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Growing Cotton
Under Boll Weevil
Conditions

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GROWING COTTON UNDER BOLL WEEVIL CONDITIONS

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To grow cotton under boll weevil conditions the following important points must be kept in mind and adhered to:

1. Plant cotton only on fertile land.
2. Prepare seed bed early and thoroughly to stimulate early vigorous growth. (Early maturing varieties are most desirable, because a good crop of bolls may become established before boll weevil damage becomes serious).
3. Plant only early maturing varieties to set a crop ahead of the weevil.
4. Use good seed that will germinate and produce a good stand of healthy plants.
5. Plant as early as soil temperature permits and thin and cultivate reasonably early.
6. Practice frequent shallow cultivation early in the season.
7. If you have met the first six requirements, then poison according to instructions.

To omit any of the above requirements will probably lessen your chances of profitable results. Poisoning cannot be expected to pay if the other requirements are not adhered to.

GOOD SOIL NECESSARY

High yields are necessary to profitable production of any crop because the higher the yield per acre the lower the cost of labor, rent, seed, fertilizer, poison, etc., per pound or bushel. It takes no longer to cultivate an acre of good land than an acre of poor land. It takes no more seed or fertilizer per acre of good land than of poor land. It costs very little more to poison an acre of cotton on good land than on poor land. Most cotton farmers will find it more profitable to apply "forty acres of labor to twenty acres of cotton." Stated another way, it will be cheaper and more profitable to produce ten bales of cotton on twenty acres than on forty acres, and a dollar saved in cost of production is as good as a dollar increase in price received. Under boll weevil conditions, it will probably not prove profitable to grow cotton on land that will not yield at least a half bale per acre under normal conditions or with the addition of barnyard manure or commercial plant food.

A good cotton soil should be well drained so that it will warm up early in the season. For this reason, the loams and sandy loam soils are preferable. Extremely heavy soils which are often wet and cold until late spring are not suitable for profitable production of cotton, especially under boll weevil conditions.

GOOD SEED BED PREPARATION

Early and careful preparation of the seed bed is important, in order that the largest possible crop may be set before heavy weevil infestation. Early deep plowing or listing should be practiced in order that weed seeds may sprout before time for planting cotton. Disking or harrowing just before planting will destroy the sprouted weed seeds and the seed bed should be firmed as much as possible before planting. Weeds that are permitted to grow will use plant food that should go to the production of cotton. Weeds in the row must be removed with the hoe and all hand labor is expensive. Cotton planted on a poorly prepared seed bed and compelled to compete with weeds early in the growing season cannot be expected to mature early and will probably not prove profitable under weevil conditions.

EARLY VARIETIES OF COTTON IMPORTANT

The use of an early variety of cotton that sets fruit rapidly is essential under boll weevil conditions. Early bolls and early maturity are essential if good yields are to be expected. Varieties that fruit early and do not produce heavy foliage are best adapted to boll weevil areas. This is well demonstrated in the following table which gives results of tests of different varieties at different points in Oklahoma during 1927 and 1928. Boll weevils were present in all of these places, being worse at some places than others.

Variety	Yield at Durant 1927	Yield at Durant 1928	Yield at Sapulpa	Yield at Stillwater
Delfos	120	510	810	545
Okla. Triumph 44	155	435	880	762
New Boykin	75	375	620	499
Price	75	375	850	668
Acala 5-37	45.5	360	740	457
Mebane	45	180	670	211
Lone Star	30	225	480	330*
Rowden	30	225	530	461

*Russell Big Boll.

Late maturing varieties are not desirable varieties of cotton to grow under boll weevil conditions.

