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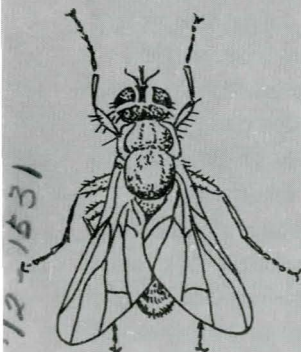
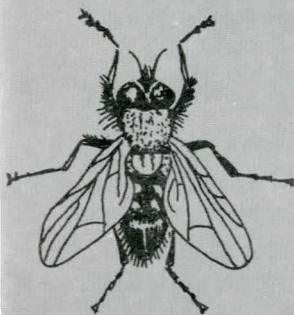
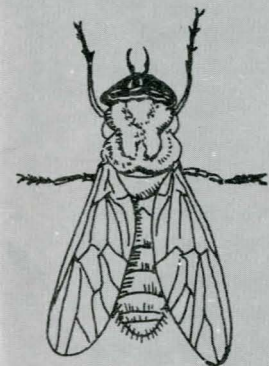
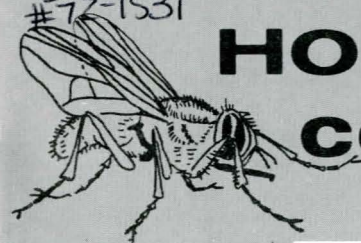
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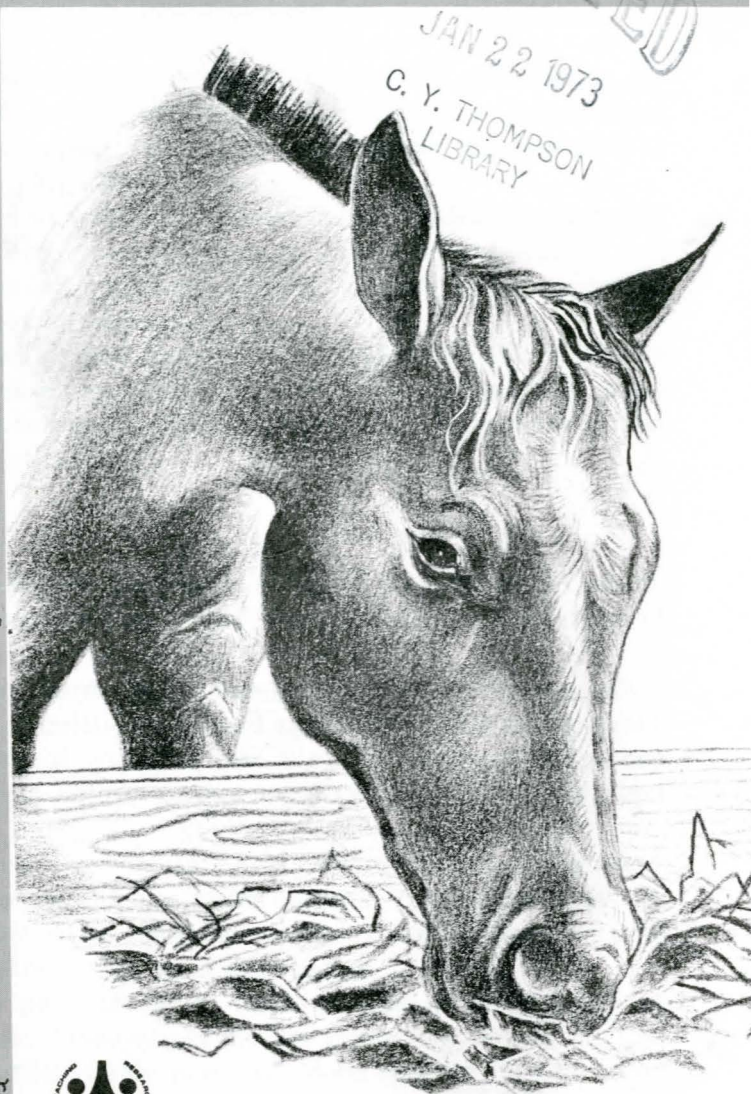
EC 72-1531

HORSE INSECT CONTROL GUIDE



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U. S. Department of Agriculture and the College of Home Economics
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HORSE INSECT CONTROL GUIDE

John B. Campbell

Insecticide control recommendations in this publication are based on USDA recommendation and E.P.A. label registrations. Study labels thoroughly before mixing insecticides to be certain the material is labeled for use on horses.

