COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF OKLAHOMA
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OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE AND UNITED STATES DEPARTMENT OF AGRICULTURE, COOPERATING
EXTENSION SERVICE
COUNTY AGENT WORK
STILLWATER, OKLAHOMA
Distributed in Furtherance of the Acts of Congress of May 8 and June 30, 1914.

Approved and Recommended Methods for Growing Cotton and Combating Boll Weevil in Oklahoma For 1923

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Oklahoma
Agricultural Experiment Station

Circular 166. General Series 18, 1923.

Recommendations for Boll Weevil Control in Oklahoma for 1923

1. Mature the largest possible crop of cotton in the shortest possible time

2. Grow a living at home and have something to sell besides cotton.

3. Proper cultural methods tend to insure greater production and give indirect aid in controlling weevil damage. They are:

   (1) The use of well drained, fertile soil, capable of producing a profitable yield.

   (2) A fairly deep well prepared seedbed.

   (3) Plant good seed of an improved, early, rapid fruiting variety grown near your locality. Acala, Mebane or Triumph, Rowden and Lone Star are adapted to Oklahoma.

   (4) Plant ample seed to insure a good stand as soon as danger from frost and cold is passed and soil is warm enough to insure rapid germination and vigorous growth.

   (5) Closer spacing than under non-weevil conditions. Rows to be three to four feet apart and one or two stalks in hills from six to twelve inches apart.

   (6) Chop early and give intensive, careful, shallow and late cultivation.

   (7) Fertilize, where profitable, with acid phosphate, to induce quick growth and stimulate early maturity.

   (8) Grow a single variety in a gin community.

   (9) Maintain soil fertility.

   (10) Where practicable, destroy cotton stalks and hibernating places in the field as long before frost as possible.

4. Poison only where instructions can be followed to the letter.

5. Poison where climatic conditions make it possible and the yield under non-boll weevil conditions is one-third bale or more per acre.

6. New or untried methods in Oklahoma should be used with caution.

7. Consult your County Agent, Extension Division, A. and M. College, State Experiment Station or Board of Agriculture for advice.

Growing Cotton and Combating Boll Weevil in Oklahoma

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Under boll weevil conditions in Oklahoma, the prime necessity is to mature the largest possible crop of cotton in the shortest possible time. It is, in a sense, a race between the farmer and the boll weevil. The production and marketing of a crop of cotton that returns a fair profit on the labor and investment involved is and will continue to be the biggest factor in determining the financial prosperity, the educational advancement and domestic happiness of the people in the cotton region of this State.

Even under the most intelligent farming, boll weevil infestation increases the risk in cotton production. Therefore, of first importance is a "live-at-home" program, with something to sell besides cotton. This fundamental fact cannot be too strongly emphasized at the outset of this publication.

Those proven cultural methods which tend to insure greater production and give indirect aid in controlling the weevil damage cannot be too strongly stressed.

CULTURAL METHODS FOR GROWING COTTON UNDER BOLL WEEVIL CONDITIONS

The following summary of the important steps and measures as stated are endorsed by the Oklahoma Experiment Station members and other agricultural workers of this State as being the most practical and economical methods for combating the weevil and growing cotton under boll weevil conditions in Oklahoma:

1. Select for cotton planting well drained, fertile soil, if possible only land capable of producing a profitable yield. Probably the greatest returns can be secured from cotton planted on sandy loam soils. Next to sandy loam a clay loam is to be desired.

2. Cotton should have a fairly deep, well prepared seedbed. The best time to plow will depend upon the kind of soil and climatic conditions. Under average prairie soil conditions winter plowing is preferable to either fall or spring plowing. Sandy types of land may be plowed later than loam, or clay. If the plowing is done in the fall or winter and there are sufficient rains 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 plowing, the soil should be firmed with a subsurface packer, or a disk harrow set straight, before planting. Cotton will not grow off rapidly if planted on a loose seedbed.

In the western part of the State cotton generally gives better returns when planted in lister furrows; in the central part when planted flat on well drained soils;

and in the eastern and southern sections, especially when not well drained, when planted on ridges.

3. Plant good seed of an improved, early, rapid fruiting variety, known to do well or recommended for the locality by the state experiment station. The existence of a very large number of varieties of cotton and their general cultivation with inadequate knowledge of their relative merits is not recommended. The general adoption of a few of the best varieties, the merits of which has been adequately proved is urged. The following varieties have been found superior to the present time in their adapted localities in Oklahoma: Acala, Mebane or Triumph, Rowden, and Lone Star. The use of pure seed with good germinating power is strongly urged. Purchase seed that is grown as near to your locality as possible and within the state as Oklahoma seed produces earlier cotton than seed brought from the south.

