

AGRICULTURAL GUIDE

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Insect Control

Fly control on beef cattle

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Flies that attack beef cattle are of two general groups — non-biting, those with sponging mouth parts, and biting, those with piercing-sucking mouth parts. Non-biting includes face flies and house flies. Biting includes horn flies, stable flies, horse flies and many species of small gnats.

Non-biting Flies

The mouth parts of non-biting flies are not adapted for piercing an animal's skin. They can take up food only in liquid form. They feed on liquid materials around the eyes, nose, mouth and on blood flowing from wounds. They may cause eye inflammation and transmit eye-disease organisms. Their feeding activities annoy the animals so that the animals may not graze normally, thus reducing food intake and causing a decline in gain.

House flies may be found feeding around the eyes, nose, mouth, and on saliva or other moisture on the hair. Larvae develop in fresh manure, especially if it is close to barns or in decaying organic matter.

Face flies closely resemble the house fly but are usually slightly larger. As the name implies, they feed mainly around the face of the animal, particularly around the eyes, nose and mouth. The rasping of the adult fly's mouthparts may injure the eye tissue of cattle. Larvae develop in fresh manure, principally in open pastures.

Biting Flies

Biting flies feed by piercing the animal's skin with their sharp mouth parts and sucking blood. The feeding

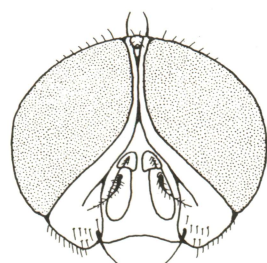
activities of the flies are annoying and may cause a reduction in food consumption. The loss of blood and reduced food consumption cause a decline in rate of weight gain and reduce the efficiency of the beef cattle feeding operation.

Horn flies are about one-half the size of house flies. Their black bodies appear to be covered with a grayish powder. They usually feed on the shoulders and back and less frequently on the neck, around horns, and on the belly. Wings are partially spread when feeding, giving them the appearance of an arrow-head. Generally, they feed in large numbers and "swarm" when disturbed. Larvae develop in fresh manure.

Stable flies are about the size of house flies. Their bodies are a light gray and black. These flies feed mainly on the animal's legs. When the fly is resting, the mouth parts are projected forward. Stable flies develop in moist, decaying vegetation, such as straw, hay, piles of grass, dead weeds or large round hay bales stored outside. They develop in manure only if it is mixed with hay or straw.

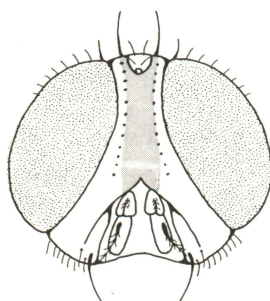
Several species of horse flies and deer flies may pester cattle. Size may vary from 1/3 to 1 inch long. Color may be solid, striped or spotted brown or black. Eyes are sometimes brightly colored. Only the females bite. The males feed on honeydew, nectar, etc. Larvae live in mud or water in streams, lakes and swampy areas. To date no practical control exists for deer and horse flies. Traps may reduce population near houses or barns. Write to UMC Entomology Department, 1-87 Agriculture Bldg., for plans.

FACE FLY

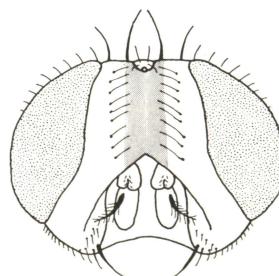


MALE

HOUSE FLY

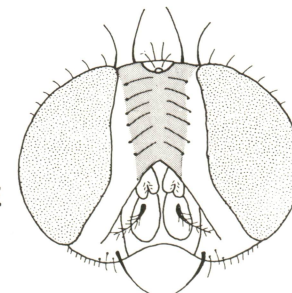


FACE FLY



FEMALE

HOUSE FLY



Method of Control

Insecticide

Ear Tags (Horn fly control and aids in Face fly control)

Ear tags can be highly effective in the control of horn flies and are as effective as any other methods for suppression of face flies. For face flies, use 7 percent cypermethrin plastic ear tags, 8 percent fenvalerate plastic ear tags or 10 percent permethrin plastic ear tags. For horn flies, use 20 percent diazinon plastic ear tags or 20 percent pirimiphos methyl plastic ear tags. See note below on resistance. Apply ear tags in mid-May. Use two tags per head.

RESTRICTIONS: Use only as directed on label.

Horn fly resistance to pyrethroid (cypermethrin, fenvalerate and permethrin) ear tags occurs in Missouri. At present, its distribution is spotty. Pyrethroid ear tags may give excellent results on one herd and poor results on cattle only a short distance away. If pyrethroid tags failed to control horn flies on your herd last year, it is unlikely they will perform satisfactorily this year. Remember that face flies are not resistant and that pyrethroid-containing ear tags still afford good control. Throughout most of Missouri, face flies are the most important fly pest on pastured cattle. Consider tagging cattle with pyrethroid tags for face fly control. Also, consider using an alternative strategy (backrubber, dust bag, sprays, or bolus) for horn flies. Ear tags containing 20 percent diazinon or 20 percent pirimiphos methyl (organophosphate) insecticides have given very good control of horn flies and highly variable control of face flies. They are recommended for use where horn flies are the major problem on pastured beef cattle.

Backrubbers (Horn fly control)

Apply 1 to 2 quarts of solution to cable-type backrubber or fill to capacity reservoir of oiler-type every 10 days to two weeks or as needed. Initial charging of cable-type backrubbers will require about 1 gallon of solution. DO NOT apply entire amount at one time. Split the applications to allow the backrubber to become thoroughly soaked. DO NOT locate backrubbers where drip-page or spillage will contaminate surface water supplies. DO NOT LET CATTLE USE A BACKRUBBER THAT IS DRIPPING WITH THE INSECTICIDE MIXTURE. See UMC Guide 7012, "Making and Using a Cattle Backrubber," for suggestions on constructing a backrubber.

