



Massachusetts IPM Berry Blast

May 3, 2013

STRAWBERRY

Strawberry Bud Weevil (aka Clipper)

Strawberry Bud Weevil



In the pre-bloom to early bloom period the clipper is one of the main insect pests in strawberries. The females lay an egg in an unopened flower bud and then clip the stem of the bud causing it to flop over or fall off. Only unopened flower buds are affected. Some strawberry varieties (e.g., Jewel and Seneca), can tolerate a fair amount of bud loss from clipper, causing the remaining fruit to size up more (like thinning peaches). However in high numbers, it can be a problem in any variety. Clipper tends to be a more severe problem along borders of plantings, near woods, hedgerows or stonewalls.



Scout for clipper by counting the number of damaged flower trusses per meter (yd) of row in several locations in the field. Treat for clipper when you find an average of more than 3 highly damaged flower trusses per meter of row. If the threshold is exceeded, consider treating with one of the labeled materials below. You may be able to treat only border rows near woods, hedgerows or stonewalls. **DO NOT SPRAY INSECTICIDES DURING BLOOM.**

(Photos from NY IPM and Ontario Crop IPM websites)

Conventional (PHI)	Organic OMRI listed (PHI)	Cultural Practices
*Bifenture 10DF (0) *Brigade WSB (0) *Danitol 2.4EC (2) *Lorsban 4E (21) Molt-X (0)	PyGanic EC (0) Aza-Direct (0) BioLink (0)	<p>Rotate out of strawberries for at least 1 year to reduce root weevil density.</p> <p>A barrier (plastic fence) can prevent adults from moving from an infested field to a new field to be planted.</p> <p>(See www.omafra.gov.on.ca/english/crops/hort/news/allontario/ao0306a2.htm for details)</p> <p>Two species of <i>Heterorhabditis</i>, insect parasitic nematodes, <i>H. bacteriophora</i> and <i>H. marelatus</i>, can provide control of larvae. Release nematodes either in spring when soils warm (>50 F) or in late summer -- early fall. Provide sufficient water to move nematodes into the root zone. For sources visit www2.oardc.ohiostate.edu/nematodes/nematode_suppliers.htm .</p>

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

Tarnished Plant Bug



Tarnished Plant Bug (for IPM info see <http://www.omafra.gov.on.ca/IPM/english/strawberries/insects/tarnished-plant-bug.html>). This pest causes "cat faced" or "button berries" in strawberries and misshapen fruit in raspberries. Tarnished plant bug adults and nymphs cause damage to the fruit but nymphs are more abundant so are of greater concern. Nymphs are yellow/tan to light green, have long antennae, look a bit like aphids but unlike



aphids they move very fast when disturbed.



Scouting for nymphs in strawberry by striking the plant over a white colored dish or piece of paper as this will knock the nymphs free from plants. Immature TPB (nymphs) are sampled by shaking flower trusses over a flat white surface. Thirty flower clusters should be sampled evenly from across the field (typically 6 clusters at 5 locations or 5 clusters at 6 locations). If 4 or more flower clusters are infested with nymphs (regardless of how many) a spray is recommended. A follow-up spray application may be made after bloom if TPB are still present in high numbers (check harvest interval before selecting material). If the threshold is exceeded, consider treating with one of the labeled materials below. **DO NOT SPRAY INSECTICIDES DURING BLOOM.** (Photos from NY IPM and Ontario Crop IPM websites)

Conventional (PHI)	Organic OMRI listed (PHI)	Cultural Practices
Assail 30SG (1) *Dibrom 8EC (1) *Danitol 2.4 EC(2) *Bifenture 10DF (0) *Brigade WSB (0)	Mycotrol O (0) PyGanic EC (0) Aza-Direct (0) BioLink (0)	Row covers accelerate development and help avoid injury. Tarnished plant bug pressure is often highest in weedy fields or in fields bordered by woody shrubs.

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Two-Spotted Spider Mite



Two-spotted Spider Mite (for IPM info see <http://www.omafra.gov.on.ca/IPM/english/strawberries/insects/two-spotted-spider-mite.html>). Two-spotted spider mite can be a problem in plantings starting early and throughout the growing season. This is a tiny arthropod that lives on the underside of leaves and damages the plant by sucking out chlorophyll from the leaves. When allowed to grow to large numbers, tssm feeding weakens the plants and makes them more susceptible to stress and infection by other pathogens. You may see areas of the field with whitish or yellowish stippling on leaves.

Scout for TSSM by monitoring weekly by sampling the field in 5 to 10 locations. Five to ten leaves should be sampled at each location for a total of 60 leaves. Examine the underside of the leaves for the presence or absence of TSSM. Record the information on a field map so that "hot spots" can be identified and treated. A miticide application is recommended if 25% (i.e., 15 leaves) or more of a 60 leaf sample is infested with TSSM.

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a mite non-damaging



levels. Another is *Phytoseiulus persimilis*. Both are commercially available for release to control TSSM. Beneficial mites must be introduced before large populations of mites develop, but after insecticides for tarnished plant bug have been applied.

If the threshold is exceeded, consider releasing predators or treating with one of the labeled materials below. **DO NOT SPRAY MITICIDES DURING BLOOM.**

(Photos from NY IPM and Ontario Crop IPM websites)

Conventional (PHI)	Organic OMRI listed (PHI)	Cultural Practices
Acramite 50WS (1) *Agri-Mek EC (3) Savey 50DF (3) Zeal (1) Vendex 50WP (1) Kanemite 15SC (1) Oberon 2SC (3) Portal (1) *Bifenture 10DF (0) *Brigade WSB (0) *Danitol 2.4EC (2)	JMS Stylet Oil (0) Trilogy (Neem) 1-2% solution (0) Aza-Direct (0) Microthiol Disperss (0)** Predatory mite release, rate varies (0)	<p>Avoid planting near wild hosts that might harbor insect pests</p> <p>Avoid allowing field to become weedy which seems to lead to higher populations of this insect pest</p> <p>Do not overfertilize with Nitrogen as this stimulates higher mite populations.</p> <p>** Don't apply Sulfur to sensitive varieties or within 2 weeks of oil applications or if temperatures will exceed 90°F.</p>

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