



FLY CONTROL

— on the Farm

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UNIVERSITY OF ILLINOIS · COLLEGE OF AGRICULTURE
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HOUSE FLIES — NUISANCE AND HEALTH PROBLEM

Common house flies not only enter the house but also congregate in barns, animal pens, garbage dumps, and similar areas. In short, they are found from the sugar bowl to the hog pen and all places in between. They are the most abundant fly in Illinois.

As a health menace, an annoyance, and an indication of filth, they have no equal in the insect world.

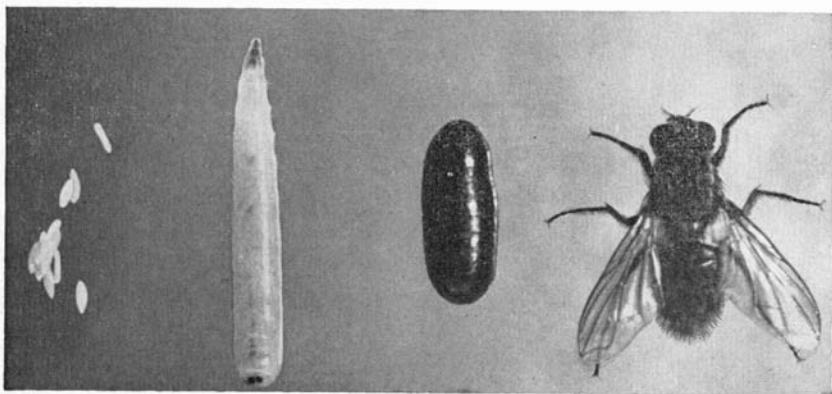
When a fly lights on food, saliva is exuded through its proboscis, dissolving the food so that the fly can sponge it up. This saliva, and also the legs and body of the fly, may be laden with the organisms of numerous diseases, both animal and human. Small wonder that the house fly is considered a menace to public health!

Other than as carriers of disease and filth, house flies are mainly an annoyance. Although when abundant they may affect the milk flow and weight gains of animals, they are not so bad in this respect as many other flies and livestock pests.

HOW DO HOUSE FLIES DEVELOP?

Like all insects, house flies have a definite life cycle. A house fly never changes into a blow fly, a horn fly, or a horse fly — nor do any of these other flies change into a house fly. Once a fly, or for that matter any insect, acquires wings, it does not grow or change form.

House flies lay their eggs on moist, decaying organic material. Very soon tiny maggots hatch from these eggs. They become full grown in 5 to 14 days and then crawl to a drier area where they change into the pupal stage (with a reddish-brown case about like a kernel of wheat). After several days and many body changes, the



Eggs, maggot, pupa, and adult of the house fly.

maggot becomes a fly, which emerges by pushing the cap from the pupal case.

If all the descendants of a pair of house flies lived, in five months the United States would be covered 4½ feet deep with flies. Fortunately, the survival is a fraction of a percent, and it can be further reduced with proper control measures.

CONTROLLING HOUSE FLIES ON THE FARM

Start With Sanitation

Moist, decaying organic material such as rotting straw and manure are necessary for house flies to lay eggs and for maggots to lead a peaceful existence. If the manure is dry, the maggots cannot live in it. Obviously, the proper disposal of decaying organic material will cut down the number of house flies.

On most farms, especially dairy farms, calf pens are the chief trouble spots for fly breeding. The pens must be cleaned twice a week and kept clean. Bull pens are sometimes just as bad as calf pens. If not kept clean, feeding platforms, both for hogs and cattle, are also good places for flies to breed.

Cleaning the barn and piling the manure outside will make the barn look better but won't help to control flies. **All accumulations of manure, rotting straw, and other decaying organic material should be cleaned up twice a week and scattered in the fields to dry.**¹ Then, and not until then, should you apply insecticides.

Without good sanitation you cannot satisfactorily control house flies. On the other hand, sanitation alone will not do the job. Insecticides are, therefore, a necessary part of fly control.

What Insecticides Are Recommended?

Residual sprays. In many areas flies have become resistant to DDT, methoxychlor, lindane, chlordane, toxaphene, and dieldrin, so that these chemicals no longer give good control. At present, the two best insecticides available for use as residual sprays are malathion and diazinon. Malathion may be used in dairy barns and other farm buildings. Diazinon has not yet been approved for use inside the dairy barn, milk house, poultry house, or home. It may, however, be used on outside surfaces and inside the buildings listed on the container. These include beef cattle barns, hog houses, and open sheds.

