75.7 | 6.86 | 7.03 |
| Mitchell's S. C. Long Staple | 5 | Stillwater, Ok. | 45.6 | 4.83 | 3.62 | 7.94 | 1.80 | 3.50 | Medium to Good | 11.68 | 3878 | 79.0 | 4.93 | 5.67 |
| Triumph, Okla. | 5 | Local, Ok. | 34.3 | 4.22 | 2.78 | 5.03 | 1.52 | 2.86 | Medium to Good | 12.03 | 3766 | 63.7 | 8.42 | 7.05 |
| Hartsville No. 12 | 4 | So. Carolina | 38.9 | 4.11 | 5.37 | 8.60 | 1.82 | 2.88 | Poor to Medium | 13.17 | 3438 | 62.0 | 4.96 | 5.57 |
| Sunbeam | 4 | So. Carolina | 42.3 | 4.15 | 2.60 | 11.53 | 1.39 | 4.12 | Medium to Good | 12.50 | 3624 | 77.5 | 3.66 | 7.03 |
| Cleveland Big Boll | 4 | So. Carolina | 37.6 | 4.54 | 4.63 | 8.53 | 1.89 | 4.01 | Medium to Good | 12.23 | 3704 | 78.5 | 3.49 | 6.46 |
| Cook's Improved | 4 | So. Carolina | 38.0 | 4.00 | 3.30 | 7.78 | 1.86 | 3.93 | Medium to Good | 12.17 | 3722 | 72.5 | 5.31 | 7.05 |
| Webb | 4 | So. Carolina | 38.0 | 3.76 | 2.73 | 7.83 | 1.99 | 3.53 | Medium to Good | 11.67 | 3882 | 79.1 | 6.03 | 5.91 |
| Webber's No. 49 | 4 | So. Carolina | 38.1 | 4.18 | 3.58 | 8.03 | 1.69 | 2.70 | Poor to Good | 12.50 | 3624 | 78.0 | 4.82 | 6.16 |
| Webber's No. 82 | 4 | So. Carolina | 35.3 | 4.75 | 4.35 | 6.55 | 1.92 | 3.58 | Poor to Medium | 13.00 | 3485 | 78.5 | 5.02 | 6.11 |
| Acala No. 5 | 4 | Porter, Ok. | 41.0 | 3.41 | 4.10 | 8.35 | 1.51 | 2.96 | Medium to Good | 12.50 | 3624 | 74.5 | 4.59 | 7.03 |
| Triumph Whiteseed | 4 | Okla. Sta. | 33.5 | 4.50 | 2.77 | 5.50 | 1.22 | 3.05 | Medium to Good | 12.37 | 3662 | 61.7 | 4.74 | 7.33 |
| Triumph Blackseed | 4 | Okla. Sta. | 33.3 | 3.87 | 2.30 | 5.17 | 1.19 | 2.92 | Medium | 12.10 | 3744 | 64.8 | 4.71 | 6.46 |

## VARIETY YIELDS OF SEED COTTON BY YEARS

It will be noted in Table III that during the six years most of the varieties were under test that during 1917 and 1918 the yields are abnormally low and that some of the later varieties especially in the former year made exceptionally low yields. These yields are included in the average and for this reaso nthis column is correspondingly low. The total yields per acre secured from the different varieties as shown in Table III were calculated from the yields of smaller plats. It will also be noted that the length of lint and linting per cent of the different varieties varied in different years and that the average of the variety for the years under test show more nearly the true value of each variety.

