

Livestock & Poultry

Department of Entomology

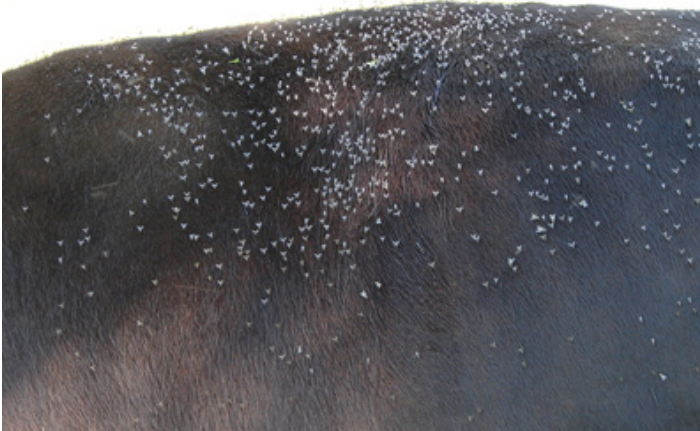
CONTROL OF CATTLE PESTS

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Flies can significantly hamper beef cattle performance, either by feeding upon cattle or just annoying them. Bloodsucking flies cause reductions in weight gains and milk production in cattle; these reductions are results of poor feed utilization and blood loss. In Indiana there are several important blood-sucking species.

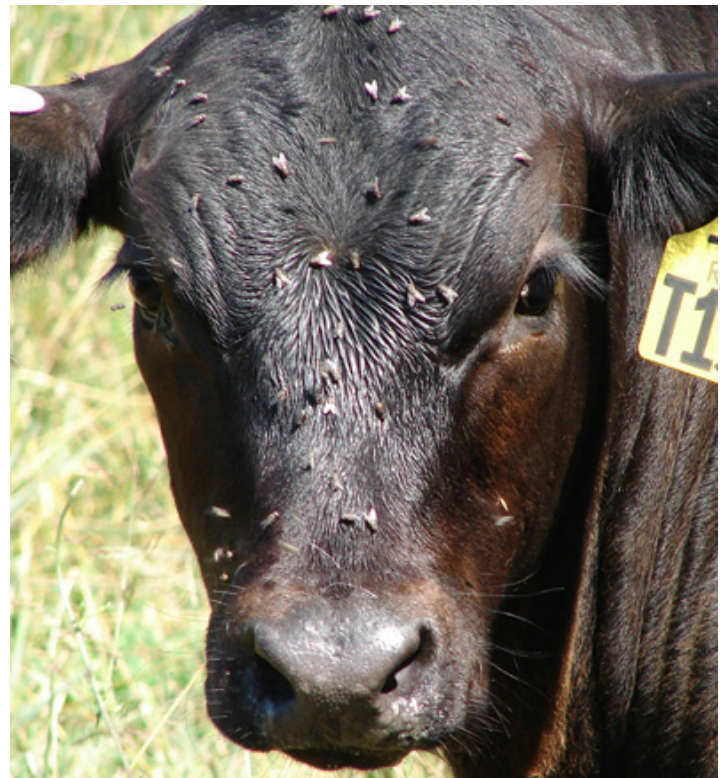
Horn flies cluster on the backs and shoulders of cattle throughout the summer months. They leave cattle only to lay eggs in fresh cattle manure in the pasture. Stable flies usually attack cattle while they are in the shade, especially in or around barns. Their larvae develop in wet straw, straw-manure mixtures, and in other wet, decaying plant materials. Horse flies and deer flies are larger flies found feeding on the backs, shoulders, necks, and heads of cattle. Larvae develop in marshes, swamps, and mud around standing water and streams.

The face fly is not a bloodsucker but feeds on secretions around the animal's eyes, nostrils, and wounds, including those made by bloodsucking flies. Feeding by face flies results in much annoyance to the animal and the possible mechanical transmission of conjunctivitis (pinkeye). The face fly breeds in fresh cattle droppings in the pasture and is a pest to the cattle only when in the pasture. For further information on the biology and description of face flies refer to Purdue Publication E-206, "*The Face Fly*". The house fly and the little house fly do not feed on cattle, but their presence annoys cattle in and around farm buildings. These two species lay eggs in manure and wet decaying plant materials of all kinds.



