Insect and Mite Control for Poultry
Michigan State University Extension Service
Ray L. Janes, Arthur Wells, Entomology
Issued April 1964
4 pages

EXTENSION BULLETIN E-405
FARM SCIENCE SERIES
APRIL 1964

INSECT AND MITE CONTROL FOR POULTRY

COOPERATIVE EXTENSION SERVICE MICHIGAN STATE UNIVERSITY

*By Ray L. Janes and Arthur Wells**

ALL INSECTICIDES ARE POISONOUS in varying degrees. They should be handled cautiously so that they will not poison livestock, children, or the user. Read the label on the package carefully for instructions on how to use all insecticides.

Note: The information in this bulletin is for use on chickens, turkeys, and other barnyard fowl. Because of the dangers of off-flavoring eggs and contaminating meat with insecticides, follow all label directions for use of chemicals around poultry. *Especially, do not use insecticides that are not listed in this bulletin, or are not approved on up-to-date package labels. Stop treatments the required days before slaughter of birds.*

Poultry Lice

Several kinds of lice bother poultry. These pests harm poultry by chewing feathers and skin scales. No sucking lice infest domestic fowl.

Poultry lice are wingless, flat bodied, six-legged, and have a head rounded in front. These lice live their entire life on the birds. The eggs are glued to the feathers. Young lice resemble the adults.

Lice are generally small; however, when full grown some kinds can be ⅛ inch long. Their color varies from gray to yellow to black.

Common Chicken Mite

The adult mite is about 1/35 inch long and has eight legs. It is grayish, but when filled with blood it is red to nearly black. The chicken mite lives in wood cracks and other hiding places in and around poultry houses. It visits chickens and other fowl only when feeding on blood. These mites are not usually found on the birds during the day.

*Ray L. Janes, Extension Specialist, and Arthur Wells, Entomologist, Department of Entomology.
The authors thank Charles Sheppard, Extension Specialist in Poultry Science, for his help in preparing this bulletin.

Northern Fowl Mite

The northern fowl mite is small (1/26 inch long); its body is oval, elongated, and has eight legs. The adult is usually blackish-brown, although color variations sometimes give it a banded appearance. The eggs are usually laid on the birds.

These mites may be found on the birds at all times; the common chicken mite is usually on the birds only at night.

Other Insects and Mites

These problems usually originate in droppings and litter in the houses, and in various locations outdoors. For control of these insects and mites, turn to the following Sections: 1) Beetles, Grain Mites, and Fly Maggots in Litter and Droppings; 2) House Flies and other Flies in Poultry Houses; and 3) Flies and other Insects Outdoors.

Fleas occasionally infest poultry houses, usually in those areas infested by the common chicken mite. For flea control, use the same insecticides and methods as for the common chicken mite.

When to Control

Lice: Use control suggestions in the fall and spring or when lice bother the birds. You can tell when lice are present by parting the feathers and looking for them over the body of the fowl. You can also notice infested birds searching for lice with their beaks, or showing other signs of restlessness.

Common chicken mite: Use control methods whenever mites are seen (probably more abundant in summer) in the poultry house or for general fall or spring clean up. Thoroughly clean all poultry buildings before applying chemicals for control of common chicken mite.

Northern fowl mite: Use control suggestions when these mites are seen on the birds, or quite often in the nest.

Treatments to Use

Usually a combination of treatments is needed for good poultry lice, chicken mite, and northern fowl mite control. The materials and methods used will depend on the number of birds and the severity of the problem. For large numbers of birds, the roost, dropping board or pit, and litter treatment (A) combined with the body treatment (B) can be best.

The following treatments are given to help you understand the various problems of poultry pest control. For example: common chicken mite control is very similar in most aspects to that for poultry lice and northern fowl mite. The essential difference, of course, is that lice and northern fowl mite are on the birds all the time and the common chicken mite only during their feeding for blood, usually at night. Hence, control must be done primarily (see next paragraph on cleanliness) on the birds for lice and northern fowl mite and throughout the building and equipment for common chicken mite. *Consequently, common chicken mite, northern fowl mite, and poultry lice control should be planned as a single project. For whatever is done about one pest will help with the others.*

Cleanliness in poultry houses is a must at all times for control of mites, lice, and other insects. A thorough cleaning (including regular removal of floor litter, droppings, and nesting materials) and elimination of insects and mites before housing a new flock in the fall will reduce greatly the annoyance created during the winter by these pests.

