

## Horse Insect Control Guide

John B. Campbell, Extension Entomologist

Insects that bother horses, and ways to treat them, are covered here.

Nebraskans keep horses for a number of different reasons. Some are for 4-H projects and urban users (recreational), ranch and farm (work), breeding farms, and racing.

Some of the insect pests of horses are also pests of other livestock. Other insects are specific to horses, but may be pests only on farm and ranch horses.

The best methods of pest control vary depending upon the type of horse production.

### Caution

Use only insecticides that are USDA approved and EPA registered for use on horses. Wettable powder (WP) formulations are generally preferred over emulsifiable-concentrates (EC) because horses are sensitive to skin burns from solvent carriers in some EC formulations.

Always read and follow the label directions and observe treatment restrictions, such as minimum age of animal to be treated, or warnings concerning treatment of sick animals, or treatment in conjunction with other medications. Lists of approved insecticides for use on horses are provided in EC1550, *Nebraska Management Guide for Control of Arthropod Pests of Livestock and Horses*.

### Flies

Most species of flies have a general type of life cycle that includes: egg, larva, pupa and adult, with the latter being the animal parasitic stage. A few, such as bots, are specialized parasites, with the larva being the parasitic stage.

Stable and house flies are the most common insect pests of all livestock, including horses. Animal waste management is vital to any successful fly control program. Both species of flies lay their eggs and develop as larvae in decaying organic matter such as spilled hay or bedding straw mixed with urine and manure. Wet, decomposing organic matter creates ideal breeding conditions for both fly species.

The house fly and stable fly are similar in size, appearance, and life cycle, except the house fly completes its life cycle in about two weeks in the summer, as opposed to three weeks for the stable fly.

The stable fly has piercing, sucking mouthparts with which it penetrates the skin, primarily on the front legs, and

feeds on blood. The fly bites inflict pain to the animal which responds by foot stamping and tail switching in an effort to dislodge the fly.

House flies have a sponging type mouthpart and feed only on secretions of the animal around the eyes, nostrils and anal openings. They are annoying to the animal even though they don't bite.

Both these fly species can transmit a nematode parasite (*Habronema spp.*) to horses. The nematode is transmitted either through a feeding wound, or internally if the horse swallows a fly.

The nematode tunnels through the skin (cutaneous tissues) of the horse, causing ulcerative sores (habronemiasis or summer sores). The sores begin as small papules which become encrusted. They are most often found on the shoulders, chest, neck, and inner surfaces of the rear quarters and tail.

Localized treatment with a phosphate insecticide labeled for use on horses usually destroys the nematode.

Control of the house and stable fly can be achieved by several methods, but the first step is to remove or reduce fly breeding areas. Bedding and manure should be removed at least weekly.

This waste material can be spread on fields or in pens but must be spread thin enough to dry quickly. If it is stored for future spreading, it must be packed in steep-sloped piles that do not allow moisture to penetrate, or covered with black plastic that creates enough heat to kill developing fly larvae.

Insecticides may be applied as residual or area sprays, or as animal treatments. The residual sprays are applied to fly resting areas.

Stable flies rest in shady areas such as fences, bunks, and the sides of buildings. House flies rest ("roost") at night inside of buildings on the ceiling, walls, or under eaves. Residual sprays should remain effective for seven to 10 days if not washed off by rain or exposed to direct sunlight.

Area or knockdown sprays are insecticides with short residual action that are applied as fogs or mists into fly inhabiting areas. The small droplets are effective in killing the flies they contact. These sprays are efficient if a number of horses are kept in paddocks around the stables.

Insecticides can be applied to animals with power sprayers if a number of horses are involved and if good holding and working facilities are available. If only a few animals are involved, the insecticide can be applied with hand sprayers, hand sponging or washing, or by aerosol or mist applications.

Horses perspire and perspiration quickly breaks down

insecticides, so almost daily treatments are needed for effective fly control. Insecticide applications should be concentrated on the head, neck, chest, legs, withers and back.

Some ready-to-use insecticides for horses also contain repellents. Repellents that do not contain insecticides can be purchased, but these generally are not effective for more than 12 hours.