### TABLE III

Variety Yields of Seed Cotton, Length of Lint, and Linting Per Cent by Years

| VARIETIES | 1916 | | | 1917 | | | 1918 | | | 1919 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seed cotton per acre, pounds ...... | Length of lint in inches ...... | Linting per cent | Seed cotton per acre, pounds ...... | Length of lint in inches ...... | Linting per cent | Seed cotton per acre, pounds ...... | Length of lint in inches ...... | Linting per cent | Seed cotton per acre ...... | Length of lint inches ...... | Linting per cent |
| Webb | | | | | | | 52.5 | .92 | 39.0 | 690.9 | 1.04 | 35.4 |
| Rowden | 352.5 | 1.25 | 33.6 | 101.3 | 1.10 | 36.8 | 78.6 | .96 | 35.7 | 317.0 | .98 | 35.3 |
| McLendon's Early | 453.3 | 1.25 | 30.5 | 159.4 | 1.02 | 35.6 | 129.3 | .96 | 40.5 | 848.5 | 1.04 | 32.2 |
| Kekchi | 465.0 | 1.21 | 32.4 | 63.8 | 1.02 | 32.4 | 87.9 | 1.21 | 36.1 | 704.9 | 1.26 | 36.8 |
| King | 680.6 | 1.10 | 32.2 | 303.8 | .91 | 35.8 | 91.8 | 1.02 | 34.7 | 527.8 | 1.06 | 36.0 |
| Lone Star | 390.0 | 1.18 | 31.7 | 15.0 | 1.10 | 37.5 | 114.3 | 1.20 | 39.3 | 639.6 | 1.17 | 38.3 |
| Bennett's Lone Star | 412.5 | 1.22 | 34.0 | 136.9 | 1.12 | 31.0 | 106.8 | 1.01 | 40.3 | 699.4 | 1.26 | 39.2 |
| Ideal | 630.0 | 1.14 | 37.7 | 189.3 | .99 | 26.7 | 97.5 | .88 | 38.4 | 696.9 | .98 | 36.2 |
| Sunbeam | | | | | | | 105.0 | 1.01 | 39.2 | 789.9 | 1.13 | 35.7 |
| Snowflake | 129.4 | 1.18 | 26.5 | 33.8 | 1.33 | 33.3 | 106.8 | 1.20 | 31.5 | 887.4 | 1.18 | 38.2 |
| Simpkins' Early Big Boll | 436.9 | 1.17 | 33.4 | 78.8 | 1.05 | 33.3 | 135.0 | .92 | 38.8 | 926.4 | 1.29 | 31.8 |
| Keenan | 240.0 | 1.23 | 27.6 | 11.3 | 1.02 | 41.6 | 108.6 | 1.01 | 29.3 | 577.7 | 1.26 | 31.3 |
| Half and Half | 735.0 | .99 | 42.1 | 136.8 | .80 | 41.0 | 168.6 | .74 | 44.4 | 631.2 | .88 | 40.4 |
| Durango | 333.4 | 1.35 | 16.3 | 90.0 | 1.08 | 31.2 | 157.5 | 1.05 | 32.3 | 881.0 | 1.08 | 33.3 |
| Holdon | 300.0 | 1.31 | 29.4 | 18.2 | 1.03 | 35.0 | 121.8 | 1.05 | 21.5 | 599.2 | 1.17 | 31.3 |
| Egyptian | 50.6 | 1.52 | 41.2 | 11.3 | 1.65 | 33.3 | 65.4 | 1.49 | 28.5 | 310.2 | 1.26 | 30.0 |
| Tuxtla | 163.1 | 1.18 | 34.2 | 35.6 | .97 | 31.6 | 117.9 | .94 | 36.5 | 869.0 | 1.02 | 36.5 |
| Columbia | 208.1 | 1.36 | 29.7 | 31.9 | 1.12 | 35.3 | 97.5 | 1.40 | 30.7 | 684.5 | 1.26 | 31.6 |
| Blackseed | 159.4 | 1.41 | 27.7 | 18.8 | 1.03 | 30.0 | 80.4 | 1.41 | 30.2 | 669.1 | 1.17 | 33.0 |
| Lewis | 390.0 | 1.35 | 28.0 | 48.8 | 1.18 | 34.6 | 95.4 | 1.22 | 29.4 | 772.4 | 1.24 | 32.0 |
| Cleveland | 420.0 | 1.18 | 37.2 | 11.3 | 1.20 | 33.3 | 75.0 | 1.01 | 35.0 | 777.7 | 1.04 | 33.9 |
| Express | 615.0 | 1.20 | 22.6 | 146.3 | 1.37 | 29.5 | 75.0 | 1.20 | | 717.9 | 1.25 | 25.3 |
| Trice | 545.6 | 1.16 | 29.5 | 270.0 | 1.12 | 31.9 | 114.3 | .90 | 37.7 | 894.4 | 1.16 | 34.3 |
| No. 624 | 367.5 | 1.19 | 35.5 | 9.4 | 1.14 | 40.0 | 198.6 | 1.05 | 43.3 | 756.6 | 1.24 | 39.3 |
| Dixie | 240.0 | .97 | 29.8 | 33.8 | .97 | 38.9 | 106.8 | .86 | 33.3 | 608.8 | 1.00 | 32.1 |
| Acala No. 5 (Nunn's) | | | | | | | 12.5 | .90 | 36.6 | 522.3 | 1.16 | 37.0 |
| Acala (Watson's) | | | | | | | | | | | | |
| Mitchell's S. C. Long Staple | | | | 71.3 | 1.22 | 31.6 | 76.8 | .96 | 29.2 | 612.0 | 1.12 | 35.7 |
| Triumph, U. S. | 510.0 | 1.15 | 35.3 | 22.5 | 1.13 | 41.6 | 105.0 | .97 | 39.2 | 800.8 | 1.21 | 35.2 |
| Mebane's Triumph | | | | 221.4 | 1.08 | 35.6 | 210.0 | .94 | 38.3 | 687.2 | 1.17 | 36.8 |
| Webber's No. 49 | | | | | | | 57.9 | 1.04 | 35.4 | 616.2 | 1.28 | 31.3 |
| Webber's No. 82 | | | | | | | 65.4 | 1.28 | 28.5 | 645.9 | 1.25 | 32.4 |
| Hartsville No. 12 | | | | | | | 76.8 | 1.25 | 26.8 | 665.6 | 1.21 | 26.3 |
| Cleveland Big Boll | | | | | | | 105.0 | .89 | 37.5 | 745.1 | .97 | 36.3 |
| Cook's Improved | | | | | | | 181.8 | .90 | 39.1 | 722.4 | .90 | 39.3 |
| Foster | 262.5 | 1.25 | 13.5 | 39.4 | 1.10 | 28.6 | 155.4 | 1.04 | 30.1 | 622.4 | 1.22 | 27.1 |
| Wannamaker | | | | 116.3 | 1.03 | 35.5 | 71.1 | .85 | 35.2 | 700.0 | .90 | 34.4 |
| Oklahoma Triumph 44 | | | | | | | | | | 612.4 | .97 | 37.5 |
| Triumph, Oklahoma | 294.4 | 1.09 | 35.0 | 65.5 | 1.10 | 35.7 | 151.8 | .96 | 40.7 | 690.5 | 1.00 | 39.4 |
| Triumph, Blackseed | 315.0 | 1.09 | 31.8 | | | | 165.0 | .94 | 38.6 | 583.2 | 1.14 | 35.7 |
| Triumph, Whiteseed | 263.3 | 1.22 | 33.8 | | | | 116.1 | .97 | 40.3 | 656.7 | .97 | 37.3 |