Always use recommended amounts and follow all treatment restrictions, such as minimum age of animal to be treated and warnings concerning treatment of sick animals or treatment in conjunction with other medication.

Wettable-powder (WP) formulations are generally preferred over emulsifiable-concentrates (EC) because some horses are more sensitive to skin burns from solvents in some EC formulations than are other classes of livestock.

CAUTIONS

All insecticides are poisonous and must be used with caution. Store unused insecticide in original containers and out of reach of children or pets.

After tractors came into widespread use on farms and ranches, the U.S. horse population declined dramatically. In recent years, however, because of increased use by 4-H members and urban dwellers, the horse population has increased to an estimated eight million animals.

Many 4-H and urban horse owners are not aware of the insect pests of horses or methods of insect control. In many instances the animals are restricted to temporary pastures and housing and little effort is made in the area of general sanitation.

Many insect pests of horses are also pests of other livestock, particularly cattle. These would include stable flies, horn flies, face flies and house flies. Other pests would be specific for the horse; these would include the two species of horse lice, three species of horse bots and two mange mite species.

FLIES

The first step in control of stable flies (the biting house fly) and house flies is sanitation. The stable fly breeds in decaying organic matter such as spilled hay or bedding straw mixed with urine and manure. The decomposing organic matter creates ideal breeding conditions for the stable fly.

The stable fly is about the size of the house fly, but is a blood-sucking fly. It feeds from one to several times per day, mainly on the lower legs. The foot stamping of the horse dislodges the fly and it makes repeated attempts to feed. The fact that its bite is painful is apparent from the efforts horses make in attempting to dislodge it. Horses suffering from heavy fly population bunch, if in groups, and become nervous and irritable.

The stable fly is also involved in transmission of a nematode (*Habronema spp.*) which may sometimes be present where horses have been kept for some time. The nematode may be deposited by the fly in a feeding wound or through swallowing of flies (internal infection). The fly maggots ingest the nematode (free living form) from the breeding medium. The nematode tunnels through the cutaneous tissues of the horse, causing ulcerative sores (*habronemiasis*). If such wounds fail to heal following normal medication, a veterinarian should be consulted.

Fly Control

The first step in the control of stable flies is sanitation. Spilled hay, grain and bedding should be cleaned up and spread. Once the medium is dried out, stable flies are unable to breed. During summer months this should be done at weekly intervals. Chemical control methods are not effective if fly breeding is allowed unchecked.

Residual Sprays

Stable flies fly to a shady surface to rest and digest the blood meal after feeding. The sides of corral fences, sheds, barns, feed bunks, etc., are favored resting sites. These areas can be sprayed with residual sprays. The flies absorb the insecticide by resting on the sprayed surfaces. These sprays last for 1-3 weeks. Materials that can be used as residual sprays are in Table 1.

Table 1. Residual sprays to control stable flies.

Insecticide	Mixture	Surface application rate
Fenthion (Baytex)	4 oz. 46% EC ^{1/} or 5/6 to 1 2/3 fl. oz. 93% LC ^{1/} to gal water	1 gal/500 sq. ft.
Dimethoate (Cygon)	2 qt. 43.5% EC to 25 gals water	1 gal/1000 sq. ft.
Methoxychlor (Marlate) ^{2/}	4 gals 25% EC or 4 lbs 50% WP ^{1/} to 25 gals water	
Malathion	1 pint 57% EC to 7 gals water	
Korlan (ronnel)	4 gals 24% EC in 25 gals water	
Rabon (Gardona)	4 lbs 50% WP in 25 gals water	
Diazinon	4 lbs 50% WP or 4 gals 24% EC in 25 gals water	2 gal/1000 sq. ft.

