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Flies are the most common and troublesome external parasites of horses. They cause irritation and spread disease, and in large numbers result in excessive blood loss. Fly bites can cause skin allergies due to hypersensitivity reactions. Annoyance from flies disrupts grazing—horses may run to get away from biting flies, or seek out shady areas to swish and stomp.



equine infectious anemia. The stable fly is also an intermediate host for *Habronema microstoma*, a stomach worm of horses, which cause habronemiasis (summer sores). In northern climates, stable flies winter in the larval or pupal stage. In warmer climates, the length of each development stage may increase during winter months, but on warm days the flies emerge.

Control involves removal of rotting organic matter which flies use as breeding sites.

# Fighting Flies that Bother Horses

Fly control can help horses, and an understanding of flies, their life cycle and habits can help you control them. Flies go through four stages—egg, larva (maggot), pupa and adults. The females need to eat blood before they can produce eggs—blood supplies the necessary protein. Flies locate horses by sight and smell—wind can carry the scent to them from a long distance.

**STABLE FLIES:** The stable fly is similar to the housefly in size and appearance, and is sometimes called the biting housefly. Gray in color, it can be distinguished from the housefly by dark spots on its abdomen and by the long slender proboscis that sticks up in front of its head. Adult stable flies often rest on vertical surfaces—fences, walls, trees, or structures near livestock. They go to horses only long enough to get a blood meal, feeding on lower legs, flank, and belly, primarily in early morning or late evening.

Stable flies cause great annoyance to horses and their bites are painful, making the horse stomp and kick, and lick at the bite wounds. The bites often bleed freely. In large numbers, these flies cause considerable blood loss and severe irritation. Their bite often results in a raised area on the skin (about 3/16 inch in diameter) with a tiny scab in the center.

The stable fly lays eggs in rotting hay and straw (especially when contaminated by urine) and horse manure. Complete life cycle (from egg to egg-laying adult) takes about 30 days. Larval and pupal stages take place in rotting hay, hatching into adults about 25 days after the eggs have been laid. After adult flies emerge, the females are ready to lay eggs in five to six days. Several generations develop during the summer.

Warm, moist conditions are ideal for multiplication of stable flies, and large numbers can cause anemia in horses (from loss of blood), irritation and loss of grazing time. Occasionally, large populations of stable flies actually cause the death of a horse. In areas with a large numbers of flies, there may be more than 25 flies per horse. This doesn't seem serious, until you realize that the number of flies observed on a horse at any given time may be only two to three percent of the total feeding on that horse each day.

Stable flies spread several diseases, including anthrax and

Manure and soiled bedding should be removed daily from stalls, along with piles of grass clippings or wet hay around the barnyard. Flies can be kept from multiplying in compost if piles are sprayed with insecticide or larvacide, or covered with black plastic. Repellents help in keeping flies away from horses. Spraying barns, stables and foliage where the flies rest will reduce their numbers.

**HORSE FLIES AND DEER FLIES:** These flies belong to the tabanid family—the most annoying group of biting flies. They may be gray, black, brown or yellow, varying in size from 3/8 inch to more than an inch in length. They cause a great deal of worry to horses—their broad bladelikey mouth parts cut a deep and painful wound. Blood flows freely from the bite—the fly laps it up with a fleshy lobe at the tip of its proboscis. Only the females take a blood meal—males feed on vegetable sap or juices of soft-bodied insects.

Tabanids are found in all parts of North America, especially where there are large areas of permanently wet ground. Females lay masses of eggs on plants growing near water, or on objects that project over water or marshes. The eggs hatch in five to seven days and the larvae drop into the mud where they burrow in and feed on organic matter or the juices of other insect larvae or earthworms.

They stay in larval stage during summer, fall and winter, then migrate in spring to drier areas of soil, where they pupate. This pupal stage lasts two to three weeks, then the adult fly emerges. Most species complete just one generation each year.

Soon after emergence, the female fly needs a blood meal. Because the bite is painful, horses try to dislodge the flies by swishing tails, stamping feet or biting at the flies. But the flies are very persistent, worrying the horse until a blood meal has been obtained. Some horses have local reactions to the bites, developing lumps in the skin of the chest, flanks and upper legs.

Large numbers of horse flies or deer flies may leave the horse's hair crusted with blood—there may be blood dripping from the bites. Horse flies can drink more than their own weight in blood at each feeding (up to .5 ml per fly). Daily blood loss can range from three to 10 ounces per horse, not

counting the blood that flows from the bite after the fly has fed.