Continuation of Table III

| VARIETIES | 1920 Seed cotton per acre, pounds | 1920 Length of lint in inches | 1920 Linting per cent | 1921 Seed cotton per acre, pounds | 1921 Length of lint in inches | 1921 Linting per cent | Average Seed cotton per acre, pounds | Average Length of lint | Average Length of lint in inches | Average Linting per cent |
|---|---|---|---|---|---|---|---|---|---|---|
| Webb | 913.2 | .92 | 34.5 | 853.7 | .84 | 24.7 | 627.6 | .93 | 15-16 | 33.4 |
| Rowden | 913.2 | 1.17 | 32.6 | 607.1 | .92 | 33.0 | 394.9 | 1.06 | 1 1-16 | 34.5 |
| McLendon's Early | 1004.5 | 1.09 | 33.7 | 853.7 | .80 | 34.5 | 574.8 | 1.02 | 1 | 34.7 |
| Kekchi | 1004.5 | .97 | 31.6 | 758.9 | 1.08 | 32.7 | 514.2 | 1.13 | 1 2-16 | 33.7 |
| King | 1141.5 | 1.05 | 31.5 | 872.7 | .80 | 32.2 | 603.0 | .99 | 1 | 33.7 |
| Lone Star | 958.9 | 1.08 | 33.3 | 790.8 | .84 | 35.6 | 485.8 | 1.10 | 1 2-16 | 35.9 |
| Bennett's Lone Star | 1004.5 | 1.08 | 36.0 | 834.8 | .88 | 35.6 | 532.5 | 1.10 | 1 2-16 | 36.0 |
| Ideal | 1187.2 | 1.01 | 32.3 | 910.7 | .92 | 31.7 | 618.6 | .99 | 1 | 33.8 |
| Sunbeam | 1095.8 | 1.10 | 33.7 | 683.0 | .72 | 33.3 | 668.4 | .99 | 1 | 35.5 |
| Snowflake | 958.9 | .92 | 32.1 | 664.0 | .96 | 30.7 | 463.6 | 1.13 | 1 2-16 | 31.6 |
| Simpkin's Early Big Boll | 981.7 | 1.06 | 30.6 | 720.9 | .88 | 31.9 | 546.6 | 1.06 | 1 1-16 | 33.3 |
| Keenan | 821.4 | 1.04 | 32.9 | 702.0 | 1.04 | 31.1 | 410.2 | 1.10 | 1 2-16 | 32.3 |
| Half and Half | 1187.0 | 1.00 | 35.1 | 891.7 | .72 | 36.9 | 625.5 | .87 | 1 4-16 | 40.0 |
| Durango | 890.4 | 1.09 | 31.3 | 777.9 | .80 | 34.3 | 522.3 | 1.08 | 1 1-16 | 29.8 |
| Holdon | 958.9 | 1.01 | 33.0 | 910.7 | .96 | 34.2 | 484.8 | 1.09 | 1 1-16 | 30.7 |
| Egyptian | 365.2 | 1.29 | 33.3 | 398.4 | .84 | 32.3 | 200.2 | 1.34 | 1 5-16 | 33.1 |
| Tuxtla | 867.5 | 1.02 | 33.3 | 758.9 | 1.00 | 33.3 | 468.7 | 1.02 | 1 | 34.2 |
| Columbia | 799.0 | 1.12 | 30.1 | 569.2 | .92 | 31.1 | 398.4 | 1.20 | 1 4-16 | 31.4 |
| Blackseed | 753.4 | 1.08 | 29.2 | 758.9 | .96 | 30.4 | 406.7 | 1.18 | 1 4-16 | 30.1 |
| Lewis | 753.4 | 1.13 | 28.6 | 664.0 | .80 | 29.6 | 462.3 | 1.16 | 1 4-16 | 30.4 |
| Cleveland | 1141.5 | 1.08 | 31.8 | 702.0 | .92 | 28.7 | 521.3 | 1.07 | 1 1-16 | 33.3 |
| Express | 799.0 | 1.02 | 30.3 | 607.1 | 1.04 | 30.8 | 493.4 | 1.18 | 1 3-16 | 27.7 |
| Trice | 1232.7 | 1.50 | 30.9 | 834.8 | .88 | 31.1 | 648.5 | 1.12 | 1 2-16 | 32.9 |
| No. 624 | 867.5 | 1.18 | 35.8 | 815.8 | 1.04 | 33.7 | 503.6 | 1.14 | 1 2-16 | 32.9 |
| Dixie | 799.0 | 1.01 | 32.5 | 607.1 | .88 | 33.8 | 398.4 | .95 | 1 5-16 | 33.4 |
| Acala No. 5 (Nunn's) | 913.2 | 1.18 | 35.3 | 645.1 | .92 | 34.4 | 548.3 | 1.04 | 1 1-16 | 35.8 |
| Acala (Watson's) | | | | 569.2 | 1.00 | 33.0 | 569.2 | 1.00 | 1 | 33.0 |
| Mitchell's S. C. Long Staple | 799.0 | 1.08 | 30.9 | 588.1 | .96 | 33.0 | 429.4 | 1.07 | 1 1-16 | 32.8 |
| Triumph, U. S. | 867.5 | 1.04 | 34.5 | 720.9 | .88 | 35.5 | 504.5 | 1.06 | 1 1-16 | 36.9 |
| Mebane's Triumph | 1255.7 | .80 | 27.8 | 702.0 | .84 | 36.1 | 615.3 | .97 | 1 | 34.9 |
| Webber's No. 49 | 1027.3 | 1.12 | 31.6 | 702.0 | .84 | 33.5 | 600.9 | 1.07 | 1 1-16 | 33.0 |
| Webber's No. 82 | 936.0 | | | 702.0 | .68 | 33.7 | 587.3 | 1.07 | 1 1-16 | 31.5 |
| Hartsville No. 12 | 1301.3 | 1.18 | 32.5 | 872.7 | .96 | 32.7 | 729.1 | 1.15 | 1 2-16 | 29.6 |
| Cleveland Big Boll | 1164.2 | 1.13 | 35.6 | 607.1 | .88 | 31.5 | 655.4 | .97 | 1 - | 35.2 |
| Cook's Improved | 1141.5 | .92 | 35.6 | 511.3 | 1.52 | 32.7 | 639.3 | 1.06 | 1 1-16 | 36.7 |
| Foster | 890.4 | 1.20 | 34.6 | 702.0 | 1.04 | 29.5 | 445.4 | 1.14 | 1 2-16 | 27.2 |
| Wannamaker | 1187.2 | .90 | 35.1 | 771.3 | .92 | 37.1 | 596.2 | .92 | 1 5-16 | 35.5 |
| Oklahoma Triumph 44 | 1369.8 | 1.31 | 34.9 | 685.6 | 1.28 | 33.9 | 889.3 | 1.19 | 1 3-16 | 35.4 |
| Triumph, Oklahoma | | | | 651.3 | 1.04 | 34.1 | 370.7 | 1.04 | 1 1-16 | 37.0 |
| Triumph, Blackseed | | | | 617.0 | 1.00 | 33.3 | 420.1 | 1.04 | 1 1-16 | 34.9 |
| Triumph, Whiteseed | | | | 737.0 | .84 | 35.4 | 443.3 | 1.00 | 1 | 36.7 |

## PRICES USED IN COMPUTING VALUES

In caluclating the value of the crop the value of the lint was computed at the average prevailnig prices for the season according to the length of the lint. The seed values are also calculated at the average price existing during the season. It is thought that the average prices given represnt fairly whit th cotton would have brought during the year, though the prices might have varied considerably during the whole season. The prices are averages taken from actual sales at central markets, the Market Reporter published by the U. S. Department of Agriculture, and the weekly cotton bulletin of the U. S. Department of Agriculture sent out from Memphis, Tennessee. Table IV gives the basis used for computing the values for the different varieties.

## TABLE IV

Prices for Six-Year Period Used in Computing Values of Cotton

| Year | 1916 | 1917 | 1918 | 1919 | 1920 | 1921 | Average price |
|---|---|---|---|---|---|---|---|
| | PRICE OF SEED | | | | | | |
| Per ton | $56.00 | $68.00 | $65.00 | $69.00 | $35.00 | $30.00 | $53.83 |
| Per Cwt. | 2.80 | 3.40 | 3.25 | 3.45 | 1.75 | 1.50 | 2.69 |
| | PRICE OF LINT (CENTRAL MARKET) | | | | | | |
| Year | 1916 | 1917 | 1918 | 1919 | 1920 | 1921 | Av. price, 6 yrs. |
| Length of Lint in Inches | | | | | | | for six years |
| 11-16 to 3-4 | $16.96 | $29.80 | $30.77 | $41.19 | $20.45 | $15.31 | $25.75 |
| 3-4 to 13-16 | 17.32 | 30.44 | 31.43 | 42.07 | 20.88 | 15.64 | 26.30 |
| 13-16 to 7-8 | 17.43 | 30.62 | 31.62 | 42.33 | 21.02 | 15.73 | 26.46 |
| 7-8 to 15-16 | 17.55 | 30.84 | 31.84 | 42.62 | 21.16 | 15.85 | 26.64 |
| 15-16 to 1 | 17.65 | 31.02 | 32.03 | 42.88 | 21.43 | 15.96 | 26.83 |
| 1 to 1 1-16 | 17.85 | 31.36 | 32.38 | 43.35 | 22.36 | 17.62 | 27.49 |
| 1 1-16 to 1 1-8 | 18.32 | 32.19 | 33.24 | 44.49 | 25.49 | 21.31 | 29.17 |
| 1 1-8 to 1 3-16 | 19.23 | 33.71 | 34.89 | 46.70 | 26.72 | 26.15 | 31.23 |
| 1 3-16 to 1 1-4 | 21.19 | 37.23 | 38.44 | 51.46 | 27.69 | 30.91 | 34.49 |
| 1 1-4 to 1 5-16 | 22.76 | 40.00 | 41.29 | 55.29 | 34.67 | 33.18 | 37.86 |
| 1 5-16 to 1 3-8 | 25.58 | 44.95 | 46.41 | 62.13 | 38.89 | 37.28 | 42.54 |
| 1 3-8 to 1 7-16 | 25.95 | 45.60 | 47.08 | 63.02 | 39.45 | 37.82 | 43.15 |
| 1 7-16 to 1 1-2 | 26.95 | 47.35 | 48.89 | 65.45 | 40.96 | 39.27 | 44.81 |

## MONEY VALUE PER ACRE OF DIFFERENT VARIETIES

The total money value per acre of the different varieties is calculated from the value of the seed per acre and th valu of th lint per acre. The latter is determined by the length of staple as well as by the yield of lint. As was shown in Table IV the differen values per pound for each year the test was conducted were determined and the value then assigned to the varieties depending on their average length of staple. As the grade does not depnd on th variety to any great extent but on the care taken in picking and handling the cotton, the same grade was aassigned to all varieties. As none of the cotton in any year would fall below a middling grade, the varieties were all valued on a middling basis.

