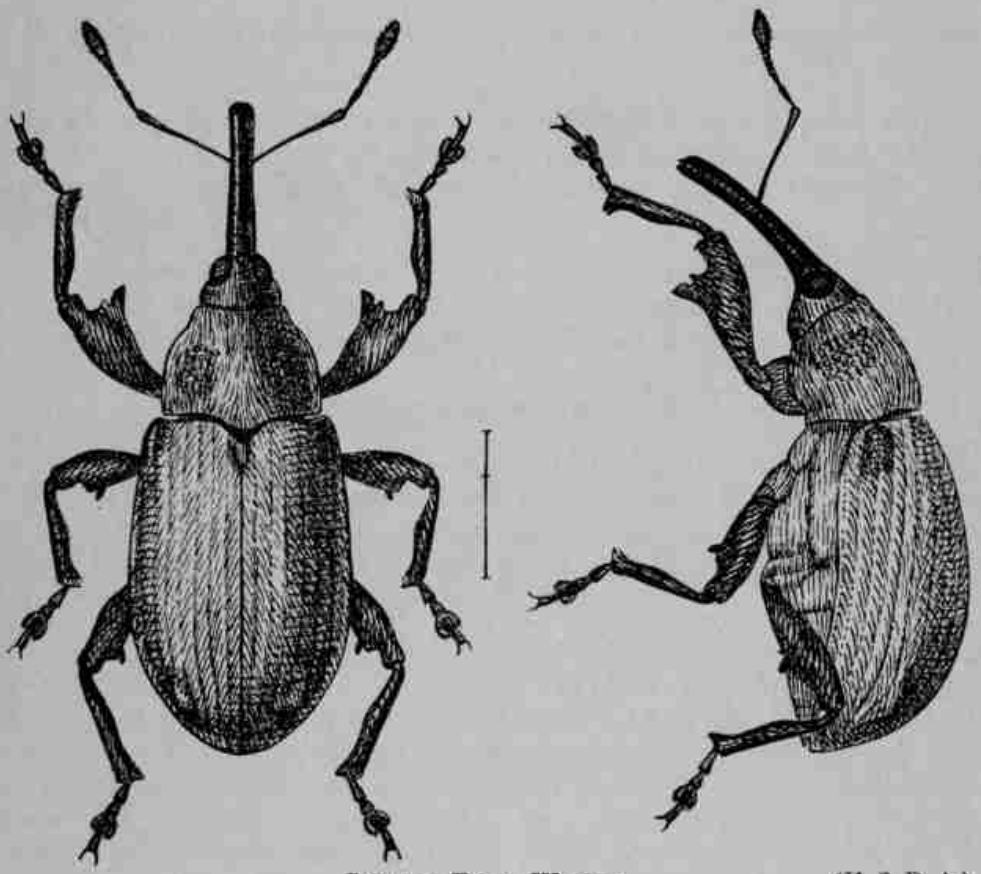
May, 1931 Extension Circular No. 186

DUSTING FOR BOLL WEEVIL CONTROL



COTTON BOLL WEEVIL (U. S. D. A.)

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
AND
U. S. DEPARTMENT OF AGRICULTURE, CO-OPERATING

N. C. AGRICULTURAL EXTENSION SERVICE
I. O. SCHAUB, *Director*
STATE COLLEGE STATION
RALEIGH

DISTRIBUTED IN FURTHERANCE OF THE ACTS OF CONGRESS OF MAY 8 AND JUNE 30, 1914

DUSTING FOR BOLL WEEVIL CONTROL

By C. H. BRANNON, *Extension Entomologist*

IT PAYS TO DUST

It will pay to dust cotton when the infestation (or damage) reaches 10%.

It will pay to dust cotton where the yield under proper management is one-half bale per acre or over without weevil damage. It should be remembered that the higher the yield the greater will be the profit from cotton dusting.

It will pay to dust if directions are closely followed. Unless dusting is done right it is of no value. Use the right method at the proper time. Machinery suitable for the acreage to be dusted should be used.

COUNTING SQUARES

Counting squares to determine the infestation is the very foundation of boll weevil control. Many growers begin dusting too soon and others start too late. The counting of punctures is the only means of checking up on weevil damage; unless these counts are made we are fighting in the dark and cannot expect the best results.

In making the counts, 100 squares should be examined. Count the squares as they are examined; pull off the punctured squares and place them in a pocket or hold them in the hands. Examine every square on each plant in the row until 100 squares have been counted. (Do not count the very small squares which have just formed. Weevils prefer squares at least six days old for egg laying.) Do not skip any plants and do not change to another row during the count, otherwise a true average will not be obtained. After 100 squares have been examined, count the punctured squares which have been pulled off. This will be the percent of damage at that point. Do not count any squares on the ground. Growers are urged not to wait to see squares on the ground before making counts. Do not wait to see flared squares. Fresh damage cannot be determined in any way except examining the squares on the plants. Make infestation counts at least once a week after squares first appear on the plants. Make one or more counts at the middle, both sides and at both ends of the field. Do not make counts where the plants are very small, such as at the ends of rows, or near trees. Larger fields should be examined at more points than smaller fields.

There are two kinds of boll weevil punctures, egg punctures and feeding punctures. The egg puncture can be distinguished by the seal over the puncture; feeding punctures are not sealed. Count only egg punctures unless it is apparent that feeding punctures have killed the square.

