CCE SUFFOLK 1972-2022 50 YEARS
Horticulture Diagnostic Laboratory
Extension Education Center
423 Griffing Ave, Ste 100
Riverhead, NY 11901-3071
631-727-4126
www.ccesuffolk.org
Bayard Cutting Arboretum
Montauk Hwy
Great River, NY 11739
631-727-4126
Cornell Cooperative Extension
Suffolk County

HOLLY LEAF MINERS

Fig. 1. Mines in holly leaf caused by the feeding of *Phytomyza ilicicola*. (*Note the larger terminal blotch at the end of mines*.) (Michael Masiuk, Ohio State University)

Fig. 2. Mines caused by damage incurred by *Phytomyza ilicis*. *Note: the larger blotch in comparison to damage from P. ilicicola* (Rob Edmunds, British Leafminers www.leafmines.co.uk)

Injury: Leaves of American holly, inkberry and English holly are often marked with winding yellowish-brown mines or irregular blotches. These symptoms are caused by small leaf feeding maggots commonly called holly leaf miners. The larvae feed between upper and lower leaf tissues producing the symptom called a leaf mine.

Adult females injure leaves with their ovipositors causing small holes which are punched in the leaves from which sap exudes (**Fig. 4.**). The sap is lapped up as food by both males and females. The hole remains in the leaf and upon healing looks like a tiny pit or pock mark. When the pits are abundant, the leaf may be distorted or deformed.

Description and Life History: There are 3 species which are of concern in New York.

One is the **native holly leafminer**, *Phytomyza ilicicola*, which feeds on *Ilex opaca* (American holly), *I. crenata* (Japanese or box-leaved holly), and *I. acquifolium*, (English, European or Oregon Holly), and related cultivars but lays its eggs only in American holly. The native holly leafminer has one generation each year and it overwinters as a larva in the leaf mine. Pupation occurs in March or April, and adults emerge starting after a few new leaves (about ½ inch long) have formed. Females begin to lay eggs when about 10 days old, seeking the underside of a newly developing leaf. A tiny greenish blister appears at the ovipositon site. Egg hatching occurs after 1 or 2 weeks. Larvae start by mining in a serpentine fashion and mines become wider as feeding continues. By late winter, the mine will eventually end as a large terminal blotch (**Fig. 1.**)

The second is given the name **holly leafminer**, *Phytomyza ilicis* which feeds only on *Ilex aquifolium* (English, Oregon or European holly). Emergence of adult flies from pupae is likely to begin during the blossoming period in the spring. Female flies will lay eggs in the midrib of the leaf. Newly hatched larvae will feed between the upper and lower layers of leaf cells. First signs of damage will be noticed later in summer (August) as small red spots. By the middle of winter the feeding by the larva has been extensive enough to cause the characteristic mine of this species. These mines appear as light colored blotches (**Fig. 2.**), which are ½ inch or more in diameter. The insect will pupate within the mine during the winter or early spring and finally emerge as an adult fly around the blossoming period in the spring.

The third is the **inkberry holly leafminer**, *Phytomyza glabricola* which mines the leaves of *Ilex glabra* (inkberry). The insect spends the winter in the mine as a third instar larva or a pupa. In Ohio adults emerge in late April into early May (when new leaves begin to develop in spring). Female flies prefer to lay eggs in the previous year's leaves. First instar larvae make a short linear mine and do not stop their development. The second and third instar larvae make blotch mines

Fig. 3. Damage to *Ilex glabra* from *Phytomyza glabricola*. (*Note the dark colored leaf tips, which are damaged*). D. J. Shetlar, The Ohio State University

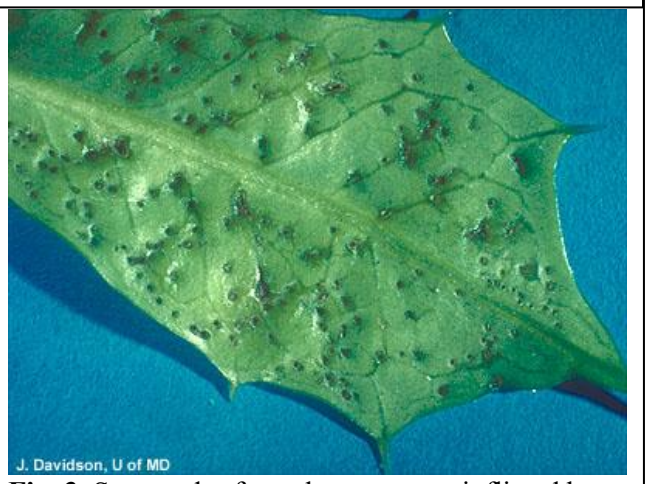

Fig. 3. Sap exudes from the punctures inflicted by the female and used as food by both male and female holly leafminers. (J. Davidson, University of Maryland)

(**Fig. 3.**) Eventually the damage causes the entire leaf tip to turn dark in color. It is reported in New Jersey that there are 2 generations of this insect a year, where adults emerge in the spring and then again in mid-summer.

Management: Some control may be obtained by hand picking and destroying infested leaves before May. This may be more effective where few leaves have been mined.

Several hybrid hollies, especially the Meserve types, are reported to be resistant leafminer attack.

Parasitic wasps are reported to attack the holly leafminer and the inkberry leafminer. To conserve these wasps avoid insecticides when the larval mines are about half formed.

For the **native holly leafminer** - use a sticky trap to detect adult flies. If needed, spray in mid-May (198–298 GDD) and again in early July (1029-1266 GDD. Please contact your local Cooperative Extension for specific pesticide recommendations.

For information on utilizing GDD contact Cornell Cooperative Extension – Suffolk County or visit the CCE web site Using Growing Degree Days for Pest Management.

2/2006 prepared by Thomas Kowalsick, Cornell Cooperative Extension – Suffolk County, revised 1/2010.

Resources for information: *Holly Leafminers*. Carolyn Klass. Department of Entomology, Cornell University, Ithaca, NY. 4/98. *A Field Guide to Insect Pests of Holly*. Charles W. McComb. Holly Society of America, Inc. Baltimore, Maryland. June 1986. *Holly & Inkberry Leafminers*. D.J. Shetlar. The Ohio State University. Revised 06/2002.

Pesticide and management recommendations obtained from*: Cornell Pesticide Guidelines for Managing Pests Around the Home, Cornell University, 2014*

The New York State Department of Environmental Conservation (NYSDEC) Bureau of Pest Management maintains a web site with a searchable database for pesticide products currently registered in New York State. Individuals who have Internet access can locate currently registered products at http://www.dec.ny.gov/nyspad/products?0.

This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (NYSDEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional NYSDEC office. Read the label before applying any pesticide.

TK: 1/2010 AR: 11/2025