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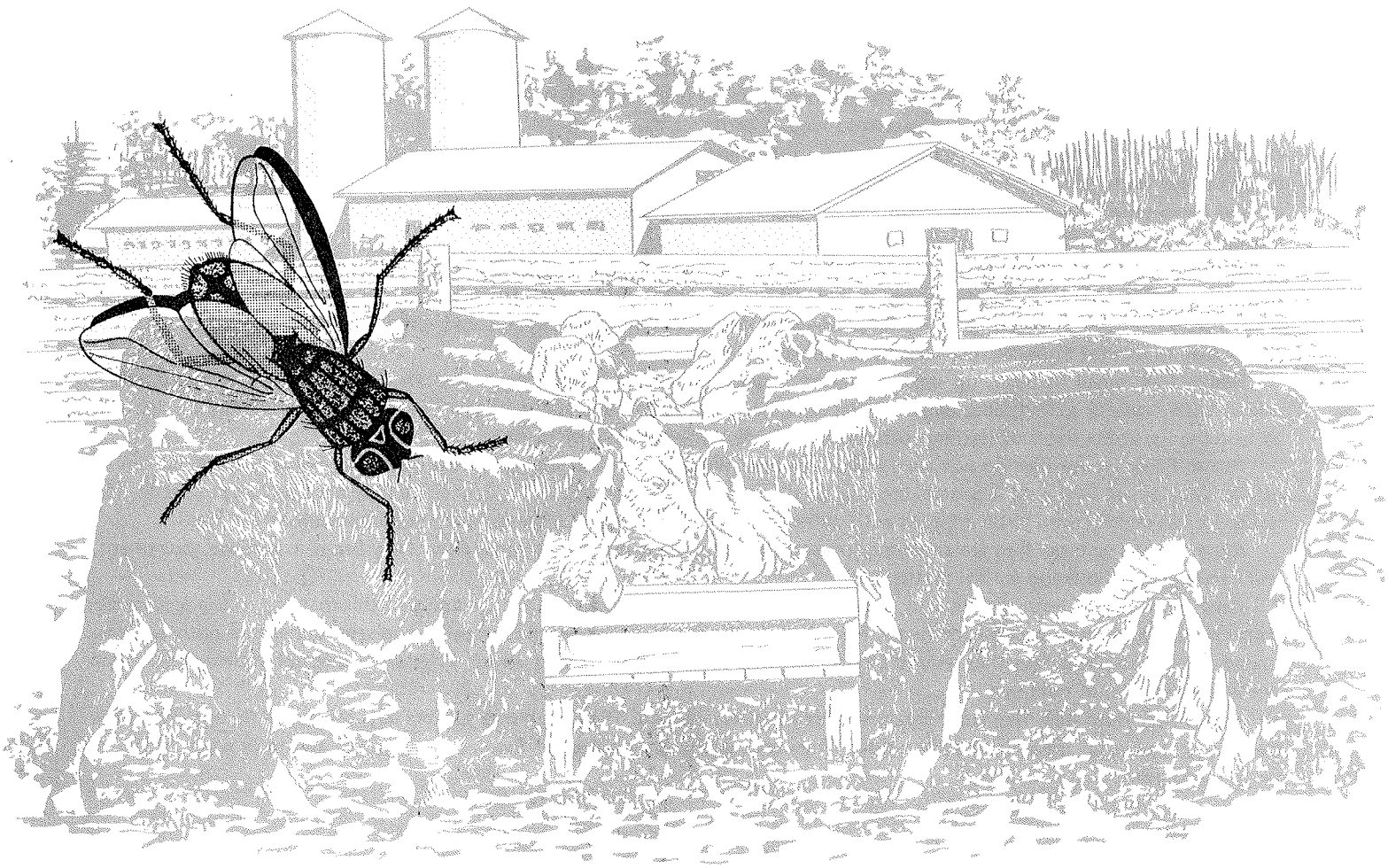
FLY CONTROL IN NEBRASKA FEEDLOTS



Extension Service, University of Nebraska College of Agriculture Cooperating with the
U.S. Department of Agriculture and the College of Home Economics
E. F. Frolik, Dean J. L. Adams, Director

FLY CONTROL IN NEBRASKA FEEDLOTS

by John B. Campbell and Robert E. Roselle
Agricultural Extension Entomologists

Cautions

All insecticides are poisonous and should be used with caution. Highly concentrated insecticides before dilution are especially dangerous. Feedlot operators should be careful in selection of insecticides for use in feedlots so that illegal residues do not occur. All use precautions and restrictions on labels should be carefully studied and strictly followed.

