

# Berry Notes

Prepared by the University of Massachusetts Fruit Team

July 2007 Vol. 19, No. 10

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Massachusetts Berry Notes Underwriters:



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#### UPCOMING MEETINGS

**Strawberries:** Harvest is progressing. Most growers report an excellent harvest this year. Root weevil adults will begin emerging soon. Watch for marginal notching of leaves from nocturnal feeding. Control measures may be needed in fields that will be carried over for another fruiting season. Renovate or plow down fields as soon as possible after harvest is complete. This will help suppress insect and disease populations that may have built up this season. See article in this issue on strawberry renovation steps. **Blueberries** are approaching harvest. Be sure to check blueberry maggot traps regularly. Early control measures will target both male and female flies before they mate and can help reduce the need for later sprays when berries are closer to harvest. Keep checking for aphids as they can vector the blueberry scorch virus. Late varieties may still benefit from fungicide applications to control anthracnose and alternaria fruit rots. Blueberry plants with fruit and few or no leaves indicates that there is *most likely* a root problem caused by insects, diseases, or rodents. Bushes have to be dug up to determine the exact cause and determine the correct remedy. **Raspberries** are also approaching harvest. Some sites may have already started picking early varieties like 'Revielle' and 'Prelude'. Primocanes may show flagging from infestation by cane borers. These should be cut out below any sign of tunneling. Watch for twospotted spider mites and potato leafhopper, especially in fall fruiting varieties. Powdery mildew may be a significant problem this year. See article below for more information on this disease. **Grapes** are past bloom into fruitset. Downy mildew is being reported in some vineyards. A vigorous disease management program should be continued at this time of year. Insects that will need attention now are Potato Leafhopper, rose chafer/Japanese beetle and Grape Berry Moth. Cluster thinning and shoot positioning should be underway. **Currants and Gooseberries** harvest is beginning. Powdery mildew is a significant problem in this crop. Also, watch for two-spotted spider mite, potato leaf hopper, currant borer and gooseberry fruitworm. Severe heat may result in fruit drop, especially in gooseberries.

## ENVIRONMENTAL DATA

The following growing-degree-day (GDD) and precipitation data was collected for a oneweek period, June 14, 2007 through June 20, 2007. Soil temperature and phenological indicators were observed on or about June 20, 2007. Accumulated GDDs represent the heating units above a 50° F baseline temperature collected via our instruments from the beginning of the current calendar year. This information is intended for use as a guide for monitoring the developmental stages of pests in your location and planning management strategies accordingly.

Region/Location	2007 GROWING DEGREE DAYS		Soil Temp (°F at 4" depth)	Precipitation (1-Week Gain)
	1-Week Gain	Total accumulation for 2007		
<b>Cape Cod</b>	117	678	72°F	0.05"
<b>Southeast</b>	102	676	72°F	0.12"
<b>East</b>	119	757	70°F	0.15"
<b>Metro West</b>	110	716	70°F	0.08"
<b>Central</b>	104	633	62°F	0.00"
<b>Pioneer Valley</b>	106	739	67°F	0.05"
<b>Berkshires</b>	124	643	75°F	0.01"
<b>AVERAGE</b>	112	692	70°F	0.07"

*n/a = information not available*

(Source: UMass Extension 2007 Landscape Message #17, June 22, 2007)

## STRAWBERRY

### Strawberry Renovation

*Sonia Schloemann and A. Richard Bonanno, UMass Extension*

Matted row strawberry plantings benefit from a process called 'renovation' after harvest to stimulate new growth to support next year's crop and to interrupt the build-up of certain pests and diseases mid-way through the growing season. For best results, renovation should be started immediately after the harvest is completed to knock down two-spotted mites, sap beetles and/or root weevils and to promote early runner formation. Early runner-set translates to higher yield potential the following year. Build-up of leaf spots and other foliar pathogens can be cleaned up with this process, too. Renovation should be completed by late-July in normal years. The following steps describe renovation of commercial strawberry fields. Specific rates and timing of applications can be found in the New England Small Fruit Pest Management Guide. To order, contact Sonia Schloemann at [sgs@umext.umass.edu](mailto:sgs@umext.umass.edu) or John Howell at [howell@umext.umass.edu](mailto:howell@umext.umass.edu).