The tabanids are often mechanical vectors of diseases (carrying blood-borne disease from one horse to another) due to their habit of feeding on one animal and then immediately attacking another. They can thus spread equine infectious anemia (EIA) and equine encephalomyelitis under certain circumstances (when the sick horse is in the fever stage of encephalomyelitis and the virus is briefly present in the bloodstream).

Control of horse flies and deer flies is difficult, unless swampy areas can be drained, or horses kept away from these areas when the flies are most active. Some kinds of fly repellent are helpful. Sprays or wipe-on repellents may protect horses for one to two days. A shed that horses can go into during the warmer part of the day when flies are active (situated as far as possible from marsh areas) can also help, since most horse flies and deer flies prefer to be in the sunlight. These flies are most active on hot, sunny days—less active in cool or cloudy weather.

#### **HORN FLIES:**

The horn fly is one of the most plentiful and widespread biting flies. They are primarily parasites of cattle, but these small flies can be a nuisance to people and horses when horses live near cattle. As blood suckers, horn flies practically live on the host animal, taking 20 to 30 blood meals per day. The flies may cluster around the withers, topline and underline of the horse, and constant irritation from the bites may cause skin problems (such as abdominal midline dermatitis).

It is sometimes hard to tell the difference between horn fly skin irritation and cutaneous onchocerciasis (swelling and loss of hair due to tiny worms spread by biting midges). Hypersensitivity reactions to the bites of flies or midges may

also cause loss of hair and thickening of the skin along the underside of the belly.

Horn fly bites often leave the skin raw and crusted. These flies are blood suckers, but generally do not transmit disease. Their primary drawback is the worry they cause, interfering with grazing. Heavy infestations can cause weight loss or even deaths in cattle, but horses attract fewer horn flies, and extensive blood loss from these flies is not common in horses.

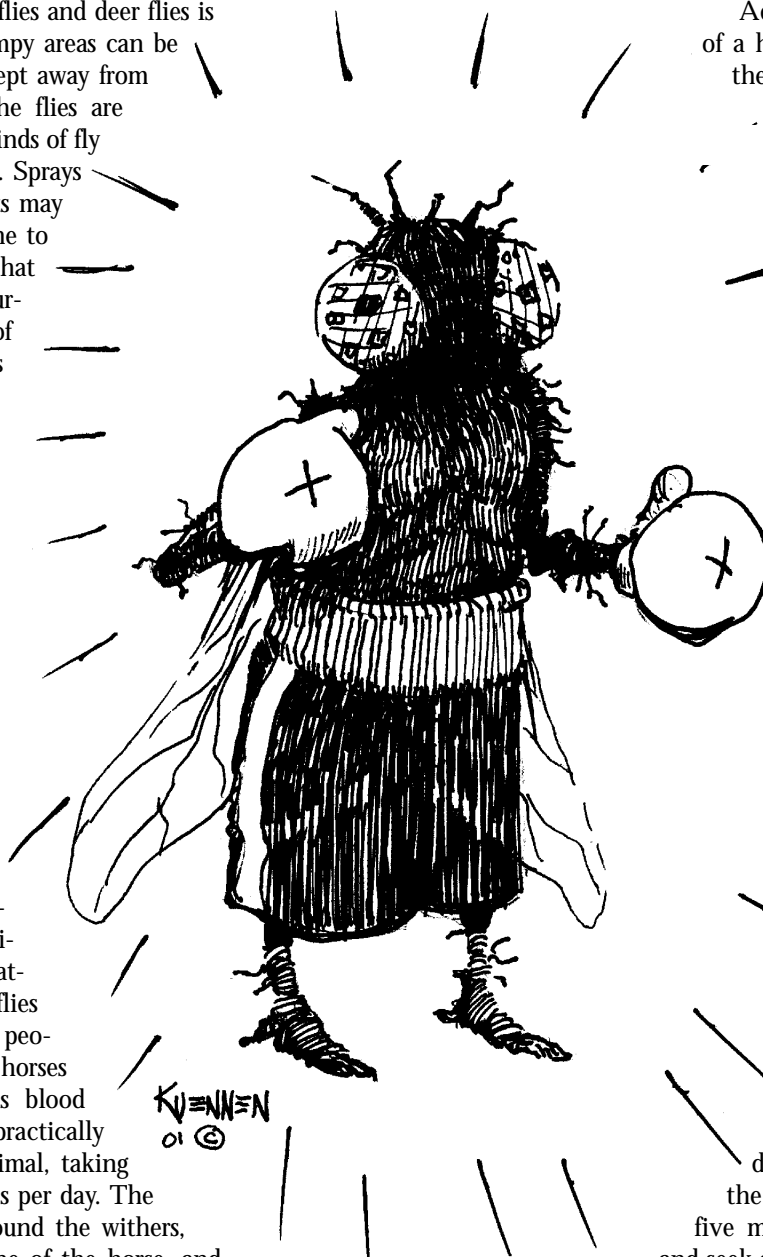
Adult horn flies are half the size of a housefly and usually found on the withers, back, neck, shoul-