^{1/} EC = emulsifiable concentrate. LC = Liquid Concentrate.

WP = Wettable Powder.

^{2/} Methoxychlor: House flies may be or may become resistant to methoxychlor.

Animal or Wet Sprays

There are three methods of applying wet sprays to horses. These include: power sprayers, hand sponging or washing, and aerosol or mist applications.

Wet sprays should be repeated at weekly intervals to be effective on most insects. Stable flies feed on the legs and their contact with wet vegetation washes the spray off within three or four days.

a. Power sprayers: If a number of horses are involved and if good holding and working facilities are available, power sprayers may be

the most efficient way to apply sprays. Some horses spook and become difficult to handle when power sprayers are used.

b. Hand sponging or washing: If only a few horses are involved, a spray solution may be mixed and applied by hand with a sponge or rag. The applicator must use a chemical-proof glove to apply insecticide by this method. Care should be exercised in not getting the insecticide on the person making the application.

c. Aerosol or mist sprays: These sprays may come in aerosol containers or are applied with a hand pressurized or power sprayer with the nozzle adjusted to give a fine mist. They should be low concentration products since they are meant to be applied nearly every day.

Careful attention should be given to label directions concerning mixing of the insecticide, the proper amount to use, and restrictions on treating animals receiving other medication. Sprays should be applied to the areas of the horse where flies concentrate. These areas include the head, neck, chest, legs, withers and back. The sprays that may be used on horses are given in Table 2.

Table 2. Wet sprays for use on horses.

Insecticide	Mixture	Method of application
Ciodrin	Prepared Spray 2%	Aerosol
Co-Ral (coumaphos)	1/4 lb 50% WP or 1/2 qt. 11.6% EC to 25 gal water	Hand sponge or spray
Vapona (dichlorvos)	2 oz 24% EC to 1 gal water	Hand sponge or mist spray
Lindane	4 oz 25% WP to 25 gal water	Hand sponge or mist spray
Malathion	1 lb 25% WP to 25 gal water	Hand sponge or spray
Pyrethrin and Synergist	Prepared Spray 1.1%	Hand sponge or spray

House flies also breed in decaying organic matter and, as with stable flies, sanitation is the first step in a control program. The house fly also is capable of transmitting the nematode (*Habronema spp.*)

The residual sprays listed for control of the stable fly are also effective against the house fly. However, application procedures are somewhat different. The house fly rests at night inside buildings—on the ceiling and walls or outside under eaves or in protected areas. Apply residual sprays where the flies rest.

Wet sprays are not effective in controlling house flies, but insecticide baits, if applied in conjunction with sanitation measures and residual sprays, will aid in house fly control. Care must be taken when baits are used so that children, pets and livestock do not feed on them.

Malathion, naled (Dibrom) and trichlorfon (Dipterex) can be purchased as ready-to-use baits in dry or liquid form. Follow label directions as to placement and proper use of baits.

Horn flies and face flies, normally pests of cattle, may also bother horses if they are pastured in the vicinity of cattle. Horn flies, like the stable fly, are bloodsuckers, but spend most of their time on the host. Face flies closely resemble the house fly, but are persistent pests of animals, feeding on the tear ducts of the eyes, around the nose, or on wounds and cuts. Both species breed in fresh cow manure.

HORN FLIES

Control of horn flies can be achieved by repeated wet sprays as listed for stable fly control. In addition, dusts applied by hand or through dust bags will control horn flies. Horses may have to be trained to go under dust bags. The bags should be placed so that horses have to use them in obtaining feed or water for best results. Ciodrin (crotoxyphos) and Co-Ral (coumaphos) can be used as dusts in dust bags.

BLACK FLIES, DEER FLIES, HORSE FLIES AND MOSQUITOES

All of these species are blood-sucking insects and all breed along waterways. Black flies in Nebraska are usually present only in the spring and only along fast-moving water. The wet sprays and dusts

are the only means of control. The small hump-backed fly generally concentrates in the ears and special attention should be given to treatment of the ears. Deer flies and horse flies are large, but generally only a few are present at one time. However, their bites are very annoying. Dusts and sprays are the only feasible control methods.

