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COTTON INSECT CONTROL  
RECOMMENDATIONS

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Entomology



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Reprinted From 1956 Pesticide Manual

Insect	INSECTICIDES		PROCEDURE
	Dusts	Sprays Active Ingredients Per Acre	
Boll weevils and Bollworms	Toxaphene 20% BHC 3%—DDT 5% Aldrin 2½%—DDT 5% Dieldrin 2%—DDT 5% Heptachlor 2½%—DDT 5% Endrin 2%	Toxaphene 2-4 lbs. BHC .3-45 lb.—DDT .5-75 lb.* Aldrin .25-5 lb.—DDT .5-1 lb. Dieldrin .2-4 lb.—DDT .5-1 lb. Heptachlor .25-5 lb.—DDT .5-1 lb. Endrin .2-4 lb.  Adjust spray rates in accordance with dust rates.	<b>Boll Weevil:</b> When 1 weevil is found per 100 plants 3 week before squaring make 3 applications at 7-day intervals. When first squares are 1/3 grown begin infestation counts at 5-day intervals and when infestation reaches 10% begin applications. Continue infestation counts at 5-day intervals and make regular applications as long as the infestation remains above 10% until the youngest bolls expected to produce cotton are full grown. <b>Bollworm:</b> During mid July as corn silks turn brown, begin checking for bollworms at 5-day intervals. Begin applications when bollworm eggs and 4 small worms are found per 100 terminals or 5% of the squares, blooms, and bolls (counted together) have been injured by small bollworms. Continue infestation counts at 5-day intervals and make regular applications as long as the infestation is higher than that described above until the crop matures.
Boll weevils	Any of the above dusts or sprays may be used at the rates indicated without DDT.		<b>Boll weevil and bollworm:</b> Under average insect infestations and average weather conditions a 5-day application interval should be used, but if the insect infestation becomes extremely high or the weather becomes excessively wet this interval should be shortened to 3-days. A 7-day interval should be used only under relatively light insect infestations during excessively dry weather. The making of infestation counts should be adjusted to the application interval so that each count is made the day previous to the next scheduled application.
Boll Worms	DDT 10% Toxaphene 20% Endrin 2%	DDT 1-1.5 lbs. Toxaphene 3-4 lbs. Endrin .3-4 lb.	
	Apply DDT dust at 10-15 lbs. per acre. Apply other dusts at 15-20 lbs. per acre.		
Thrips	Any of the dusts or sprays recommended for boll weevil control may be used at ½ the rate indicated for weevils.		Silvering, ragging, Crinkling, and upward curling of leaves and blasting of terminal buds indicates the presence of thrips. In the Southern Piedmont areas when symptoms appear make 2-4 applications at 7-day intervals beginning at the 2-4 leaf stage.

Insect	INSECTICIDES		PROCEDURE
	Dusts	Sprays Active Ingredients Per Acre	
Aphids (leaf feeding)	Parathion 1% BHC 3%—DDT 5%	Parathion .15—2 lb. BHC .45 lb.—DDT .75 lb.* Demeton .15—2 lb.	Downward leaf curling and the appearance of honeydew indicates the presence of aphids. When symptoms first appear make 1-2 applications at 5-day intervals. Generally only one application of demeton is required.
Spider Mites	Parathion 1% Aramite 3%	Parathion .2— .25 lb. Aramite .5— .75 lb. Demeton .2— .25 lb.	When leaves turn yellow or red and webbing is found the presence of spider mites is indicated. When symptoms first appear make 2-3 applications at 7-day intervals. Generally only one application of demeton is required.

\* Some formulations of this insecticide mixture have caused serious plant injury when used at rates that exceed the maximum indicated here. This mixture is not recommended for the control of heavy bollworm infestations.

