

Flies in the Home

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Quick Facts

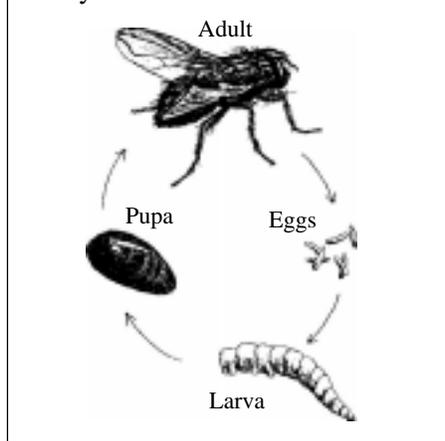
- *The best way to prevent fly problems in a home is to exclude them by screening.*
- *Several species of flies enter homes in Nebraska. Most are mere nuisance problems.*
- *Blowflies or houseflies can be found in and around the home during summer. These flies develop in garbage, manure or on other animal materials. Large numbers of stable flies can emerge from mismanaged compost piles. Control involves sanitation of breeding sites.*
- *Fruit flies, drain flies (a.k.a. sewer flies) and fungal gnats are small nuisance flies that can breed inside the home. Control involves removal of breeding sites.*
- *Cluster flies and flies are found during fall and winter, often in upper stories or attics. These larger flies use homes for shelter from the cold but do not reproduce inside the home. Best control includes caulking entry points and using fly swatters. If nothing is done, these flies will die on their own. Insecticide "bombs" can be used in attics and other rooms that can be isolated from the rest of the house.*
- *Insecticides can supplement other controls for some flies. These should be applied to areas away from food, where flies rest. Insecticides should never be poured down the drain. Any person using an insecticide for fly control should read the label carefully before using the product.*

Fly Biology

The most common observed stage of a fly is the winged adult. The adult fly mates, lays eggs in a breeding medium that will provide sufficient food for the immature stage—a pale, legless maggot. The breeding site is nearly always moist and surrounds the soft-bodied maggots. When maggots are full grown, they stop feeding and usually wander from the

The Life Cycle of the Housefly

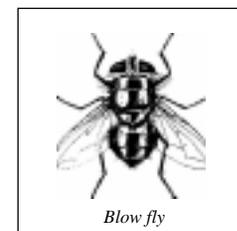
The housefly (*Musca domestica*) can go through complete metamorphosis, passing from egg to larva, pupa and adult, in as few as eight days. Other fly species have similar life cycles.



breeding site in search of a place to pupate. After pupation, they emerge as an adult fly. In warm weather, flies complete their development (egg—larva—pupa—adult) in an incredibly short period, 7-14 days, and produce numerous generations during a typical season. Because animal excrement and garbage

are excellent breeding media, certain flies, especially house flies, can transmit disease pathogens. For example, it has been shown that each house fly can easily carry over one million bacteria on its body. Some of the disease-causing agents shown to be transmitted by house flies to humans are: *shigella spp.* (dysentery and diarrhea = *shigellosis*), *salmonella spp.* (typhoid fever, *Escherichia coli*, (traveller's diarrhea), and *Vibrio comma* (cholera).

Blow Flies, House Flies and Stable Flies



Blow fly

Blow flies are fairly large, metallic green, gray, blue, bronze or black flies found throughout the state of Nebraska. The adult flies may spend the winter in homes or other protected sites but will not reproduce during this time. During warm weather, blow flies breed most commonly on decayed carcasses and droppings of dogs or other pets. They can be found in homes that are near a carcass of a dead squirrel, rodent or bird. Occasionally, small animals may die inside walls or under the crawlspace of a house. A week or two later, blow flies and/or maggots may appear. The adult blow fly is also attracted to gas leaks.