Good poultry raising and maintenance practices (control of temperature, humidity, and moisture) will also help control or reduce insect and mite problems.

Control with Insecticides

In this bulletin, control methods for poultry pests are listed according to *how the various problems can be solved.* Some treatments such as "A" and "B" have wide use while treatments "C", "D", "E", and "F" are limited in value. Hence, treatments "A" and "B" should be considered first in any program of poultry pest control. Think of the other treatments as secondary but on occasion necessary to roundout a good approach to your problem.

Note: The treatments given for control of insects and mites in litter, etc., must be followed carefully for these pests are special troubles.

(A) *Roost, dropping board or pit, and litter treatment — using sprays and dust*: This treatment is preferred for common chicken mite, poultry lice, and northern fowl mite, if only one method is used. However on occasions, other treatments may be needed, especially "B" which in some respects may be better than "A". (See the different Sections for details and ratings of particular methods.)

Use either malathion, carbaryl (Sevin), or Co-ral as follows:

1. (a) *Malathion spray*: to 3 gallons of water, use either 1 pound of 25% wettable powder or ¾ cup of the 5 pound per gallon emulsion. Apply 1 to 2 gallons per 1,000 square feet.
   (b) *Malathion dust*: to use 4 or 5% malathion dust, apply no more than 1 pound of 4% dust to 40 square feet or 1 pound of 5% dust to 50 square feet.
2. (a) *Carbaryl (Sevin) spray*: use ¼ pound of 50% wettable powder to 3 gallons of water. Spray thoroughly with 1 to 2 gallons of mixture to 1,000 square feet.
   (b) *Carbaryl (Sevin) dust*: apply 1 pound of 5% dust to 40 square feet.
3. (a) *Co-ral spray*: to 3 gallons of water, use ¼ pound of 25% wettable powder. Apply 1 gallon to 1000 square feet of surface.
   (b) *Co-ral dust*: Apply 5 pounds of ½ percent dust to 100 square feet of litter. To all interior surfaces, use only 1.4 pounds to each 100 square feet of surface.

Warnings: see page 4.

(B) *Body treatment — using power equipment (suggestions for control of pests affecting battery-housed birds also included)*: this treatment is important for poultry lice and northern fowl mite, but may fall short for control of common chicken mite (See section "A"). Apply "B" treatments over the backs of the roosting birds with one of the following pieces of power equipment:

1. *Dusters* (Hand-crank or power driven):
   a. *Co-ral*: apply 1 pound of ½% dust to 100 birds.
   b. *Malathion*: apply 1 pound of 4 or 5% dust to 100 birds.
   c. *Carbaryl* (Sevin): apply 1 pound of 5% dust to 100 birds.
   d. *Rotenone*: apply 1 pound of 1% dust to 100 birds.
2. *Sprayers* (hand, air-compressed, or power driven):
   a. *Co-ral*: use ¼ pound of 25% wettable powder to 3 gallons of water. Apply 1 gallon to 100 birds.
   b. *Malathion*: use ½ pound of 25% wettable powder to 3 gallons of water. Apply 1 gallon to 100 birds.

Warnings: about problems of use and contamination of feed, see the last page!

Wire Cages or Batteries: **Nowhere in the production of poultry is sanitation as important as birds housed in wire batteries (cages). Floors, areas around the legs or stands of the cages, should be kept free of litter and other materials that harbor common chicken mite.**

Chemical control for common chicken mite, northern fowl mite, and poultry lice is the same as given in this "B" section. Some form of power equipment is needed for the treatment. Apply it at night or when the birds are roosting. Follow all instructions as given under the Section on the insecticides or on the package label.

Supplementary Treatments

The following treatments are supplementary to those given in Section A and B. However, small poultry raisers may find these minor treatments adequate for their needs. On the other hand, large commercial growers should use the suggestions in Sections "A" and "B" for the best approach to their problems, using supplementary treatments to help where needed. Especially, they may find nest treating worthwhile.

