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CONTROL OF INSECT PESTS OF DAIRY CATTLE

by

Don C. Mote, Experiment Station Entomologist
H. E. Morrison, Experiment Station Assistant Entomologist
Robert W. Every, Extension Entomology Specialist

~~DISCARD~~

AGRICULTURAL EXPERIMENT STATION
Oregon State College
Wm. A. Schoenfeld, Director
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A report of a meeting of representatives of a number of federal agencies issued April 1, 1949 by the Public Health Service and the United States Department of Agriculture states as follows:

"There is no justification for public alarm as to the safety of the milk supply from the standpoint of DDT contamination."

However, "Studies by the Bureau of Entomology and Plant Quarantine have shown that DDT when used on dairy cattle or when present on fodder fed to dairy cattle may appear in the milk. They also say that DDT in small quantities can be detected sometimes in milk, following ordinary use of the insecticide for fly control in dairy barns. Because of the vital importance of milk in the diet of infants, children and people of all ages, it is essential that proper precautions be taken to protect the milk supply. Modifications of the recommendation made by the Department of Agriculture on the use of DDT on dairy cattle were made merely as a precautionary measure."

On the basis of the conclusions drawn by the federal agencies, the Oregon Agricultural Experiment Station wishes to modify its recommendations for the control of flies and lice on dairy cattle.

DDT is still recommended for use on beef animals, beef barns, hog pens and poultry houses and other places except dairy barns and milk rooms.

The Oregon Agricultural Experiment Station has not as yet made a complete study of substitute materials; however, it recommends that methoxychlor, piperonyl butoxide-pyrethrum combinations, and rotenone be substituted for DDT in the control of certain insect pests on dairy cattle.

METHOXYCHLOR

In tests which have been conducted, this material has given results nearly equal to those of DDT in the control of horn flies. For all practical purposes, the average user will notice little or no difference between its performance and that of DDT in the control of horn flies. Not too much is known with respect to its effectiveness against house flies. It should give good control, however, and in some other states has been reported as being partially effective against DDT-resistant house flies. Methoxychlor is also reported as being effective against cattle lice.

At the present time, the methoxychlor is being formulated by Oregon insecticide companies as a 50 percent wettable powder and as a 5 percent dust. Use the 50 percent wettable powder form for the control of flies and lice. Keep the spray solution agitated to prevent the wettable powder from settling out. At the present time methoxychlor is more expensive than DDT, but still well within the limits of inexpensive insect control.

For Horn Flies

Use a spray containing 0.5 percent methoxychlor prepared from the 50 percent wettable powder as follows:

8 pounds 50 percent wettable powder to 100 gallons water, or
1 $\frac{1}{4}$ ounces 50 percent wettable powder to 1 gallon of water.

Spray on the animals not to exceed two quarts per animal. A spray applied along the back from head to tail and about twelve inches down each side with one pint of spray solution may give satisfactory control of horn flies on dairy cattle under most Oregon conditions. Keep the spray agitated to prevent the insecticide from settling out.

For House Flies

Use a spray containing 1 percent methoxychlor prepared from the wettable powder as follows:

16 pounds 50 percent wettable powder to 100 gallons of water, or
2 $\frac{1}{2}$ ounces 50 percent wettable powder to 1 gallon of water.

The amount of material to use will vary with the surface on which applied. In general, one gallon of spray per 1000 square feet of surface should be adequate.

For Cattle Lice

Use a spray containing 0.5 percent methoxychlor prepared from the 50 percent wettable powder as follows:

8 pounds 50 percent wettable powder to 100 gallons of water, or
1 $\frac{1}{4}$ ounces 50 percent wettable powder to 1 gallon of water.

Spray on the animals not to exceed two gallons per animal. Thorough coverage of all parts of the animal is essential to good control. A second application may be necessary.

NEW PYRETHRUM INSECTICIDES

Pyrethrum is one of the older insecticides and has been used extensively in insect control. One of the objections to it has been its lack of lasting effect or residual action against insect pests. The addition of piperonyl butoxide to pyrethrum increases the insecticidal action and the duration of its effectiveness. It is effective against horn flies and house flies and has given good practical control of cattle lice. Additional tests are needed before precise information can be given regarding the length of its residual action against horn flies and house flies under Oregon conditions. This material will probably appear in the emulsion form and indications are it will be competitive in price with methoxychlor. (If oil solutions are employed, excessive amounts of oil may prove harmful to the animals.)

For Horn Flies

Use the pyrethrum-piperonyl butoxide insecticide at the dilution and the rate suggested by the manufacturer.

For House Flies

For a residual spray for the control of house flies use the pyrethrum-piperonyl butoxide material at the dilution and rate suggested by the manufacturer.

For Cattle Lice

Use the pyrethrum-piperonyl butoxide insecticide at the dilution and rate suggested by the manufacturer. Thorough coverage of all parts of the animal is essential to good control. A second application may be necessary.

ROTENONE

This is a well-known and old reliable insecticide familiar to livestock owners, farmers, and gardeners. It has a well-earned place in insect control. It is effective against cattle lice and is the only insecticide recommended for cattle grub control.

For Cattle Lice

Use a rotenone spray or dust prepared as follows:

Rotenone ground root containing 5 percent rotenone - 1 pound
Wettable sulphur finely ground - 10 pounds
Water - 100 gallons

Thorough coverage of all parts of the animal is essential to good control. Use at the rate of 1 to 2 gallons of spray to the animal. A second application should be made 17 to 21 days after the first for lasting control of lice. A dust containing 1 percent rotenone is also effective for hand treatment for cattle lice.

For Cattle Grubs

Rotenone is the only insecticide now being recommended.

Time of Treatment: Begin 30 days after the first grubs appear in the back; repeat at 30-day intervals as needed.

Number of Applications: Minimum of two applications in common grub area and four to five for the northern grub area where the two species overlap. Vary number of treatments to local needs.

Concentration of Insecticide for Various Control Methods:

- a. Wash - 12 ounces of 5 percent rotenone powder in 1 gallon of water with a suitable wetting agent if none already in rotenone powder. Wetting agents; neutral soap, 2 ounces, or wettable sulphur, 6 ounces. (Note most rotenone products now already contain suitable wetting agents.)
- b. Dust - 1 part by weight 5 percent rotenone powder to 2 parts by weight of diluent. Diluents - Tripoli earth, pyrophyllite, 325 mesh. Rub the dust into the hair thoroughly.
- c. Spray - $7\frac{1}{2}$ pounds 5 percent rotenone powder in 100 gallons of water.
- d. Dip - Dipping in dipping vats is generally considered too expensive but where used $7\frac{1}{2}$ to 10 pounds 5 percent rotenone powder, 10 pounds wettable sulphur, 100 gallons of water--hold animals in vat 2 minutes.

NOTE: While most insecticide companies supply 5 percent rotenone powder there may be some 4 percent rotenone powder on the market. If the 4 percent material is used it should be increased proportionately.

Dosage per Animal: Use enough to cover infested area and to penetrate into grub holes. Dust about 3 ounces per animal; spray about 1 gallon per animal.

Pressure for Spraying: 400 pounds per square inch. Use a solid cone pattern, drive spray nozzle, number 4 or 5 disc, and have nozzle from 10 to 12 inches above back of animal when making application.