

2015 Cooperative Agricultural Pest Survey (CAPS) Program

If interested in participating,

Exotic Berry Pest Survey

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SUMMER FRUIT TORTRIX MOTH *Adoxophyes orana*



The summer fruit tortrix moth is an insect pest native to Europe and Asia. It primarily feeds on apples, cherries, and pears, though it has over 50 other plant hosts. While summer fruit tortrix has yet to be discovered in the United States, its arrival and establishment could be devastating.

Light brown adult moths have two generations each summer- the first occurring in June and July, the second in August and September. Fruit damage is caused by large caterpillars from both the first and second generation in July and August.

Summer fruit tortrix caterpillars are yellow-green. They appear at the end of June and attack the leaves at the tips of the stems, and then the leaves lower down. When the leaves attacked are in contact with fruit, the caterpillar will also graze and occasionally dig roundish holes into the fruit. They burrow in to fruit buds and then blossom trusses, before webbing leaves together on young shoots. Pupae are formed in the webbed leaves. The caterpillars of the second generation hibernate over the winter, or if the summer is especially warm, may emerge as adults and die without reproducing. For more information:

<http://pest.ceris.purdue.edu/pest.php?code=ITBUETA>

EUROPEAN GRAPEVINE MOTH *Lobesia botrana*



The European grapevine moth was first reported in the United States from Napa County vineyards in October 2009. Native to Southern Italy, it is now found throughout Europe, North and West Africa, the Middle East, and eastern Russia. Recently, it has been reported from Japan and Chile (2008)

In May and June, first-generation larvae web and feed on the flower clusters. Second-generation larvae (July-August) feed on green berries. Young larvae penetrate the berry and hollow them out, leaving the skin and seeds. Third-generation larvae (August-September) cause the greatest damage by webbing and feeding inside berries and contaminating them with frass (excrement).

Grape and spurge laurel are preferred hosts, but it has also been reported on blackberry, blueberry, gooseberry, black and red currant, olive, cherry, prune, persimmon, pomegranate, carnation, and a number of other wild hosts. For more information:

<http://pest.ceris.purdue.edu/pest.php?code=ITBUDUA>

LIGHT BROWN APPLE MOTH *Epiphyas postvittana*



The light brown apple moth is a voracious pest on pome and stone fruits and other horticultural crops. It has been recorded from more than 500 plant species in 121 families and 363 genera, although larvae prefer herbaceous plants over woody ones. Native to Australia, it traveled with apples to Hawaii in 1925 and California in 2005 or possibly earlier. It is not yet known in Maine.

LBAM feeds on the leaves, buds, flowers, and fruits of its hosts, but the majority of economic damage is caused by fruit injury. Larvae feed on the surface of fruits under webbed leaves, causing scarring as well as providing a site for rot or infection.

For more information: <http://pest.ceris.purdue.edu/pest.php?code=ITBUBPA>

PEAR LEAF BLISTER MOTH *Leucoptera malifoliella*



Pear leaf blister moth is a leaf miner pest of stone fruit that is present in temperate climates throughout much of Europe and Asia. It is not currently known to be present in the United States.

Depending on the length of the growing season, Pear leaf blister moth is capable of producing between one to five generations each year. Females produce approximately 50 eggs, laying them individually on the underside of leaves. Larvae live within and eat (i.e., mine) the upper epidermal layer. As larvae feed on leaf tissue, a spiral pattern containing frass in concentric rings is produced. Mature larvae emerge from the upper surface of the leaf to search for pupation sites from which they will later emerge as mature moths.

For more information: <http://pest.ceris.purdue.edu/pest.php?code=ITAYAKA>

SPOTTED WING DROSOPHILA *Drosophila suzukii*



A native of southeast Asia, the spotted wing drosophila (SWD) was first found in the continental U.S. in 2008 in California. It has since been detected in 28 states, including Maine.

SWD is known as a vinegar fly, but unlike most vinegar flies that infest overripe fruit, SWD attacks ripening fruit. California, Oregon, Florida and Michigan have reported significant crop losses to their small fruit industry, which includes strawberry, blueberry, raspberry and cherry. Other fruits at risk include apple, peach, plum, blackberry and possibly tomato. SWDs have a high reproductive rate, with the potential to complete at least 15 generations each year.