1. **Weed control:** Annual broadleaf weeds can be controlled with the 2,4-D amine formulation (Amine® 4 or Formula 40) applied immediately after final harvest. Be extremely careful to avoid drift when applying 2,4-D. Some strawberry damage is also possible if misapplied. Read and understand the label completely. If grasses are a problem, sethoxydim (Poast) will control annual and some perennial grasses. However, do not tank mix Poast and 2,4-D.

2. **Mow the old leaves off** just above the crowns 5-7 days after herbicide application. Be careful not to damage crown by mowing too low.

3. **Fertilize the planting.** The main goal is to deliver nitrogen at this time to help regrow the canopy. Nitrogen should be applied at 25-60 lbs/acre, depending on vigor and basic soil fertility. Split applications (one now and the rest in 4-6 weeks) are better than a single fertilizer application. This gives plants more time to take up the nutrients in the fertilizer. A leaf tissue analysis (recommended once the canopy has regrown) is the best way to fine-tune your fertilizer program. This will tell you what the plants are actually able to take out of the soil and what nutrients are in sufficient supply or not. See Leaf Tissue Test Sampling Instructions at the UMass Soil and Tissue Testing Lab website at [http://www.umass.edu/soiltest/list\\_of\\_services.htm](http://www.umass.edu/soiltest/list_of_services.htm) for more on this.

4. **Subsoil:** Where tractor and picker traffic has been heavy on wet soils, compaction may be severe. Subsoiling between rows will help break up compacted layers and provide better infiltration of water. Subsoiling may be done as a later step if field conditions are unsuitable.

5. **Narrow rows and cultivate between rows:** Reduce the width of rows to 12-18 inches at the base. More berries are produced along row edges than in row middles. Wider rows

lead to lower fruit production (yield and quality) and increased disease pressure. Narrow rows also give better sunlight penetration, air circulation, spray coverage, and over-all fruit quality. Use a roto-tiller, multivator or cultivator to achieve the row-narrowing. Work in the straw between the rows at this time, too. If possible, try to throw 1-inch of soil on top of the rows at this time to stimulate new root formation on established crowns and new runners.

**6. Weed control:** Pre-emergence weed control should begin immediately after the plants are mowed and the soil is tilled to narrow the crop row. The most common practice at this time is to apply half the annual rate of terbacil (Sinbar at 4 oz/acre). It is essential that the strawberry plants are mowed, even if 2,4-D was not applied, to avoid injury from Sinbar. If regrowth of the strawberry plants has started, significant damage may result. Some varieties are more sensitive to Sinbar than others. If unsure, make a test application to a small area before treating the entire planting. Sinbar should not be used on soils with less than 0.5% organic matter or on reportedly sensitive varieties such as Guardian, Darrow, Tribute, Tristar and possibly Honeoye. Injury is usually the result of too high a rate or overlapping of the spray pattern.

If Sinbar is not used, napropamide (Devrinol at 4 lb/acre) or DCPA (Dacthal at 8- 12 lb/acre) should be applied at this time. Dacthal is preferred over Devrinol

if the planting is weak. If Sinbar is used, napropamide (Devrinol at 4 lb/acre) should be applied 4 to 6 weeks later. This later application of Devrinol will control most winter annual weeds that begin to germinate in late August or early September. Devrinol should be applied prior to rainfall or it must be irrigated into the soil. During the summer, Poast can be used to control emerged grasses. Cultivation is also common during the summer months. Cultivations should be shallow and timely (weeds should be small) to avoid root damage to the strawberry planting. The growth of strawberry daughter plants will also limit the amount of cultivation possible especially near the crop row.

**7. Irrigate:** Water is needed for both activation of herbicides and for plant growth. Don't let the plants go into stress. The planting should receive 1 to 1-1/2 inches of water per week from either rain or irrigation.

**8. Cultivate to sweep runners into the row** until plant stand is sufficient. Thereafter, or in any case after September, any runner plant not yet rooted is not likely to produce fruit next year and is essentially a weed and should be removed. Coulter wheels and/or cultivators will help remove these excess plants in the aisles.