(C) *Nest treatment*: Quite often nests reinfest birds with poultry lice, northern fowl mite, and common chicken mite, unless, of course, they are the kind that do not use nesting material or do not have adequate hiding places for the pests. Because of the problems of off-flavoring (insecticide contamination of eggs) only malathion, rotenone, and pyrethrum can be suggested for nests at this time as follows:

1. *Malathion* 4 or 5% dust: apply 1 pound of 4% dust to 40 square feet of nest or 1 pound of 5% dust to 50 square feet of nest. Replace nesting materials after using malathion.
2. *Rotenone*, 1% dust: apply 1 pound to 20 to 40 square feet of nest. Replace nesting material after using it.
3. *Pyrethrum*, 1% dust: apply 1 pound to 20 to 40 square feet of nest. Replace nesting material after using it.

(D) *Roost treatment*: Roost treating is a supplementary application for poultry lice and northern fowl mite, but cannot be depended on to control common chicken mite. For this roost treatment, use one of the following materials in late afternoon before the birds go to roost. (See Section "A" and Section "B" for more effective treatments).

1. *Malathion*, 3% roost paint. To make a 3% malathion roost paint, add ¾ cup of 57% malathion emulsion to 1 gallon of water. Use 1 pint of this mixture to each 150 feet of roost. Apply to the top of the roost, preferably with a brush.
2. *Nicotine sulfate*, 40% solution. Apply as bought to the top of the roost with a brush. Use 1 fluid ounce to 15 or 20 running feet. Because of the danger of nicotine sulfate fumes, small atomizers and air compression sprayers are not generally suitable for applying the material.

Warnings: see page 4.

(E) *Body treatment — duster box*: This treatment has value for poultry lice and northern fowl mite, but may fall short of what is needed for common chicken mite.

1. *Co-ral*, use 3 pounds of ½% dust for each 50 birds in a self-treating duster box.
2. *Carbaryl* (Sevin), use 2½ pounds of 5% dust to 50 birds in a self-treating duster box.

See Section "A" and "B" for more effective treatments.

Warnings: allow seven days for Co-ral and 40 days for carbaryl (Sevin) between use of the last of the dust in the duster box and a new treatment. Do not use Co-ral within 10 days of vaccination or other situations that cause stress in the birds. For other warnings, see page 4.

(F) *Body treatment — apply dust with a shaker or sifter (the birds are normally treated individually)*: Use only one of the following four materials. This treatment has value for poultry lice and northern fowl mite, but falls short for control of common chicken mite. Rotenone is effective for lice only.

1. *Malathion*: apply 1 pound of 4% dust to 100 birds. Sift it through the feathers to the skin.
2. *Co-ral*: apply 1 pound of ½% dust to 100 birds. Sift it through the feathers to the skin.
3. *Carbaryl (Sevin)*: apply 1 pound of 5% dust to 100 birds. Sift it through the feathers to the skin.
4. *Rotenone*: apply 1% dust to the entire body. Sift it through the feathers to the skin. Use 1 pound to 100 birds.

Warnings: Dosage rates and chemical strength of insecticides are less (weaker) when treating poultry than those for application to roosts, litter, and other areas of poultry houses. For other warnings, see page 4.

Oil Treatment for the Common Chicken Mite

The common chicken mite may be controlled with anthracene oil or carbolineum (creosote). Thoroughly clean roosts, dropping boards, and other chicken mite infested areas before using one of the materials.

Apply anthracene oil or carbolineum to these areas with a spray or preferably with a brush. Use one of the treatments in the morning so that it will dry before the birds go to roost.

After the original complete treatment, spot treat roost cracks and supports once a month with anthracene oil. Carefully follow manufacturer's directions and warnings when using one of the materials.

Warnings: Anthracene oil treated poultry and brooder houses must be ventilated before housing young birds.

Beetles, Grain Mites, and Fly Maggots in Litter and Droppings

In recent years, *deep litter* has created a number of new mite and insect problems in poultry houses.

Two conditions are mainly responsible: first, the high organic content and secondly, the abundant grain-food supply found in this type of litter.