FERTILIZERS INCREASE YIELDS IN EASTERN OKLAHOMA

The use of fertilizer in the eastern half of the state is a big factor in the successful production of cotton on many of the soils in that area. The best fertilizer to use on the various soils has not yet been determined. However, analyses of representative soils secured from various parts of southeast Oklahoma indicate a need for phosphorus in over

80% of the cases. A large number of these soils are also lacking in other plant foods. If a soil is well supplied with organic matter and normally produces as much as 1000 pounds of seed cotton per acre, climatic conditions are usually more important than plant food in determining crop yields. With soils that are well supplied with organic matter and are producing a good stalk growth yet are not producing as much as 800 to 1000 pounds of seed cotton per acre, superphosphate will usually give profitable returns. During seasons of high rainfall in early spring, a complete fertilizer will give higher yields than applications of superphosphate alone on these soils.

Fertilizer produces its greatest increases in yields on a well prepared seed bed. On soils that are low in organic matter and are producing a small stalk and little cotton, a complete fertilizer is recommended. Experiments indicate that the optimum rate of application of fertilizer should be from 150 to 200 pounds of superphosphate or 200 to 250 pounds of a 4-12-4 fertilizer per acre. By "4-12-4" is meant a fertilizer analyzing 4% nitrogen, 12% phosphoric acid and 4% potash.

The usual method of applying commercial fertilizer is in the row beneath the seed. The fertilizer should be applied two or three weeks before planting time in order that the cotton can be planted quickly as soon as weather conditions are favorable. Do not expect too much of fertilizer. On the average, one pound of fertilizer will produce about one pound of seed cotton on responsive soils. The addition of fertilizer will not take the place of a well prepared seed bed. It will not keep down weeds, but rather will stimulate their development. It will not chop nor cultivate the crop. It will not take the place of an early variety of cotton, nor will it by itself insure a profitable yield even on land suitable for its use. Seasonal variations are important factors in cotton production and must be reckoned with in any production program.

A nominal use of fertilizer stimulates early maturity. In field tests where fertilizers have been applied to responsive soils the cotton has matured earlier than on the unfertilized soil. This has amounted to as much as ten days in some instances. It should not be understood, however, that fertilizers applied to late planted cotton will insure a yield. Fertilizers will not insure a good yield under such conditions, but may even be applied at a loss where if they had been applied on earlier planted cotton they would have been profitable.

EARLY PLANTING IS IMPORTANT UNDER BOLL WEEVIL CONDITIONS,

Seasonal variations and soil conditions make it impossible to give definite information in regard to the best date to plant cotton. The seed should not be planted in a cold wet soil because under such conditions it will rot. Do not get in too big a hurry to plant the first few warm days that appear. *Planting too early means replanting and replanting means late planting.* Plant as soon as there is good assurance of securing a good stand. Early thinning and good cultivation should follow.

Do not cultivate deeply with shovels close to the growing plants as this may injure the roots, stunt the cotton, and delay maturity.