**9. Adequate moisture and fertility during August and September** will increase fruit bud formation and improve fruit yield for the coming year. Continue irrigation through this time period and fertilize if necessary. An additional 20-30 pounds of N per acre is suggested, depending on the vigor.

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## RASPBERRY

### Raspberry Powdery Mildew

Jay W. Pscheidt, Oregon State University

**Cause:** *Sphaerotheca macularis*, a fungus. Powdery mildew is occasionally a serious disease on foliage, new canes, and fruit of red raspberry in the Pacific Northwest. It also can infect 'Loganberry' leaves. The fungus overwinters as mycelium in dormant buds of stunted cane tips or as cleistothecia. Optimum conditions for spore germination and infection are 65 to 80°F with relative humidity of 97 to 99%. In May, leaves develop lesions that produce fungal spores that are blown to healthy foliage. In June small, secondary-infection lesions appear on vegetative tissue and developing fruit.

Powdery mildew also attacks 'Munger' black raspberry, 'Himalaya', and some other blackberries. The 'Puyallup' red raspberry is very susceptible, so powdery mildew may be a limiting factor with that cultivar. 'Canby', 'Fairview', 'Skeena', and 'Washington' are sometimes infected. 'Chilcotin', 'Meeker', 'Nootka', 'Sumner', and 'Willamette' are resistant.

**Symptoms:** A whitish gray powdery coat covers foliage, young growing tips of canes, and fruit. The first lesions on infected leaves are light green blotches on

the upper surface. Severe mildew retards, dwarfs, and distorts plant parts. Infected fruit may become covered with a white, mealy mat of fungus. Severely infected berries fail to size properly and wither and die.

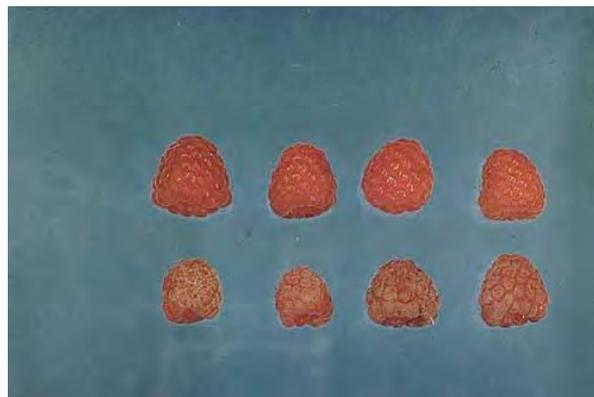
#### Cultural control:

- 1 Plant resistant cultivars.

#### Chemical control:

- 1 Apply dormant or delayed-dormant lime sulfur. Sprays may burn foliage in warm weather.
  - a. Lime sulfur (29 %) at 10 gal/90 gal water. 48-hr reentry. Or
  - b. Sulfoxid at 3 gal/100 gal water. 48-hr reentry.
2. Apply first spray when first blossoms open, then weekly until all fruit is set.
  - a. Abound at 6.2 to 15.4 fl oz/A. Do not apply more than two (2) sequential applications or more than three (3) applications per year. May be applied on the day of harvest. 4-hr reentry.

- b. Armicarb 100 (85% potassium bicarbonate) at 2.5 to 5 lb/100 gal water. Might supplement a normal program when powdery mildew is first observed. Do not mix with acidifying agents. Thorough coverage is essential. 4-hr reentry. Or
- c. Cabrio EG at 14 oz/A. Do not apply more than twice sequentially or more than four times per year. May be used at harvest. Overuse of this material will lead to resistant fungi, so alternate with other materials. 24-hr reentry.
- d. Flowable sulfur (52%) at 2.5 gal/A. 24-hr reentry.
- e. JMS Stylet Oil at 3 to 6 quarts/100 gal water. Do not use with or near a sulfur application. Do not use during freezing temperatures, above 90°F, or when plants are under heat or moisture stress. Do not use when foliage is wet as good coverage is essential. 4-hr reentry.
- f. Kaligreen (82% potassium bicarbonate) at 2.5 to 3 lb/A. Might be used to supplement a normal program when powdery mildew is first observed. Do not mix with other pesticides. Thorough coverage is essential. 4-hr reentry.
- g. Kumulus DF (80% sulfur) at 6 to 12 lb/A. 24-hr reentry.
- h. Microthiol Disperss (80% sulfur) at 6 to 15 lb/A. Do not use a spreader sticker. 24-hr reentry.
- i. Pristine at 18.5 to 23 oz/A. Do not use more than 2 consecutive applications or more than 4 times/year. Can be used day of harvest. 24-hr reentry.
- j. Rally 40 W at 1.25 to 2.5 oz/A. Applications may be made up to the day of harvest. Do not apply more than 10 oz/A/season. Overusing this material leads to resistant fungi, so alternate with other materials. 24-hr reentry.
- k. Thiolux (80% sulfur) at 6 to 15 lb/A. 24-hr reentry.