A fact that should not be overlooked is that the better yields and consequently in most cases the higher profits were produced at exactly the same cost as the poorer varieties except for that of gathering and ginning the excess of production.

Table V is a continuation of Table III and shows the average money pe racre of the different varieties that have been tested from three to six years at the Oklahoma Experiment Station farm.

In order that a variety or varieties grown in favorable years would not overshadow those grown in years that were not favorable for cotton production as might be the case if only average results were considered, a check variety was chosen and averaged during the same corrsponding yars with each variety. In this way a true value of each variety could be determined even though all were not grown in the same year.

Table V gives the average amount of seed cotton produced, length of lint. and linting percent of each variety and the averaage of the check variety during the corresponding years and the average acre value of lint, seed and total value of crop for all varieties and the same for the check variety.

The variety known as Triumph, U. S., was chosen as the check variety a sit was grown in all of the six years that tests were conducted and it was a good average all around cotton from a pure strain of Triumph which probably has been the most universaally planted variety in Oklahoma.

In the next to the last column of Table V is given the comparative or index value of each variety tested when compared with Triumph, U. S., when this check variety is valued at 100. Those that gave a greater money value per acre than Triumph, U. S., are shown by the index to be greater than 100 while those of less value than the check variety are less than 100, each in its corresponding place according to its relative value compared to the check variety. Of course it must be remembered that these values are for those varieties grown at the Experiment Station and that their value might be changed when grown i nother localities.

