

OKLAHOMA
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STILLWATER, OKLAHOMA

EXTENSION DIVISION

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COTTON IN OKLAHOMA

BY W. D. BENTLEY

Cotton is the leading cash crop in Oklahoma. In 1914 there were produced in Oklahoma over one and a fourth million bales with a total cash value of \$39,277,000, and 625,000 tons of cottonseed, valued at \$7,500,000, making a total cash value for both seed and lint of \$46,777,000.

The 1915 crop was greatly reduced on account of market conditions during the winter of 1914-15, brought about by the European war, and because of unfavorable weather conditions during the growing season of 1915. The 1915 total acreage in Oklahoma was 1,950,000 acres, making a total yield of 630,000 bales, with a total cash value of \$34,050,000, and 322,000 tons of cottonseed, valued at \$9,982,000, giving a total for the 1915 cotton crop in Oklahoma of \$44,032,000.

The average number of acres of cotton harvested in Oklahoma for the last five years was 2,613,520 acres per year. The average cash value of both lint and seed per year for the last five years was \$53,653,636.

With the exception of the extreme northwestern part of the State, where the altitude is too great, Oklahoma is most favorably located geographically for the economic production of cotton.

On account of frequent periods of dry, hot weather during the normal summer in Oklahoma, and more severe winters than farther south, the boll weevil will probably never be a serious pest. The period of cultivation is not as long as in States farther south, and in most sections of Oklahoma modern one and two-row tools may be used economically in the cultivation of the crop. In the western part of the State the necessity for cultivation to keep down weeds and grass is not so great as in sections of greater rainfall.

Cotton succeeds on all types of soil in Oklahoma, and withstands periods of drouth better than corn, wheat or oats, and quite as well as the grain sorghums. In fact, cotton will mature seed and lint under conditions where kafir and milo fail to head. Cotton is the one sure cash crop in Oklahoma.

Cotton also fits well into an economic system of diversified farming in Oklahoma. Yields of corn, oats and other crops are usually greater following cotton than any other crop not a legume. The cost of seeding small grain following cotton is usually less than following any other crop.

The wheat farmers in the Hessian fly districts in North, Central and Eastern Oklahoma could, with profit, consider cotton in a rotation with wheat. Twenty-five percent of the wheat acreage in these sections could be planted to cotton each year without decreasing the total yield of wheat and with benefit to the soil.

The cotton farmer who has depended wholly on cotton should not entirely abandon the crop until he has become skilled in the production and marketing of some other equally good cash crop.

Farmers skilled in growing cotton can profitably continue to make cotton their leading cash crop, provided, however, a living for the family and feed for the farm animals is produced on the farm first.

A few acres of cotton, grown as a surplus cash crop, after feed for all farm animals has been produced, and a living for the family has been secured from the garden, poultry, pigs and cows, will provide a sure means to pay for a home, necessary improvements and some of the comforts and luxuries of life.

Cotton, properly handled in a safe system of farming, becomes a useful servant and is no longer a tyrannical king whose subjects are condemned to a life of ignorance and poverty.

Seedbed.—For the best results, cotton should have a deep, well prepared seedbed. The soil should be broken deeply. If the breaking is done in the fall or winter and there are rains sufficient to settle the soil, it will probably be firm enough by planting time. But if the breaking be late, or there be little or no rain after fall or winter breaking, the soil should be firmed with a subsurface packer, or a disk set straight, before planting. Cotton will not grow off rapidly if planted on a loose seedbed. This fact probably gave rise among old cotton growers to the saying that the taproot of a cotton plant must reach hard soil before it will make any growth. This is also sometimes given as an excuse for shallow plowing for cotton.

Very rich bottom land, where the tendency is for the plants to grow very large, is an exception to the general rule of deep plowing for cotton.

A deeply plowed seedbed will store moisture that will keep the cotton growing and setting fruit during dry weather that would seriously damage cotton on shallow plowing.