*Boll weevil and bollworm infestation counts:* Use the following procedure for fields of 5 acres or less, and increase sample size for larger areas. The infestation counts should be made while criss-crossing the field diagonally. In making the weevil count prior to squaring, count the number of adult weevils found per 100 plant terminals selected at random. Areas adjacent to woods and farm buildings should be checked closely at this time when weevils are coming out of hibernation. In making the *weevil infestation count*, select 100 squares that are at least  $\frac{1}{3}$  grown at random from the top, middle, and bottom parts of the plants. The percentage of weevil infestation is based upon the number of weevil-punctured squares. At any time prior to migration an examination of fallen punctured squares gives a valuable estimation of the boll weevil survival and the time of emergence of the next brood of adult weevils. This information is valuable in adjusting the control program to meet the situation. In making the *bollworm infestation count*, examine for eggs and small bollworms the upper 3 to 4 inches (terminals) of 100 plants selected at random. Also collectively examine for injury by small bollworms 25 consecutive squares, blooms, and bolls at each of 4 representative points. The presence of eggs and the number of small bollworms on plant terminals, or the percentage of fruit injured by small worms determines the bollworm infestation. Succulent, green cotton fields should be checked closely late in the season as such fields are highly attractive to the bollworm moth. The boll weevil is also attracted to such cotton in large numbers during the migration period.

*Dusting and spraying:* Efficient dust and spray machinery is very important if the control program is to be satisfactory. Suitable high clearance equipment with protective shields should be available for use on rank cotton. However, when such equipment is not available and insect control is badly needed, applications of insecticides with regular equipment will return an amount of cotton that will far offset that destroyed by the equipment. Dusts and sprays are equally effective when properly applied. Dusts should be applied when the air is nearly calm. One dust nozzle per row above the tops of the plants can be used throughout the season. Low-gallonage, low-pressure spray applications may be made during wind velocities up to 15 miles per hour. Sprays should be applied at 2 to 8 gallons per acre. For early season treatment of small plants 1 hollow cone nozzle per row placed over the tops of the plants is used. Later in the season on larger plants 3 nozzles per row are used, one over the plant tops, and 2 angled into the sides of the plants. Two or more spray materials may be mixed together to control several cotton pests with the same application, something that can not always be done with dusts unless a special mixture is ordered. Both dust and spray nozzles should be 4 to 10 inches

above the plant tops, the lower distance being used under windy conditions. Nozzles should never be allowed to drag through the plants. Airplanes are as effective as ground machines for applying insecticides where conditions permit the effective use of planes. However, under many North Carolina conditions the fields are very small, the land is very hilly, and there are many trees and power lines. All of these factors prevent the effective use of airplanes. For best results where airplanes can be used effectively (large, level fields) flag the swaths so that they overlap. The swath width should not exceed the wing span of the plane. Increase recommended dosages by at least 50% when an airplane is used in making applications before squaring time. After squaring time use the same amount of materials as recommended for ground machines.

*Caution in using insecticides:* All of the insecticides are poisonous and precautions on the labels should be strictly followed. Special precautions should be taken when using demeton or parathion. These insecticides when handled properly, at dosages that do not exceed the recommended amounts, are safe for man, animals, and cotton plants. Do not use BHC when cotton is to be followed by peanuts, tobacco or Irish potatoes. Avoid drift of BHC or toxaphene onto tobacco. Also avoid excessive drift of all insecticides onto other crops, pastures, gardens, ponds, houses, and bee hives. Avoid excessive residues of any pesticide at all times.

*Duration of control program:* It is important to start the insect control program early so that maximum yields can be made during the relatively short fruiting period that prevails in the state and before the insects become both more numerous and more difficult to kill. However, regardless of when the control program is begun, it is essential to follow through to the end of the season as recommended for the various insects to protect the crop of bolls previously set. The largest profits from the use of insecticides have been made by controlling damaging infestations of boll weevils and bollworms on cotton growing on fertile soils with sufficient moisture. In those areas having consistently light insect infestations and during excessively dry seasons fewer applications of insecticides are needed. Community or county-wide insect control programs are highly beneficial during periods of general insect outbreaks. For weekly information on cotton insect conditions and information on controlling cotton insects growers should contact their county agent or the extension entomologist, Raleigh, North Carolina.