4. Plant seed as soon as danger from frost and cold is passed and the ground is sufficiently warm to insure rapid germination and vigorous growth. Earliness is of great importance, not for drought evasion, but on account of the shortness of the season, especially in the northern part of the state, and the boll weevil in the southern part. However, nothing is gained by planting before the ground is thoroughly warm. Cotton is a hot weather crop, and if planted too early, cool weather and disease may stunt the crop or ruin the stand. It may also enable the weeds and grass to get a good start before cultivation begins. The time of planting will vary with soil and climatic conditions. The crops department of the A. and M. College has worked out dates based on average mean temperatures for a number of years which show the safe average date of planting on prairie soils varies from May 6 at Ada to May 15 at Stillwater. Under favorable conditions of soil and climate it may be possible to plant earlier.

5. The importance of securing and maintaining a full stand cannot be over emphasized. Sufficient seed of good germinating quality to insure a good stand requires the planting of one-half bushel of seed per acre in western Oklahoma and one bushel of seed per acre in eastern and southern Oklahoma. The seed are planted deep enough when they just reach moist soil, no matter how shallow that may be. In general, it may be said that the seed are too deep unless a few uncovered seed may be seen behind the planter.

6. The best width of rows and spacing of cotton in the row may vary with soil and climatic conditions. Rows should be only wide enough to allow proper cultivation and cotton in the drill should uniformly be spaced closer than under non-boll weevil conditions. Cotton should be in rows three to four feet apart and there should be one to two stalks per hill, when the hills are six to twelve inches apart, and two stalks or more in each hill when they are over twelve inches apart.

7. Chop to the desired stand as soon as safe from cold or other adverse conditions. This will generally be about the time the plant is putting on the third pair of leaves. Early chopping in nearly all cases is preferable to delayed chopping. Observation on the experiment station farm indicates that when chopping is delayed after the plants are from six to eight inches tall with their third pair of leaves developed, the first picking is delayed in the fall proportionally up to a limit of about a week or ten days.

8. Give early and frequent cultivation and continue until fairly late in the season, or at least two or three weeks beyond the usual "lay-by" time. Great care

should be taken particularly in the latter part of the season to cultivate shallow and not too close to the row. Carelessness or deep cultivation at this period may mean disaster. The principal idea in cultivating is to keep the soil in as fine a condition as possible and to keep down all grass and weeds so there will be no shade or shelter for the developing boll weevil after the punctured square falls to the ground. It is a good plan to leave the middle slightly lower than the cotton rows so that there will be a tendency for the fallen squares to accumulate on the ground and be exposed to the maximum amount of sun rays so the boll weevil larvae will be killed. It is necessary that the field be cultivated frequently and there has been some evidence that it has been found helpful to cultivate the field each week. If cultivation of some kind can be done without injury to the cotton plants the field should be cultivated until the bolls begin to open.

9. The use of barnyard manure and the growing of legume crops should prove beneficial in all locations.

Commercial fertilizers should be used with judgment under Oklahoma conditions on account of varied climatic conditions and the lack of sufficient experimental evidence. In regions of more than thirty-five inches of rainfall, applications of high grade acid phosphate at the rate of 100 to 200 pounds per acre should give profitable returns in a normal season.

10. Agree upon a single variety of cotton which all farmers of the community shall grow and a general program suitable to the locality for maintaining and improving soil fertility.

POISONING THE BOLL WEEVIL

The following is taken from recommendations adopted by the Southern Agricultural Workers at their recent annual meeting at Memphis: "Of the various methods of control involving the use of poison your committee recommends the calcium arsenate dusting method and the Florida method. There are no other methods having as yet the sanction of adequate scientific proof. The limitations of the calcium arsenate dusting method lie in the fact that it has been found profitable only on lands capable of producing one-third to one-half bale per acre or more, that it requires a maximum of calcium arsenate, and that it must be applied at night and by the use of machinery. Aside from these limitations, its worth, through several years and under varying conditions has been fully and conclusively demonstrated, not only by the experiment stations, but by practical farmers throughout the cotton belt."

More experimental evidence is needed on this control in Oklahoma before definite recommendations can be made for this State. Dusting with calcium arsenate is worthy of a trial on land that will produce at least one-third to one-half bale of cotton per acre under non-boll weevil conditions.

A rule formulated by the United States Bureau of Entomology is to the effect that you should not poison if the cost of the calcium arsenate together with the cost of labor to apply it and the depreciation on the dusting machinery, total more per acre than the current value of one hundred pounds of seed cotton. Hand guns should be figured as depreciating 100% in a season and larger machines about 25%. Whether or not the poisoning of cotton for the control of the boll weevil will be profitable will depend upon the price of cotton.