Sandy soils that are liable to blow should never be plowed until late spring, after the danger of high winds has passed. Listing and planting in the furrow at the same time is the proper method for these soils. Neither should a section harrow be used in early cultivation of these soils. The sled-disk cultivator, or tools that will leave the protecting ridges as long as possible, should always be used on soils liable to blow.



Scene in West Oklahoma. Planting cotton on sandy, blowing soil in the bottom of hister furrows on unplowed land covered with vegetation and last year's milo stalks, May 23. Good farming for blowing soils

Time to Plant.—Cotton should be planted as soon as possible after all danger of frost is over and the ground warms up. Nothing is gained by planting before the ground is thoroughly warm. Cotton is a hot weather crop, and cold weather checks the growth of the young plants and enables the weeds and grass to get a good start before cultivation begins. It is better to do extra harrowing to fine the surface and destroy sprouting grass and weed seed before planting than to plant before the ground is thoroughly warmed.

Planting should not start until the ground is warm down to moist dirt so the seed will germinate quickly and grow off rapidly.

Depth to Plant.—Cottonseed should be planted very shallow, especially when planted early. As the season grows later and the soil warms down deeper the seed may be planted deeper. The seed is planted deep enough when it just reaches moist dirt, no matter how shallow that may be. The seeds that come up first are usually those accidentally dropped on the ground at the end of rows and simply tramped into the ground and not covered at all. If care be taken to firm the moist dirt around the seed, it can hardly be planted too shallow. Some good cotton growers claim that the seed are too deep unless a few uncovered seed be seen behind the planter.

How to Plant.—In sections where the rainfall is ample, it is considered best by most farmers to plant cotton on a level surface if the land is well drained. Level planting makes the first cultivation, while the plants are small, much easier than if planted on a ridge. In sections where there is much rainfall, a furrow between the rows is important.

Land that is not well drained or inclined to be cold should be bedded up and the cotton planted on the ridge. This is the general practice in the eastern part of the State where the rainfall is greatest. The bedding up may be done in late fall or winter, or very early spring. The land should be harrowed with the ridges before planting. Dragging the tops of the ridges off with log or plank drag is often done.

Throwing two furrows together on unplowed land, dragging off and planting on the ridge and dropping the seed on unplowed soil, is not best except on very rich bottom land, where the tendency is to make too much plant growth. The best results may be expected by bedding up the land in the fall or winter and rebedding in the spring before planting. An excellent plan is to flat-break in the fall or winter and bed up before planting.

In the western part of the State, and wherever the rainfall is short or irregular, cotton should always be planted in the bottom of a shallow lister furrow. Wherever practicable in the western and central parts of the State it is well to run the lister furrow east and west so that the ridges will afford protection to the young plants from the prevailing north and south winds. Cotton so planted may be more economically cultivated than either ridge or level planting. The section harrow and tools made especially for the cultivation of small plants in the bottom of lister furrows make the cultivation both rapid and economical.

In the western and central parts of Oklahoma the great problem in crop production all the time is the conservation of moisture. In the eastern part of the State, during the early part of the season, especially, the great problem usually is to get rid of surplus water.

In planting cotton in lister furrows in any part of the State there is always the chance that a heavy rain will bury the seed so deep that it cannot break through. In the lister furrow method of planting cotton it is usually best, after one of these rains, to plant the crop over as soon as the ground is dry enough, and not waste valuable time hoping that cotton enough for a stand will finally come up. Trying to break the crust over the cottonseed in the bottom of a lister furrow, so that it can get out, is not, as a rule, satisfactory. It will in most cases pay to plant over at once. Whatever method of planting cotton is used, great care is necessary in Oklahoma not to plant the seed too deep or to plant it too early. These two

mistakes every year cause the cotton growers of Oklahoma the loss of many thousands of dollars.

Amount of Seed to Plant.—The cotton grower should always save two or three times as many seed as he expects to plant. It frequently happens that a second, and sometimes a third, planting is necessary. Farmers who fail to save an abundant supply of planting seed are often forced to use gin-run seed, or seed from the oil mills, when it becomes necessary to plant over.