Horn flies on the back of a cow
(Photo credit: Ralph Williams)

Mosquitoes, which develop in standing water such as waste lagoons, also can become a nuisance to cattle. For further information on the importance and control of mosquitoes refer to Purdue Extension Publication E-52, "*Mosquito Management By Trained Personnel*".



Face flies on a calf (Photo credit: Ralph Williams)

CONTROL MEASURES IN AND AROUND BARN AND LOTS

Sanitation is the first and most important step in any fly control program around farm buildings. No insecticide can be effective for flies around barns as long as breeding sites exist. This is especially true in the case of the house fly and the stable fly. All manure, wet straw, and decaying plant material should be removed once a week to break the breeding cycle of these flies. This cycle can be as short as 10 days from egg to adult fly. This can be done by spreading manure to dry or by placing it in pits or lagoons to become liquefied. If a liquid manure pit is used, do not allow accumulations of solid materials above the water line, either floating or sticking to the sides, since this is conducive to fly production.



Stable fly

Table 1 lists the insecticides recommended for fly control around barns. All except the last four listed are considered residual materials which should kill flies up to six weeks. The last four sprays should be applied when the first flies appear in the spring.

A number of baits are available in either wet or dry form containing insecticides such as methomyl, dichlorvos, naled (Dibrom), Rabon, and trichlorfon (Dipterex). Use only according to label directions in selected places as supplements to sprays or fogs and not as a principal control measure.

Larvicides can be used directly on manure and other fly breeding sources. This type of application is best utilized when reserved for treatment of fly breeding spots not eliminated by normal sanitation practices. Recommended larvicides are listed in Table 2.

Feed additives as larvicides employ the principle of incorporating an insecticide in a feed premix, loose mineral, mineral block, or bolus. The insecticide then passes through the digestive system of the animal into the manure. Horse flies and stable flies often breed in non-manure sources, including various forms of decaying organic matter. Therefore, without thorough elimination of all non-manure breeding sites feed additives cannot be expected to provide adequate control of these flies. More satisfactory control can usually be achieved when used for face flies and horn flies on pastured cattle. However, flies coming in from surrounding areas may make treatment of pastured cattle less effective. Larvicides available in feed additives include Rabon Oral Larvicide and methoprene.

Diflubenzuron (Vigilante) is available as a bolus treatment. After oral administration it remains in the reticulum of the animal, slowly eroding, thus releasing insecticide which passes through the digestive system and into the manure where it kills developing fly larvae.

IMPORTANT: For all insecticides listed in Tables 1-5 read and follow all label directions for proper mixing instructions, applications rates, and precautions!

Table 1. Insecticides For Spraying Beef Premises	
Insecticides	Formulations*
RESIDUAL SPRAYS	
dimethoate (Cygon)	23.4% EC
permethrin (Ectiban, Atroban, Purina Hard Hitter, Insectrin, Overtime, Permethrin, others)	25% WP, 5.7% EC, 10% EC, 11% EC
Rabon	50% WP
Ravap	EC (Contains 23% Rabon and 5.7% dichlorvos)
crotoxyphos (Ciodrin)	12.5% EC
Ciovap	EC (Contains 10% Ciodrin and 2.5% dichlorvos)
KNOCKDOWN SPRAYS	
dichlorvos (DDVP, Vapona)	23.4% EC
pyrethrins	Several formulations
naled	58% EC, 1% ready-to-use
permethrin	5.7% EC
*EC = emulsifiable concentrate; WP = wettable powder	

Table 2. Larvicides for Treating Manure	
Insecticides	Formulations*
Rabon	50% WP
dimethoate (Cygon)	23.4% EC
*EC = emulsifiable concentrate; WP = wettable powder	

CONTROL INSECTICIDES FOR BEEF ANIMALS

Control of face flies and horn flies on pastured cattle can be achieved with insecticide-impregnated ear tag devices available under various trade names and designs. These devices are usually not suitable against house flies or stable flies in and around confinement areas. Stable flies feed on the legs of cattle, an area not treated by ear tags, and house flies have many feeding sources other than cattle. Insecticides available in ear tags include the pyrethroids permethrin, fenvalerate, cypermethrin, and cyhalothrin and the organophosphates diazinon, chlorpyrifos, and pirimiphos-methyl. Ear tags containing pyrethroids have provided excellent control of horn flies and face flies. However, horn fly resistance to these pyrethroids has developed. The organophosphate tags available will control pyrethroid resistant horn flies. The following management practices should be followed in controlling horn flies and face flies:

1. Install two tags per adult animal after flies first appear in the Spring, preferably late May to early June. Ear tags release insecticide most efficiently the first two months after application. If applied too early, tags may become ineffective before the end of the fly season.

