



# Fly Control For Poultrymen

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Flies are a disease hazard and a nuisance to poultry. Successful control depends upon a combination of chemicals and good management practices to reduce fly breeding areas.

Numerous chemicals are available. They are sold under various brand names and are formulated as baits, wettable powders, emulsifiable concentrates or space sprays. The following considerations of their characteristics may be helpful in making a choice:

**Long Lasting, Surface-Type Insecticides** usually are the most effective and economical for fly control.

**Quick Knockdown Surface-Type Insecticides** are advantageous where immediate reduction of adult populations is necessary.

**Baits, Insecticide-Impregnated Bands and Resinous Strips** generally are most useful in conjunction with a surface spray.

**Larvicides** are best as spot treatments to control fly larvae that have developed in wet areas. Treatments with larvicide are ordinarily less effective than surface spraying for adult control.

**Space Sprays** are most valuable in situations where immediate kill of large numbers of flies is wanted. They are useful in knocking down flies that gather in enclosed areas. Space sprays have no residual effect.

The following table lists some characteristics and limitations of fly control chemicals:

## INSECTICIDE CHARACTERISTICS

Insecticide	Toxicity to man*	Toxicity to birds*	Apply inside poultry house**	Rate of knock-down	Residual activity***
diazinon	moderate	high	(larvicide and bait)	slow	very short
dichlorvos (Vapona)	high	high	(liquid bait resin strip)	fast	very short
dimethoate (Cygon)	moderate	moderate	no	slow	2-4 weeks
malathion	low	low	yes	slow	1-4 weeks
dylox (Dipterex)	low	low	yes	fast	1-4 weeks
naled (Dibrom)	low	low	yes	fast	1 week
pyrethrins or pyrethrum	low	low	yes	fast	none
ronnel (Korlan)	low	low	yes	slow	2-4 weeks

\* All insecticides listed are poisons. They can be used safely if directions on the labels are followed carefully.

\*\* Certain insecticides are approved for use within poultry houses when birds are present, but should not be applied directly to the birds. Some are not approved for use as surface sprays inside the poultry house, but may be used inside as baits, bands, strips or larvicides as indicated.

\*\*\* Residual activity of surface sprays may vary from area to area, or ranch to ranch, depending upon weather, susceptibility of flies to the chemical, dosage used and other factors.



## FLY BAITS

Insecticide	How to mix	Remarks
<b>Dry baits (commercially prepared)</b>		
diazinon dichlorvos (Vapona) malathion naled (Dibrom)	As directed by manufacturer	Scatter on floors, windowsills and other areas where flies congregate, at the rate of 3 to 4 oz. per 100 sq. ft. Apply daily until fly population is reduced, then apply once or twice a week as necessary. <b>DO NOT CONTAMINATE EQUIPMENT, FEED OR WATER.</b>
<b>Dry baits (operator prepared)</b>		
diazinon 50% wettable powder	1 lb. to 24 lb. granulated sugar (2%)	<b>KEEP BAITS OUT OF REACH OF BIRDS.</b>
malathion 25% wettable powder	3 lb. to 22 lb. granulated sugar (3%)	
naled (Dibrom) 64.5% emulsifiable concentrate (8 lb./gal.)	3.1 fl. oz. to 25 lb. granulated sugar (.5%)	
naled (Dibrom) 41% emulsifiable concentrate (4 lb./gal.)	2.4 fl. oz. to 25 lb. granulated sugar (.5%)	
ronnel (Korlan) 25% wettable powder	1 lb. to 24 lb. granulated sugar (1%)	

### Application of Sprays

Observe the following important points when using insecticides:

- ◆ Apply insecticides when newly emerged flies are first seen in the spring, when the number of flies appears to be on the increase and when the previously applied treatment is no longer effective.
- ◆ Do not wait until the fly population is large before using recommended insecticides. Depending on the season, female flies are capable of laying their first batch of eggs in 3 to 5 days after they emerge. The sooner a treatment is made after the first flies are seen in the spring, the better the chances are of killing the females before eggs are laid.
- ◆ To obtain best results from surface sprays, apply them to surfaces where the flies rest. Large numbers rest on the ceiling. Before spraying the overhead areas on a regular basis, make certain that the insecticide used is approved for use inside the house when birds are present. An excellent time to spray within houses (ceiling, interior walls, etc.) is when they are empty. At this time, spray house with an insecticide having a long residual activity. Insecticides not approved for use within houses when birds are present should be used within houses only when the houses contain no birds, feed or water. Burlap and plastic sheeting should be used to protect feed and water troughs. Thoroughly clean water and feed troughs after spraying.
- ◆ In addition to poultry houses and feed bin areas, spray the outer walls of nearby buildings, the plant growth between and adjacent to the poultry houses and trees and shrubs within 5 feet of the buildings. A treated border of 30 to 50 feet about buildings will

greatly improve the over-all fly control effort. In the spring and fall, pay particular attention to the sunny surfaces where flies like to congregate. In the hot summer, flies gather in the cooler areas. Confine premise treatments to within 100 feet of buildings.

