1951 COTTON INSECT CONTROL RECOMMENDATIONS FOR GEORGIA

As formulated by agronomists and Entomologists of the University System of Georgia.

RECOMMENDED DUSTS FOR BOLL WEEVIL CONTROL

(1) BHC-DDT - A mixture containing 3% gamma isomer of benzene hexachloride and 5% DDT (3-5 mixture). Use at the rate of at least 10 pounds per acre all applications.

(2) Toxaphene - A dust containing 20% technical toxaphene. Use at least 10 pounds per acre all applications.

(3) Calcium Arsenate in alternate applications with BHC-DDT (3-5 mixture). Use calcium arsenate at the rate of 7 to 10 pounds per acre. Apply BHC-DDT at 10 pounds per acre.

(4) Aldrin-DDT - A mixture containing 2.5% aldrin and 5% DDT. Use at least 10 pounds per acre all applications. Under extremely hot conditions, especially in South Georgia, the rate per acre should be increased to 15 pounds.

Any of the above insecticide mixtures will control boll weevil, fleahopper, and cotton leafworm if properly applied. When certain of these are used other pests have to be considered (See bollworm, cotton aphid, and red spider mites). In unusually large or rank growth cotton the recommended number of pounds should be increased. Due to the possible short supply of sulfur during 1951 this material is not recommended in the above mixtures. Inert materials are recommended as the diluent instead of sulfur which has been included in the past for red spider control.

Hand guns, horse-drawn, and tractor mounted dusters or airplane dusting are all satisfactory for application.

RECOMMENDED SPRAYS FOR BOLL WEEVIL CONTROL

(1) Toxaphene or Toxaphene-DDT - Apply toxaphene at the rate of 2 pounds of technical toxaphene per acre. Where DDT is included in the concentrate the rate per acre of DDT will vary from 0.5 to 1 pound depending on different manufacturers' formulations.

(2) Aldrin-DDT - Apply at the rate of 0.25 pound aldrin and 0.5 pound-technical-DDT per acre.

(3) BHC-DDT - Apply at the rate of at least 0.3 pound gamma isomer BHC and 0.5 pound technical DDT per acre.

Any of the above insecticide mixtures will control boll weevil, fleahopper, cotton leafworm, and thrips, if properly applied. When certain of these are used other pests have to be considered (See bollworm, cotton aphid, and red spider mites).
OTHER INSECTICIDES FOR CONTROL OF BOLL WEEVIL AND CERTAIN OTHER INSECTS

**Dieldrin** - This insecticide has been tested for only one year in Georgia. The use of 1.5% dieldrin plus 5% DDT is not recommended for general use in Georgia during 1951 and is to be used experimentally only. The dust mixture of 1.5% dieldrin plus 5% DDT used at the rate of 10 pounds per acre or a spray used at the rate of 0.15 pound dieldrin and 0.5 pound DDT per acre, will control boll weevil, fleahopper, thrips, and certain other injurious insects. Although aphids have not been serious, there is an indication they may build-up following the use of this mixture.

Dieldrin is regarded as highly toxic to man and animals and is readily absorbed through the skin. Extreme precautions should be exercised when handling and applying dieldrin.

**Calcium Arsenate plus 1% Parathion** - A special lime-free calcium arsenate containing 1% parathion dust has been used experimentally and has given satisfactory control of boll weevil, aphid, and red spider at the rate of 10 pounds per acre.

Parathion is extremely toxic to man and should be handled with caution. This material should not be used unless the operator follows the special precautions on the use and application of parathion (See Precautions).

**Chlordane-DDT** - Results using chlordane have been erratic. It is not recommended except in such areas as have had success with its use heretofore. Under north Georgia conditions the 10% chlordane-5% DDT has given satisfactory results. This mixture applied at the rate of 10 pounds per acre will control boll weevil, fleahopper, and thrips. Aphids may build-up following the use of this material.

**TIMING OF APPLICATIONS FOR BOLL WEEVIL CONTROL**

**Pre-square:** Early applications are recommended where boll weevil, thrips, fleahopper, or other injurious insects are numerous early in the season.

**After Squaring Begins:** When squaring begins examine the fields. If punctured or flared squares are readily found, apply any of the recommended materials. In most years the regular schedule commences with this application. Applications should be made at four to five day intervals until the infestation is brought under control. This will probably require at least three applications. Fields should be watched closely and poisoning resumed when reinfestation occurs. Presence of insects and weather conditions will determine the total number of applications during the season. Do not stop too early. If conditions are such that ground equipment will damage the plants fenders or guards should be used. When it is impossible to get in the field late in the season, airplane application is recommended. If rain occurs within 24 hours after poisoning, repeat application within 48 hours.

**OTHER INSECTS**

**BOLLWORM**

As soon as squares with small holes in them are found apply a dust of either 10% DDT or benzene hexachloride 3% gamma isomer and DDT 10% (3-10 mixture) at the rate of 10 to 15 pounds per acre. The BHC-DDT (3-10) controls both boll weevil and bollworm. Under certain conditions 20% toxaphene will control bollworm. When spraying is being practiced and the emulsifiable concentrate used does not contain DDT, add sufficient concentrate to give 1 to 1.5 pounds of technical DDT per acre. Prompt action is essential as large worms are difficult to kill. Late season applications are particularly important for control of bollworms.
APHID

Where a build-up of aphids or lice occurs apply BHC-DDT (3-5) or 1% parathion dust (See precautions). Where sprays are being used apply BHC or tetraethyl pyrophosphate (TEPP). TEPP may be combined with other spray formulations and is used at the rate of 0.5 pint of 40% TEPP per acre.