Mosquitoes may be present in very high numbers at certain times of the day. Most species of mosquitoes especially troublesome to horses are prevalent early in the morning and again in the evening. Treatment with sprays or dusts is most beneficial before those times. If management practices allow, move horses away from wet areas during the early morning and evening hours.

If mosquitoes are a continual problem, drainage of breeding areas may be feasible. Treatment of mosquito breeding areas can be done with petroleum products such as diesel fuel or a special oil, FLIT-MLO, or certain insecticides. Some species of mosquitoes, but primarily *Culex tasalis*, transmit encephalomyelitis (sleeping sickness) to horses. If mosquitoes are present much of the time, vaccinate horses for protection against sleeping sickness.

HORSE LICE

Two species of lice, the horse biting louse and the horse sucking louse, are occasional pests of horses. Signs of lice on horses include scurfy skin, unkempt coat and scratching or rubbing. The lice are big enough so that they can be seen upon close examination in sunlight.

Spray treatments with the insecticides listed for stable fly control will also control lice. Two treatments 10-14 days apart may be necessary because most insecticides are not highly effective on louse eggs. The time interval between sprays allows the eggs to hatch and the second spray should finish the louse population. Low pressure spraying with a little detergent added to the spray gives the best results.

HORSE BOTS

Part of the life cycle of the horse bot includes the immature stage (bot) as an internal or intestinal parasite of horses. There are three species of horse bots: the common horse botfly, the chin botfly and the nose botfly. The life cycle of the three species is similar: all lay eggs on hairs of the horse.

The common horse bot usually lays eggs on the chest and front legs. The chin bot tends to lay its eggs under the head or jaw of the horse or on the neck. The nose bot lays its eggs on the small hairs of the lips, usually the upper lip.

Moisture and temperature are the stimuli causing botfly eggs to hatch. As the horse licks or rubs the spot having eggs, the eggs quickly hatch and young larvae attach to the lips or tongue. The young worms eventually travel to the intestinal tract. Lesions on the tongue or between the teeth in the gums indicate the presence of the larvae. The following spring, the mature bots are passed from the horse. They pupate on the ground and adults emerge from the pupal forms in the early summer to begin the new life cycle.

Horses bothered by botflies may react severely by shaking or nodding the head or on occasion standing with their heads across the shoulders of another horse. Injury by the bots includes damage to the tongue, lips, stomach and intestine lining, interference with glandular activity, and occasional obstruction of the passage between the stomach and intestine.

Control includes such mechanical means as washing the horse with warm water, clipping hair where eggs are attached, or using sandpaper to remove the eggs. This should be repeated several times during the fly season. The insecticides recommended for fly control will also aid in controlling the young larvae before they get into the horse's mouth. An insecticide called Anthon can be incorporated into feed. This treatment should be begun a month or so after frost when botfly activity has ceased. Veterinarians can treat horses with carbon disulfide with good results.

Occasionally, heel flies (cattle grub) lay eggs on horse hairs and the cattle grub lives in horses for some time. The grubs will migrate to the backline. They are unable to cut breathing holes in the skin of the horses as they do in cattle, but cause sores and abscesses which make riding the horse a dangerous undertaking. A veterinarian should be consulted for treatment or surgical removal of the grubs.

MANGE AND SCAB MITES

Neither the mange mite nor the scab mite are seen frequently on horses, but they may occasionally become pests. The mange mite is a small oval mite that burrows beneath the skin on areas on the head, back, or at the base of the tail. The infested area becomes inflamed,

pimply and scurfy and, if unchecked, may spread over the entire body causing large, dry, cracked scabs to form. The scab mite is less serious and causes a wet scab. It is found in areas of longer hair of the neck, withers, or base of the tail.

Scraping with a dull knife is necessary to expose the mites and magnification is essential to identify the species. Veterinarians or entomologists should be consulted for treatment of these mites because of federal and state quarantine and treatment regulations.