- ◆ Thoroughly wet all surfaces sprayed but stop before the runoff point is reached. Fly control treatments are most successful when applied on a **general premises basis**.

### Choose the Proper Formulation

Most insecticide spray formulations for fly control are available as wettable powders and emulsifiable concentrates. Sprayers with mechanical agitators and with either centrifugal or piston type pumps are best suited for applying wettable powders. Powders are abrasive to pumps and other sprayer parts and should never be used in power sprayers equipped with nylon roller pumps.

Emulsifiable concentrates form emulsions readily when mixed with water. Such emulsions remain stable with only occasional shaking of the pressure-type sprayers or by action of the pump bypass in power sprayers.

### Measure Accurately

Measure the insecticide accurately according to directions on the container label. Use accurate scales for weighing wettable powders and accurate measuring containers for emulsifiable concentrates. Don't guess! Excessive dosage rates are expensive, do not provide better fly control, may increase the toxicity hazard to birds and to spraymen and increase the possibilities of illegal residues. Low dosage may result in failure to kill flies.



## FLY BANDS

Insecticide	How to use	Remarks
dichlorvos (Vapona) 20% resin strip	As recommended by the manufacturer	Do not place bands over feed or water troughs. Do not contaminate feed and water.

## SPACE SPRAYS

Insecticide	How to use	Remarks
pyrethrins or allethrin plus synergists*, thiocyanates and other proprietary mixtures	As recommended by the manufacturer	Spray directly on resting flies or fog the air where flies are numerous. No residual effect on flies entering premises after treatment. Time applications to coincide with daily pattern of maximum fly activity.

\* The pyrethrins synergist should be piperonyl butoxide or sulfoxide.

## Hazards and Safety Precautions

Insecticides are poisons and may injure man, animals or plants if not handled properly. Follow directions carefully.

Do not spray inside the poultry house with a chemical unless it is approved for that purpose. Do not spray birds directly with any of these chemicals at the dosages recommended for fly control. Do not contaminate feed and water. Do not spray in the feed room. Do not spray until eggs have been gathered.

When mixing and applying insecticide sprays, avoid inhaling liquids, powders or spray mists. Use a mask and proper protective gloves and clothing when recommended. If insecticides are spilled on the skin or clothing, remove contaminated clothing and wash immediately with soap and water.

Do not smoke while applying insecticides. Change clothing and wash thoroughly, immediately following spraying and before eating and handling food.

Do not use fly control sprays on plants because the dosage for fly control usually is much higher than for crop pest control.

Dispose of empty insecticide containers. Promptly burn empty paper drums, cartons or bags. Stay out of the smoke. Thoroughly wash empty non-returnable metal and glass containers and then break or puncture them so they cannot be reused. Spread rinse water thinly on surface of bare ground.

Store insecticides in a safe place, preferably in a room, drawer or cabinet that can be locked. Always keep insecticides in original containers. Do not store near feed, food or medications.

## SURFACE SPRAYS For Use in or About Poultry Houses

Insecticide	How to mix	Remarks
diazinon 25% emulsifiable concentrate (2lb./gal.)*	2 gal. plus water to make 50 gallons (1%)	For maximum residual effect, use with 10 pounds of sugar.
diazinon 50% wettable powder*,**	8 lb. plus water to make 50 gallons (1%)	Spray interior and exterior surfaces. Stop before the point of runoff.
dimethoate (Cygon) emulsifiable concentrate (2lb./gal.)*	2 gal. plus water to make 50 gallons (1%)	<b>DO NOT SPRAY BIRDS. DO NOT SPRAY LITTER OR CONTAMINATE FEED OR WATER.</b>
malathion 57% emulsifiable concentrate (5lb./gal.)	2 gal. plus water to make 50 gallons (2.5%)	*A spray for exterior surfaces only.
malathion 25% wettable powder**	40 lb. plus water to make 50 gallons (2.5%)	<b>DO NOT SPRAY INSIDE POULTRY HOUSE WHEN BIRDS ARE PRESENT.</b>
naled (Dibrom) 64.5% emulsifiable concentrate (4lb./gal.)	1¼ pt. plus water to make 50 gallons (0.3%)	
ronnel (Korlan) 24% emulsifiable concentrate (2lb./gal.)	2 gal. plus water to make 50 gallons (1%)	**To keep wettable powders suspended in spray solution, agitation will be necessary.
ronnel (Korlan) 25% wettable powder**	16 lb. plus water to make 50 gallons (1%)	



## COMMON NUISANCE FLIES

Poor poultry management practices can provide favorable places for the house fly and other pest fly larvae to develop. When poultry droppings are allowed to accumulate for periods of time, the thick layers and cones formed may provide favorable breeding material, especially if they are moist. A defective water supply, or surface water will make most of the manure mass suitable for fly breeding. Breeding is generally greater on concrete or other impervious floors than on bare ground where there is loss of moisture by seepage.