To be sure of a stand under average farm conditions in Oklahoma, from three to five pecks of seed should be used per acre. Under ideal conditions a peck of seed per acre would be sufficient, but, as a rule, a perfect stand of cotton cannot be obtained with less than three pecks of seed per acre. It is best to use at least a bushel of seed per acre to be sure of a stand and chop out later as desired. The combined pushing strength of a lot of seed close together will break through a crusted soil that seed spaced singly could not possibly break.

Chopping.—Having used plenty of good seed and secured an abundant supply of young plants, and the season being far enough advanced so that there is little danger of the young plants dying with disease caused by cold, unfavorable weather conditions, the cotton should be chopped or thinned out as soon as possible. It is best to plan to go over the cotton as least twice with the hoe. The first time to thin to a stand for normal Oklahoma conditions. The second time to remove the weeds and grass that may have been left in the rows by the cultivator and such plants as may seem to be crowding too much, or plants of undesirable types. The first chopping should be done as soon as all the seed are up, and the second after the plants are large enough to begin to shade the ground pretty well. The distance apart in the row which the cotton plants should be left depends upon the kind of soil, the season and the habit of growth of the variety planted. Crowding the plants in the row hastens maturity and opening. For that reason, in Oklahoma, where the cotton growing season is comparatively short, the plants should be left closer in the row than might be best farther south. The rule with many successful cotton growers is at the first hoeing to leave the plants ten to twelve inches apart, and at the second hoeing to chop out every other plant, leaving the plants finally about two feet apart. If the soil is rich and the plants normally grow very large, this might be crowding too much. If the soil is thin and the plants are usually small, it might not be crowding enough. On soils where the plants usually grow about two or two and a half feet high the plants should probably be left from twelve to fourteen inches apart.

Cultivation.—The cultivation of cotton should begin before it is planted. That is, just before planting, the surface for about two inches deep should be stirred with a harrow or surface cultivator of some kind to destroy all grass and sprouting weed seed. After planting and before the cotton is up, the section harrow may be used to advantage to destroy sprouting weed and grass seed and also to break up a crusted surface. After the cotton is up, the section harrow may frequently be used very economically for one or two cultivations. If plenty of seed has been used the stand will not be injured by the harrowing, and the work of chopping will be made lighter by it. It is difficult to use a harrow on young cotton without injuring the plants when it has been planted on a ridge, but where the planting was on the level, or in a light furrow, the harrow is the most economical tool that can be used in the early cultivation of cotton.

The first cultivation of cotton may be deep, but all subsequent cultivations should be shallow. If the land was plowed deeply before planting, all after cultivation may be shallow.

Shallow cultivation is a relative term and does not mean the same depth in all sections of the State. Three or three and a half inches in the west, where the rainfall is irregular, and often short, and where evaporation

is very rapid, might be considered shallow cultivation, while in the eastern part of the State, where the rainfall is greater and evaporation less rapid, half that depth might be sufficient.

For the best results, cotton, as a rule, should be cultivated every eight or ten days until it begins to open. However, in Oklahoma, especially in the western and northern parts of the State, the great problem is to get a large percent of the bolls matured and opened before freezing weather, and any method of cultivation that will tend to this result should be employed. Frequent, shallow cultivation hastens the growth of the plants and the setting and maturing of fruit, but does not hasten its opening. Sometimes after a crop of bolls has been matured it is desirable to check the plant growth and hasten the opening. Discontinuing cultivation, a deep cultivation, skinning the sides of the plants close to the ground with a horse tool made for that purpose, and topping, are methods sometimes employed for this purpose, none of them always entirely satisfactory.

To produce cotton cheaply the cost of cultivation must be reduced to the minimum. Modern two and four-horse tools should be used wherever practicable. The hoe and the Georgia stock are excellent tools with which to cultivate cotton, but entirely too slow to be economically used where more modern tools can be used at all. The hoe must be used in thinning, but its use should be reduced to a minimum. A two-horse cultivator may usually be used more economically on stumpy land than a one-horse tool that requires two or three trips across the field to complete the cultivation of one row.