Continued on reverse

House flies are the best known of the house-infesting flies. House flies generally are gray, with the thorax marked with broad dark stripes. There is often some yellow coloring along the sides that differentiates them from face flies. House flies are usually found where humans are present. Larvae commonly develop in or near man-made sources of food and can be found in garbage, animal waste, culled fruits and vegetables and spilled animal feed. The adult flies feed on a wide range of liquid waste but can eat solid foods, such as sugar. To digest solid foods, house flies liquefy food by regurgitating. During feeding, they also defecate on the food. Because of these habits, house flies can pose serious health threats by transmitting disease organisms. To prevent disease transmission, house fly control around the home is important, especially in food preparation and eating locations. At picnics, food should be covered as much as possible to prevent contamination.

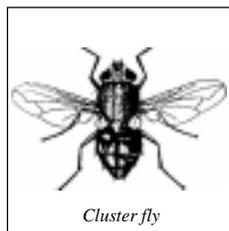
Stable flies are flies that closely resemble house flies in appearance, but the adults feed by biting mammals because they are blood feeders. Typically, these flies remain outdoors, but bite ankles of humans or backs of dogs or other pets. These flies are mainly a problem with livestock, but in urban settings, pet feces, compost piles, and garbage can breed considerable numbers of these pests.

Control. Sanitation practices that remove breeding areas are fundamental to the control of filth-breeding flies, such as house flies and blow flies. Remove or cover garbage regularly and clean up spilled animal feed and manure. Remove and bury dead animals. Mismanaged compost piles can also breed

large numbers of house and stable flies. Never put animal feces, meat scraps or other animal products in a compost pile. (Refer to *NebGuide 86-810* for information on composting.)

Face Flies and Cluster Flies

Face flies are closely related and similar in appearance to house flies but have different habitats. Face flies are relatively new to the region and have been in Nebraska only in the last 25 years. They are more common than house flies, particularly in rural areas. Face flies pass the winter as adults and often seek shelter in upper stories of buildings such as attics and little-used upper rooms. They become active in spring and females lay eggs in fresh manure. Adult face flies feed on many types of fluids. They often are attracted to the eyes, nose and mouth of cattle and have been implicated in the transmission of pinkeye disease to cattle.



Cluster flies are one of the most annoying flies found in homes during the cool seasons. They also can be pests in office buildings, especially in the upper stories. Cluster flies are larger than house flies and during their indoor period they are semi-dormant, flying sluggishly. The habits of cluster flies are very different from other common domestic flies. Immature stages develop as a parasite of earthworms. Eggs are laid in the soil, and the maggots enter and feed within the earthworms. Cluster flies do not feed on garbage or animal manure. In late summer, cluster flies seek overwintering shelter and fly to buildings in the afternoons and rest on sun-exposed areas. As the sun sets,

the flies seek out cracks and other openings into the building and move to upper stories. When temperatures are cool, face and cluster flies remain dormant, but on sunny warm days in the fall and winter, these flies become active. It may seem that they are invading the house from outside, but outside temperatures are too cold.

Control: Face flies, which typically develop in pasture lands, and cluster flies (earthworm parasites) often are difficult to control by breeding area management. The best management tactic is to caulk or fill cracks and crevices around homes, especially when an earlier infestation has occurred. Before these flies move indoors for overwintering, treatments can be applied to upper stores of building exteriors for face fly and cluster fly control. Chlorpyrifos (Dursban) is currently the most common insecticide used for fly control and is widely available. When flies become active during sunny days in the winter, insecticide bombs containing permethrin may be useful in attics and other rooms that can be isolated from the rest of the house. The label should be consulted for reentry times and safety information.

Fungus Gnats

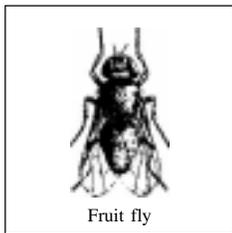
Fungus gnats are small, dark-colored flies most often found collecting around windows during fall and winter. Fungus gnats can be found indoors infesting potting mixes used for house plant or hopping across the soil surface of a plant. High organic matter plant mixtures and organic fertilizers, such as fish emulsion, encourage fungus gnat development. Overwatering, a common problem during fall and winter, will increase fungi and fungus gnat

development. Fungus gnats can reproduce on indoor plants and cause little if any damage. They also occur outdoors where they breed in mushrooms and other decaying plant materials.

