

National Pest Alert



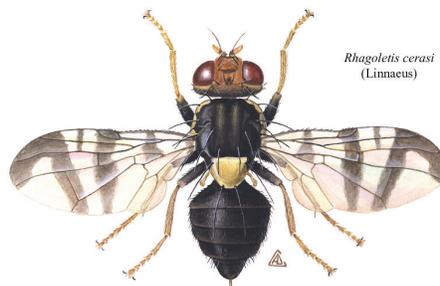
European Cherry Fruit Fly

The European cherry fruit fly, *Rhagoletis cerasi* (Linnaeus) (Diptera: Tephritidae), is a new invasive insect to North America. Its first confirmation in North America was in an urban park in Mississauga, Ontario in June 2016. The likely mode of entry was in imported fresh cherries or other host plant material. This pest occurs throughout most of continental Europe and central and western Asia, and is the most economically important pest of sweet cherries in Europe. It exclusively attacks the fruit of host plants. European cherry fruit fly has not yet been detected in the U.S., although it has been intercepted more than 100 times at U.S. ports of entry (58 interceptions since 2000), with all interceptions occurring on *Prunus* spp. fruit found in passenger baggage.

Identification and Life History

Adults are 4 to 5 mm long, slightly smaller than a house fly. The body is black with yellow markings on the head and thorax, and transparent wings with four characteristic bluish-black bands. Larvae are creamy-white, legless, and shaped like a typical fruit fly larva: tapered at the head and rounded at the tail. Third (last) instar larvae can reach up to 6 mm in length. Pupae are pale yellowish-brown and 3 to 4 mm in length. The European cherry fruit fly is a close relative of other *Rhagoletis* species in North America, including native cherry-infesting species such as the eastern cherry fruit fly (*R. cingulata*), the black cherry fruit fly (*R. fausta*), and the western cherry fruit fly (*R. indifferens*). It can be readily distinguished from related species by adult morphology, mainly wing banding patterns.

European cherry fruit fly has one generation per year. It overwinters as a pupa in the soil underneath or near the host plant and emerges as the fruit ripens. Adults are most active from late May to early July when conditions tend to be warm and dry, and can live 16 to 35 days, depending on temperatures. Mated females use their ovipositor to insert eggs into ripening fruit and prefer fruit that are in full sun. Females usually lay only one egg per fruit, just beneath



Adult European cherry fruit fly.

the skin, and can lay 30 to 200 eggs in their lifetime. Eggs hatch in one to two weeks, and the larvae feed on the flesh of developing fruit for four to six weeks. Mature larvae exit the fruit and drop to the ground to burrow into the soil and pupate. The native *Rhagoletis* species are similar in biology and life history to the European cherry fruit fly.

Plant Hosts

Cherry is a major host of the European cherry fruit fly, including sour cherry (*P. cerasus*), sweet cherry (*P. avium*), black cherry (*P. serotina*), mahaleb cherry (*P. mahaleb*), European bird cherry (*P. padus*), almond cherry (*P. glandulosa*), bunge cherry (*P. humilis*), and European dwarf cherry (*P. fruticosa*). Other known host plants include bloodtwig dogwood (*Cornus sanguinea*), holly-leaved barberry (*Mahonia aquifolium*), matrimony vine (*Lycium barbarum*), snowberry (*Symphoricarpos albus*), coralberry (*S. orbiculatus*), garden snowberry (*S. rivularis*), whortleberry (*Vaccinium myrtillus*), and several types of honeysuckle (*Lonicera* spp.). In Ontario, adult detections have been associated with Morrow's honeysuckle (*L. morrowii*), Tartarian honeysuckle (*L. tartarica*), and Bell's honeysuckle (*L. xbella*), indicating that honeysuckle should be included as a sentinel host plant in future detection efforts. While the European cherry fruit fly has not yet been found in the U.S., its predicted geographic range includes USDA plant hardiness zones 2 through 10.

Damage

Adult females prefer to deposit eggs in fruits when they first begin to ripen and are yellow to pink-yellow in color. Injury to fruit is caused by oviposition scars, but primary damage is due to larval feeding, defecation, and tunneling in the fruit flesh. Infested fruit may soften prematurely, develop brown spots, wilt or shrivel, and fall off the tree. Exit holes become visible as larvae vacate the fruit. Feeding damage can result in fruit losses of up to 100% if left uncontrolled.



Henri Koskinen, www.shutterstock.com

Adult European cherry fruit fly.



Remi Coutin, OPIE

European cherry fruit fly larva exiting a cherry.



Diane Alston, Utah State University

Yellow sticky card with an ammonium carbonate bait box.

Monitoring and Management

An effective monitoring tool is a yellow sticky card baited with an ammonium acetate or carbonate lure. Traps should be placed in the fruiting canopy of the tree, shortly after bloom and before the fruit start to ripen and become susceptible. Research has shown that adult captures are higher in traps placed in the sunny or southern part of the tree canopy. Sweep netting can also be used to survey for European cherry fruit fly in shrubs and lower growing hosts, such as honeysuckle.

Important cultural controls that growers can implement to prevent or minimize European cherry fruit fly outbreaks include maintaining a clean orchard by removing dropped fruit from the orchard floor and removing wild and abandoned host trees. Additionally, covering the soil under the tree canopy with ground cover, weed barrier fabric, or mulches will help prevent larvae from burrowing into the soil or emerging adults from exiting the soil.

If you suspect you have encountered the European cherry fruit fly, contact your State Department of Agriculture, University Diagnostic Laboratory, or Cooperative Extension Service. Specimens should be collected and accurately identified by an expert.

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For more information on this pest, its management and quarantine, please see ncipmc.org/action/alerts/european_cherry_fruit_fly.php

For information about the Pest Alert program, please contact Laura Iles, co-director of the North Central IPM Center, at ljesse@iastate.edu.

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European Cherry Fruit Fly



Black Cherry Fruit Fly



Western Cherry Fruit Fly



Eastern Cherry Fruit Fly

Illustration of cherry fruit fly wing banding patterns. The European cherry fruit fly's wing pattern includes an intercalary band, a small band on the anterior margin near the midlength, and a complete, unforked apical band. Native species lack the intercalary band and have the apical band forked or broken into a posterior branch and an apical spot.

Illustration: Cami Cannon, Utah State University



United States Department of Agriculture National Institute of Food and Agriculture