*Powdery mildew on raspberry fruit, Note the lower row of berries are smaller with a dull appearance.*

**Biological control:** Sonata (*Bacillus pumilis* strain QST 2808) at 2 to 4 quarts/A. May be applied up to and including the day of harvest. 4-hr reentry. (**Source:** [Oregon State University Online Guide to Plant Disease Control](#))

## BLUEBERRY

### Options for Organic Management of Blueberry Maggot

*Luis Teixeira and Rufus Isaacs, Michigan State University*

The blueberry maggot is a key pest of blueberries because infestation of fruit by the larvae of blueberry maggot makes it unmarketable. Management of this insect, whether organically or conventionally, depends on monitoring and appropriate reaction to trapping of flies. Organic growers may be more likely to engage in cultural controls to disrupt the life cycle, but the goal is the same – to prevent berries from becoming infested. This article reviews the currently available organic management options against blueberry maggot.

The first blueberry maggot flies begin to emerge from the soil in late June or early July, and are often stimulated to emerge by rain. After emergence, flies spend six to ten days feeding on insect honeydew, secretions and other deposits on foliage and bird droppings. During this period, female flies become

sexually mature and mate. Once mated, the females seek ripening blueberries in which to lay eggs. At this time, flies often immigrate into fields from surrounding wild habitats, but if infestations are established in fields the flies can emerge here and quickly move to the bushes. The female fly punctures the skin of the blueberry in order to deposit a single white elongate egg. In three to five days, the eggs hatch and the larva (maggot) begins feeding. As the larva feeds and grows, the berry begins to shrivel. Breaking open one of these berries will reveal a small white maggot set against the bluish-colored flesh of the fruit. After two or three weeks of feeding, the larva becomes full-grown and the berry is unmarketable. Infestations tend to increase rapidly to a peak by mid-August when larvae begin exiting the berries and dropping onto the soil. Once there, they burrow into the soil and pupate in the top few inches of soil.

Weekly checking of yellow sticky traps can be used to identify when adult blueberry maggot flies are active, and action should be taken soon thereafter to prevent infestation of the fruit. Yellow traps baited with ammonium odor are the most attractive. The traps can be purchased with a glue impregnated with the odor, and this lasts for about two weeks. After that, yellow plastic “chargers” can be used to provide the odor, so that the traps can be changed when they become filled with insects. To increase the chance of catching flies, hang traps in a V-orientation with the yellow side facing down. Good maintenance of traps will ensure that flies will be attracted to the traps, so it is important to clean traps at each visit and to maintain the odor bait.

Accurate fly identification is critical for blueberry maggot management because there are a few other species of fruit flies that look similar to the blueberry maggot. Being sure that a fly on the trap is not a blueberry maggot can help growers save money by avoiding unnecessary sprays, or make the appropriate decision to protect the fruit if the fly is a blueberry maggot. In Michigan, the cherry fruit fly is active in the field slightly before the blueberry maggot and may be captured on the same traps. These flies usually come from wild cherry and are therefore most likely to be trapped next to deciduous woods. Care should be taken not to mistake these flies, which are distinguishable from blueberry maggot by their wing patterns (see Figure 1). The apple maggot has wing patterns similar to the blueberry maggot but it is bigger, appears later in the season (timed to apple ripening) and is not attracted to blueberry. It is unlikely that any flies trapped in blueberry fields would be apple maggot.

