

Here is the newest issue of Massachusetts Berry Notes from the [UMass Extension Fruit Team](#).



## Massachusetts IPM Berry Blast

**May 31, 2013**

See last issue of MA IPM Berry Blast for information on: *Botrytis Gray Mold (Strawberry)*, *Cranberry Fruitworm (Blueberry)* and *Raspberry Fruitworm (Raspberry)*

See New UMass Extension Spotted Wing Drosophila Information Site at <https://extension.umass.edu/fruitadvisor/spotted-wing-drosophila>

### STRAWBERRY

#### Strawberry Aphids



**ID/Life Cycle:** There are several species of aphids that infest strawberries, bushberries and caneberrries. Adults are small, soft-bodied insects. Winged or wingless, they may be green yellow, pink, white, bronze, dark-brown or black. These insects tend to congregate on the underside of leaves, where their feeding causes the leaves to curl downward and be deformed. Root aphids have been found on rare occasions.

Aphids can also be the vectors for several virus diseases that seem to be showing up more frequently than they used to. See more about that in the next issue of Berry Notes.

There are multiple generations per year and populations can build up rapidly to damaging levels.



**Damage:** Aphids feed on leaves and succulent new growth. Damage occurs primarily when aphids transmit viruses from infected to non-infected plants. When present in great numbers, feeding can result in stunted, malformed plants.

**Management:**

**Monitoring:** Monitor by checking plants for signs of aphids when sampling for other key pests starting when growth begins in the spring. Aphids can be found on new shoots, the undersides of leaves and on buds while they are still in the crown. Cast skins from previous moults may be present on leaves after aphids have left. The honeydew can

be attractive to ants.

**Control Strategies:** See [New England Small Fruit Management Guide](#) for more information on recommended materials and rates

**Cultural/Biological:** follow recommended practices in table below.

**Chemical:**

- Apply recommended insecticides when aphids are first noted in a planting to avoid a build-up in population.
- If repeat applications are needed, rotate insecticides from different IRAC groups to reduce the chance of resistance development in the pest.

Conventional (PHI)	Organic OMRI listed (PHI)	Cultural Practices
Admire Pro soil app (14) Admire Pro foliar app (7) Platinum (50) Actara (3) *Bifenture 10DF (0)	Aza-Direct (0) AzaGuard (0) M-Pede (0) Neemix (0) Pyganic EC (0)	<ul style="list-style-type: none"> <li>• Preserve natural enemies whenever possible by selecting spray materials that are less toxic to beneficials.</li> <li>• Release beneficials when aphids are first noted to allow adequate opportunity for control</li> </ul>

\*Brigade WSB (0)  
 \*Thionex 50WP (4)  
 Pyrellin EC (0)  
 Pyrenone WSB (0)

- Rogue out all plants that exhibit virus symptoms.

\*= Restricted Use Material -- Read labels thoroughly for application rates and restrictions (REI, PHI, etc.)

### Strawberry Sap Beetle



**ID/Life Cycle:** Adults are small oval beetles, dark brown in color with characteristically 'knobbed' antennae. They are often hard to see because they drop to the ground when disturbed, but they may be found in the cavities they have chewed out. They are found almost exclusively when there is ripe fruit in the field. Larvae are white. Pupae are white, turning cream-colored and later tan before adult emergence.

Sap beetles overwinter as adults in protected places such as decaying vegetation, debris or fruit buried in the ground. Egg laying begins in April and continues in May and June. There are approximately 3 generations per year in New England.



**Damage:** Sap beetles cause hollowed out cavities on ripe fruit, an injury very similar to slug injury. This renders the fruit unmarketable and also attracts other pests like fruit flies.

#### Management

**Monitoring:** Strawberry sap beetle can be monitored by direct observation of ripening fruit to see if feeding has occurred. Bait traps with ripe fruit or bread dough can also be used to attract sap beetle to determine if a significant population is present. There is no specific action threshold defined for sap beetle. Field history and

current harvest conditions will dictate if action is needed.

**Control strategies:** See [New England Small Fruit Management Guide](#) for more information on recommended materials and rates

**Cultural/Biological:** follow recommended practices in table below.

#### Chemical:

- Apply recommended insecticides ONLY if infestation is severe due to harvest restrictions.

Conventional (PHI)	Organic OMRI listed (PHI)	Cultural Practices
Assail 30SG (1) *Bifenture 10DF (0) *Brigade WSB (0) *Danitol 2.4 EC (2) *Dibrom 8E (1) Malathion 57EC (3) Cythion 8E (3)	Pyganic (0)	<ul style="list-style-type: none"> <li>• Rotate strawberry fields to alternative cash or cover crops for at least 3 years before replanting to strawberries to disrupt pest buildup.</li> <li>• Ensure timely and complete picking of ripe fruit and the removal of over-ripe and damaged berries from the field.</li> <li>• Place trap buckets of over-ripe fruit or bread dough outside field borders to intercept migrating beetles and reduce pest numbers in the crop.</li> <li>• Preserve natural enemies whenever possible by selecting spray materials that are less toxic to beneficials.</li> <li>• Avoid planting strawberries near alternate hosts such as raspberry, sweet corn, and melons to reduce overwintering populations.</li> </ul>

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## RASPBERRY

### Potato Leaf Hopper



**ID/Life Cycle:** Leafhoppers are small, green, bullet-shaped insects which take flight quickly if disturbed. The nymphs are lighter colored and do not fly. They are easily identified by their habit of moving sideways when disturbed.