## TABLE V Average Yield, Length, Linting Percent and Money Value Per Acre of Varieties Tested

| VARIETY | Average of variety during test | | | Average of check variety during corresponding years | | | Average per acre of the different varieties | | | | | Average acre value of check variety during corresponding years | | | Av. A. value in comparison with check variety (which equals100) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seed cotton per acre | Length of lint, inches | Linting per cent | Seed cotton per acre | Length of lint, inches | Linting per cent | Yield of lint | Yield of seed | Value of lint | Value of seed | Total value of Crop | Value of lint | Value of seed | Total value of crop | Comparative index | Rank according to value |
| Webb | 627.6 | 1 5-16 | 33.4 | 623.6 | 1 | 36.1 | 209.6 | 418.0 | $58.86 | $10.41 | $69.27 | $65.14 | $9.92 | $75.06 | 86.8 | 25 |
| Rowden | 394.9 | 1 1-16 | 34.5 | 504.5 | 1 1-16 | 36.9 | 136.2 | 258.7 | 38.83 | 6.95 | 45.78 | 54.31 | 8.56 | 62.87 | 72.7 | 12 |
| McLendon's Early | 574.8 | 1 | 34.7 | 504.5 | 1 1-16 | 36.9 | 199.5 | 275.3 | 54.84 | 10.10 | 64.94 | 54.31 | 8.56 | 62.87 | 103.3 | 13 |
| Kekchi | 514.2 | 1 1-8 | 33.7 | 504.5 | 1 1-16 | 36.9 | 173.3 | 340.9 | 54.12 | 9.17 | 63.29 | 54.31 | 8.56 | 62.87 | 100.7 | 39 |
| King | 603.0 | 1 | 33.7 | 504.5 | 1 1-16 | 36.9 | 203.2 | 399.8 | 54.52 | 10.75 | 65.27 | 54.31 | 8.56 | 62.87 | 103.8 | 10 |
| Lone Star | 485.8 | 1 1-8 | 35.9 | 504.5 | 1 1-16 | 36.9 | 174.4 | 311.4 | 50.88 | 8.38 | 59.26 | 54.31 | 8.56 | 62.87 | 86.4 | 26 |
| Bennett's Lone Star | 532.5 | 1 1-8 | 36.0 | 504.5 | 1 1-16 | 36.9 | 191.7 | 340.8 | 55.92 | 9.17 | 65.09 | 54.31 | 8.56 | 62.87 | 103.5 | 11 |
| Ideal | 618.6 | 1 | 33.8 | 504.5 | 1 1-16 | 36.9 | 209.1 | 409.5 | 56.30 | 11.02 | 67.32 | 54.31 | 8.56 | 62.87 | 107.1 | 7 |
| Sunbeam | 668.4 | 1 | 35.5 | 623.6 | 1 | 36.1 | 238.4 | 430.0 | 68.97 | 10.70 | 79.67 | 65.14 | 9.92 | 75.06 | 106.1 | 8 |
| Snowflake | 463.6 | 1 1-8 | 31.6 | 504.5 | 1 1-16 | 36.9 | 146.5 | 317.1 | 45.75 | 8.51 | 54.26 | 54.31 | 8.56 | 62.87 | 86.3 | 27 |
| Simpkins' Early Big Boll | 546.6 | 1 1-16 | 33.3 | 504.5 | 1 1-16 | 36.9 | 182.0 | 364.6 | 53.09 | 9.81 | 62.90 | 54.31 | 8.56 | 62.87 | 100.1 | 15 |
| Keenan | 410.2 | 1 1-8 | 32.3 | 504.5 | 1 1-16 | 36.9 | 132.5 | 277.7 | 38.65 | 7.47 | 46.12 | 54.31 | 8.56 | 62.87 | 73.4 | 38 |
| Half and Half | 625.5 | 7-8 | 40.0 | 504.5 | 1 1-16 | 36.9 | 252.0 | 375.3 | 65.70 | 10.10 | 75.80 | 54.31 | 8.56 | 62.87 | 120.7 | 3 |
| Durango | 522.3 | 1 1-16 | 29.8 | 504.5 | 1 1-16 | 36.9 | 155.6 | 366.7 | 45.39 | 9.86 | 55.25 | 54.31 | 8.56. | 62.87 | 87.9 | 23 |
| Holdon | 484.8 | 1 1-16 | 30.7 | 504.5 | 1 1-16 | 36.9 | 148.8 | 336.0 | 43.40 | 9.04 | 52.44 | 54.31 | 8.56 | 62.87 | 83.4 | 30 |
| Egyptian | 200.2 | 1 5-16 | 33.1 | 504.5 | 1 1-16 | 36.9 | 66.2 | 154.0 | 28.82 | 4.14 | 32.96 | 54.31 | 8.56 | 62.87 | 52.4 | 41 |
| Tuxtla | 468.7 | 1 | 34.2 | 504.5 | 1 1-16 | 36.9 | 153.2 | 315.5 | 42.11 | 8.49 | 50.60 | 54.31 | 8.56 | 62.87 | 80.5 | 32 |
| Co'umbia | 398.4 | 1 1-4 | 31.4 | 504.5 | 1 1-16 | 36.9 | 125.1 | 273.3 | 43.14 | 7.35 | 50.49 | 54.31 | 8.56 | 62.87 | 80.3 | 33 |
| Blackseed | 406.7 | 1 1-4 | 30.1 | 504.5 | 1 1-16 | 36.9 | 122.4 | 284.3 | 42.22 | 7.65 | 49.87 | 54.31 | 8.56 | 62.87 | 79.3 | 34 |
| Lewis | 462.3 | 1 1-4 | 30.4 | 504.5 | 1 1-16 | 36.9 | 140.5 | 321.8 | 43.89 | 8.66 | 52.55 | 54.31 | 8.56 | 62.87 | 83.6 | 29 |
| Cleveland | 521.3 | 1 1-16 | 33.3 | 504.5 | 1 1-16 | 36.9 | 176.9 | 344.4 | 51.60 | 9.26 | 60.86 | 54.31 | 8.56 | 62.87 | 96.8 | 18 |
| Express | 493.4 | 1 3-16 | 37.7 | 504.5 | 1 1-16 | 36.9 | 136.7 | 356.7 | 47.15 | 9.60 | 56.75 | 54.31 | 8.56 | 62.87 | 90.3 | 21 |
| Trice | 648.5 | 1 1-8 | 32.9 | 504.5 | 1 1-16 | 36.9 | 213.3 | 435.2 | 66.61 | 11.71 | 78.32 | 54.31 | 8.56 | 62.87 | 124.6 | 2 |
| No. 624 | 503.6 | 1 1-8 | 32.9 | 504.5 | 1 1-16 | 36.9 | 165.7 | 337.8 | 51.75 | 9.19 | 60.94 | 54.31 | 8.56 | 62.87 | 96.9 | 17 |
| Dixie | 398.4 | 15-16 | 33.4 | 504.5 | 1 1-16 | 36.9 | 133.1 | 265.3 | 34.71 | 7.14 | 41.85 | 54.31 | 8.56 | 62.87 | 66.6 | 40 |
| Acala No. 5 (Nunn's) | 548.3 | 1 1-16 | 35.8 | 623.6 | 1 | 36.1 | 196.3 | 352.0 | $61.11 | $ 8.76 | $69.87 | $65.14 | $ 9.92 | $75.06 | 93.5 | 20 |
| Acala (Watson's) | 569.2 | 1 | 33.0 | 720.9 | 14-16 | 35.5 | 187.8 | 381.4 | 33.09 | 5.72 | 38.81 | 36.90 | 7.32 | 44.22 | 87.8 | 24 |
| Mitchell's S. C. Long Staple | 429.4 | 1 1-16 | 32.8 | 503.3 | 1 1-16 | 37.2 | 140.8 | 288.6 | 44.13 | 7.71 | 51.84 | 58.67 | 8.44 | 67.11 | 77.2 | 36 |
| Triumph, U. S. | 504.5 | 1 1-16 | 36.9 | 504.5 | 1 1-16 | 36.9 | 186.2 | 318.2 | 54.31 | 8.56 | 62.87 | 54.31 | 8.56 | 62.87 | 100.0 | 16 |
| Mebane's Triumph | 615.3 | 1 | 34.9 | 503.3 | 1 1-16 | 37.2 | 214.7 | 400.6 | 61.54 | 10.70 | 72.24 | 58.67 | 8.44 | 67.11 | 107.6 | 6 |
| Webber's No. 49 | 600.9 | 1 1-16 | 33.0 | 625.6 | 1 | 36.1 | 198.3 | 402.6 | 61.73 | 10.02 | 71.75 | 65.14 | 9.92 | 75.06 | 95.6 | 19 |
| Webber's No. 82 | 587.3 | 1 1-16 | 31.5 | 623.6 | 1 | 36.1 | 185.0 | 402.3 | 57.59 | 10.02 | 67.61 | 65.14 | 9.92 | 75.06 | 90.1 | 22 |
| Hartsville No. 12 | 729.1 | 1 1-8 | 29.6 | 623.6 | 1 | 36.1 | 215.8 | 513.3 | 72.55 | 12.78 | 85.33 | 65.14 | 9.92 | 75.06 | 113.7 | 4 |
| Cleveland Big Boll | 655.4 | 1 | 35.2 | 623.6 | 1 | 36.1 | 230.7 | 424.7 | 64.78 | 10.78 | 75.56 | 65.14 | 9.92 | 75.06 | 100.7 | 14 |
| Cook's Improved | 639.3 | 1 1-16 | 36.7 | 623.6 | 1 | 36.1 | 234.6 | 404.7 | 73.03 | 10.08 | 83.11 | 65.14 | 9.92 | 75.06 | 110.7 | 5 |
| Foster | 445.4 | 1 1-8 | 27.2 | 504.5 | 1 1-16 | 36.9 | 121.1 | 324.1 | 37.81 | 9.11 | 46.92 | 54.31 | 8.56 | 62.87 | 74.6 | 37 |
| Wannamaker | 596.2 | 15-16 | 35.5 | 503.3 | 1 1-16 | 37.2 | 211.7 | 384.5 | 60.69 | 10.27 | 70.96 | 58.67 | 8.44 | 67.11 | 105.7 | 9 |
| Oklahoma Triumph 44 | 889.3 | 1 3-16 | 35.4 | 796.4 | 1 1-16 | 35.1 | 314.7 | 574.6 | 115.46 | 12.71 | 128.17 | 85.05 | 11.53 | 96.58 | 132.7 | 1 |
| Triumph, Oklahoma | 370.7 | 1 1-16 | 37.0 | 431.8 | 1 1-16 | 37.0 | 137.2 | 233.5 | 40.35 | 6.23 | 46.58 | 47.80 | 7.83 | 55.63 | 83.7 | 28 |
| Triumph, Blackseed | 420.1 | 1 1-16 | 34.9 | 534.2 | 1 1-16 | 36.3 | 146.6 | 273.5 | 45.64 | 6.81 | 52.45 | 56.89 | 9.36 | 66.25 | 79.0 | 35 |
| Triumph, Whiteseed | 443.3 | 1 | 36.7 | 534.2 | 1 1-16 | 36.3 | 162.7 | 280.6 | 47.07 | 6.99 | 54.06 | 56.89 | 9.36 | 66.25 | 81.6 | 31 |

## MOST PRODUCTIVE VARIETIES GROWN

An interesting comparison is offered in Table VI which gives the twelve most productive varieties in their relative average rank in yield of seed cotton and value of seed and lint per acre. It will be noted that the yield of seed cotton is not always a good index to the worth or value of a variety.