RED SPIDER

One or more applications of 15 to 20 pounds of dusting sulfur per acre should be used in case of a build-up of this pest. A 1% parathion dust, or a spray containing TEPP may be used. Use same rate of TEPP as recommended for aphid.

THRIPS

In some areas thrips may seriously injure seedling cotton. This insect may be controlled with the dusts or sprays recommended for boll weevil control, except calcium arsenate. Where toxaphene spray applications are made to seedling cotton 1 pound per acre is sufficient to control this insect.

SPRAYING

Insecticides may be applied in the spray form and give equal results to dust when the pounds per acre of the actual material remain comparable. Emulsifiable concentrates when mixed with water give an emulsion satisfactory for spraying. The concentrates should be diluted according to the manufacturers' directions using the recommended pounds of insecticide per acre.

Sprays may be applied by horse-drawn or tractor mounted low-pressure and low-gallonage sprayers, or by airplane. A nozzle of the hollow cone type should be used and the equipment operated at the manufacturer's specified pressure. Sufficient pressure should be maintained in order to give a good spray pattern. This may vary from 40 to 60 pounds pressure. The amount of spray per acre will vary with the type, and speed of equipment, and number of nozzles per row, but is usually three to nine gallons. For airplane application one to two gallons of spray is satisfactory.

The number of nozzles needed per row will depend on the size of the cotton plant. For seedling cotton, one nozzle per row with ground equipment is suggested, with 2 nozzles on cotton up to 20 inches high, and 3 nozzles on plants over 20 inches. Nozzles should be kept from 8 to 10 inches from the plants to insure a proper spray pattern. For effective coverage, the nozzles should not drag in cotton plants.

Sprays should be applied only when the plants are dry. Applications may be made under conditions of relatively strong winds (15 miles per hour). As a safety measure, it is recommended that the spray boom be mounted to the rear of the operator.

It is important to mix emulsifiable concentrates with water before adding to the spray tank. Measure the desired amount of concentrate, add to water in a suitable container, and stir thoroughly. Pour this mixture into the partly filled spray tank and complete filling with water. Agitate the finished spray by pumping back through the overflow into the tank. Thorough mixing is important before the spray operation begins. Do not add the spray concentrate directly to the tank without previous mixing with water. The spray equipment should have a pump with an overflow or bypass or mechanical agitator to give continuous agitation during the spray operation. Do not use insecticides in the form of wettable powders or dusts in low-gallonage and low-pressure cotton sprayers; use only emulsifiable concentrates.
GENERAL

1. Machines for catching boll weevils and other cotton insects are not recommended.

2. A heavy dew is not essential for satisfactory dusting conditions, but the air should be calm.

3. Good boll weevil control is considered when the infestation is 10 percent or less. A simple way to make infestation counts is to pick at least 100 non-flared squares for each 5 acres as you walk diagonally across a field, picking equally from top, middle, and lower limbs. The number of punctured squares out of each 100 picked is the percent infestation for that count.

PRECAUTIONS

1. All insecticides used for control of cotton insects are poisonous and should be handled with caution. Read carefully all labels on packages or containers before using any insecticides. Avoid body contact and inhaling dust or fumes with these materials. Liquid insecticides spilled on skin or clothing are extremely dangerous. If this occurs immediately remove clothing and bathe thoroughly with plenty of soap and water.

2. Avoid excessive drift of insecticides onto adjacent fields where animals are pastured or where food or feed crops are grown. Most insecticides are also toxic to poultry.

3. Care should be exercised to avoid poisoning honey bees through careless use of insecticides. Nearby beekeepers should be notified before poison applications are made, whenever possible.

4. Insecticides will kill fish if allowed to drift onto or drain from cotton lands into ponds or streams.

5. Special precautions should be taken in handling TEPP and parathion to avoid prolonged contact with the skin or breathing the vapors from either spray or dust.

6. Parathion is highly toxic to human beings. It is poisonous if swallowed, inhaled, or absorbed through the skin. The precautions printed on the package are for your protection and should be followed carefully. In applying parathion a respirator should be used to avoid inhaling the material. A dust and vapor type respirator is suggested and may be obtained from the following companies:

   - American Optical Company, Southbridge, Mass., Chemical Cartridge Respirator, No. R-5055
   - Mine Safety Appliances Co., Pittsburg 8, Pa., Chemical Cartridge Respirator, No. Cr-45779
   - Wilson Products Company, Reading, Pa., Chemical Cartridge Respirator, No. 701

If certain symptoms of illness appear a doctor should be consulted at once. The antidote (atropine) known to be especially effective in the case of parathion should be carried by those using the chemical, or available for immediate use if needed. See label on containers for symptoms and treatment.

FOR ADDITIONAL INFORMATION CONTACT YOUR COUNTY AGENT, VOCATIONAL AGRICULTURAL TEACHER, VETERANS INSTRUCTOR, OR THE NEAREST EXPERIMENT STATION.