Potato leafhoppers don't overwinter in New England but are blown up every year from the south on storm fronts. There are multiple generations every year.



**Damage:** The potato leafhopper feeds on the underside of leaves leaving small chlorotic areas and causing a downward cupping of the leaves. Most feeding is the upper, more succulent leaves on primocanes and often causes a stunting of those canes.

**Management:**

**Monitoring:** Scouting is especially important in new raspberry/blackberry plantings and on primocane fruiting varieties. Scout by brushing the leaves with the hand and looking for small adult leafhoppers flying off. Examine the underside of injured leaves to see if nymphs are present. There are no thresholds established for potato

leafhoppers. Consider control if there are one or two nymphs per leaf and leaf curl is evident.

**Control strategies:** See [New England Small Fruit Management Guide](#) for more information on recommended materials and rates

**Cultural/Biological:** follow recommended practices in table below.

**Chemical:**

- Apply recommended insecticides when large populations of nymphs are noted on the leaves or symptoms become apparent.
- If repeat applications are needed, rotate insecticides from different IRAC groups to reduce the chance of resistance development in the pest.

Conventional(PHI)	Organic OMRI listed (PHI)	Cultural Practices
Assail 30SG (1) Actara 25WDG (3) Admire Pro (3) Malathion 57EC (1) Malathion 8F (1) Sevin XLR Plus (7)	Aza-Direct (0) AzaGuard (0) Neemix (0) Safer Brand #567 (0)	<ul style="list-style-type: none"> <li>• Avoid proximity to alfalfa plantings, which provide a major source of potato leafhopper population build-up.</li> </ul>

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**BLUEBERRY**

**Blueberry Maggot**



**ID/Life Cycle:** The adult fly, similar in size to a house fly, is black in color, with a pattern of dark and clear bands on its wings. The maggots are small, white, legless, and are found inside infested fruit. This insect overwinters as pupae in the soil beneath the blueberry bushes. Emergence of overwintering adults coincides with the ripening of blueberry fruit and spans several weeks, which extends their period of activity in the field. Females lay their eggs singly beneath the surface of a ripening berry. The emerging larva feeds inside the berries for a two-week period. When full grown, the larva drops to the ground, if the berry has not already fallen. It pupates in the soil, where it will remain for the winter. There is one generation per year.



**Damage:** Flies lay eggs under the fruit skin just as the fruit begins to turn blue and larvae feed within the fruit. Maggots are later found in ripening and harvested fruit. Maggots feeding within developing fruits render fruit unmarketable. Berries become soft and mushy. Undetected infested berries contaminate pack-out.

**Management**

**Monitoring:** Yellow sticky rectangle traps can be used to monitor blueberry maggot populations in the planting. Traps are placed in the upper third of 4-8 bushes around the perimeter of the planting and another 2-4 traps on interior bushes. Bushes with traps should be marked with flagging tape so they can be easily found. Traps should be set out prior to any fruit ripening and checked

every few days to determine when Blueberry Maggot flies are becoming active. Sustained catch of the blueberry maggot fly in traps indicates that it is an optimal time to make an insecticide treatment; sustained catch means not just the first one or two flies, but consistent catch of several flies per week.



**Control strategies:** See [New England Small Fruit Management Guide](#) for more information on recommended materials and rates

**rates**

**Cultural/Biological:** follow recommended practices in table below.

**Chemical:**

- Apply recommended insecticides when trap catches indicate a sustained population.
- If repeat applications are needed, rotate insecticides from different IRAC groups to reduce the chance of resistance development in the pest.
- Be aware of pre-harvest intervals for materials applied close to harvest.
- Be aware of application restrictions on any materials you also hope to use for SWD once fruit begin to ripen (e.g., Malathion).

Conventional (PHI)	Organic OMRI listed (PHI)	Cultural Practices
*Asana XL (14) Assail 30SG (1) *Brigade WSB (1) *Danitol 2.4EC (3) Imidan 70 W (3) *Lannate SP (3) Malathion 5EC (1) Pyrenone 0.5EC (0)  Sevin 4F (7)	GT-120 NF Naturalyte Fruit Fly Bait (0) Pyganic EC (0) Surround (0)	<ul style="list-style-type: none"> <li>• Preserve natural enemies whenever possible by selecting spray materials that are less toxic to beneficials.</li> <li>• Prune to achieve small, open bushes with good sunlight penetration through the canopy, reducing shading on the soil surface to generate a less favorable habitat for build-up of this pest.</li> <li>• Set out a high density of traps (1 trap per bush) in small plantings to trap-out this insect.</li> </ul>

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