Pests that primarily bother horses kept in pastures include the face fly, black fly, mosquitoes, biting midges (gnats), horse flies and deer flies. The face fly is restricted to pastures adjacent to waterways, shaded canyon floors, or the eastern two-thirds of Nebraska where rainfall exceeds 30 inches.

The face fly is similar to the house fly in appearance, but egg-laying and larval development occurs only in fresh cow manure. Manure in unshaded, open range dries out before the fly can complete its life cycle (three weeks). The fly is very persistent and annoying while feeding around the nose, and particularly the eyes. It is capable of transmitting the eye-worm, *Thelazia* spp., to horses. There are also face masks for horses that prevent face flies from feeding around the eyes of horses.

Face fly control is difficult to achieve on either horses or cattle because the face fly feeds only around the face, is present only a short time on the animal, and only a small portion of the fly population feeds at any one time. Treating nearby cattle for face flies using sprays, oilers, dust bags or ear tags helps reduce the population on horses. Treatments for horses consist primarily of sponging, wiping, or misting insecticides on the face of the horse.

Horn flies also occasionally feed on horses. They are only about half the size of a house fly, but are blood feeders. They also breed in cattle manure and, like the face fly, will not be a major problem if horn fly control efforts are made on nearby cattle. A light spray or dusting quickly controls horn flies on horses.

Mosquitoes, black flies, biting gnats, deer flies and horse flies develop as larvae in aquatic or semi-aquatic areas. They are all blood-feeders as adults and generally prefer cattle as a host, but will feed on horses or any warm-blooded animal, if necessary.

Mosquitoes usually breed in flood water ponds, particularly in standing water that contains some vegetation. Drainage of these areas to reduce or destroy the breeding area is the best method of control, but this may not always be possible.

The same animal treatments indicated for fly control reduce problems from mosquito bites. Many, but not all, species of mosquitoes feed at night, so keeping horses in barns at night reduces the impact of this pest.

Mosquitoes are vectors, or carriers, of horse and human diseases, such as equine infectious anemia and several strains of encephalitis (sleeping sickness). Horses in mosquito-infested areas should be vaccinated to prevent sleeping sickness. West Nile Virus also effects horses and there is a vaccine available that is over 90 percent effect if administered properly.

Black flies (Buffalo gnats) are small, hump-backed, blood-feeding flies particularly attracted to horses. Their bites are painful and seem to cause itching and swelling at the site of the bite. The species that are most abundant in Nebraska feed mainly in the ears of horses.

Reducing black fly breeding areas in streams is impractical in Nebraska. Horse treatments include animal sprays, particularly pressurized canister sprays, or the use of vaseline in the ears. These methods prevent or reduce black fly feeding for a few days.

Biting gnats are a complex of species of small, blood-feeding flies that are a particular nuisance to horses. They feed around the face, particularly the eyes. Although their mouthparts are of the sponge type, the sponge has spines that can cut skin surface membranes. Because of this, they are able to transmit some diseases mechanically from one animal to another.

As is the case with face flies, control of biting gnats is difficult and requires almost daily treatment if gnat reduction is to be realized.

The horse and deer flies are generally larger than house flies and are vicious biters. Their mouth parts work somewhat like a scissors. They cut a hole in the skin and feed from the wound. There is generally only one generation per year, but there are three or four species that have different life cycles, so horse and deer fly attacks on horses may occur during most of the summer. Fortunately, there are only a few of these flies per animal at any one time.

Control of horse and deer flies in their aquatic breeding areas is impractical. Only daily application of insecticides or repellents provides some reduction in numbers of horse or deer flies.

Horse bots are the larvae of horse bot flies (gad flies). There are three species of these flies: the common, throat, and nose bots. These flies resemble bees in the adult stage, and they have no feeding mouthparts. The adult's only function is reproduction.

The bot (larvae or maggot) varies in color from gold, brown, yellow or pink. Each segment of the larva bears a circlet of strong spines used to attach to the lining of the horse's stomach.

The common bot fly deposits eggs primarily on the forelegs and chest, but sometimes also on the neck, belly, flanks, and hind legs of a horse. After about two days of incubation, if the horse licks them, the eggs hatch, stimulated by the warmth and moisture. The newly hatched larvae then immediately bore into the front of the tongue. They travel across and through the tongue, then migrate to the stomach.