Cultural controls can be powerful approaches to reducing infestation by blueberry maggot. Selection of very early- or very late-ripening varieties may minimize the likelihood that flies will be active when the fruit is ripening. It will be interesting to see how the adoption of late-season varieties affects this pest. Research in New Jersey, has identified populations of blueberry maggot that emerge much later than the typical populations, presumed to have been pushed later because of insecticide spraying.

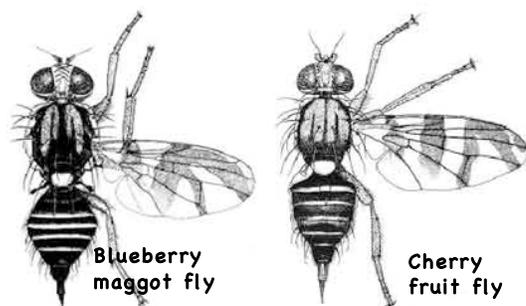
Mulches may have direct and indirect effects on blueberry maggot. If an infestation is established in a field, application of a dense wood mulch or plastic over the top of the pupae in the fall or in the spring could trap the flies and reduce their ability to emerge in the

following summer. However, there may also be indirect effects on the natural enemies that walk across the ground surface searching for larvae or pupae. In experiments conducted in Michigan blueberry fields, we found lower densities of ground beetles (predators) in plots with bare ground compared to plots with clover or ryegrass.

Options for chemical control of blueberry maggot under organic standards in Michigan include kaolin clay mineral particle film, neem, pyrethrum and spinosad products. Please consult [www.omri.org](http://www.omri.org) for changes and updates in the brand name product listings.

Kaolin is a naturally occurring clay, resulting from weathering of aluminous minerals such as feldspar. Kaolin likely acts as an irritant to the blueberry maggot. After landing on a treated surface, particles of kaolin break off and attach to the insect’s body triggering intensive grooming that distracts the flies from laying eggs. Surround® WP Crop Protectant (Engelhard Corp.) is a kaolin product registered for use in Michigan that is available as a wettable powder. Application can be made with most commercially available spray equipment, but large amounts of water are required because thorough coverage is essential. Periodic shaking is recommended for a backpack sprayer or use of an automatic agitation mechanism for larger equipment in order to keep the material suspended in water. Hydraulic sprayers at full dilution apply a better covering than mist blowers using concentrated sprays. Surround WP is considered to provide excellent protection against blueberry maggot infestation. Growers selling their fruit as U-Pick or into the fresh market should be aware of the white residue left on the fruit by this product. In MSU trials, the residue was very difficult to remove from the calyx cup of blueberries.

Neem products are derived from the neem tree, which is native to southern Asia. Neem has been used for centuries for medical, cosmetic and pesticidal purposes. Neem pesticide products are made by crushing neem seeds, then using water or a solvent to extract the pesticidal constituents. Neem products obtained with different extraction techniques may result in different biologically active chemicals (or amounts of chemicals) being present in a product. Thus, the efficacy of different products may vary. Neem products registered in Michigan include Agroneem® (Agro Logistic Systems, Inc.), AZA-Direct™ (Gowan Co.), Neemix® 4.5 (Certis USA). Note that Ecozin 3 percent EC (AMVAC) is not OMRI-listed. Neem products are considered to provide fair protection against blueberry maggot infestation.



**Figure 1.** *Rhagoletis* fruit flies that may be caught on yellow sticky traps. Photo credit: White and Elson-Harris, 1992.

Pyrethrum is an insecticide derived from the powdered, dried flower heads of the pyrethrum daisy, which is native to southwest Asia. Pyrethrum is a fast acting contact poison that affects the normal function of the nervous system leading to paralysis. However, some insects are able to recover after the initial knockdown if the dose is too low. No pyrethrum products are labeled specifically for use against blueberry maggot in Michigan. However, PyGanic® Crop Protection EC 1.4 II (MGK Co.) is registered for use against Japanese beetle which often occurs at the same time. Pyrethrum products are considered to have fair to good activity against Japanese beetle and will also have some activity against blueberry maggot. Note that Evergreen® Crop Protection EC 60-6 (also by MGK Co.) is not OMRI-listed.