### TABLE VI

The Twelve Most Productive Varieties Grown

| Rank | Yield of Seed Cotton | Average pounds per acre | Rank | Value of Seed and Lint | Average acre value |
|---|---|---|---|---|---|
| 1 | Oklahoma Triumph 44 | 890.3 | 1 | Oklahoma Triumph 44 | $96.58 |
| 2 | Hartsville No. 12 | 729.1 | 2 | Hartsville No. 12 | 85.33 |
| 3 | Sunbeam | 668.4 | 3 | Cook's Improved | 83.11 |
| 4 | Cleveland Big Boll | 655.4 | 4 | Sunbeam | 79.67 |
| 5 | Trice | 648.5 | 5 | Trice | 78.32 |
| 6 | Cook's Improved | 639.3 | 6 | Half and Half | 75.80 |
| 7 | Webb | 627.6 | 7 | Mebane's Triumph | 72.24 |
| 8 | Half and Half | 625.5 | 8 | Wannamaker | 70.96 |
| 9 | Ideal | 618.6 | 9 | Ideal | 67.32 |
| 10 | Mebane's Triumph | 618.6 | 10 | King | 65.27 |
| 11 | King | 603.0 | 11 | Bennett's Lone Star | 65.09 |
| 12 | Webber's No. 49 | 600.9 | 12 | McLendon's Early | 64.94 |

## VARIETIES FOR BOLL WEEVIL CONDITIONS

In order for a variety of cotton to escape boll weevil damage in years of heavy infestation it is necessary to select for an early, rapid fruiting, and productive type of plant. By an early cotton is meant one that not only sets fruits early, but rapidly, and matures bolls early. Earliness to a certain extent can be judged by the amount of cotton secured from first pickings. In the tests conducted at the experiment station first pickings were not made as early as is customary with the majority of farmers in the surrounding neighborhood. For this reason a larger part of the entire crop is secured at the first picking.

Table VII gives the results of the first picking of the variety test in 1919 which was a very normal year in every respect. The table gives the results according to the rank of the varieties relative to the largest per cent of the entire crop harvested at the first picking. The last column gives the rank of the varieties according to the heaviest yields of seed cotton from the first pickings.

TABLE VII

Results of First Picking of Varieties as an Index to Earliness

| Rank | | Yield Per Acre: 1st picking | Yield Per Acre: Total | Percent of entire crop harvested at 1st picking | Rank according to heaviest yields from first picking |
|---|---|---|---|---|---|
| 1 | Keenan | 578 | 578.0 | 100.0 | 11 |
| 2 | Half and Half | 631 | 631.2 | 100.0 | 7 |
| 3 | Acala No. 5 | 522 | 522.3 | 100.0 | 22 |
| 4 | Mebane's Triumph | 567 | 647.2 | 87.6 | 13 |
| 5 | Oklahoma Triumph 44 | 533 | 612.4 | 87.0 | 19 |
| 6 | Triumph, Oklahoma | 596 | 690.5 | 86.3 | 8 |
| 7 | King | 448 | 527.8 | 84.9 | 32 |
| 8 | Holdon | 508 | 599.2 | 84.8 | 24 |
| 9 | No. 624 | 631 | 756.6 | 83.4 | 6 |
| 10 | Lone Star | 533 | 639.6 | 83.3 | 17 |
| 11 | Cleveland | 635 | 777.7 | 83.1 | 5 |
| 12 | Durango | 731 | 881.0 | 82.9 | 1 |
| 13 | Triumph, Blackseed | 480 | 583.2 | 82.3 | 27 |
| 14 | Trice | 727 | 894.4 | 81.3 | 2 |
| 15 | Ideal | 562 | 696.9 | 80.6 | 15 |
| 16 | Lewis | 583 | 732.4 | 79.6 | 10 |
| 17 | Mitchell's S. C. Long Staple | 480 | 612.0 | 78.4 | 26 |
| 18 | Bennett's Lone Star | 528 | 699.4 | 75.5 | 21 |
| 19 | Tuxtla | 647 | 869.0 | 74.4 | 4 |
| 20 | Express | 533 | 719.9 | 74.3 | 18 |
| 21 | Foster | 462 | 622.4 | 74.2 | 29 |
| 22 | Simpkins' Early Big Boll | 668 | 926.4 | 73.2 | 3 |
| 23 | Triumph, U. S. | 585 | 800.8 | 73.0 | 9 |
| 24 | Webber's 49 | 447 | 616.2 | 72.5 | 33 |
| 25 | Triumph, Whiteseed | 532 | 656.7 | 71.8 | 20 |
| 26 | Blackseed | 478 | 669.1 | 71.4 | 28 |
| 27 | Cleveland Big Boll | 515 | 745.1 | 69.1 | 23 |
| 28 | Dixie | 408 | 603.8 | 67.6 | 35 |
| 29 | Snowflake | 571 | 847.4 | 67.4 | 12 |
| 30 | Wannamaker | 460 | 700.0 | 65.7 | 30 |
| 31 | Columbia | 455 | 684.5 | 65.0 | 31 |
| 32 | Cook's Improved | 563 | 722.4 | 63.9 | 14 |
| 33 | McLendon's Early | 540 | 848.5 | 63.5 | 16 |
| 34 | Webber's 82 | 402 | 645.9 | 62.2 | 36 |
| 35 | Rowden | 196 | 317.0 | 61.8 | 39 |
| 36 | Sunbeam | 486 | 789.9 | 61.5 | 25 |
| 37 | Kekchi | 423 | 704.9 | 60.0 | 34 |
| 38 | Hartsville No. 12 | 399 | 665.6 | 59.9 | 37 |
| 39 | Egyptian | 185 | 310.2 | 59.6 | 40 |
| 40 | Webb | 338 | 690.9 | 48.9 | 38 |

In the tests of 1917 and 1918 as has been said before, the only varieties from which any amount of cotton was harvested were those that matured and opened bolls early. In 1917 the earliest varieties were King, Trice, Mebane's Triumph, Ideal, McLendon's Early, Express, Bennett's Lone Star, Half and Half, and Wannamaker. In 1918 the earliest varieties as indicated by the heaviest yields were Mebane's Triumph, No .624, Cook's Improved, Half and Half, Foster, Triumph, Blackseed, Triumph Oklahoma, Durango, Simpkin's Early Big Boll, McLendon's Early, Holdon, Tuxtla, Triumph Whiteseed, Trice, and Lone Star.

The following table summarizing the results of the 1922 variety tests at the Oklahoma Experiment Station farm only became available in time to add it to the last pages of this manuscript.