Insect Control Recommendations

To simplify recommendations, trade names have been used in some instances. This is not to be interpreted as an endorsement of a particular brand, nor is it intended to discriminate against similar products which are not mentioned by name.

Recommendations for insecticide use in this publication are based on U.S.D.A. recommendations, research results of state universities and label registrations. These recommendations are subject to change or withdrawal at any time.

FLY CONTROL IN FEEDLOTS

The two most important species of flies at feedlots are the house fly and stable fly. Blow flies may also be abundant early in the summer especially where molasses-sweetened feeds are used. Horn flies and face flies occasionally may be a problem in the spring where pastured cattle are adjacent to feedlot cattle.

Stable Flies: The stable fly is a blood-sucking insect that feeds by piercing the skin and sucking blood. They feed mainly on the lower parts of legs of cattle. The stable flies stay on the animal long enough to obtain a blood meal, and then seek a shaded place on a fence, a barn or wall, or a feedbunk to digest the blood meal. The flies return to the cattle for additional blood meals several times a day.

The bite of the stable fly is painful and irritating. When flies are abundant, cattle either bunch, or seek water to stand in to avoid the flies. Much of the energy normally used to convert food to weight gain is used in fighting flies. Cattle may go off feed, further reducing weight gains. Milk production decreases of 30-40 percent and weight gain reductions of up to ¼ pound/day as a result of stable flies have been reported.

Stable flies breed in decaying organic matter. The common breeding places in feedlots are spilled hay, straw or alfalfa mixed with manure, spilled feed, edges of hay piles, bedding, and around spilled silage. The most common locations are next to feed bunks, at the edges of feeding aprons and under fences where it is difficult to clean.

House Flies: House flies do not suck blood but feed on organic waste material which includes eye and nose mucous of cattle. They breed in the same general areas as do stable flies. When present in large numbers they are annoying to cattle. The house fly has been proven to be infected with numerous human and animal diseases that can be transmitted by flies.

Blow Flies: The blow flies are annoying to livestock in the same manner as house flies. They breed in garbage, excrement, and decomposing flesh and animal matter.

Face Flies: Face flies breed only in fresh cattle droppings and because of the tramping of this material in the feedlot are much more common in pastures or range. Face flies feed on eye and nose mucous, saliva and secretions from open wounds. Irritation resulting from face flies on and around the eyes of animals is at times severe. They are suspected of being implicated in the transmission of pink eye.

Horn Flies: Horn flies, like face flies, breed only in fresh manure. They are blood suckers as is the stable fly but unlike the stable fly, remain on the animal all the time. They are usually only a pest of feedlot cattle in the spring or when cattle are pastured adjacent to the feedlot.

Control Measures

Sanitation: Sanitation is the important first step in any fly control program. Clean up the spilled hay straw or alfalfa along the edges of feed bunks, feeding aprons and under fences where the material is not tramped by the cattle. The spilled feed or silage should also be cleaned up. The cleanup should be done about every seven days in order to break the life cycle of the flies. The material should be spread over the fields thin enough so that it dries rapidly thus preventing the fly larvae from completing development. Cleaning up the fly breeding areas generally is not enough to completely eliminate a fly problem but it renders chemical control measures much more effective.

