

New Formulations Found Effective for

COTTON INSECT CONTROL

5 Ag. Exper. Station Field Days in May

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Insect problems of cotton are receiving major attention in a cooperative field research program conducted at the University of Arizona Cotton Research Center by entomologists from both the university and the U.S. Department of Agriculture.

The beet armyworm was one of the most destructive insects attacking cotton in 1959. Previously satisfactory control recommendations, particularly mixtures containing toxaphene and DDT, were inadequate as air applications against unusually heavy infestations of beet armyworms in portions of Maricopa County. Under these conditions the following insecticide mixtures were effective in 1959 tests. (Amounts refer to pounds per acre):

1. **Dylox 1.5 lbs., plus DDT 1 lb. A mixture of Dylox 1.5 lbs., toxaphene 2 lbs. and DDT 1 lb. was also effective. Dylox was more effective in spray formulations than in dust mixtures.**
2. **Dibrom 1 lb., plus endin, 0.2 lbs.**
3. **Dilan 0.9 lb., plus endrin, 0.3 lb.**

Two to three applications at weekly intervals were needed.

Control of salt-marsh caterpillars ("wooly worms") was attempted in 1959 with a dust formulation containing spores of a bacterium known as *Bacillus thuringiensis*. Early action was slow, but after a week this treatment was as effective as one of the better insecticide formulations. Cultures of this bacterium, which is not harmful to warm-blooded animals, are now available from several commercial sources. The formulation tested in 1959 contained 3 billion spores per gram and was applied at the rate of 30 pounds (13,600 grams) per acre.

Dilan Spray Effective

Dilan sprays, applied to cotton plants at rates of 0.7 and 1.25 pounds of toxic

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cant per acre, killed newly-hatched salt marsh caterpillars, including those hatching from eggs deposited after treatment, for periods as long as 13 days. The higher dosage did not extend the period of effectiveness. New insecticides which also gave good control of salt marsh caterpillars in 1959 tests included formulations of Dibrom, Korlan and Trithion.

The cotton leaf perforator, one of the more difficult Arizona cotton pests to control, was effectively controlled in 1959 tests with formulations of the following new or experimental insecticides: Dibrom, Dimethoate, Korlan, Shell-4402, Strobane, and Trithion.

Tests in 1959 supported previous observations that spray formulations of most insecticides were at least as effective as dust formulations and in a number of cases were definitely superior. Dust formulations may still be preferable when it is desirable to combine dusting sulfur, for spider mite control, in the same formulation with one or more insecticides. In other instances the convenience and possibly greater effectiveness of spray formulations should be considered.

Multiple-Use Chemical Effective

In a test of application schedules a dust containing 15% toxaphene, 5% DDT and 40% sulfur was applied during July and early August at intervals of 7, 10 and 14 days. These applications reduced populations of lygus bugs 82%, 79% and 73%, respectively. Bollworms were controlled with 7 and 10 day schedules but not with a 14 day schedule.

The cotton leaf perforator was commercially controlled with a 14-day schedule but control effectiveness increased with shorter intervals between treatments. In the case of the bollworm, the 14-day schedule was still sufficiently toxic to an important predator, the minute pirate bug, to prevent it from offsetting the lower control produced by the insecticide. In 1959 the 14-day schedule appeared, therefore, to intensify rather than reduce the bollworm problem.

Agricultural Experiment Station field days in Arizona this year are nearly all scheduled. There may be more, so watch for the little schedule folder which your county agent should soon have for you.

Meanwhile, the list up to now includes:

MAY 6—Fourth Annual Poultry field day, at UA Poultry Research Center, Tucson.

MAY 13—Spring field day, devoted to small grains, alfalfa, and oilseed crops, at the Mesa Branch Station, Mesa.

MAY 20—Annual Safford field day, at Safford over in Graham County. This year the field day is shifted from fall until spring. Emphasis still will be on cotton, small grains and alfalfa.

MAY 20—Spring field day at the Yuma Branch Stations. Supt. Pritchard favors commodity field days, and this one will be devoted to commercial vegetables.

MAY 21—Cattle Feeders Day, at the university's two beef farms at Tucson. There is a new layout, new pens and feed mill, at the farm on the Casa Grande highway and the feeders will have a chance to see these things and hear about current research.

During the summer, County Extension Agents cooperating with Experiment Station research workers probably will schedule several county or area field days. Watch your mail, and your local newspaper, to be cued in on these. Statewide field days, however, are held pretty exclusively in spring and fall. Going into the fall, we have scheduled:

OCT. 5—Annual Cotton field day, Cotton Research Center.

OCT. 12—Dairy field day, Tucson

OCT. 14—Cotton field day at the Yuma Branch Station.

OCT. 21—Annual Fall field day at the Mesa Station. Supt. Pew is planning panels on grain sorghum, silage sorghum, discussions on alfalfa and whatever oilseed crops are in season.

NOV. 2—Citrus field day at the UA Citrus Station southeast of Phoenix

NOV. 18—Citrus field day at Yuma, up on the Yuma Mesa Station.