Spinosad is composed of spinosyns A and D, substances produced by aerobic fermentation of a filamentous bacterium found in the soil. Spinosad acts primarily through ingestion. It activates the nervous system of the insect, causing loss of muscle control. Spinosad products registered for control of blueberry maggot in Michigan include Entrust™ (Dow Agrosciences, LLC) and GF-120 NF Naturalyte™ Fruit Fly Bait (Dow Agrosciences, LLC).

Growers aiming to protect berries from blueberry maggot infestation should be aware that the residual control provided by these insecticides is generally less than that provided by conventional products. Thus, if blueberry maggot flies continue to be caught on monitoring traps, a weekly spray interval may be more appropriate to maintain protection of berries. (*Source: Michigan Fruit Crop Advisory Team Alert, Vol. 22, No. 11, June 19, 2007*)

## **Insect Management for Organic Highbush Blueberries**

*Cesar Rodriguez-Saona and Dean Polk, Rutgers University*

We provide a list of cultural, behavioral, and chemical insect control strategies approved for organic farming in blueberries.

**1) Regular pruning to take out old canes will remove potential overwintering sites of Putnam scale. Putnam Scale overwinters as adult female under the bark of old canes. Pruning of old canes reduces overwintering population.**

2) Practice clean cultivation and suppress weeds in and around blueberry fields. Lack of ground cover (weeds) will preclude the availability of suitable overwintering habitats for a number of pests such as cranberry weevil and plum curculio. Regular disking and cultivation of the space between blueberry rows will not only help suppress weed populations, but will also expose both overwintering and active stages of the pests to their natural enemies and high temperatures during summer.

3) Use pheromone traps to monitor redbanded leafroller, obliquebanded leafroller, and cranberry fruitworm populations. Pheromone traps are useful in timing the approved insecticide applications.

4) Entrust is a formulation of spinosad approved by the Organic Materials Review Institute (OMRI) for use on organic blueberries. This product is expected to have activity against caterpillars (e.g. cranberry fruitworm), blueberry maggot, and thrips.

5) GF-120 is a bait formulation containing spinosad registered exclusively for managing blueberry maggot. This formulation has proteins and sugars that are known to enhance feeding by adult blueberry maggots.

6) Insecticides based on *Bacillus thuringiensis* (Bts) and azadirachtin (neem plant extract) are effective

against caterpillar pests. Azadirachtin-based products (e.g., Aza-Direct, Agroneem, Neemix) are more broad-spectrum and are expected to have efficacy against aphids, leafhoppers, thrips, and caterpillar pests. Rotenone is another botanical product that can also be used for managing caterpillar pests and sucking insects.

7) Products containing natural pyrethrum (e.g. Pyganic) are effective against blueberry maggot, the most important pest of highbush blueberries. However, not all products containing natural pyrethrum are approved for organic growing because of the presence of synergist piperonyl butoxide. Pyrethrum products formulated with petroleum-based carriers are also not permitted for organic use. Only products that contain natural pyrethrum alone without petroleum-based carriers are approved for use.

8) Early maturing varieties such as Weymouth, Bluetta, and Earlyblue can nearly escape blueberry maggot infestations compared to late maturing varieties whose ripening periods synchronize with the flies' egg-laying period. The blueberry maggot flies in New Jersey typically begin laying eggs around 20-22 June, but started this year by June 14. Usually by this date, some early varieties would have been harvested two or more times, significantly escaping infestation.

9) Blueberry scorch and blueberry stunt diseases are caused by blueberry scorch virus and blueberry stunt phytoplasma, respectively. Blueberry scorch is vectored by several species of aphids and blueberry stunt is transmitted by sharpnosed leafhoppers. Effective vector management and aggressive rouging of symptomatic plants are the only viable strategies available to manage these diseases at this time. The botanical pesticide sabadilla and insecticidal soap (e.g. M-Pede) can be effective against leafhoppers. Surround (for processing blueberries only) and Neemix are also registered for leafhopper control in blueberries. Aphids have several

natural enemies such as lady beetles, lacewings, syrphid flies, and parasitic wasps. Populations of these natural enemies can keep this as well as other pests below economic thresholds. Insecticidal soap can be effective against aphids.