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ders, underline and around the eyes of the host animal. Cattle may have hundreds of horn flies upon them at once. Horses are much more sensitive to these flies (because of thinner skin) and even as few as 20 horn flies may seriously annoy a horse. Horses may develop sores around the eyes and under the belly, from horn flies.

Adult flies stay on the host most of the time, leaving only to lay eggs in fresh cattle manure. Eggs hatch within 24 hours and burrow into the manure, completing their development within four to five days. Then they crawl to a drier part of the manure or into the soil to pupate, taking about five more days. The adults emerge and seek a host to drink blood, then lay eggs about four days later.

Cold temperatures or lack of moisture inhibits these flies. In cold climates they spend winter as hibernating pupae. Cattle manure has proper moisture content for development of the larvae, and although the mature flies can live equally well on cattle or horses, the eggs are generally laid in cattle manure. Insecticides applied to the host animal are effective in getting



## HORSE CARE Continued

rid of these flies, because they spend almost all their time on the host. Horn flies can be controlled in cattle by use of insecticide ear tags. Some horsemen fasten these tags to horses' manes or halters, but cattle ear tags are not recommended for horses. There are some very effective repellents and insecticides that can be applied to the horse's legs, belly and flanks, to get rid of horn flies.

### **BLACK FLIES, BUFFALO GNATS & SAND FLIES:**

These are small (3/16 inch) gray to black flies, often present in large numbers after periods of flooding, or in areas with many streams. The larval stages are passed in flowing streams. The flies congregate in swarms and attack all animals, biting the legs, belly and head. Irritation is so great that many animals stampede or mill around nervously, often injuring one another or trampling young ones. Hypersensitivity reactions (allergic response) to the bites can be a very serious problem in some horses.

Black flies cause annoyance and itching, feeding inside the horse's ears, on the chest, udder and scrotum, inside the thighs, and under the belly. The bites cause swelling, oozing blood and bloody crusts. Swarms can fly three to five miles to seek a host.

When black flies are bothering horses, relief can be attained by putting horses in a barn or shed during the mornings and evenings when the flies are most active, since the flies don't like to go indoors. Fly repellents, sprays, wipe-on products, etc. will help, if applied frequently (two or three times a day if necessary). If flies are bothering a horse's ears, ear nets can help, as can clipping inside the ear and applying petroleum jelly to protect the inside of the ears—the flies will not bite through it.

**MIDGES:** Tiny biting midges ('no-see-ums') sometimes attack horses in swarms—thousands of these tiny flies may feed on the horse at night. Their bites cause irritation and hypersensitivity reactions, and the horse may damage his skin with constant rubbing and scratching. The itching dermatitis causes the horse to rub his mane, tail and withers—face, chest and belly may also be affected.

The best relief from midges can be given by putting horses indoors before dusk and keeping them in until after dawn. If stabling is not possible, frequent use of repellent sprays or wipe-ons in the late afternoons can help protect horses. A horse exhibiting allergic reaction to bites should be treated by a vet.

**FACE FLIES:** Face flies are similar to house flies in size and color. Face flies are common on cattle and if horses are near cattle, the flies will also bother horses, feeding on secretions from the horse's eyes and nostrils, and feeding on the blood from bites of other flies.

Control of face flies can be difficult because they stay on the horse only a short time—the rest of the day they sit on vegetation, fence posts and other nearby structures. Like horn flies, they lay their eggs in cattle manure. Insecticides applied to horses' heads and necks can help keep

these flies from bothering them, as can fly masks or face screens attached to a halter.