1. Coumaphos (Co-Ral) - Charge backrubber with 1 percent coumaphos solution made by mixing two-thirds pint of 11.6 percent Co-Ral emulsifiable concentrate in one gallon of fuel oil.

*2. Dioxathion (Delnav) - Use a 1 percent dioxathion solution made by mixing eight table spoons of 30 percent Delnav livestock emulsifiable concentrate in one gallon of fuel oil.

3. Malathion - Use a 2 percent malathion solution made by mixing nine tablespoons of 57 percent malathion emulsifiable concentrate in one gallon of fuel oil.

4. Ronnel (Korlan) - Use a 1 percent ronnel solution made by mixing 10 tablespoons of 24 percent Korlan emulsifiable concentrate in one gallon of fuel oil.

5. Permethrin - Use a 0.15 percent solution made by mixing one pint 5.7 percent permethrin emulsifiable concentrate to five gallons diesel oil. Do not use on resistant horn flies.

RESTRICTIONS: No pre-slaughter withdrawal interval is required if you are using backrubbers charged with coumaphos, dioxathion, malathion, ronnel or permethrin.

Dustbags (Horn fly and Face fly con- trol)

Place bags in doorways, gateways, loafing sheds or other areas where cattle congregate. Keeping the bags dry is advisable. Placing the bags so cattle are forced to use them daily will result in increased control.

1. Use burlap bags containing 1 percent coumaphos (Co-Ral) dust; or

2. Use burlap bags containing 3 percent stirofos (Rabon) livestock dusting powder.

RESTRICTIONS: Do not hang bags over feed, mineral or water troughs. No pre-slaughter interval is required with either of these daily applications.

Sprays (Horn fly, Stable fly, Face fly and house fly control)

For horn fly control, apply one to two pints spray on the back of each animal. Use a similar quantity applied to the legs and belly for stable fly control. For face fly control, apply about one cup of spray to the face of each mature animal. For control of all these pests, use one to two quarts per animal. Do not apply insecticides to calves less than three months old, and use light applications on calves three to six months old. Do not spray animals in a confined nonventilated area or animals under stress.

1. Coumaphos (Co-Ral) - Use a 0.06 percent coumaphos spray as needed, made by mixing two pounds of 25 percent Co-Ral wettable powder in 100 gallons of water or one ounce in three gallons of water. Or mix two quarts of 11.6 percent Co-Ral emulsifiable concentrate in 100 gallons of water or four teaspoons in one gallon of water.

2. Crotoxyphos (Ciodrin) - Use 1 percent Ciodrin spray weekly, made by mixing two quarts of 14.4 percent Ciodrin emulsifiable concentrate in six gallons of water or two-thirds pint (1 1/3 cups) in one gallon of water.
 3. Dioxathion - Use a 0.15 percent spray made by mixing two quarts of 30 percent Delnav livestock emulsifiable concentrate in 100 gallons of water or four teaspoons in one gallon of water. **Do not** use more often than once every two weeks.
 4. Fenvalerate - Use a 0.05 percent spray made by mixing one quart 10 percent Ectrin water dispersible liquid in 50 gallons of water. **Do not** repeat more than once each two weeks, and **do not** use on resistant horn flies.
 5. Permethrin - Use a 0.01 percent spray solution made by mixing one pint of 5.7 percent permethrin emulsifiable concentrate to 50 gallons of water. **Do not** use more frequently than once every two weeks, and **do not** use on resistant horn flies.
 6. Ronnel (Korlan) - Use a 0.5 percent ronnel spray made by mixing two gallons of 24 percent Korlan emulsifiable concentrate in 100 gallons of water or five tablespoons in one gallon of water. **Do not** use more frequently than once every two weeks.
- RESTRICTIONS: Apply coumaphos as needed. **Do not** apply crotoxyphos more than once every seven days. **Do not** apply dioxathion, ronnel or permethrin more than once every two weeks. **Do not** apply ronnel within seven days of slaughter. No pre-slaughter interval is required with coumaphos, crotoxyphos, dioxathion or permethrin.

Bolus treatment (Horn fly control)

A bolus formation of diflubenzuron, an insect growth regulator, can be used to interrupt the horn fly life cycle in the dung pat. Such boluses have given control of horn flies for eight to 12 weeks and are more efficient on relatively isolated herds. Apply with a balling gun, taking care not to injure the animal's throat. Hold treated cattle long enough in the headgate to make sure the bolus is not spit out.

Diflubenzuron (Vigilante) - Apply at labeled rate determined by animal's weight. All eligible cattle should be treated for best results.

Methoprene - Boluses containing this insect juvenile hormone may become available. In Missouri studies, they have given results similar to diflubenzuron.

Non-chemical control

Horn Fly Trap (Horn fly control)

A practical, walk-through trap for horn flies on cattle was designed in 1938 and will give about 50 percent control. Although this trap will require time and effort to build, it may be worthwhile on farms where cattle are kept year after year. See MU Guide G1195, "Walk-through Trap to Control Horn Flies on Cattle" for construction and use suggestions. Plans are available from the Agricultural Engineering Plan Service.

An asterisk () preceding any insecticide means that all or some uses of the product have been restricted by the Environmental Protection Agency. Applicators must be certified before they may purchase restricted products.

Missouri insect control recommendations are revised annually and are subject to possible change during the season. No discrimination is intended and no endorsement is implied.

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