Normally, control of these insects requires removal of the litter and thorough cleaning of the floors and at least the lower-half of the walls. Only after this has been done, should an insecticide be used. Apply the treatment to the bare floor and walls as follows:

1. For beetles and mites, see Section "A", "Roost, dropping board or pit, and litter treatment", using malathion, 1 (a) or 1 (b); or carbaryl (Sevin), 2 (a) or 2 (b).

2. For beetles only use methoxychlor, 1 pound of 50 percent wettable powder or 1 quart of an emulsion containing 2 pounds of chemical per gallon — to 1 gallon of water. Apply this to 600 square feet of surface.

Warnings: see this page.

House Flies and Other Flies in Poultry Houses

Flies normally indicate poor sanitary conditions in and around poultry houses. Following the instructions given in the Section on "Beetles, Grain Mites, and Fly Maggots in Litter and Droppings," will help control flies. However, if other treatments are needed do this: spray the fly roosting areas on walls and ceilings with one of the following chemicals in 3 gallons of water:

1. *Ronnel* (Korlan), ½ pound of 25 percent wettable powder.

2. *DDVP* (Vapona), ¾ pint (½ cup) of a 4 lbs. per gallon emulsion. Apply either material to 1000 square feet of surface.

Fly cords and resin vaporiziers can also be used to control flies in poultry houses. Place these so that dead flies do not drop in drinking fountains or feeders.

Warnings: about problems of use and contamination of feed, see this page!

Flies and Other Insects Outdoors

When flies are a problem outdoors spray thoroughly with ronnel or DDVP as given in the Section on flies in poultry houses, or with malathion, 2½ tablespoons of 25% wettable powder or 1 pint of a 5 lb. per gallon emulsion — to 3 gallons of water. Cover thoroughly all resting places. *Flies, beetles, and other insects* that bother poultry inside may do the same outside. For outside treatment use chlordane, 1 pound of 40% wettable powder or 1 pint of an emulsion containing 4 pounds of chemical per gallon — to 3 gallons of water. Apply 1 or 2 gallons per 1,000 square feet of surface. For another material use ronnel (Korlan), ½ pound of 25% wettable powder — to 3 gallons of water.

Warnings: see below.

WARNINGS AND USE INFORMATION

General instructions for all materials suggested in this bulletin:

- ☆ Provide ventilation during the use of any material, and afterwards until it is settled.
- ☆ Avoid undue exposure of the birds to mists and vapors during application. Do not apply any material directly on the birds unless directions say you can do so safely.
- ☆ Do not breathe insecticides. Face masks can be purchased for protection.
- ☆ If emulsions or concentrated wettable powders are spilled on the skin, wash immediately with soap and water.

Specific instructions for the insecticides suggested in this bulletin follow:

1. *Malathion*: avoid contamination of feed and drinking water. There is no time limit on its use on the birds.

2. *Carbaryl* (*Sevin*): space treatments four weeks apart. Do not get it in feed or water. Do not apply within seven days of slaughter of birds. Do not treat nests or nest litter with Sevin.

3. *Co-ral*: avoid getting it in feed or water. Co-ral treatments should not be applied oftener than seven days. Avoid using it ten days before vaccination of birds or other periods during which they will be excited.

4. *Rotenone* generally does not have application restrictions, but careful use of the material would avoid undue contamination of feed and water.

5. *Pyrethrum* generally does not have application restrictions, but careful use of the material would avoid undue contamination of feed and water.

6. *Nicotine sulfate*: do not contaminate feed or water. Do not apply it to birds or while birds are in the house. No limit is placed on its use before slaughter. Remember, nicotine sulfate is highly poisonous; do not get it on you.

7. *Methoxychlor*: do not contaminate feed or water No limit is placed on its use before slaughter.

8. *Ronnel* (*Korlan*): do not contaminate feed or water. Ronnel is not registered for use directly on poultry.

9. *Chlordane*: do not use this material inside poultry houses, or contaminate feed or water outdoors.

10. *DDVP* (*Vapona*): do not contaminate feed or water. DDVP is not registered for use directly on poultry.

Cooperative extension work in agriculture and home economics. Michigan State University and the U. S. Department of Agriculture cooperating. N. P. Ralston, Director, Cooperative Extension Service, Michigan State University, East Lansing. Printed and distributed under Acts of Congress, May 8 and June 30, 1914.
1P—4:64—3M—LB