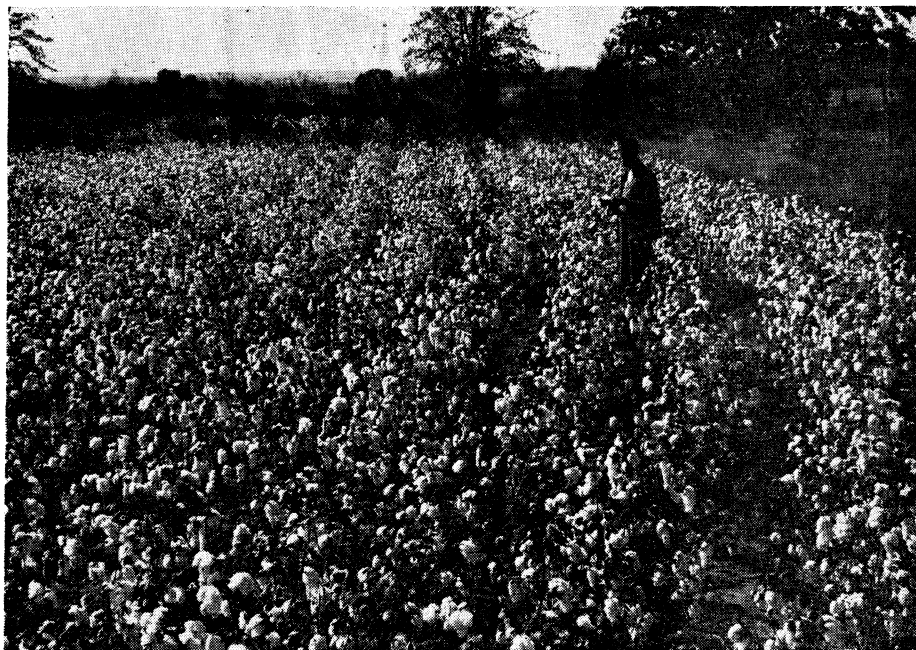


COTTON PRODUCTION PRACTICES IN OKLAHOMA



A field of quality cotton produced according
to improved cultural practices

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Cotton Production Practices in Oklahoma

ROY W. ELLITHORP
Assistant Extension Agronomist

The early history of Oklahoma shows that cotton growing was a very profitable enterprise. When first placed under cultivation the fields were rich in fertility, and large yields of cotton were quite common. The acreage devoted to this crop increased rapidly for several years after statehood and reached the high mark of nearly five million acres. However, the continued production of cotton soon began to create some serious problems, and the acreage began its downward trend about 15 years ago. In 1941 less than two million acres have been planted to cotton in Oklahoma. This drastic reduction in acreage has been brought about by a number of factors, the principal one being the gradual reduction of yield. Farmers have been unable to maintain the original yielding ability of their land, apparently because of lack of knowledge regarding proper preparation of land for row crop farming.

In some sections of the state, almost all cotton was destroyed by the boll weevil in the 1920's. Damage caused by this infestation was partially overcome by planting varieties which matured a part of the crop ahead of weevil appearance. Some of these, however, were inferior to standard varieties in spinning quality and staple length. The use of the inferior cottons lowered the reputation that the state had enjoyed for the production of good cotton. All farmers did not change to the inferior cottons, but selected early maturing varieties that produced a better quality of lint. Planting of these distinctly different varieties of cotton on the same farm and on adjacent farms created another bad situation because the pure varieties were placed in an ideal condition for cross-pollination by bees and other insects. The situation was further aggravated by ginning the different varieties at the same gin, causing actual mixing of the seed and lint. These practices caused rapid deterioration of the seed stocks. The mongrel seed produced lower yields of poorer quality of cotton than any of the pure varieties which were previously grown.

State and federal agricultural workers have vigorously attacked each new problem as it appeared and have perfected economical control measures. These recommendations have been reported, and cotton producers, who have followed these practices, have consistently produced satisfactory yields of high quality cotton.