¹ According to the College of Veterinary Medicine, manure should not be scattered in fields where the same species of animals will graze, unless it is first composted. Fresh manure will transmit internal parasites.

One gallon of 57-percent malathion emulsion concentrate and 10 to 20 pounds of sugar are added to 50 gallons of water and sprayed on all fly roosting surfaces in the barns. With good sanitation, this spray will probably give effective control for 3 weeks; with moderate sanitation, 2 weeks; and with poor sanitation, 1 week.

Diazinon should be used at the rate of 1 gallon of the 25-percent emulsion concentrate in 50 gallons of water. Sugar or sirup added to the spray material will serve both to attract the flies and to help hold the insecticide. Diazinon will give good control of flies for 2 to 4 weeks, depending on the degree of sanitation.

Malathion is relatively safe to use since it is only one-tenth as poisonous to warm-blooded animals as is DDT. Diazinon, on the other hand, is more toxic than DDT. When applying it, you should wear a respirator and rubberized outfit. Whichever material you use, be sure that feeds, feeding troughs, water cups, and tanks are protected to avoid contamination.

Space sprays containing pyrethrins will effectively control flies in enclosed spaces, but they will not give lasting control. They should be applied daily with hand sprayers, aerosol bombs, or mist sprayers to give a quick kill of flies.

Baits are only as effective as the attractant put in them. The sirup or sugar in the bait must compete with fermenting feed, milk, and manure, and the molasses in ground feeds — all of which appeal to the average fly as much as, or even more than, the bait attractant. To do the most good, the bait should be placed near the favorite resting areas of the flies.

A mixture of corn sirup and 57-percent malathion emulsion concentrate is an effective bait. Four to five teaspoonfuls of the malathion concentrate can be thoroughly mixed with 1 pint of sirup and painted on fly roosting areas.

A more convenient method of applying the bait is with a knapsack or tank type sprayer. Use $\frac{1}{2}$ pint of the 57-percent malathion concentrate in 1 gallon of sirup, and add $\frac{1}{2}$ gallon or less of warm water. Mix thoroughly. Spray roosting surfaces almost to the point of runoff. After application, the water will evaporate, leaving the sirup-malathion residue.

Good results have been obtained by soaking a gunny sack with the sirup-malathion mixture and tacking it up in a building. String or a piece of cloth may be used in the same way. Sirup will drop from these materials onto the floor, so they should be placed where this will not be objectionable.

However the liquid bait is applied, it will remain effective as long as the dried sirup is visible. Only a few applications are needed during the summer. If any bait is left over from one application to the next, it should not be stored where it might mistakenly be used for other purposes.

Dry baits containing malathion, diazinon, or similar insecticides are also effective if there is ample space upon which to scatter them. For best results, they should be applied where flies congregate. Although slightly more expensive than liquid baits, dry baits are very convenient to use.

Generally, baits alone will not give satisfactory fly control on most Illinois farms. They should be used to supplement good sanitation, residual sprays, and other methods.

Other Methods of Control

As a general rule, traps are not of much value in controlling house flies. Many traps collect only blow flies, which are not a problem on our Illinois farms. Moreover, house flies multiply so rapidly that, over a season, bushels of them can be trapped without materially reducing the fly population on a farm.

Screens to keep flies out of buildings are a valuable aid to fly control. Also, electric grids on the doors of houses and milk houses may be of some benefit.

CONTROLLING HOUSE FLIES IN THE HOME

Again **sanitation** is the first step in good house fly control. The premises should be as free from refuse as possible. Garbage cans should have tight lids, and the sides and bottoms should be without holes. Sprinkling a little borax beneath and around the base of a garbage can will kill any larvae (maggots) which crawl out of the can to pupate in sandy or dry areas before changing into adult flies.

Malathion spray. To kill adult flies before they lay their eggs around garbage cans, spray the outside of the cans every 2 or 3 weeks with the same malathion spray recommended for barns (page 4). This spray can also be used around doors, windows, and porches to keep flies from entering the house. To make up a small quantity of spray, mix $\frac{1}{2}$ pint of 57-percent malathion emulsion concentrate and 1 to 2 cups of sugar in 3 gallons of water.

A **malathion bait** can be used to supplement the spray applications. Mix 4 to 5 teaspoonfuls of 57-percent malathion emulsion concentrate in 1 pint of corn sirup, preferably the clear form used

around the home. A good deal of shaking or stirring is necessary to insure a thorough mix.