Control: To control fungus gnats, correct the conditions of the breeding area. Allow the soil to dry thoroughly between watering, and eliminate decomposing plant materials. This reduces the amount of fungi where fungus gnats breed. Where fungus gnats are a problem, insecticides can supplement the cultural control of reduced watering. Houseplant aerosols that contain pyrethrins or resmethrin, applied at 2-3-day intervals for three to four weeks, should eliminate most of the adult fungus gnats.

Fruit Flies

Fruit flies are among the smallest flies found in homes. They



Fruit fly

usually are a light brown color and may be marked with bright red eyes. Fruit flies most often are found

hovering around overly ripe fruit or rotted vegetables, like tomatoes, onions or potatoes. Fermenting materials, such as leftover beer or soft drinks, also are a favorite food of these flies. Populations tend to be greatest in late summer and early fall as they infest fruits during the harvest season. Occasionally, pomace flies, similar in appearance to fruit flies, may infest the home. The source of a pomace fly problem is often standing water like a forgotten mop pail or an open sewer drain.

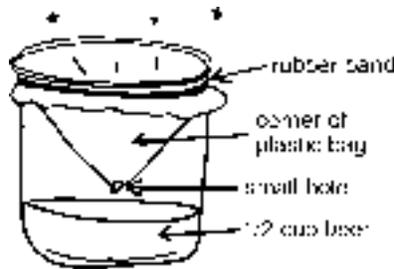
Control: Fruit flies are best controlled by discarding overly ripe fruit or placing it in the

refrigerator. No insecticide is needed. If infestations are coming from soft drink or beer containers, wash bottles and cans during recycling to eliminate these breeding sites. Use a simple non-toxic trap to catch fruit flies:

Simple Fruit Fly Trap

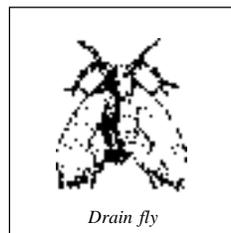
Materials needed: jar, plastic bag, beer, rubber band

1. Pour approximately 1 inch beer into jar.
2. Place plastic bag over mouth of jar with one corner reaching down into jar.
3. Poke a small hole (no more than 1/8" diameter) in corner of bag with a pencil.
4. Secure bag around rim with rubber band or canning ring.
5. Place trap out-of-reach of children, pets.



Fruit flies will be attracted by the fermenting beer, find their way through the tiny hole in the bottom of the funnel, and not be able to find their way out.

Drain Flies also known as moth flies and sewer flies are occasional



Drain fly

problems in homes, emerging from sink drains, especially in the springtime. These small mothlike flies look similar to fruit flies, but they do not have red eyes. Drain flies develop by feeding on bacteria and organic materials that can colonize the gelatinous material that lines drains. Large numbers of these flies can also be produced

where there is a problem with broken or leaking pipes. Infestations may also be coming from overflow in a kitchen or bathroom drain or from a garbage disposal.

Control: Drain flies, which develop on the gelatin-like coating that forms in drains and pipes, are best eliminated by removing the gelatinous slime on the inside of the pipes. Because drain cleaners may give variable results, manual cleaning may be required. Pouring boiling water down the drain to loosen the gelatinous slime may be useful. In addition, leaks in pipes that allow seepage and breeding sources should be fixed.

Integrated Fly Control: The Best Management Approach

Sanitation: Practices that remove breeding areas are fundamental to the control of filth-breeding flies, such as house flies and blow flies. Remove or cover garbage regularly and clean spilled animal feed and manure. Proper management of a compost pile is important. Removal of other breeding areas, such as overripe fruit (fruit flies) or the gelatinous material down the drain (drain flies) is also fundamental to their control.

