



The Biology and Lifecycles of Common Flies on Livestock Operations

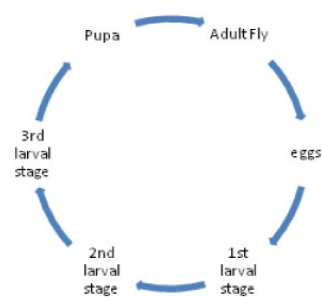
*Peter Burgess, IPM Coordinator, Perennia
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Introduction

Flies that breed in fresh manure, spilled feed, silage, moist animal bedding, human waste or any fresh moist organic matter that is of the right moisture content (moisture content between 50-85% and decomposing) are collectively called filth flies. These insects are of great concern for livestock producers as they cause stress for the livestock and farm workers but also make life difficult for neighbours and surrounding businesses. Before attempting to control flies it is important to understand their lifecycles and general biology.

The House Fly

The adults are 6-9 mm long. Their thorax is gray, with four longitudinal dark lines on the back. The underside of their abdomen is yellow, and their entire body is covered with hair. The females are slightly larger than the males, and have a much larger space between their red compound eyes.



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Figure 1: House fly lifecycle and adult

There are three larval stages (instars) and each successive instar is bigger than the one before. The speed of development from egg to adult is temperature dependent. Under ideal conditions the life cycle can be completed in as few as 6-10 days. Research has shown that it takes 10 days at 30°C, 21 days at 21°C and 45 days at 16°C. Adult house flies die below 0°C.

A female adult fly can produce up to 800 eggs, which it lays in batches of 75-150 at 3-4 day intervals over its life span. Adult flies can live 3-4 weeks in summer. The eggs are laid in fresh manure and hatch in 12-

24 hours, depending on temperature. Eggs are not cold tolerant and they are preyed upon by mites, beetles, black garbage flies, and soldier fly larvae. Under normal conditions, adult flies can migrate 1-2 km. However, when food and breeding habitat are scarce because of crowding or shortages, or in extreme winds, adults have been reported to travel 16-32 km.

The Lesser House Fly

The lesser house fly or little house fly (*Fannia canicularis*) is somewhat smaller (3.5-6 mm) than the common housefly. It is slender and the median vein in the wing is straight. Larvae feed on all manner of decaying organic matter, including dead animals. It is somewhat more tolerant to cooler temperatures than the common housefly and can be more active in the late spring and early fall.

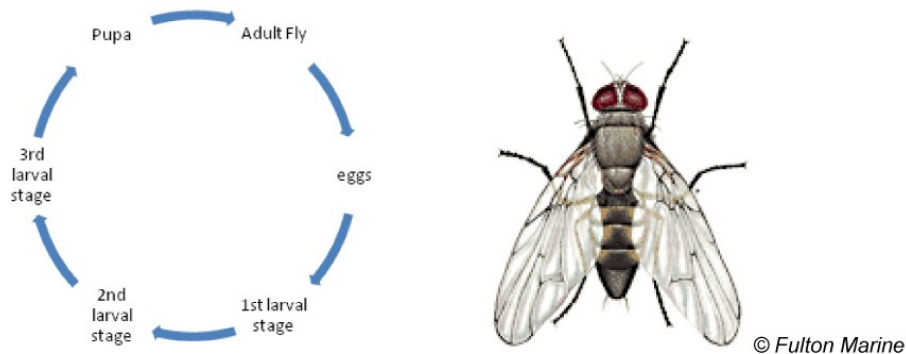


Figure 2: Lesser house fly lifecycle and adult

The lesser house fly's life cycle is very similar to the common house fly, but it is very temperature dependent. Egg laying commences when the mated female is 10 days old. The eggs are banana-shaped and 1 mm in length. The larvae are flat and grey-brown and hatch within 24-28 hours of the eggs being laid. The larvae have protruding hairs that allow them to float in semi-liquid medium. The larvae require a minimum period of 8 days, during which time it passes through 3 larval stages reaching a length of 6 mm. Pupae tend to move to drier places to pupate. Adults can emerge from the pupae stage in 48 hours or they can overwinter in the soil. Adults can live as long as 2 months and a new generation can emerge in 10-14 days.

The lesser house fly tends to hover more frequently and land on hard surfaces less often than the common house fly. This is an important consideration when looking at control options. Wall sprays may not be as effective for this species as the common house fly.

Stable Fly

The stable fly (*Stomoxys calcitrans*), sometimes called the 'biting fly' is a common fly that attacks people living in neighbourhoods where livestock animals (e.g., horses, cattle, and sheep) are present or that are close to livestock facilities.

Stable flies typically appear in mid-spring, become severe in early summer, and decrease in numbers throughout the remaining summer months. These flies are similar in appearance to house flies, except that stable flies have a bayonet-like mouthpart (proboscis) protruding from the front of the head and they lack the four dark stripes on the thorax indicative of house flies.



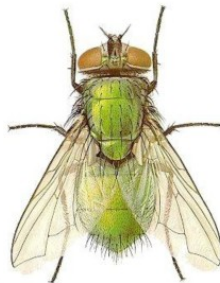
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Figure 3: Stable fly adult

Stable flies like wet organic materials like straw, litter, manure mixed with straw or other bedding. Females lay eggs singly or in small clusters (25-80 eggs) in suitable sites, 5-10 days after emerging from the pupa. Maggots hatch in 1-3 days and develop for 14-26 days before crawling to a drier area to form a puparium which lasts 5-26 days. Rate of development is slowed in cooler temperatures. The time from egg to adult averages 21-25 days and several generations can occur each year. Overwintering occurs in a true diapause state in the pupal stage. Populations are most severe in spring and early fall.

Blow Fly

Blow flies are a diverse group ranging from 6-14 mm in length and generally having a metallic sheen to their bodies. The black blow fly has a dark, olive-green body, black legs, and orange pubescence around the mesothoracic spiracles. The body of the green-bottle fly (*Phaenicia sericata*) is primarily a coppery green with yellowish mouthparts. *Lucilia cuprina* is a medium sized fly and is mostly a bronze color. All blow flies have blunt mouthparts and do not bite. This group of flies tends to lay eggs in decaying animal parts or open wounds.



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Figure 4: Blow fly adult

The lifecycle is similar to the other fly species in that they go from egg through three larval stages to a pupa stage which can overwinter in the soil or emerge as an adult in 1 week. The female can lay thousands of eggs over its 2-8 week lifespan. Egg masses can be as small as 40 to over 1000. The larger masses tend to be from several females at the same location. Hatching can occur in less than 24 hours when conditions are warm and humid. Larvae can complete their three instars in 4-10 days depending on temperature and the conditions of the substrate. The time from egg to adult is only 10-25 days and anywhere from 4-8 generations can be seen per year.

Conclusions

All of these flies can become abundant when wet manure and organic material are left on any livestock farm. Although each species differs slightly on where and when they lay their eggs, any livestock farm in Nova Scotia can become prone to infestation of any of these species, if proper management techniques are not employed. Refer to the factsheet 'Integrated Fly Management for Livestock Farms' and several other livestock specific factsheets for management options.

References

North Carolina State University IPM website, <http://ipm.ncsu.edu/>

For more information:

Peter Burgess
Integrated Pest Management Coordinator
1-902-896-0277
1-866-606-4636 (toll-free)