Fertilizers.—The use of commercial fertilizers for cotton in Oklahoma is not advised except possibly in the eastern part of the State where the rainfall is comparatively regular. Commercial fertilizers are likely to do more harm than good in sections subject to periods of hot, dry weather during the growing season.

Well rotted manure, with possibly a small amount of ground rock phosphate, is the best fertilizer for cotton in Oklahoma. The big yields of cotton made for the last five years by the prize winners in the Boys' Cotton Growing Contests in Oklahoma have all been made on land heavily fertilized with well rotted manure, or on very rich bottom land.



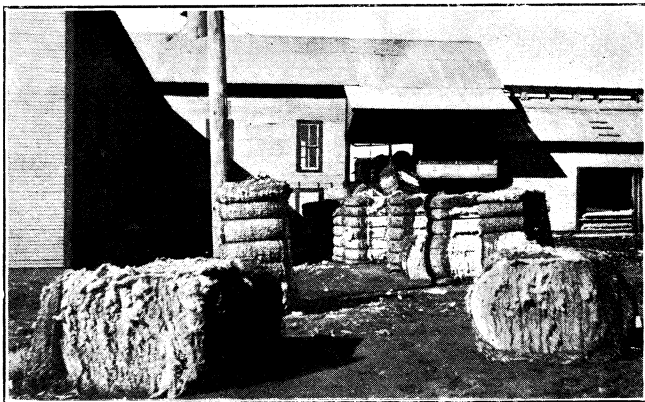
A POOR METHOD OF HANDLING COTTON

Insects.—The boll worm is the arch enemy of the cotton grower, and is always present in greater or less numbers, and always to be feared and guarded against. If taken in time the boll worm may be successfully poisoned with a dust or liquid spray. Cheap dust sprayers may be had that can be successfully used in combating all insects that eat the fruit or foliage of field and garden crops. The cotton boll worm and the corn ear worm are the same, and cotton is seldom damaged by them until after the cornsilk begin to dry up. A few rows of late corn planted through the cotton will tend to colonize the worms on the corn to the advantage of the cotton. Fall plowing also will destroy the boll worm.

The Mexican cotton boll weevil has invaded ten or twelve counties in the southeastern part of the State, but only in two or three years have they seriously injured the crop. It is generally believed that they will never become a serious pest in Oklahoma, except in the eastern or southeastern parts of the State where the rainfall is greatest, and then only during or following wet years and mild winters. The same general method of control may be used for both the boll worm and the boll weevil. Early varieties, frequent, rapid cultivation to hasten maturity, agitating the plants in cultivating to brush off as many of the baby worms and weevil as possible, are the most effective and practical methods of combating these insects.

There are a number of other insects that damage cotton more or less in Oklahoma at times. Special information about the life history and best methods of control of these insects will be furnished on request by the Extension Division. Farmers are urged to take these matters up promptly with their county agent, whose duty it is to give them all the assistance possible.

Picking.—The profits of a cotton crop may be greatly increased by greater care in picking. Picking should begin as soon as enough bolls are open, and kept up with as closely as possible. It is a bad practice to pile seed cotton on the ground in the field, as the little amount of damaged cotton next to the ground is sure to lower the grade of the bale. An old wagon or a cheap, portable bin of some kind should be kept in the field in which to store seedcotton between ginnings. It will pay well to pick the cotton clean, taking special care to get as few leaves and sticks as possible. To encourage clean picking, a premium should be paid to clean pickers.



COTTON EXPOSED TO WEATHER DAMAGE AT THE GIN
Taken January 23, 1916

Ginning.—Unless the farmer has a good, dry place in which to store his seedcotton, it should be ginned as fast as picked and the bales stored in a dry place. It is true that, for a short time, if the bales are turned frequently, there is but little weather damage, but if left out they are likely to be neglected and serious weather damage result. If stored in a dry place they will keep for years without damage of any kind.

Where it is practicable it will pay to store seedcotton in a bin for sixty or ninety days before ginning. The lint seems to improve and a greater percent of lint is obtained.