WEEVIL DAMAGE DEPENDS ON WEATHER

Weather conditions affect boll weevil development to a large extent. Frequent showers and cloudy weather during July, August, and September increases weevil damage. Very hot dry weather checks weevil damage. Most punctured squares fall to the ground soon after being punctured, but some remain fastened to the plant until after the adult weevil has developed and eaten its way out. If the weather is very hot and dry the grubs are killed in large numbers. Frequent showers allow most of the grubs to develop into weevils. It should be remembered that only two or three weeks during the summer are required for the weevil to develop from egg to adult. Weevil damage cannot be forecast or predicted because weevil damage is dependent upon weather conditions, during the growing season.

HOW TO DUST

Begin dusting when 10% of the squares are punctured. A cotton plant naturally sheds about 60% of its squares and bolls. Since dusting is only a control and not an eradication measure, we do not start dusting until the weevil begins to reduce the crop. Use 4 to 6 pounds of calcium arsenate per acre for each application. Most growers use too much poison; twice the recommended amount will give no better results.

Make second application 5 days after first application.

POWER DUSTER IN OPERATION (U. S. D. A.)

Make counts each week, and make such additional applications as may be necessary to keep damage below 10%. Discontinue poisoning when damage gets below 10%. When two or more applications are applied in series, applications should be 5 days apart. Dusting should be done when the air is calm. It is also best to dust while the plants are moist.

Do not allow threatening weather to prevent dusting. Repeat applications immediately if heavy rain falls within 24 hours after poisoning. No one can predict how many applications will be necessary. Five applications for the season is an average. Some seasons will require more applications; other seasons may require less.

It is necessary to protect bolls as well as squares. Late in the season additional applications may be necessary to protect the bolls. Weevils prefer bolls from 6 to 20 days old for egg laying.

Dusting is merely a control, the weevil cannot be eradicated. Live weevils can be found in the best poisoned field. Dead weevils may never be found.

HAND DUSTERS IN OPERATION (U. S. D. A.)

GETTING READY

Sufficient calcium arsenate for at least three or four applications should be obtained before the dusting season opens. Calcium arsenate can usually be obtained much cheaper earlier in the season and there is no reason why a full year's supply should not be purchased at one time. Calcium arsenate will not deteriorate if kept in air-tight containers and dry.

The dusting machine should be gone over thoroughly to see that it is in good order. If it is an old machine, worn parts should be replaced, or if it is a new machine, the operator should be sure that he understands its operation.

MACHINES

There are excellent machines on the market. Do not buy a worthless machine or a machine unsuited for your conditions. Obtain only machines made especially for cotton dusting. There are several types of machines; study the various kinds carefully and select the one best suited to your conditions. Do not let the cost influence your selection, as a low priced machine may be more expensive in the long run.

Hand Gun.—This machine will care for about 8 acres of cotton in a season.

Saddle Duster.—This machine has two nozzles and is attached to a saddle. It will care for 40 to 50 acres of cotton. Dusting can be done anywhere a mule can walk.

TRACTION DUSTER IN OPERATION

Traction Dusters.—A machine which receives power from traction drive is called a traction duster. There are a large number of different sizes and types of traction dusters. A one-mule two-row duster will care for about 60 acres. A one-mule four-row duster is suitable for about 120 acres. A two-mule three-row duster will dust approximately 100 acres of cotton through the season. A two-mule five-row duster will care for about 150 acres.

Power Dusters.—These machines receive their power from a gas engine, and will care for 200 to 500 acres of cotton.

Airplane Dusters.—Airplane dusting service can be obtained. This is an efficient and rapid method of dusting cotton. It is not satisfactory on hilly land or fields smaller than 10 acres.

IMPORTANT

Unless weevil control is made a regular part of cotton growing, where damage is severe, we cannot continue to grow cotton with profit. The boll weevil is here to stay, therefore, why not consider weevil control as a regular part of the crop system.

SADDLE DUSTER IN OPERATION (U. S. D. A.)

LIFE HISTORY OF THE WEEVIL

The boll weevil spread into the United States from Mexico in 1892, and entered North Carolina in 1919.

The weevil spends the winter as an adult hiding beneath leaves, in grass or any protected place. (Do not set fire to the woods in an attempt to kill the boll weevil. The weevil cannot be controlled in this way and there is grave danger of causing serious damage to woods and forests.) The egg hatches in about 3 days in warm weather. The grub stage lasts 7 to 12 days. The grub changes into a resting stage or pupa which changes into an adult weevil in 3 to 5 days. About 5 days later the new weevils begin to lay eggs.

Most of the weevils coming out of winter quarters perish before they have the chance to lay eggs. Weevils begin leaving winter quarters in March and continue to emerge until June or July. Most of them emerge the last of April and the first of May. Only the later straggling weevils live until squares are large enough to support a grub. Weevils emerging from winter quarters before cotton is up continue to live for an average of 5 days. Those emerging before squares are formed live an average of

8 days. Those emerging after the squares are formed live an average of 15 days.

We will have to dust cotton in North Carolina just as often as we have frequent rains during the summer. Do not worry about overwintered weevils. Even though a small number pass the winter a heavy infestation will occur if conditions favor the weevil during the growing season. On the other hand if an unusually large number of weevils survive the winter they will be largely held in check by extended hot, dry weather.

AIRPLANE DUSTER IN OPERATION (U. S. D. A.)

More detailed information about boll weevil control and other insect pests may be obtained from C. H. BRANNON, Extension Entomologist, State College Station, Raleigh, N. C.