These situations provide excellent fly breeding conditions and thousands of flies may be produced daily.

Each species of fly has different characteristics and may be present only in specific situations. The adult house fly<sup>1</sup> is of medium size and about 5/16 inch in length. It is dull-colored with four dark stripes on the top of the thorax and with pale yellowish spots on the sides of the abdomen where it joins the thorax. The life cycle from egg to adult averages eight days in summer. Normally the house fly is found close to food and egg-laying sources such as poultry manure, wet food, broken eggs and decomposed material. It is most numerous during the warmer months and can spread many diseases, tapeworms and other parasitic worms among poultry.

The face fly<sup>2</sup> has spread throughout Idaho since its appearance in 1965. It can be distinguished from the house fly only with high magnification. Generally it is a darker gray color. Fresh cow manure is preferred for egg deposition. The life cycle closely parallels that of the house fly except that it lives through the winter as an adult in sheltered areas and buildings. They may become a nuisance about windows during warm periods of winter and early spring.

The adult of the little house fly<sup>3</sup> is slightly less than medium size: about 1/4 inch in length. It is dull-colored with three dark stripes on the top of the thorax and with light pale spots on the sides of the abdomen where it joins the thorax. The life cycle from egg to adult averages 24 days in spring and fall. Normally it feeds and lays eggs in poultry manure, but it may use rabbit and dog excrement, damp feed, grass clippings and human food residues. The adult is characterized by its continual daytime hovering flight and the larva by the lateral projections on its body. The adults are more prevalent during spring and fall months.

The adult black garbage fly<sup>4</sup> is similar in size to the little house fly but is shiny black in color. The life cycle from eggs to adult averages 10 days in summer and about 45 days during the colder spring and fall weather. Adults are commonly found around decaying food and plant material but occasionally feed and lay

eggs in poultry and other animal manures. The larger populations occur during summer.

The adult false stable fly<sup>5</sup> is often mistaken for the house fly because of its similarity in size and color. They can be readily distinguished by the pale spot located at the posterior margin on the top of the thorax. The life cycle from egg to adult is about 14 days during the summer. The adults are attracted to and deposit eggs in various animal excrement including poultry manure and decaying garbage and grass clippings. They are common during the summer.

The adult metallic blue<sup>6</sup>, green<sup>7</sup>, coppery-green<sup>8</sup>, or greenish-black<sup>9</sup> bottle blow flies are slightly larger and more robust than the house fly. These represent a few of the many different blow flies. They are often sparsely clothed with golden-red and black hairs. The life cycle from egg to adult averages about 18 days. Normally larvae are found in flesh of dead animals and meat-containing garbage. Occasionally they are scavengers on excrement and decaying plant materials. Blow flies are rarely numerous nor do they become a problem when poultry carcasses are disposed of properly.

For assistance in fly identification, collect and put about a dozen specimens in a small bottle of rubbing alcohol and send them to the Department of Entomology at the University of Idaho. A more specific answer is possible when a description of the fly situation accompanies the flies.

Reduce flies by:

1. Removing manure at frequent intervals. This will reduce fly multiplication.
2. Screening poultry houses. This will exclude flies.
3. Eliminating water leaks on manure. This will reduce the suitable fly breeding areas.
4. Supplementing good manure-management operations with proper insecticide treatments.

1. House fly, *Musca domestica* Linnaeus
2. Face fly, *Musca autumnalis* DeGeer
3. Little house fly, *Fannia canicularis* (Linnaeus)
4. Black garbage fly, *Ophyra leucostoma* (Wiedemann)
5. False stable fly, *Muscina stabulans* (Fallen)
6. Blue bottle blow fly, *Calliphora vomitoria* (Linnaeus)
7. Green bottle fly, *Lucilia illustris* (Meigen)
8. Coppery-green bottle fly, *Phaenicia sericata* (Meigen)
9. Black blow fly, *Phormia regina* (Meigen)

**PESTICIDE RESIDUES.** These recommendations for use are based on the best information currently available for each chemical listed. If followed carefully, residues should not exceed the tolerance established for any particular chemical. To avoid excessive residues, follow recommendations carefully with respect to dosage levels, number of applications, and minimum interval between application and harvest.

**THE GROWER IS RESPONSIBLE** for residues on his crops as well as for problems caused by drift from his property to other properties or crops.

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PUBLISHED AND DISTRIBUTED IN FURTHERANCE OF THE ACTS OF MAY 8 AND JUNE 30, 1914  
BY THE UNIVERSITY OF IDAHO AGRICULTURAL EXTENSION SERVICE, JAMES E. KRAUS,  
DIRECTOR; AND THE U.S. DEPARTMENT OF AGRICULTURE, COOPERATING.



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