



Pomace Flies

Fact Sheet No. 2

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Revised April 2000

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Description

Pomace flies are also known by the names vinegar gnats and fruit flies, although the name fruit fly technically refers to another insect family. Pomace flies belong to the family Drosophilidae. Certain members of this group have been used extensively in genetics research. Because of the ease with which they can be raised and their short life cycle, it makes them ideal for use in heredity studies.

Adult pomace flies are small, usually no more than 1/8 to 1/6 inch long. Most species are yellowish and black in color. Some species are identifiable by their distinctive red eyes, which are not found in other small flies. The larvae of pomace flies are small legless, eyeless maggots, pointed at the head end. Pupae of fruit flies resemble small seeds and have a conspicuous pair of filaments at the head end.

Life Cycle

Pomace flies go through a typical fly development cycle. First, adults lay eggs in or near a suitable food source and the eggs hatch into larvae (immatures or maggots). The larvae then feed, grow, and shed their skin (molt) several times until full grown. They will then pupate (non-feeding stage in which larvae transform to the adult stage) and emerge as adults to complete the cycle. Several generations will be produced each year.

Females lay about 500 eggs, depositing them on the surface of fermenting fruit or other organic matter. Larvae hatch within about 30 hours and feed for five or six days. Pupation usually occurs in the drier areas of the food source or even away from it entirely. Under ideal conditions, the life cycle can be completed in as little as eight days, so the sudden appearance of large populations indoors is not uncommon.

Habits

The immatures of a few species are parasites or predators of other insects, but most feed in decaying vegetation, fruit, or fungi. Research indicates that the larvae developing in fruit are actually feeding on the yeasts growing on the fruit or in the fermenting fluids, rather than the fruit itself.

The adults are often seen hovering over bowls of fruit and other potential egg-laying sites. The species commonly used in genetic studies is called the vinegar fly, so named because they show up in pickles and vinegar vats. They are also attracted to milk and other dairy products that have gone sour.

Larvae of pomace flies are commonly found in over-ripe or rotting fruits, rotting stored vegetables such as potatoes or onions, or in imperfectly sealed jars of home-canned fruits or vegetables. Fermenting liquids such as wine, cider, vinegar, or beer provide a suitable food source. Other suitable habitats include refrigerator drain pans, soured mops, floor drains, or aluminum beverage cans (for recycling) that are not thoroughly rinsed.

Damage

It could be argued that there is little damage done by those flies because the material they infest has usually reached the point of being unfit for human consumption, or at least unpalatable. Wherever there is a combination of a food source and favorable moisture and temperature conditions, these flies will invariably show up. If the conditions remain favorable and the food source is not depleted, they will build up large populations in a very short time.

Pomace flies will not bite people or pets, and most species are primarily considered nuisance pests. However, there is one rare species in the St. George area that is noted for its tendency to fly into peoples' eyes. Since the flies may land on unsanitary surfaces and then contaminate food, they have minor importance as vectors of disease. Consumption of fruit infested with larvae may cause diarrhea and intestinal distress.

In commercial situations such as restaurants or food processing facilities, pomace flies are of more importance and even small numbers of them may be intolerable. Control of the flies in these situations usually requires a thorough inspection to locate their breeding sites, followed by thorough sanitation measures.

Control

Pomace flies most frequently become a nuisance indoors. In these situations, the best control technique is to locate and remove the food item that is attracting them. If removal of the food source or cleaning of the breeding site does not eliminate the problem, there is probably another source of infestation that has been overlooked.

Once the food source is located and removed, the remaining adult flies can be killed with a fly swatter or sprayed directly with aerosol or pump formulations of household insecticides. Products intended for indoor control of flying insects are suitable for this purpose. These include many formulations containing allethrin, D-phenothrin, pyrethrins, resmethrin, and tetramethrin.

Plastic resin strips impregnated with dichlorvos (DDVP) insecticide may be hung in various areas of the house to control the adult flies. These strips are available under several trade names, including Hot Shot, Prozap, and Revenge. They are not effective in controlling the larvae in the food source.

Commercial traps that are baited with fruit juice or vinegar are sometimes used to monitor fruit flies and locate their breeding sources. In households, home-made traps can help eliminate adult flies. Traps can be made from a pint jar fitted with a paper funnel. A slice of banana sprinkled with yeast is placed in the bottom of the jar to attract the flies, and should be changed every two weeks. Once a number of adults are trapped, they can be killed by placing the jar in a freezer, or the flies can be released outdoors.

Occasionally, there are sufficient pomace flies breeding in nearby decaying vegetation to present a nuisance outdoors. Improperly managed compost piles and piles of culled crop material may serve as the source of such infestations. Again, elimination of these sources is the most effective means of eliminating the flies.

If the material cannot be removed, buried, or dried out, the infestation will persist until the food source is depleted or until there is significant change in the environmental conditions. Until this occurs, some temporary relief may be obtained by spraying the lawn and foliage around the home with malathion. Flies contacted by the spray or resting on the treated foliage will be killed.

Malathion is a short residual product and will have to be reapplied frequently, usually at 2-3 day intervals. It is doubtful if the degree of control obtained will justify the cost of the applications. However, malathion applications made to lawns and shrubs during periods of mosquito abundance will provide some temporary reduction of these insects as well. The combination of the two pests may make the malathion applications worthwhile.

Precautionary Statement

All pesticides have both benefits and risks. Benefits can be maximized and risks minimized by reading and following the labeling. Pay close attention to the directions for use and the precautionary statements. The information on pesticide labels contains both instructions and limitations. Pesticide labels are legal documents, and it is a violation of both federal and state laws to use a pesticide inconsistent with its labeling. The pesticide applicator is legally responsible for proper use. Always read and follow the label.

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