DIRECTIONS FOR DUSTING COTTON

Use the kind of dusting machine that has given greatest satisfaction. Beware of purchasing expensive machines unless you have good reasons to believe they will do the work and are adapted to dusting cotton.

Use only pure calcium arsenate in dry powder form and make the application when the plant is damp with dew and when the wind is not blowing. Begin dusting the cotton when 10 to 15 per cent of the squares are infested by the weevil. Dusting in Oklahoma is mainly done at night. Use five to seven pounds of dry powdered calcium arsenate for each acre of cotton at each application.

Dust the cotton on an average of every five days until the weevil is brought under subjection. Four applications are usually necessary.

Go slow in deciding to poison unless your land will yield one-third to one-half bale per acre when no boll weevils are present.

If the poison is washed off the plants by rain within twenty-four hours after dusting, repeat the application as soon as possible.

FLORIDA METHOD

"The Florida method has been found adapted to the conditions in that State and has the virtue of being adapted to lands of low productivity. This method can undoubtedly be applied with success in adjacent sections where the season conditions are the same as those in Florida. Whether this method will succeed elsewhere has not been determined and cannot be until further studies of weevil hibernation and related factors are made. It is urged that the experiment stations in the cotton growing states as speedily as possible determine the adaptability of this method to their respective states."

MOLASSES-ARSENATE TREATMENT

This same body of agricultural experts adopted the following statements relative to the molasses-arsenate treatment: "Your committee is without the scientific proof that would enable it to give a definite opinion as to the effectiveness of the molasses-arsenate treatment. However, prominent and progressive farmers in South Carolina and other states claim for it a very decisive measure of control and experiments at the government laboratory at Tallulah indicate a certain measure of control in the early stages of the infestation when the cotton plants are small. Your committee, therefore, believes that this method deserves and should receive a thorough and immediate test by the experiment stations and the government."

FALL TREATMENT

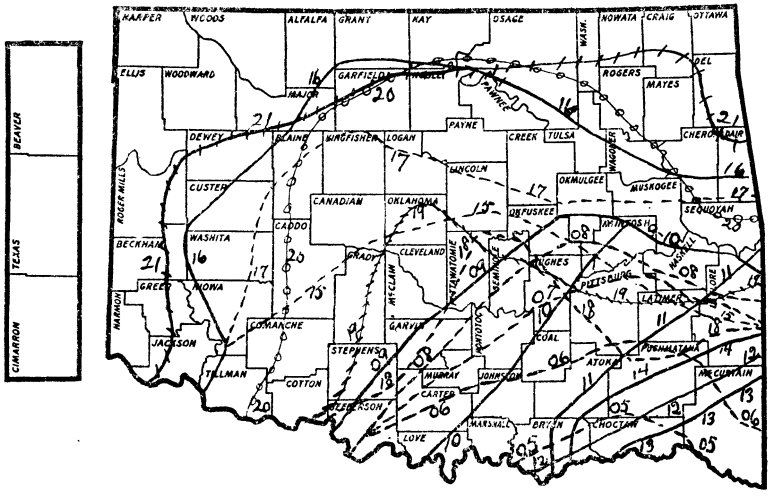
Pick cotton in the fall as soon as possible and immediately thereafter kill all cotton stalks, preferably by cutting and plowing under. When it becomes evident that a cotton field will produce no cotton, the stalks in that field should be destroyed. To be most effective, this must be done as long before the first killing frost as possible. A very light infestation, or even practically immunity, from weevil damage until late in the following season could be insured if all cotton growers in an entire community or county would, when conditions permit, cooperate to destroy all cotton stalks at least three weeks before the first killing frost.

Pasturing cotton is generally ineffective as a weevil control. There should be left no part of the plant that will give rise to new vegetative growth that the adult weevils can feed upon before entering hibernation. This has a tendency to bring about what is known as forced hibernation.

WINTER TREATMENT

Practice an annual fall and winter destruction or clean up of hibernating places of the boll weevil in addition to the general field clean up. The boll weevil is known to hibernate in fence rows, wood lots, undergrowth of rubbish, grasses, bark, vines, logs, Spanish moss, hay stacks, out buildings, hay sheds, etc.

As the responsible agencies for scientific research in the states, the agricultural colleges can recommend to the people only such methods as have been fully established by adequate and dependable scientific data. Until such proof shall be available, new or untried methods and devices should be used with caution and with a view of testing their efficiency rather than depending upon them for successful control.



Progress of Oklahoma's Worst Enemy, the Boll Weevil