TABLE VIII

Averages of 1922 cotton variety tests, Oklahoma Experiment Station:

| Plot No. | VARIETY | Length of lint, inches | Strength of lint | Lining percent | Lint index, grams | Bolls required to make 1 lb. seed cotton, No. | Average Rate Yield Seed Cotton Per A. | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1st Picking, pound | 2nd Picking, pound | Total, pounds |
| 1 | Check—Okla. Triumph 44 | 1 1-16 | Medium | 31.9 | 5.18 | 83.1 | 520 | 220 | 720 |
| | Acala No. 5 | 1 | Medium | 32.6 | 5.06 | 92.2 | 200 | 320 | 520 |
| 2 | Webb | 31-32 | Medium to strong | 32.5 | 5.30 | 86.6 | 260 | 280 | 540 |
| 3 | Rowden | 1 1-16 | Medium to strong | 32.3 | 5.30 | 78.7 | 220 | 250 | 470 |
| 4 | McLendon's Early | 1 3-32 | Strong | 32.3 | 5.41 | 85.7 | 220 | 260 | 480 |
| 5 | Kekchi | 1 1-32 | Medium to strong | 31.7 | 5.06 | 86.9 | 240 | 220 | 460 |
| 6 | King | 1 | Medium | 31.5 | 4.71 | 101.2 | 300 | 210 | 510 |
| 7 | Lone Star | 1 3-32 | Strong | 33.4 | 5.18 | 86.5 | 170 | 240 | 410 |
| 8 | Bennett's Lone Star | 1 1-16 | Medium to strong | 32.3 | 5.37 | 79.3 | 160 | 200 | 360 |
| 9 | Ideal | 31-32 | Medium to strong | 32.6 | 4.56 | 99.7 | 300 | 220 | 520 |
| 10 | Sunbeam | 1 1-32 | Weak to medium | 31.9 | 4.71 | 95.2 | 180 | 200 | 380 |
| 11 | Snowflake | 1 3-32 | Medium to strong | 30.8 | 4.73 | 100.2 | 180 | 200 | 380 |
| 12 | Check—Okla. Triumph 44 | 1 | Medium | | | | 320 | 210 | 530 |
| | Acala No. 5 | 1 1-8 | Medium | | | | 240 | 240 | 480 |
| 13 | Simpkins' Early Big Boll | 1 3-3 | Medium | 29.5 | 4.83 | 98.3 | 220 | 200 | 420 |
| 14 | Keenan | 1 | Medium | 31.7 | 5.35 | 89.7 | 190 | 210 | 400 |
| 15 | Half and alf | 31-32 | Weak to medium | 33.7 | 4.73 | 95.1 | 330 | 220 | 550 |
| 16 | Durango | 1 1-8 | Medium | 31.4 | 5.28 | 94.9 | 260 | 240 | 500 |
| 17 | Holdon | 1 3-32 | Medium to strong | 31.3 | 4.49 | 81.5 | 235 | 260 | 495 |
| 18 | Egyptian | 1 3-16 | Medium to strong | 29.8 | 4.71 | 103.5 | 130 | 230 | 360 |
| 19 | Tuxtla | 1 5-32 | Medium to strong | 29.7 | 4.25 | 93.4 | 170 | 220 | 390 |
| 20 | Columbia | 1 1-4 | Medium to strong | 27.2 | 4.53 | 87.0 | 210 | 220 | 430 |
| 21 | Blackseed | 1 3-16 | Medium to strong | 27.6 | 4.53 | 97.8 | 200 | 250 | 450 |
| 22 | Lewis | 1 3-32 | Medium to strong | 27.9 | 4.02 | 98 6 | 340 | 360 | 700 |
| 23 | Check—Okla. Triumph 44 | | Weak | 35.4 | 4.58 | 69.2 | 490 | 340 | 830 |
| | Acala No. 5 | | Strong | 30.0 | 4.7[illegible] | 94.5 | 340 | 280 | 620 |
| 24 | Cleveland | 1 1-32 | Medium to strong | 29.1 | 4.39 | 93.8 | 180 | 270 | 450 |
| 25 | Express | 1 1-32 | Medium | 26.6 | 4.06 | 98.0 | 260 | 260 | 5[illegible]0 |
| 26 | Trice | 1 3-32 | Weak to medium | 29.9 | 4.28 | 106.4 | 240 | 230 | 470 |
| 27 | No. 624 | 1 1-16 | Strong | 32.8 | 5.42 | 87.6 | 280 | 230 | 510 |
| 28 | Dixie | 31-32 | Medium to strong | 28.6 | 4.00 | 98.5 | 200 | 250 | 450 |
| 29 | Acala No. 5 | 1 1-8 | Medium to strong | 32.3 | 5.05 | 95.2 | 280 | 240 | 520 |
| 30 | Acala (Watson) | 1 1-8 | Medium to strong | 31.7 | 5.18 | 97.8 | 290 | 240 | 530 |
| 31 | Mitchell's S. C. Long Staple | 1 5-32 | Medium to strong | 30.8 | 4.6[illegible] | 92.6 | 240 | 230 | 470 |
| 32 | Triumph. U. S. | 1 1-32 | Strong | 31.3 | 4.72 | 83.3 | 210 | 270 | 480 |
| 33 | Mebane's Triumph | 1 1-32 | Medium to strong | 33.5 | 5.57 | 77.7 | 220 | 250 | 470 |
| 34 | Check—Okla. Triumph 44 | 1 | Medium | 31.6 | 4.82 | 102.2 | 460 | 260 | 720 |
| | Acala No. 5 | 1 | Weak | 32.6 | 5.18 | 92.2 | 360 | 240 | 500 |
| 35 | Webber's No. 49 | 1 5-32 | Medium to strong | 32.3 | 5.06 | 87.9 | 230 | 270 | 500 |
| 36 | Webber's No. 82 | 15-16 | Strong | 31.4 | 4.82 | 93.5 | 280 | 270 | 550 |
| 37 | Hartsville No. 12 | 1 3-32 | Medium to strong | 31.7 | 4.95 | 88.6 | 260 | 340 | 600 |
| 38 | Wannamaker | | | | | | | | |
| | Cleveland Big Boll | 31-32 | Medium to strong | 32.0 | 5.45 | 93.3 | 120 | 220 | 340 |
| 39 | Cook's Improved | 1 5-32 | Strong | 28.0 | 4.18 | 110.4 | 140 | 240 | 380 |
| 40 | Foster | 1 1-8 | Medium | 29.1 | 4.49 | 88.1 | 230 | 290 | 520 |
| 41 | Wannamaker | 1 1-8 | Medium | 31.0 | 4.32 | 88.0 | 190 | 280 | 470 |
| 42 | Okla. Triumph 44 | 1 | Medium | | | | 520 | 3[illegible]0 | 840 |
| 43 | Triumph. Okla. | 1 1-8 | Strong | 32.6 | 5.05 | 86.0 | 200 | 330 | 530 |
| 44 | Triumph Whiteseed | 1 1-8 | Medium to strong | 32.0 | 4.95 | 105.1 | 240 | [illegible] | 540 |
| 45 | Check—Okla. Triumph 44 | 1 | Medium | 31.6 | 4.71 | 102.2 | 440 | 220 | 660 |
| | Acala No. 5 | 1 1-16 | Medium to strong | 30.8 | 5.33 | 90.4 | 280 | 240 | 520 |
| 46 | Pedigreed Express | 1 7-32 | Medium to strong | 28.4 | 4.41 | 94.2 | 210 | 350 | 560 |
| 47 | Express | 1 5-32 | Medium | 27.7 | 4.19 | 103.1 | 100 | 180 | 280 |
| 48 | Improved Cleveland | 1 3-32 | Medium | 29.3 | 4.32 | 99.8 | 160 | 220 | 380 |
| 49 | Speer | 1 1-8 | Medium to strong | 28.7 | 4.52 | 91.3 | 150 | 300 | 450 |
| 50 | Bennett's Lone Star | 1 1-32 | Medium to strong | 32.1 | 5.07 | 89.8 | 93 | 300 | 393 |
| 51 | Saunder's Lone Star | 1 1-8 | Medium to strong | 33.7 | 5.85 | 74.4 | 90 | 300 | 390 |
| 52 | King's Improved | 1 5-32 | Medium | 31.4 | 5.00 | 109.1 | 440 | 2[illegible]0 | 660 |
| 53 | Okla. Triumph 44, Str. 16 | 7-8 | Weak | 34.4 | 4.39 | 99.8 | 430 | 250 | 680 |
| 54 | Okla. Triumph 44, Str. 13 | 1 3-32 | Medium to strong | 30.0 | 4.28 | 94.4 | 530 | 190 | 720 |
| 55 | Acala No. 5 | 1 5-32 | Medium to strong | 32.0 | 5.19 | 87.0 | 320 | 240 | 560 |
| | Murphy-Clay Strain | 1 1-8 | Medium | 31.0 | 5.38 | 82.9 | 310 | 280 | 590 |
| 57 | Check—Okla. Triumph 44 | | | | | | 490 | 240 | 730 |
| | Acala No. 5 | | | | | | 200 | 240 | 440 |

