European cherry fruit fly *Rhagoletis cerasi*

This insect is a major pest of cherry crops in Europe. Fruits fed by larvae often rot, and heavy infestations reduce marketable yields. This exotic species is a close relative of two native *Rhagoletis* species present in Michigan's cherry production, and its invasion may complicate cherry pest management.

Michigan risk maps for exotic plant pests.

Other common names

cherry fruit fly

Systematic position

Insecta > Diptera > Tephritidae > *Rhagoletis cerasi* (Linnaeus)

Global distribution

Mainland Europe (not present in British Isles) and Turkey.

Quarantine status

This insect is not known to occur in North America.

Plant hosts

Cherries, especially sweet cherries.

Biology

Adults appear from May to July. Eggs are laid individually, each inserted singly beneath the skin of a ripening fruit. Larvae feed on flesh of developing fruit for about four weeks. They then exit the fruit and pupate in the ground a few centimeters below the surface. One generation develops annually, and flies may remain in the pupal stage over one, two or three winters (Alford 2007).

Identification

- **Adult**: 4-5 mm long; body black with yellow markings on head and thorax; wings transparent with bluish-black stripes.
- **Larva**: Up to 6 mm long; whitish maggot.
- **Pupa**: 3-4 mm long; pale yellowish-brown.

Two native *Rhagoletis* species (*R. cingulata* and *R. fausta*) attack cherries in Michigan and look similar to European cherry fruit flies. These native and exotic species can be distinguished based on adult morphology, mainly wing pattern.

Adult on cherry. (Photo: Coutin R. / OPIE)

Larva exiting the cherry fruit. (Photo: Coutin R. / OPIE)

Signs of infestation

Brown rotten spots on infested cherry fruits may be noticeable when a maggot inside has fully grown.

Management notes

Adults are active in hot, dry conditions and frequently rest on leaves of cherry trees (Alford 2007). Yellow sticky traps combined with attractant are effective for adult monitoring and mass trapping (Katsoyannos et al. 2000, Özdem and Kilincer 2009). Suggested control options include soil plowing in the fall or spring to destroy fly pupae and timed insecticide applications to adults using a degree-day model (Kovanci and Kovanci 2006).

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Pupae in the soil. (Photo: Coutin R. / OPIE)

Damage on cherry. Note larval exit holes and white excrements. (Photo: Coutin R. / OPIE)

Economic significance to Michigan

Fruits fed on by larvae often rot, and heavy infestations will reduce marketable yields (Alford 2007). With two economic species of *Rhagoletis* already present in Michigan's cherry production, an establishment of the European counterpart may further complicate cherry pest management.

Likely pathways of entry in Michigan

Fresh cherries imported from Europe.

If you find something suspicious on a susceptible host plant, please contact MSU Diagnostic Services (517-355-4536), your county extension office, or the Michigan Department of Agriculture (1-800-292-3939).

References

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