2. Remove the tags at the end of the fly season (September/October).

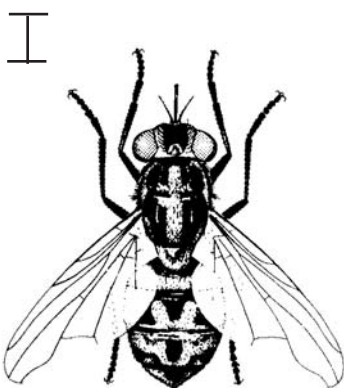
3. If horn fly populations exceed 200 per animal during the fly season supplement control with organophosphate dust bags or oilers or use feed additives or boluses.

4. If fly resistance is established, remove or don't use pyrethroid tags. Use organophosphate tags or other control practices as described in number 3 above.

As indicated, flies on cattle in pastures can also be controlled by the forced use of self-application devices (i.e., dust bags and backrubbers). The key to their success is having them serviced and in place when the first flies appear and keeping them serviced during the season. Table 3 lists the insecticides recommended for backrubber devices, and Table 4 lists insecticides for dust bag applicators. For further information on making and using self-application devices, refer to Purdue's publication E-207, "*Self-Application Devices for Cattle Insect Control*".

Flies on cattle can also be controlled by a program of regular spraying. Table 5 lists insecticides recommended for use with power sprayers. Sprays should be applied when needed as complete coverage sprays using up to 1 gallon of spray mixture per animal, depending on label directions. In Indiana, spraying at two- to three-week intervals is needed for horn fly control. Sprays are generally ineffective against face flies.

Actual Size



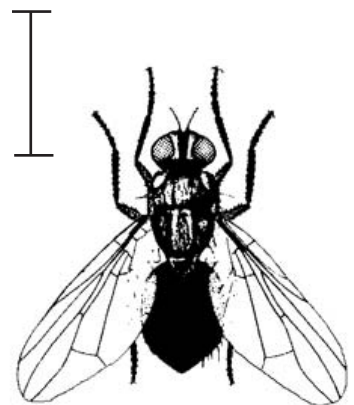
Stable Fly

Actual Size



Horse Fly

Actual Size



Horn Fly

Table 3. Insecticides For Use On Backrubbers	
Insecticides	Formulations*
methoxychlor	25% EC
coumaphos (Co-Ral)	11.6% EC
malathion	57% EC
Ravap	EC (Contains 23% Rabon and 5.7% dichlorvos)
permethrin (Ectiban, Purina Hard Hitter, Insectrin, Overtime, Permethrin, others)	5.7% EC, 10% EC
Ciovap	EC (Contains 10% Ciodrin and 2.5% dichlorvos)
*EC = emulsifiable concentrate	

Table 4. Insecticides For Use In Dust Bags For Horn Fly And Face Fly Control	
Insecticides	Formulations
coumaphos (Co-Ral)	1% dust
Rabon	3% dust
methoxychlor	10% dust
malathion	4% dust
crotoxyphos (Ciodrin)	3% dust
famphur (Warbex)	1% dust

Table 5. Insecticides For Spraying Beef Cattle	
Insecticides	Formulations*
methoxychlor	25% EC
coumaphos (Co-Ral)	11.6% EC, 25% WP
Rabon	50% WP
Ravap	EC (contains 23% Rabon and 5.7% dichlorvos)
permethrin (Ectiban, Atroban, Purina Hard Hitter, Insectrin Overtime, Permethrin, others)	5.7% EC, 10% EC, 11% EC
*EC = emulsifiable concentrate; WP = wettable powder	

READ AND FOLLOW ALL LABEL INSTRUCTIONS. THIS INCLUDES DIRECTIONS FOR USE, PRECAUTIONARY STATEMENTS (HAZARDS TO HUMANS, DOMESTIC ANIMALS, AND ENDANGERED SPECIES), ENVIRONMENTAL HAZARDS, RATES OF APPLICATION, NUMBER OF APPLICATIONS, REENTRY INTERVALS, HARVEST RESTRICTIONS, STORAGE AND DISPOSAL, AND ANY SPECIFIC WARNINGS AND/OR PRECAUTIONS FOR SAFE HANDLING OF THE PESTICIDE.

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