It has been demonstrated that one of the best methods of reaching cotton producers with the improved production practices is through the organization of one-variety cotton improve-

ment associations. This is a program that has for its principal objective the production of one superior variety of cotton that is best adapted to local conditions from the standpoint of yield, length, uniformity, character of staple, market demand, and net returns to the growers.

COTTON VARIETIES

The new varieties of cotton are high yielding, early maturing, easy to pick, have a high lint percentage, and are 15/16 inch to 1 1/16 inches in staple length. Improved strains of Oklahoma Triumph, Rowden, Stoneville, Deltapine, and Acala have proved satisfactory in Oklahoma.

MAINTAINING SOIL FERTILITY

Fertile loam soils are most desirable for cotton production; however, good yields may be secured on all soil types in the cotton producing section of the state if the soil is in proper condition for crop production. Many fields are producing inferior crops today because serious mistakes have been made while preparing the field for row crops. These errors may be corrected and the crop yields increased by adopting the following important practices:

1. Terrace hillside fields to prevent erosion during torrential rains and plant the crop on the contour or with the terraces to conserve the moisture that accumulates during summer showers.
2. Low bottom land should be drained to prevent the soil from becoming water-logged.
3. Fields that are deficient in available mineral plant food may produce bumper crops by using a commercial fertilizer. The ratio of nitrogen, phosphoric acid, and potash in the fertilizer may vary from 4-12-4 to 6-8-6 and still have a sufficient amount of each mineral to supply the need of the plants. Soils well supplied with organic matter may need only phosphate fertilization. These materials should be used as supplemental plant food at the rate of 100 pounds or more per acre, depending upon the depleted condition of the soil.
4. Light applications of barnyard manure and the plowing under of crop residues and green manure crops are advisable.
5. The run-down condition of cotton fields make it imperative to change from an all-cotton system of farming to a rotation of one or more feed crops, a soil-building crop, and cotton.

SEEDBED PREPARATION

Methods of preparing the seedbed vary from listing and planting the seed in the furrow in the sandy lands of western Oklahoma, to building beds or ridges and planting the cottonseed on the ridge in the southeastern section of the state.



Response from fertilizer treatment applied to cotton on the Oklahoma Agricultural Experiment Station Farm near Perkins, Oklahoma.

- At right:** 200 pounds of superphosphate per acre applied in row at time of planting.
- At left:** 200 pounds of superphosphate and 100 pounds of ammonium sulphate per acre applied in row at time of planting.

Considering the state as a whole, the seedbed should be prepared for level planting.

The land for cotton should be plowed at least 30 days before planting. Crop residues should be covered deeply enough to keep vegetation from catching on tillage implements and to prevent weed seed from germinating. Plowing the ground at variable depths in some soil types is recommended to prevent the formation of a plow sole, sometimes called a "hardpan," which restricts moisture movement and root development.

Clods should be pulverized before they harden after plowing.

PLANTING

Seed Treatment Before Planting

Cottonseed can be planted in Oklahoma as early as April 25; however, the top soil may be too cold and wet at this early date for rapid germination of the seed. This delay in germination provides an ideal condition for the attack of mold or other fungi and bacteria organisms which kill the germs and rot the seed. Seed treatment will protect the seed against these organisms.

Certain other diseases, such as angular leaf spot and anthracnose, are carried over from year to year on the fuzzy seed coat and attack the seedlings, causing serious injury. These can also be controlled by seed treatment.

Treatment

Either 2 percent Ceresan or 5 percent New Improved Ceresan are recommended for treating cottonseed. The 2 percent dust should be used at the rate of 3 ounces per bushel for fuzzy seed and 4 ounces per bushel for delinted seed, while the 5 percent dust should be used at the rate of 1½ ounces per bushel for fuzzy and 3 ounces for delinted seed. The germination of the seed will be injured by New Improved Ceresan when more than the recommended amount is used.

These mercury dusts are extremely poisonous when taken into the body, either through the mouth or breathed into the lungs. Be sure to observe the precautions printed on the container.

Delinting Seed

Cottonseed may be delinted with concentrated sulphuric acid, hydrochloric acid gas, or with delinter saws. The first two methods remove all of the lint from the seed and kill all disease bearing organisms on the outside of the seed. Delinter saws remove most of the lint and some of the disease organisms.

