

DDT for the Control of Goat Lice

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Dipping tests with DDT for the control of three species of goat lice, two Mallophaga and one Anoplura, were conducted at Menard, Tex. Angora goats infested with the yellow louse, *Trichodectes hermsi* Kellogg and Nakayama, and the red lice, *T. caprae* Gurlt and *T. limbatus* Gervais, were dipped in 0.3 and 0.6 per cent of the chemical in a water emulsion. In every case all the lice were killed soon after hatching. The animals were examined at intervals for 26 days and no reinfestation developed.

In another test Angora goats infested with the blue *Linognathus stenopsis* (Burm.), as well as with yellow and red lice, were dipped in water emulsions in strengths of 0.3, 0.15, 0.07, and 0.04 per cent of DDT. All concentrations killed all red and yellow lice. All blue lice were killed with all concentrations except the 0.04 per cent DDT. The treated animals were examined at intervals for 25 days, and there was no evidence of a reinfestation. Tests were also made with DDT combined with wettable sulfur in the dips. These tests suggest that neither chemical the effectiveness of the other.

The limited tests conducted on Angora goats indicate that a single dipping in DDT may serve as an effective control for goat lice. The biting lice are more susceptible to this chemical than are the sucking lice. The DDT, even in concentrated emulsions, apparently had no effect upon the fiber or skin of the animals.

DDT as a Treatment for Fleas on Dogs¹

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Preliminary tests on the use of DDT in the control of the dog flea, *Ctenocephalides canis* (Curt.), the cat flea, *C. felis* (Bouché), and the sticktight flea, *Echidnophaga gallinacea* (Westw.), on dogs have been sufficiently promising to warrant the following brief report on the results obtained.

Powders containing DDT diluted to 4 or 5 per cent with pyrophyllite were dusted lightly over the animals and rubbed thoroughly into the hair, approximately 10 grams being required to treat a medium-sized dog. Eleven dogs moderately to heavily infested with dog and cat fleas and lightly infested with sticktight fleas were treated in these experiments.

The dog and cat fleas began to leave the host and drop to the ground within 10 to 15 minutes after the treatment. Some of the fleas died on the dogs, but most of them left the host as they became affected. Such fleas exhibited the typical reactions characteristic of insects affected by DDT, such as spasmodic twitching of the appendages. Specimens collected and held for observation died in from 3 to 5 hours. Sticktight fleas died on the host.

Treated dogs have been completely freed of fleas and protected from reinfestation for periods of 4 to 7 days, while untreated dogs used as checks have continued to harbor large flea populations. Check dogs treated on a comparative basis with derris powder (4.8 per cent rotenone) were protected for only 2 days.

None of the animals showed any ill effects from the treatment.

¹ Work done at the Orlando, Fla., laboratory.

DDT As a Roach Poison

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Ten adults each of *Periplaneta americana* (L.) and *Blattella germanica* (L.) were fed for three weeks beginning July 22, 1943, upon a mixture containing 1 gram of DDT (100 per cent) to 100 grams of dog biscuit or mouse food as follows: (1) DDT and dog biscuit, (2) DDT and mouse food, (3) DDT in acetone (10 cc.) and dog biscuit, (4) DDT in acetone (10 cc.) and mouse food, and (5) DDT in acetone (10 cc.) and a 50-50 mixture of mouse food and dog biscuit with glycerin (10 cc.) and amyl acetate (5 cc.). In these tests all the roaches died except one *P. americana* that was given the last mixture. Similar numbers of these roaches held with untreated dog biscuits were alive, and about 35 nymphs of *B. germanica* had developed from eggs laid during the test period and were healthy.

On August 14, 1943, five adults of *Periplaneta americana* and *Blattella germanica* were placed in each of 20 jars containing a vial of water and a few untreated dog biscuits. Into each jar was introduced a wire basket containing a 50-50 mixture of dog biscuit and mouse food ground together to which DDT had been added at rates of 1 gram to 50, 100, 500, 1,000 grams of the food mixture, each rate being replicated five times. After 10 days, 1, 4, 7, and 20 roaches of the first species and 6, 14, 25, and 25 of the second were found alive in the respective mixtures. Twenty-five (all) adults of each species in check jars that were fed upon dog biscuits remained alive.

Efficacy of DDT as a Roach Poison¹

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An extensive series of tests have been conducted at Orlando, Fla., to determine the practicability of using DDT against cockroaches. In laboratory tests the compound has been used in powder form only. In practical tests it has been applied also in sprays. The results that have been obtained against the American cockroach *Periplaneta americana* (L.) and the German cockroach *Blattella germanica* (L.) are summarized in this note.

LABORATORY TESTS.—The first tests were conducted in small pens 14 inches square. When a dust containing 5 per cent of DDT in talc was applied in a band about an inch wide across the center of the pens and adults of both species were exposed continuously to the treatment, all insects were killed within 48 hours. In other tests in which only the American cockroach was used, DDT in concentration as low as 0.1 per cent was found to be completely effective within 96 hours.

Samples of 5 per cent DDT and undiluted sodium fluoride were compared as to effectiveness against the American cockroach in two pens each 10 feet square. All roaches that had been placed in the pen with DDT were on their backs within 48 hours, and 24 hours later they were dead, whereas only 60 per cent of those placed with the sodium fluoride were dead after 144 hours.

A more severe test was then conducted in which roaches were allowed to run once across a narrow band of DDT dust. Two tests were made with powders containing 5 per cent of DDT against

¹ Work was done at the Orlando, Fla., laboratory.