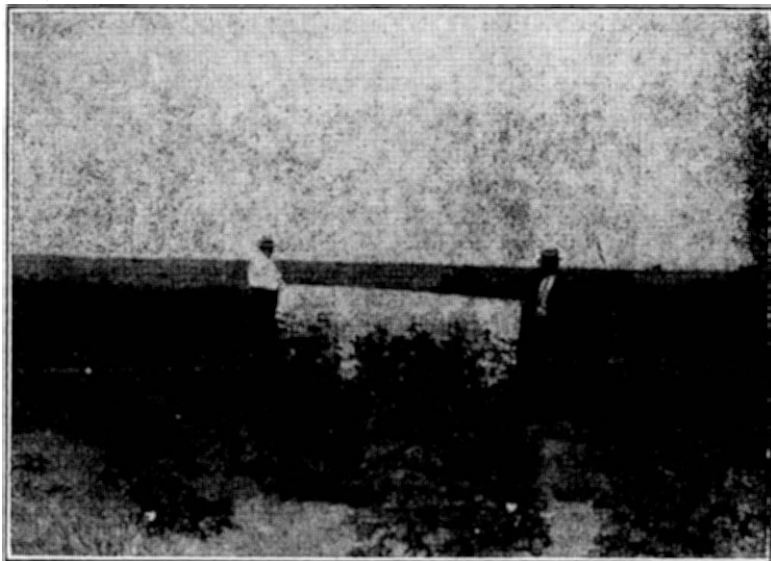


Fig. 1.—Unfertilized cotton on upland soil near Stillwater, Oklahoma. Boll weevil destroyed this crop. Note the few scattering bolls on the lower portion of the stalks and the many stalks having no bolls on at all. The yield was 200 pounds of seed cotton per acre.



Fig. 2.—Fertilized cotton on upland soil near Stillwater, Oklahoma. Two hundred and forty pounds of a 12-4-4 fertilizer were applied per acre. The yield was 740 pounds of seed cotton per acre.

DIRECT BOLL WEEVIL CONTROL

The use of poison against the boll weevil under certain conditions has given good results but farmers should not depend too much upon it and neglect the cultural practices that are absolutely essential in any system of weevil control. Boll weevil control is based primarily on cultural practices.

Reports from successful cotton farmers as well as experimental data show fairly good results from applications of the 1-1-1 syrup mixture when begun early at the time when weevils first appeared on young plants and continued pretty well into the fruiting period into **the early summer**, especially where weevils were abundant. Although these results are not as good for the past season as those where calcium arsenate dust was used after the pre-square 1-1-1 syrup mixture, the advantages are in many cases in favor of the syrup mixture treatment only because expensive dusting machinery is not always available and many homemade contrivances can be made to apply the syrup mixture with little or no extra expense.

Before making plans to poison, your individual situation should be studied over carefully in connection with the following facts:

It will pay to poison if your land is sufficiently fertile to yield a good cotton crop if the weevils were not present; and if your farming organization is such that you feel assured that the poison applications will be made at the right time and in the right manner; and if you are willing to spend the *full amount* necessary to provide an adequate supply of poison and the machinery for applying it.

If, after a careful study of your farm conditions, you decide to poison, proceed along the following plan:

1. When the first weevils appear in a field of young cotton, apply poisoned syrup, made by mixing 1 pound of calcium arsenate, 1 gallon of water and 1 gallon of good table syrup or sorghum molasses ---daub it onto the top of the plants with a mop.

2. Make a second application about one week later and if the weevils are still injurious and the cotton is small enough to make a third application practical, put it on about one week after the second.

3. If, after the cotton is fruiting, it is found that there is as much as 10% weevil damage and the weather is favorable for weevil development (moist, cloudy weather favors their development), or if a sudden migration of weevils is imminent, dust with calcium arsenate, putting on two or three applications at four day intervals. The per cent of weevil damage is ascertained by picking 100 squares at random and counting the number of infested squares, the number of punctured squares in a hundred being taken as the percentage of infestation.

The important things in dusting are:

Use dusting machinery constructed for cotton dusting.

Poison only when the air is calm and the plants are moist. Usually this means early morning or night applications.

Use 5 to 7 pounds of calcium arsenate per acre for each application. If you have a heavy rain within 24 hours after dusting, repeat this application.

Keep your cotton acreage low and do everything possible to increase your acreage yield. It costs approximately as much to poison one-quarter bale per acre cotton as bale per acre cotton.

Do not expect to eradicate the weevil; poisoning only holds them in check.

The hand gun is the smallest type of cotton dusting machine. It may be carried on foot or on horseback and is operated by hand. One hand gun will not take care of much more than 8 acres. The selling price ranges from \$12.00 to \$20.00 each.

The saddle gun is similar to the hand gun but is carried and operated on horseback. It will dust two rows at a time and will take care of from 35 to 45 acres. These guns range in price from \$25.00 to \$60.00 each. The above two should be considered as depreciating 50% in one season's operations.

There are several larger and more expensive types of machines for dusting on a larger scale.