For information of organic farming visit the Northeast Organic Farming Association website

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(<http://www.nofa.org/index.php>); for a complete list of organic materials visit the Washington State Department of Agriculture Organic Food Program website (<http://agr.wa.gov/FoodAnimal/Organic/default.htm>). (*Source: Blueberry Bulletin, Vol. XXIII, No. 13*)

## GRAPE

### Grape Berry Moth

*Alice Wise, Cornell University Extension*

Grape Berry Moth: Though not a universal concern on Long Island, this is the time of year that grape berry moth (GBM) can be found in the likely places, namely in edge rows adjacent to woods. As berries start to size up, feeding will continue and potentially impact yield in these higher risk areas. Growers have to decide whether this first generation is worth a specific treatment. The next generation, the one that tunnels into fruit (leading to future potential rot problems), may be more important in some blocks. These generations are not distinct and may overlap – scouting hot spots is the best way to gauge the need for treatment.

Treatment for leafhopper with certain materials (Imidan, Sevin, Danitol) will also control GBM as long as spray penetration into the cluster zone is decent. Apparently, in the Lake Erie region, GBM has developed some resistance to Sevin, evident because of a series of control failures.

If GBM is the only insect of concern, options (besides those mentioned above) are GBM pheromone ties (covered in an earlier newsletter), Bt products such as Biobit and Dipel, and two newly labeled products Spintor and Entrust. It is fine to tank mix botrytis and GBM materials for a targeted cluster zone spray.

The Bt's Biobit and Dipel are OMRI listed. They can be effective if applied to young larvae (larvae have to ingest them), thus scouting is essential. Use back to

back applications targeted at the cluster zone. If the canopy is dense in the cluster zone, pull a few leaves prior to spraying to improve penetration. See the labels for specifics on rate, timing and compatibility issues.

Spinosad is in a relatively new class of chemicals with activity vs. caterpillars, thrips, some beetles and flies. Produced by a soil-dwelling microbe, it is formulated into the commercial products SpinTor and Entrust (the OMRI-approved version). Control of GBM and thrips are listed on both primary labels. Because spinosad breaks down fairly quickly and because both Spintor and Entrust are targeted toward larvae, two applications per generation may be required. Both products should be easy on beneficial insects. Trials in both NY and Michigan on Labrusca grapes indicate that control of GBM has not generally been as high as some broad-spectrum standards such as Danitol or Sevin, likely due to their relatively short residual.

The GBM Fact Sheet can be found at [www.nysipm.cornell.edu/factsheets/grapes/pests/gbm/gbm.html](http://www.nysipm.cornell.edu/factsheets/grapes/pests/gbm/gbm.html). The publication Risk Assessment for GBM can be found at: [www.nysipm.cornell.edu/publications/grapeman/risk.pdf](http://www.nysipm.cornell.edu/publications/grapeman/risk.pdf). Risk management is most relevant for larger blocks. In smaller vineyards, the “edge effect” permeates the entire block. (*Source: Long Island Fruit & Vegetable Update, June 22, 2007*)

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## Upcoming Meetings:

**July 12, 2007** - SUMMER MEETING OF THE MASSACHUSETTS FRUIT GROWERS' ASSOCIATION, INC. IN COOPERATION WITH THE UMASS FRUIT PROGRAM – Bolton Orchards, Bolton, MA For complete information, see <http://www.massfruitgrowers.org/summermeeting/index.html>.

**July 12, 2007.** *Small Fruit Tour*, Germantown, NY. Currants, Gooseberries, Brambles, Mountain Range Farm. For more information contact Kathy Heidenreich at [mcm4@nysaes.cornell.edu](mailto:mcm4@nysaes.cornell.edu).

**July 18, 2007** - SUMMER MEETING & TRADE SHOW of the Massachusetts Nursery Landscape Association (MNLA) and Massachusetts Flower Growers Association (MFGA) in cooperation with the UMass Extension Floriculture, Landscape, Nursery and Urban Forestry Programs - Tower Hill Botanic Garden, Boylston, MA To register go to [www.mnla.com](http://www.mnla.com) or call 413-369-4731.