Chemical Control: Chemical control measures include:

1. **Residual sprays:** Apply residual sprays to fly resting areas such as fences, feedbunks, buildings and vegetation surrounding cattle lots for stable fly control. Stable flies rest on shady surfaces and are seldom found inside buildings. House flies rest on sunny surfaces and at night tend to come inside buildings. Application of residual sprays for control of the house fly would thus be concentrated on sunny surfaces on the outside of buildings and fences and the inside walls and ceilings of buildings. The residual effectiveness of these chemicals is usually no longer than 2-3 weeks, so repeated applications are necessary throughout the fly season.

Apply residual sprays to point of run-off but do not allow puddles to form. Do not spray water on feed supplies.

The following materials can be used as residual sprays:

Fenthion (Baytex): Mix 4 ounces of 46% EC (emulsifiable concentrate) to each gallon of water. Mix 5/6 to 1 2/3 fluid ounce liquid concentrate (93%) to 1 gallon of water for application to 500 square feet of surface. When water is used as a carrier, sufficient quantities of emulsifying agents should be added, as described under the label mixing instructions.

Dimethoate: Mix 2 quarts of 43.5% EC to each 25 gallons water.

Methoxychlor: Mix 4 gallons 25% EC in 25 gallons water or 4 pounds 50% W.P. (wettable powder) in 25 gallons of water. House flies may be resistant to methoxychlor.

Malathion: 57% EC mix 1 pint to 7 gallons of water.

Korlan (ronnel): Mix 4 gallons 24% EC in 25 gallons of water.

Rabon: Mix 4 pounds of 50% W.P. in 25 gallons of water.

2. **Area sprays:** Applications of area sprays are made in and around buildings and vegetation wherever flies are present. Area sprays may be applied by mist blowers, hydraulic sprayers, aircraft and fogging devices.

A. Mist blowers deliver a fine spray mist into a strong blast of air. Chemicals in the stream of air kill flies on contact. There are three basic types of mist blowers. One type is mounted on a trailer or pick-up and has a motor to drive a large air fan. Another type is mounted behind a tractor and uses the tractor power take-off to turn a squirrel cage fan for the air supply. A third type is a back-pack unit which has a small high-speed motor that rotates a fan for the air blast.

Only two materials, dichlorvos (Vapona, DDVP) and naled (Dibrom), are registered for use with mist blowers. Mix 6.25 ounces of 44.5% Vapona to 5 gallons diluted spray per acre of area to be sprayed. Mix three fluid ounces of 60% Dibrom to 5 gallons water and apply 5 gallons of diluted spray per acre.

Neither Vapona and Dibrom provide residual control. Feedlots will need to be misted one or two times each week to maintain fly control.

Mists can be blown over cattle, however, avoid direct application to feed and water.

B. Hydraulic sprayers: Materials suggested for mist blower application can be applied with hydraulic sprayers at the same rates. Adjust nozzle to deliver a fine mist and allow air currents to move mists across the cattle lots. It is essential that the operator remain out of the mist.

C. Aircraft applications: Dibrom and Vapona, at the same rates suggested for mist blowing, can be applied by aircraft. The reaction of cattle to low-flying aircraft must be taken into consideration. It may be desirable to condition cattle to the sound and sight of low-flying aircraft. Ultralow volume applications of Dibrom 14 may also be made by aircraft at a rate of 2 fluid ounces 85% Dibrom per acre.

D. Fogging devices: Fog equipment uses heat to generate fog from a combination of insecticide and oil. It is necessary for the fog cloud to move slowly through the feedlot on the ground so wind should be less than 5 mph. Fogging should generally be done in the morning or evening so that convection currents caused by ground heat will not cause the fog to rise.

Naled (Dibrom) is the only fog material registered. Mix 1 gallon of 85% Dibrom to 99 gallons of No. 2 fuel or diesel oil. Apply at a rate of 40 gallons diluted mixture per hour output at an average speed of 5 mph. Apply a swath 300 to 400 feet wide. If nozzle clogging results, add 2 to 3 quarts of manufacturers additive per 100 gallons of insecticide mixture.