The throat bot deposits eggs under the jaw and on the throat. These eggs hatch in a few days, and the larvae migrate into the horse's mouth and infest the gums. After about a month, these larvae migrate to the stomach, pylorus, and duodenum. Heavy infestations in the gums cause abscesses.

The nose bot fly deposits eggs on the hairs of horses' lips. After several days, the eggs hatch and larvae migrate into the mouth where they bore into the gums ahead of the incisors. After a few weeks, larvae move to the stomach.

When the bots have completely developed, they detach and pass out of the digestive system with the manure. Heavy populations may cause digestive blockages, bringing about colic or even ruptures and death.

Treatment for horse bots usually is done after the first hard freeze in the fall, which kills the flies and prevents reinfestation. Treatment with stomach tubes usually should be done by a veterinarian.

Preventive measures include frequently sponging or spraying the egg deposition sites with an insecticide or hot water. Hot water destroys eggs or causes them to hatch. The

insecticide serves as a residue that destroys larvae during their migration.

Cattle grubs (heel flies) also may infest horses. The heel fly deposits eggs on the hairs of horses. The larvae hatch, bore into the skin, and migrate through the internal systems of the animal.

The cattle grub cannot complete its life cycle in a horse or cut a breathing hole in the skin as it does in cattle. A swelling occurs near the skin surface; it should be lanced and the grub removed to prevent infection and riding problems if the saddle covers the grub site.

### Lice

Two species of lice, the horse biting louse and the horse sucking louse, are occasional pests of horses. Both species are obligate horse parasites that deposit eggs on horse hairs. The eggs hatch in about a week and the nymphs mature in about three weeks. Nymphs are smaller in size but similar in appearance and feeding habits to adults.

The horse biting louse is about one-tenth of an inch long and chestnut-brown in color, except for its abdomen, which is yellow with dark crossbars. Horse biting lice feed on sloughed skin, hair, and skin secretions. Signs of louse infestations include a scruffy or rough hair coat and excessive rubbing or scratching.

The horse sucking louse is only one-eighth of an inch long, and slate grey. The abdomen is broad and the head narrow. Horse sucking lice are the more common louse species infesting horses. Heavy populations can cause horses to rub patches of hair off infested portions of the body.

Horse lice are transmitted from one animal to another by physical contact. Some individual horses are more susceptible than others (as with cattle), and are considered lice carriers. These horses also seem to resist treatment, and reinfest other animals after treatment.

Lice generally can be controlled by insecticide applications, but the treated animal should be examined 10 to 14 days after treatment to determine if newly hatched lice are reinfesting the animal.

### Ticks

Ticks are not generally a problem on Nebraska horses, but the American or brown dog ticks occasionally may attach to horses. Insecticides destroy these ticks very effectively.

Occasionally, the spinose ear tick or winter tick infests horses in the arid areas of Nebraska, or is found on horses brought into the state from western states. The immature or seed tick stage of this species attaches to the animal and migrates to the ear. Intense pain may result from tick feeding in the inner ear, and secondary infections may be quite serious.

Canister aerosol sprays which can be directed into the ear, and physical removal of the ticks, are appropriate control measures. The winter tick, like the dog ticks, can be easily controlled with insecticide treatment.

Finally, horses may be occasionally infested with scabies mites. There are three species of scabies mites, and two of the three burrow into the skin. The third species feeds on the skin surface.

As with lice, signs of an infestation include rough hair coat appearance and spots where hair is falling out. In addition, the burrowing mites cause scabby sores.

Insecticide sprays control these mites, but the burrowing species may require more than one treatment.

Horse owners who groom and take good care of their horses usually find and remove the ticks that remain on the animal before they become a serious problem. Proper nutrition may reduce the susceptibility of the horse to some of the parasites just discussed.

## Index: Insects and Pests Other Pests

Revised March 2006

Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska–Lincoln cooperating with the Counties and the United States Department of Agriculture.

University of Nebraska–Lincoln Extension educational programs abide with the nondiscrimination policies of the University of Nebraska–Lincoln and the United States Department of Agriculture.