- July 19, 2007. *Small Fruit Twilight Tour.*** NYS Agricultural Experiment Station, Geneva, NY. Black and Red Raspberries, For more information contact Kathy Heidenreich at [mcm4@nysaes.cornell.edu](mailto:mcm4@nysaes.cornell.edu).
- July 24, 2007 - 4-7 PM** Foppema's Farm Northbridge, MA UMASS VEGETABLE IPM FIELD SCHOOL. Cost \$20. For more information, go to [http://www.umassvegetable.org/ed\\_programs/meetings/winter\\_meetings.html](http://www.umassvegetable.org/ed_programs/meetings/winter_meetings.html) or call Ruth Hazzard at 413-545-3696 or email [rhazzard@umext.umass.edu](mailto:rhazzard@umext.umass.edu)
- July 25, 2007. *Summer Fruit Tour.*** NYS Agricultural Experiment Station, Geneva, NY. Cordon training of Ribes, Ribes disease control, small fruit insect research updates. For more information contact Kathy Heidenreich at [mcm4@nysaes.cornell.edu](mailto:mcm4@nysaes.cornell.edu).
- August 2, 2007. *High Tunnel Small Fruit Tour,*** Ithaca, NY. Black raspberries, Blackberries, Cornell University College of Agriculture and Life Sciences. For more information contact Kathy Heidenreich at [mcm4@nysaes.cornell.edu](mailto:mcm4@nysaes.cornell.edu).
- August 8, 2007 - 4-7 pm** Golonka Farm Hatfield, MA UMASS VEGETABLE IPM FIELD SCHOOL. Cost \$20. For more information, go to [http://www.umassvegetable.org/ed\\_programs/meetings/winter\\_meetings.html](http://www.umassvegetable.org/ed_programs/meetings/winter_meetings.html) or call Ruth Hazzard at 413-545-3696 or email [rhazzard@umext.umass.edu](mailto:rhazzard@umext.umass.edu).
- August 10-12, 2007 - NORTHEAST ORGANIC FARMING ASSOCIATION (NOFA) 33 rd ANNUAL SUMMER CONFERENCE – “A CELEBRATION OF SUSTAINABLE LIVING”** at Hampshire College in Amherst, MA. For the full schedule of activities and further information go to [www.nofamass.org](http://www.nofamass.org), or contact Julie Rawson at (978) 355-2853 or [julie@nofamass.org](mailto:julie@nofamass.org).
- August 14-15, 2007. *NASGA Summer Tour,*** Niagara Falls Canada and Niagara region of New York. See news brief below or for more information contact Kevin Schooley at [kconsult@allstream.net](mailto:kconsult@allstream.net) or visit [www.nasga.org](http://www.nasga.org).
- August 15, 2007 4-7 pm** Paradise Hill Farm Westport, MA UMASS VEGETABLE IPM FIELD SCHOOL. Cost \$20. For more information, go to [http://www.umassvegetable.org/ed\\_programs/meetings/winter\\_meetings.html](http://www.umassvegetable.org/ed_programs/meetings/winter_meetings.html) or call Ruth Hazzard at 413-545-3696 or email [rhazzard@umext.umass.edu](mailto:rhazzard@umext.umass.edu)
- August 21, 2007 - AGRICULTURE RESEARCH DAY - 4-7 pm** UMass Crops Research and Education Center, South Deerfield, MA. Hear about the latest research on a wide range of topics in vegetable crops, cover crops and crops for fuel! Join us to celebrate the new equipment workshop being built by the College of Natural Resources & the Environment to support research at South Deerfield. Bring disease samples to a free onsite diagnostic clinic! Registration: \$20 per person (3 or more per farm, \$15 per person). Refreshments will be served. Pesticide recertification credit has been requested. For more information contact Ruth Hazzard (545-3696) [rhazzard@umext.umass.edu](mailto:rhazzard@umext.umass.edu) or Steve Herbert (545-2250) [sherbert@umext.umass.edu](mailto:sherbert@umext.umass.edu).
- August 21, 2007 - ANNUAL MEETING of the CAPE COD GROWERS' CRANBERRY ASSOCIATION** 9am - 1pm - UMass Cranberry Experiment Station, Wareham, MA. In addition to the business meeting, there will be a tradeshow, lunch, and a tour and ribbon-cutting ceremony for the newly renovated State Bog. Lunch tickets must be purchased in advance. For further information contact CCCGA at 508-759-1041 or e-mail [info@cranberries.org](mailto:info@cranberries.org)

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