3. **Animal Sprays:** Sprays applied directly to cattle for control of flies usually need to be repeated frequently. Four to seven days of fly relief is about all that can be achieved with each application. The legs, flanks, and underlines of the cattle should be thoroughly sprayed (about ½-1 gallon diluted spray/animal). The following materials can be used on beef cattle:

		Amount of EC or WP to add to 25 gals. water	Waiting Period before slaughter
Ronnel (Karlon)	24% EC	1 qt.	56 days
Carbaryl (Sevin)	80% WP	1¼ lb.	7 days
Dioxathion (Delnav)	30% EC	3/4 pt.	0
Coumaphos (CO-Ral)	11.6% EC	1 pt.	0
Methoxychlor	24% EC	1 qt.	0
	50% WP	10 lb.	0
Ciodrin	25% EC	1 qt.	0

The animal sprays can be applied with power sprayers. Those sprayers with agitators in the tanks and that can obtain 50-100 psi are recommended. Hand-operated air pressure sprayers can be used where only a few animals are involved.

4. **Dips:** Coumaphos, dioxathion and lindane may also be used as dips or in spray-dip machines.

5. **Baits:** Can be used for control of flies other than the stable fly and horn fly which feed only on the animal. It is important to correctly identify the fly pest involved. The following baits can be used:

MATERIAL	FORMULATION	AMOUNT
Malathion	3.5% Dry	Sprinkle daily when flies congregate
	1.25% Liquid	
Naled (Dibrom)	0.5% Dry	
	0.5% Liquid	
Trichlorfon (Dipterex)	1.0% Dry	4 oz./1,000 sq. ft.
	2% Liquid	4 tbsp./1,000 sq. ft.
	1% Dry	Spot treatment with bush or spray
	1% Liquid	

Baits can be made by using the following mixtures:

INSECTICIDE	MIXTURE
Trichlorfon (Dipterex) soluble powder	1 pound + 4 pounds sugar in 4 gallons water
Dichlorvos (Vapona, DDVP) 41% EC	1½ ounce + 1 cup of sugar in 1 gallon water
Diazinon 50% WP	2 ounces + 1 pound sugar in 5 gallons water
Malathion 25% WP	1 pound + 3 pounds sugar in 3 gallons water

Dry baits should be distributed along walls, window sills or other areas where flies congregate away from feed and water. Apply liquid baits to burlap bags, papers or other removable surfaces. Organic phosphate insecticides used in baits decompose so clean up dead flies and old bait periodically and replace with fresh bait.

6. **Back rubbers:** Back rubbers are effective on horn flies in pastures. They will not, by themselves, provide satisfactory control of stable flies and house flies at feedlots. The following mixtures can be used in a back rubber:

MATERIAL		DILUTION	Waiting Period before slaughter
Co-Ral	11.6% EC	1 gal. to 13 gal. oil	0
Delnav	20% EC	1 gal. to 20 gal. oil	0
Korlan	57% EC	1 pt. to 7 gals. oil	14 days
Ciodrin	25% EC	1 qt. to 7 gals. oil	0
Toxaphene	60% EC	1 pt. to 4 gals. oil	28 days
Methoxychlor	25% EC	1 gal. to 4 gals. oil	0

Mix backrubber material with No. 2 diesel fuel or furnace oil.

Of the three major methods of insecticide application, residual, area or animal sprays, the best method may depend on the management of a particular farm.

If cattle are in pens at the farmyard continuously and the flies congregate on resting surfaces in or near the lots, residual sprays will probably be the most effective. However, some feedlot operations have cattle-holding pens some distance from the farm buildings and have fences constructed from wire or cable instead of wood. In this type of situation, stable flies and house flies may rest on weedy vegetation and trees around the lots, on the cable or wire fences, and on corn or milo plants in fields close to the lots. They are thus spread over an area too extensive for practical use of residual sprays, and area sprays would appear to be the better method. At farms where cattle are kept in small pastures, cattle may come to the farmyard only for water. Flies may accompany the cattle back to the pasture and then rest in trees or other places in the pasture. In this type of situation, animal sprays may be the best method of fly control.