Delinted seed is more easily graded and planted and will germinate in less time than fuzzy seed.

Rate of Planting

Tissues of cotton are succulent and tender during the sprouting and seedling stages. Therefore, the plumule may be easily broken during emergence by a crust of soil over the seed, and the tissues may be injured by fungi, bacteria, insects and blowing sand. For these reasons, surplus plants are needed to allow for the fatalities that may occur during the early period of growth. The amount of seed that is recommended for eastern Oklahoma varies from 3 pecks to 1 bushel of seed per acre and from ½ bushel to 3 pecks for the central and western parts of the state.

A bushel of delinted seed contains more seed than a bushel of fuzzy seed and the rate of planting need not be so high. The rate of planting for delinted seed ranges from 5 to 10 pounds per acre.

Planting seed should be tested for germination.

Width of Rows

Rows of cotton should be spaced far enough apart to permit easy cultivation. The usual width is 39 to 42 inches. Farmers in some of the other states, who are striving for higher yields, space the rows 36 inches apart in order to get a larger number of plants per acre.

Time of Planting

Satisfactory yields may be obtained when cotton is planted from April 25 to May 20, but extensive experiments conducted by the Oklahoma Agricultural Experiment Station show that best results may be expected from May 1 to May 15 plantings. Good yields may be obtained in the southwestern part of the state when cotton is planted as late as June 10.

Depth of Planting

Cottonseed should be covered with $\frac{1}{4}$ inch to 1 inch of finely pulverized soil. The average depth is $\frac{1}{2}$ inch. The soil should be pressed lightly to prevent loss of moisture by evaporation.

Spacing of Hills and Number of Plants per Hill

Hills spaced from 12 to 24 inches apart, with one, two, or three plants per hill, are recommended by the Oklahoma Agricultural Experiment Station. Four or more plants per hill will cause a dwarfing of all plants in the hill during seasons of low rainfall.

CULTIVATION

A row crop is cultivated to kill weeds, aerate the soil, and conserve moisture. Weeds should be destroyed as soon as possible after the seed has sprouted and before moisture and plant food have been removed from the soil. Thorough stirring of the middles with small shovels or narrow sweeps while the plants are small will loosen rain-packed soil and kill weeds and grass. The sweeps should always be kept above and to the sides of the growing root system to prevent damage to the roots. An abundance of feeder roots will keep the soil at the proper density for plant growth.

Frequency of cultivation depends upon the foulness of the field, physical structure of the soil, and the number and intensity of rains during the growing season. Fields that have been plowed deeply enough to keep most of the weed seed from germinating, should require from 3 to 5 cultivations. Late cultivations are of doubtful value and may be harmful when the lateral roots of the cotton plants are destroyed.

Thin the cotton to a stand when the plants have from four to eight leaves per stalk.

COTTON INSECTS

Insects that do the most damage to cotton in Oklahoma are the cotton flea hopper, cotton boll weevil, cotton bollworm, and cotton leaf worm.

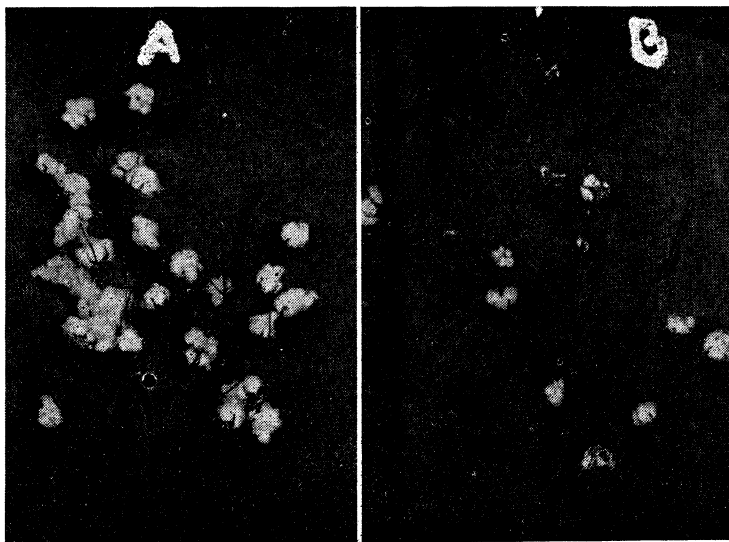
Conditioned sulphur dust is the proved control for the flea hopper and calcium arsenate dust for the other insects. A combination of the insecticides, one part calcium arsenate and two parts sulphur, should be used when the flea hopper is not the only pest to be controlled. If it is done right, it is economical, and the grower cannot afford not to dust.