## COTTON GROWING UNDER BOLL WEEVIL CONDITIONS

The question of growing coton under boll weevil conditions in Oklahoma at the present time largely resolves itself into the variety or type of cotton to grow and the proper culture methods.

Some of the important factors in selecting a cotton with the desired qualities that go to make up the type to be grown are: early, rapid fruiting ,length of staple, linting percent, size of bolls, and yield. It is not altogether a choice of variety that is needed but a choice of type that will give results. However, the best variety should be chosen first and the type fixed afterwards and in this the whole community should be induced to standardize on the same kind of cotton so that uniformity would result.

By earliness is meant the ability to set on and mature a large number of bolls early in the season. It does not necessarily follow that the cotton that sets on squares and blooms first is an early variety. A cotton that blooms later may have the ability to rapidly set on squares and mature bolls earlier than the one that bloomed first. Counting squares and comparing dates of blooming on varieties is not necessarily an index to earliness.

It has been found that earliness is closely associated with fruiting branches low on the stalk and few or no vegetative or basic limbs on the plant. Vegetative limbs can largely be removed by selection and the Experiment Station has produced a type of cotton with fully 80 percent of the vegetative branches suppressed. Short internodes or joints both in the mainstem and in the fruiting branches are also associated with earliness and high yields. While extreme earliness is generally associated with short lint and small bolls, it has been found that good staple and a fairly big boll can be preserved with at least a medium earliness and a fairly large yield. Rapid fruiting is correlated with short joints and continuous setting on of fruit on the same branch. This enables the plant to utilize the plant food to best advantage and not have to use it in making a heavy growth of vegetation.

Cottons that are known to produce a lint with staple less than one inch in length should not be grown in this state. Growers have been told that one of the best methods of compensating the damage done by boll weevil is to grow cotton of a better staple. However, from variety tests it has been found that staple cottons, or those with a length of 1 1-8 inches or more, have not given the highest money value per acre. It has been found that the best short staples give a yield high enough to make them more valuable than the long staples in Oklahoma even though the latter have the higher value per pound. From all experimental data it would seem that cotton that produces a lint that is from 1 to 1 1-8 inches in length is the most valuable under Oklahoma conditions and is always in demand on the market.

A high linting percent, "turn-out," or the number of pounds of lint secured from 100 pounds seed cotton is a very desirable characteristic when combined with earliness and good length of lint. This can only be secured by constant selection. Cotton that does not give thirty-four or more percent of lint does not belong to the type that the Oklahoma farmer should be growing under boll weevil conditions. Some varieties of cotton are known that will gin considerably over 40 percent but in the majority of cases they are either short staple or late varieties.

Size of bolls is an important item in the picking of cotton and often in the yield. In general, it has been found that cotton producing bolls such that from 60 to 80 of them, after being picked, weigh one pound gives the most satisfaction in this state. This largely limits the cotton to be grown to the big boll type, some varieties of which have the advantage of producing storm proof bolls.

Closely associated with earliness is high yield in order to make cotton production profitable. The type of cotton that will give a large yield under boll weevil conditions is a medium size plant, with a large number of short jointed, continuous fruiting branches that begin coming off the plant near the ground. These plants are best selected by going through the field and picking those having the desired type and keep the seed free from mixtures during and after ginning.

From experience here at the Experiment Station farm it is believed that the qualities mentioned above as desirable in a variety or type of cotton for growing in Oklahoma under boll weevil conditions can all be obtained by careful and continuous selection without sacrificing any of them to such an extent that it will be any detriment to the variety.

It so happens that the cultural methods used in combating boll weevil are the same as for good cultural practices under the conditions that prevail in most of the cotton section of the state. The cultural methods as related to weevil control have for their object the reduction of the number of weevils as much as possible so that a crop can be made and the forcing of cotton to early maturity as fast as possible and the setting on of a larger number of squares than the plant will mature and thus allowing the weevil only the surplus ones.

Cultural methods for growing cotton begin in the fall with the cleaning up of the fields. Cotton should be picked as early as posible and the stalks destroyed immediately in order to prevent further weevil development. There are a number of ways in which the stalks can be destroyed but the best method is to cut them with a stalk cutter and plow under as deeply as possible. Entomologists tell us that if all stalks were destroyed one month before the first heavy killing frost each fall, very few weevils would be able to safely pass the winter. Early fall plowing not only takes away the food supply of the weevil but it adds the stalks to the soil as organic matter that has a fertilizing value that is lost when the stalks are uprooted and burned. It also catches and conserves moisture, and makes a firm seedbed for planting in the spring.

Experience has shown that the seedbed should be well prepared in order that the cotton will germinate quickly and start off with a vigorous growth. The seed should be planted as early as possible after the soil has warmed up in the spring. Care should be taken not to plant too early or the young plants will become stunted and subject to disease if they cannot make a rapid growth after germinating.

Seed when planted early should be planted rather thickly in order to be sure of getting a good start. From three to five pecks or an average of about one bushel per acre is not too much in order to insure a perfect stand. This can be more easily thinned than can another crop be replanted at a later date.

The field should be cultivated often, once every week or ten days at least. The first cultivation may be deep but all subsequent cultivation should be shallow. The ideal method is to have the fields absolutely clean of weeds and in a smooth condition with the middles slightly lower than the cotton rows. The infested squares will fall to the ground and the hot sun and soil will kill the larvae and dry up the square. Cultivation should be kept up until the cotton begins to open. From a large number of tests boll weevil machines are only valuable in so far as they stimulate further cultivation.

Clean-up measures early in the fall, deep fall plowing, good seedbed preparation, early planting, and frequent shallow and late cultivation are the safe cultural principles that apply to cotton production under boll weevil conditions.