SWD can be identified by the single black spot on each wing margin of males, and the distinct serrated ovipositor of females, which allows this fly to attack ripening fruit. Within days of attack, fruit begins to collapse and rot. For more information: <http://pest.ceris.purdue.edu/pest.php?code=IOAPUA>

AFRICAN FIG FLY *Zaprionus indianus*



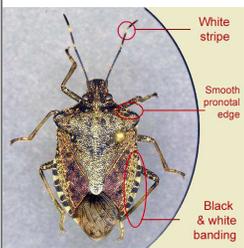
The African fig fly is a generalist from Africa that breeds on fallen fruit and fruit on the tree. In Africa, it is known to infest fruits of 74 species in 31 plant families. It was found in Florida in 2005 and South Carolina in 2007. When present, concurrent infestation with SWD generally existed. It is not yet known in Maine, but is found in Pennsylvania, where it is found later in the season and mostly in grapes. It has also been found in SWD monitoring traps in cherry, raspberry and blackberry plantings.

Since it does not have a large, sharp ovipositor like SWD females, the African fig fly appears to only attack damaged and over-ripe fruit. It seems to primarily attack grapes, but there is concern in the South that it will become a pest of blueberries. For more information:

<http://www.freshfromflorida.com/content/download/9795/135038/zaprionus-indianus.pdf>

OTHER INVASIVES TO BE AWARE OF:

BROWN MARMORATED STINK BUG *Halyomorpha halys*



The brown marmorated stink bug (BMSB) has been in the U.S. for approximately 15 years and has caused considerable crop damage to preferred hosts, such as apple, peach, soybean, corn, sweet pepper and tomato, in many mid-Atlantic states. Its host range contains over 100 plant species, and it is established in approximately 30 states, the closest being New Hampshire. It has been intercepted in Maine twice in shipments of recreational vehicles from Maryland.

BMSB is also a nuisance pest as it seeks shelter during the fall and winter. Overwintering adults can congregate in large numbers as they seek to enter buildings and homes. They emit a foul odor when handled. In states where it has become a crop pest, BMSB was first reported as a nuisance pest. BMSB is a difficult pest to control as many pesticides are ineffective. For more information: www.stopbmsb.org

WINTER MOTH *Operophtera brumata*



Winter moth is of European origin and was discovered in Nova Scotia Canada in the 1950s. Separate introductions to the Pacific Northwest have led to pest populations that warranted control measures, especially in commercial blueberries. It is a major defoliator pest in Massachusetts, and has recently been discovered causing severe defoliation in Vinalhaven and Harpswell, ME. Winter moth also attacks oak, maple, crabapple, apple, cherry, and other trees.

Adult moths are present in late fall through winter. Males take flight to find and mate with flightless females. The larval stage is the most destructive. Newly hatched caterpillars feed on developing buds in the spring causing the expanding foliage to be riddled with holes. Severe defoliation over several

years can lead to tree mortality. For more information:

http://www.maine.gov/dacf/mfs/forest_health/documents/winter_moth.pdf

Photo Credits:

Summer Fruit Tortrix: Adult: Csaba Szaboky, Bugwood.org Larva: Jae-Cheon Sohn, Bugwood.org

Grapevine Moth: Adult: Mark Dreiling, Bugwood.org. Larva: Todd M. Gilligan & Marc E. Epstein, TortAI: Tortricids of Agricultural Importance, USDA APHIS ITP

Light Brown Apple Moth: adult: Department of Primary Industries and Water, Tasmania Archive, Bugwood.org. Larva: Todd M. Gilligan and Marc E. Epstein, TortAI: Tortricids of Agricultural Importance, USDA APHIS ITP, Bugwood.org

Pear Leaf Blister Moth: adult: Agriculture and Agri-Food Canada Archive, Agriculture and Agri-Food Canada, Bugwood.org. Larva: Ben Smart, <http://ukmoths.org.uk/show.php?id=4348>

Spotted wing drosophila: Gevork Arakelian (Los Angeles County Agricultural Commissioner/Weights & Measures Department)

African Fig Fly: Drs. David Biddinger and Neelendra Joshi, Penn State Department of Entomology; Kathy Demchak, Penn State Department of Plant Science.

Brown marmorated stink bug: Rutgers - New Jersey Agricultural Experiment Station

Winter moth: Bob Childs (University of Massachusetts)