Farmers and ginnerers of Oklahoma are cautioned not to buy seed from the pink bollworm infested area of Texas.

COTTON DISEASES

Cotton wilt is found in sections of central and eastern parts of the state. It is recognized by the distinct wilting and death of the affected plants. The dead roots of the diseased plants turn black. Heavy applications of muriate of potash or kainit are used to control the rust that invariably accompanies this disease. Planting of wilt resistant varieties will diminish the damage that might be done by the disease and insure a good crop of cotton.

Cotton root rot is frequently found in the Red River counties. Crop rotation is one of the best methods available at the present time to hold it in check.



Plants from boll weevil infested field
(a) Plant from treated plot
(b) Plant receiving no treatment

HARVESTING

Cotton is ready to harvest when the bolls have fully opened and the lint in the locks has dried. Locks in partially opened bolls contain immature fibers and surplus moisture. Insect and disease damaged locks may cause a spotting of the bale when harvested with the white cotton. Cotton should be ginned only when dry. Excess moisture in the lint will cause clogging in the gin machinery, gin cutting of the fibers, and rough preparation of the sample. Cotton harvested when damp or dew laden should be spread on sheets or tarpaulins and dried. It is desirable for rain-soaked cotton to dry on the plant in the field, but cotton should not be allowed to remain there so long that deterioration from weather exposure exceeds the damage that would come from wet picking and ginning. A month of exposure causes an average loss of one grade.

Pieces of bracts and other pin trash are removed with difficulty after becoming entangled with fibers of standard varieties of cotton. For this reason, cotton gins cannot prepare as good a grade from rough picked or snapped cotton as can be secured from clean picked cotton.

Cotton varieties having a staple length shorter than 15/16 inch in length may be snapped and ginned in gins equipped for handling snapped cotton without damaging the lint. Cotton should be picked as often and cleanly as practicable, and handled and ginned as efficiently as possible.

It is of mutual interest and advantage for cotton producers, ginners, and all others interested in the cotton industry in Oklahoma to do these things and to see that these things are done.

For more information on cotton growing, write to the Oklahoma Extension Division, Stillwater, Oklahoma, for the following publications:

- Cotton Variety Tests in Oklahoma, 1939 Report—Oklahoma Experiment Station Circular 87
- Cotton Variety Tests Conducted at Lawton, Oklahoma, 1940—Oklahoma Experiment Station Circular C-93
- Seed Treatments for Cotton—Oklahoma Experiment Station Circular 89
- Cotton Root Rot or Texas Root Rot—Oklahoma Experiment Station Mimeograph Circular 53
- Relative Economic Advantages of Harvesting Cotton by Picking and Snapping in Western Oklahoma—Oklahoma Experiment Station Bulletin 227
- Science Serving Agriculture, Biennial Report, 1938-40, of the Oklahoma Experiment Station
- What Type of Farming is Most Profitable?—Oklahoma Extension Circular 234
- Cotton-Tillage Studies on Red Bay Sandy Loan—U. S. D. A. Circular 540
- The Manuring of Cotton—U. S. D. A. Bulletin 48
- Cotton Diseases and Methods of Control—U. S. D. A. Bulletin 1745
- Cottonseed Treatment—U. S. D. A. Bulletin 198
- History and Control of the Boll Weevil in Oklahoma—Oklahoma Extension Division Bulletin 318
- Community Cotton Production—U. S. D. A. Bulletin 1384
- Ginning Cotton—U. S. D. A. Farmers' Bulletin 1748