Selling in the seed is a bad practice for the cotton grower. In sections where the general custom is to sell in the seed, there is but little encouragement to grow the best varieties, or to use care in the picking and handling of the crop. Buyers always buy safe, and the grower who sells high grade seedcotton must make up for losses on the dirty or wet cotton of his care-less neighbor.

Marketing.—It will not be necessary to sell each bale of cotton as soon as it is picked and ginned if the farmer has produced the family living and feed for all farm animals in addition to the cotton crop. When a farmer is engaged in the work of picking and ginning a cotton crop he has no time to worry with the sale of it. After the entire crop is picked and ginned and the bales stored in a dry place on his own farm, or a public warehouse, and insured, he is in a position to get all out of his crop that there is in it. With a little study, farmers can soon learn to grade their cotton quite as well as the average buyer, and by deducting freight from seaport prices know almost exactly what their cotton is worth on any given date. Where a number of farmers in a neighborhood adopt this plan and work together, buyers will come to them and the business will be satisfactory to all the parties interested. Better and more satisfactory sales can be made where all the farmers in a neighborhood grow the same variety. The reputation for a uniform high grade cotton from a whole neighborhood will soon bring added profits to each farmer in that neighborhood.

Varieties.—In Oklahoma there is but one type of cotton that can be generally grown with satisfaction and profit. This type of cotton must have large bolls running not more than eighty bolls to the pound of seed-cotton. They must be stormproof; that is, the locks must stay in the bolls in spite of high winds, heavy rains and sometimes weeks of winter weather, and at the same time be easy to pick. That is, the locks should hold together and not break in two when picked out of the boll. The linting percent should run between 35% and 40%. That is, a hundred pounds of seed



A CHEAP AND VERY SATISFACTORY COTTON WAREHOUSE
Stillwater, Payne County, Oklahoma

cotton should yield from thirty-five to forty pounds of lint. Length, uniformity and quality of the lint may be improved and kept up to a high standard by careful seed selection with any variety of this type. It will pay any cotton grower to employ a careful hand to go through his field and pick, from choice plants only, sufficient cotton from which to secure planting seed for the next crop. This seed cotton may be put in old sacks or a bin to itself and kept until the rush of the ginning season is over, when any ginner will throw the roll, clean up his gin, and do all that is necessary to keep the seed from mixing. A small quantity of seed cotton may be ginned and kept from mixing by throwing the roll in one ginstand and feeding the seed cotton in by hand. The seed should be caught on the floor. By this plan there is no chance of getting the seed mixed.

Only by careful field selection and care to prevent mixing at the gin can a desirable strain of cotton be kept pure and its good qualities maintained and improved.

New Varieties.—Extreme caution should be exercised in the planting of any new variety until it has been thoroughly tested to prove whether it will measure up to the Oklahoma standard and succeed under Oklahoma conditions. A few cents worth of any new variety should first be tested out for at least two years under field conditions before planting a large acreage of it. The variety that succeeds best in any community should be grown exclusively by that community. By this plan only can a high standard for the lint of a whole community be kept up. A change of varieties is a matter that should be considered by the community as a whole, and not by each individual separately. A few individuals in a community, growing a variety of cotton with a short, inferior lint, no matter how high the lint percentage, or how great the yield of seed cotton, may ruin the reputation for high grade lint and result in a lower price for all cotton from that community.

Cotton Diseases.—Oklahoma is comparatively free from most of the serious cotton diseases. There is, however, some anthracnose, and a few other similar troubles. Nearly all cotton disease is carried in the seed and is spread chiefly by the seed. It is not wise to send to old cotton States for seed to plant on account of the danger of importing some cotton disease. However, when cottonseed is shipped in from other States, especially from States known to be troubled with cotton diseases, the seed should be treated to destroy all disease germs or spores. This may be effectively done by either the hot water or the sulphuric acid methods.

A circular is being prepared describing both these methods and will be ready for free distribution by the Extension Division at an early date. Write for it if you are interested.