

VINEGAR FLIES

Drosophila species

Family: Drosophilidae

Vinegar flies, sometimes inaccurately called fruit flies, are small, slow-flying insects usually found in association with over-ripened fruit and vegetables. These insects are most abundant in the late summer months in Pennsylvania when tomatoes, apples, and other fruit ripen and begin to ferment. Vinegar flies are common nuisance pests in restaurants, grocery stores, fruit markets, canneries, homes, and other locations that may attract these insects with fermenting or rotting vegetative matter.

Worldwide, the family Drosophilidae has over 3,000 described species in about 60 genera. The genus *Drosophila* contains more than half of the known species—most of these are found in the tropics. In North America, there are approximately 175 species of flies in this family and over 60 species the genus *Drosophila*. Of these, *Drosophila melanogaster*, *D. busckii*, *D. funebris*, and *D. repleta* are the vinegar flies most often found within structures.

DESCRIPTION

Vinegar fly adults vary (depending on species and food source) from 3 to 4 mm in length (25 mm = 1 inch), are light yellowish brown to dark brown in color, and may have darker markings on the dorsum of the thorax in the form of spots, blotches, or lines (Fig 1). Most have reddish eyes. The antennae have three segments with the third segment being oval and bearing a branched arista (hair-like structure), the branches of which are relatively long. The abdomen is typically darker than the thorax due to the presence of dark bands on the segments.

The 2.5–4.5-mm long, maggot-like larvae are cream-colored, lack a sclerotized head capsule, and are tapered from the posterior to the head. They have spiracles (breathing structures) located on extended, fleshy tubes found on the last body segment.

LIFE HISTORY

The larvae feed primarily on the yeast found in fermenting, liquefying items. Over-ripe tomatoes and bananas are commonly infested, as are rotting potatoes and onions. The liquid that remains in the bottom of beer cans held for recycling can also support vinegar fly larvae. Flies will breed in any soured, decaying substance such as wet mops and accumulations of food particles behind



Figure 1. Adult vinegar fly, *D. busckii*.

or under kitchen equipment. Drains, which have a gelatinous growth of scum, can also support an infestation of vinegar flies. Larvae typically pupate outside of the food source after feeding for about one week or less. The adult flies emerge in several days and become sexually active within two days. The entire life cycle can be completed in as little as eight days at 85°F.

MANAGEMENT

Elimination of fly breeding sites is paramount. Although insecticidal fogs and sprays will kill adult vinegar flies, the larvae will continue to develop and new adults will emerge unless potential food sources (described in the previous section) are discovered and removed.

During the summer months, adult flies may be attracted to light shining through windows. Because of the adult's small size, they can gain access through standard window screening. Installation of 16 mesh or finer screening will reduce the number of flies that enter a structure.

Outside, gather and remove fruit such as apples, pears and tomatoes that have fallen to the ground. In the home store fruits and vegetables in a refrigerator. Thoroughly rinse cans, jars, and bottles prior to recycling to remove potential food sources.

WARNING

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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