Exclusion: Screening and other exclusion techniques can be a very important management tool for several types of indoor fly problems. Caulk or cover all openings into a home to prevent flies from entering. Efforts to exclude flies must be done prior to when they enter buildings. For example, cluster flies rarely are found indoors until late winter and spring but typically enter buildings during late August and September.

Chemicals: Insecticides used for control should only be consid-

ered as a supplement to other controls. Serious problems exist with insecticide-resistant flies, and many fly populations are now difficult to control with insecticides. Spot treatments with insecticides applied to areas of high fly activity are most efficient.

“Fly strips” that contain the insecticide Vapona (dichlorvos or DDVP) also are used for fly control. These products slowly release the insecticide as a vapor and provide long-term control.

However, Vapona insecticide is highly toxic. Label directions prohibit use of these products in areas where food is handled or stored, in rooms where children or sick people rest, or other areas where prolonged contact is likely. The registration of these pest strips has been under review due to health concerns and future availability may change. Be sure to read and follow label directions.

Several types of traps for flies also are available and can supple-

ment other controls. Fly paper and electrocution light traps can kill flies but are only effective in areas where exclusion and sanitation efforts have already reduced the fly populations to low numbers.

Various food-based traps also are for sale. These traps often contain a protein bait, sometimes with the addition of a pheromone (sex attractant) used by flies. As with other traps, they can supplement other controls such as sanitation and exclusion.

Table 1. Summary of techniques useful for control of flies in and around homes.

<u>Fly species</u>	<u>Scientific Name</u>	<u>Controls</u>
Blow fly	<i>Calliphoridae</i>	Tightly seal garbage containers and remove animal (particularly dog) manure from areas around the home: screen windows in summer. Use fly paper or fly traps.
House fly	<i>Musca domestica</i>	Tightly seal garbage containers. Screen windows in summer. Use fly paper or traps to attract and capture flies. Spot treatment of room corners with insecticides to kill resting flies.
Face fly	<i>Musca autumnalis</i>	Seal homes in late summer prior to periods when flies enter to overwinter. Try to limit sources of cattle manure in pastures, particularly in late summer. Treatment with insecticides of exterior walls around openings can further limit movement into homes during late summer.
Cluster fly	<i>Pollenia spp</i>	Seal the home (particularly upper stories of south and west sides) prior to periods when flies enter in late August and September. Exterior treatment of house walls with effective insecticides can further limit entrance. Aerosol or fogger insecticides can be used to kill actively flying flies.
Fungus gnat	<i>Bradysia spp</i>	Reduce watering of houseplants to allow increased drying and limit development of fungi in the soil on which larval stages feed. Discard rotting bulbs or parts of houseplants that are decaying. Apply houseplant insecticides to the plants and soil surface at frequent (2-4 day) intervals for 2-3 weeks to kill a generation of adult insects.
Fruit fly	<i>Drosophila spp</i>	Remove sources of breeding which include overripe fruit and fermenting materials like stale beer or soft drinks. Some of these flies may emerge from open sewer drains or standing water that has organic debris in it like a mop pail. Eliminate standing water, if possible. If not possible, pour a small amount (i.e., 1 tablespoon) of vegetable oil down the open drain to create a thin film of oil on the top of the water. Never pour insecticides down the drain! We also recommend using the fruit fly trap on page 3 of this document.
Drain fly	<i>Psychoda spp</i>	If wet conditions from plumbing leaks are permitting fly breeding, correct plumbing problems. To control flies coming out of drains, thoroughly clean pipes out, removing the gelatinous crud that builds up on the inside of pipes. (Do not forget to clean out the garbage disposal.) To help loosen the gelatinous crud, pouring boiling water down the drain may also be helpful. Never pour insecticides down the drain!