Brush or spread this mixture on strips of wrapping paper. After the strips are dry, tack them up on porches and around doors or windows. They will kill flies for as long as 6 to 8 weeks. Small containers filled with this bait can be placed on the porch or in the house at points where flies may frequent them. The same bait can be thinned down with a little water and sprayed on surfaces where a sticky residue is not objectionable.

Even though malathion is relatively nontoxic to man and animals, the bait should be out of reach of children and pets.

Remember — good sanitation is a must in house fly control. Residual insecticides should be used too. Proper screening and the use of baits and space sprays have their place. Flies can be controlled — but not by wishful thinking.

CONTROL OF BITING FLIES

Horn Flies and Stable Flies

The horn fly resembles the common house fly but is about half as big. Horn flies cluster on the backs and shoulders of cattle. The stable fly, which works on the legs and belly of an animal, looks a good deal like the house fly and is often mistaken for it. Both of these flies differ from the common house fly in that they pierce the skin of animals and suck blood.

Residual sprays. Both horn flies and stable flies can be effectively controlled by spraying infested animals with DDT, methoxychlor, or several other insecticides. DDT cannot be used on dairy cattle or livestock being finished for slaughter — only methoxychlor should be used as a residual spray on these animals.

Use 2 quarts to 1 gallon of the 25-percent DDT or methoxychlor emulsifiable concentrate in 25 gallons of water, and spray the backs and sides of the animals about every 3 weeks when flies are numerous. Count on 1 to 2 quarts of finished spray per animal.

Repellent sprays. Daily applications of a standard fly-repellent stock spray may be used to advantage, particularly on dairy herds. The automatic sprayer discussed in page 7 is also very effective for the control of both horn flies and stable flies.

Back rubbers. A "back rubber" is a convenient method of controlling horn flies. To install one, put two posts in the ground about

9 feet apart. The posts should set 5 feet out of the ground. Twist 4 to 6 strands of barbed wire together, stretch them from the top of one post to the bottom of the other, and fasten them securely. Wrap burlap around the barbed wire strands until the total diameter is 3 to 4 inches. To hold the burlap in place, tie it with binder twine or other strong twine every 4 to 6 inches.

Saturate the burlap with 5-percent DDT in oil for beef animals or with 5-percent methoxychlor in oil for dairy animals. About 1 gallon of insecticide should be enough. To mix up a quantity of insecticide, add 4 quarts of light-grade fuel oil to 1 quart of 25-percent DDT or methoxychlor emulsion concentrate. Recharge the burlap each month by adding 2 quarts of the same material. These devices will help to control lice as well as horn flies.

Occasionally an animal using a back rubber excessively will develop skin burns from the oil.

Horse Flies

Horse flies are frequently serious pests on both beef and dairy cattle. They feed by piercing the skin and drawing blood. Because of their relatively large size, they may cause considerable loss of blood when they are numerous. In addition to blood loss, cattle may suffer so much annoyance from bites that they fail to graze during the warmer part of the day.

Some insecticides may kill horse flies, but applying them to cattle may not give the animals much relief, since the flies are not killed before feeding. **Repellents, therefore, must be used.** Activated pyrethrins are the safest, most effective materials. They not only serve as repellents, but will also kill the horse flies.

The automatic cattle sprayer is the most convenient method of applying the repellent to the animals. Once this device is installed, the cattle step on a treadle and spray themselves. The spray material should contain 1 percent pyrethrin in an oil solution. Cost of the material is slightly more than 1 cent per animal per day.

Dilute sprays. The activated pyrethrins can also be applied to animals as dilute sprays. Dilute the 1-percent activated pyrethrin emulsion with 9 parts of water and apply 1 to 2 quarts of the finished spray per animal. These sprays will give relief from horse flies for periods of 3 to 5 days. This method is not only time-consuming but is also quite costly when compared with the automatic sprayer.

Either of the methods recommended for horse fly control will also give good control of horn flies and stable flies.

When Using Insecticides . . .

- Never directly spray livestock feed.
- Avoid contaminating water supplies.
- Be careful not to spill the concentrate on your clothing or your body. If you do spill some, wash it off immediately.
- Avoid excessive breathing of both concentrates and diluted sprays, and also excessive contact with them.
- Store insecticides where they cannot be reached by animals and children or mistaken for other products.
- **Read carefully all labels on the container, and be sure to follow the recommended precautions.**

(This circular was prepared by
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