

Subject: New England Grape Notes, June 1, 2018
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New England Grape Notes - June 1, 2018

**UMass
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CENTER FOR AGRICULTURE

Crop Conditions: Shoot growth continues to progress rapidly at this time of year and vineyard blocks are in pre-bloom to early bloom depending on location and cultivar. Shoot thinning (the first round) should be underway or complete in most vineyards by this time. I say 'the first round' because many cultivars will need to have shoot thinning monitored as the season goes on and excess laterals removed when combing (for high cordon training systems) or tucking (for vertical shoot positioned systems) is being done. Shoot thinning is important not only for balanced vine growth but also for sunlight penetration into the canopy and to allow for good spray coverage. I say 'by this time' because they are easily removed now by hand before the shoots lignify and require hand pruners to remove without damage to the vine. See more about this in the [last issue](#) of New England Grape Notes.

Disease management, particularly for Phomopsis, Downy and Powdery Mildew, as well as for Black Rot, is very important during this time. Keeping the rachis, or cluster stem, clean until bunch closure is key for managing bunch rots later in the season. See more on this from Alice Wise on Long Island below.

Insect Management: In addition to European Red Mites, Grape Mealy Bug and Lecanium Scale mentioned in the last issue of Grape Notes, now is the time to prepare for **Grape Berry Moth** management. The first step is to establish your GBM Risk level by doing the GBM risk assessment. This is based on vineyard characteristics, pest history and recent winter weather conditions. Setting up GBM pheromone traps can be done now to establish pest pressure based on first flight of overwintered males. Treatment will not be needed now in most cases, but establishing the baseline population will help you with timing later. See article on GBM below. It is a little dated, but still has a nice summary of the GBM biology and life cycle, damage, and monitoring with traps. Another more recent and much longer article about GBM can be found at: <https://extension.psu.edu/grape-berry-moth-a-serious-pest-of-table-grapes-in-pennsylvania>.

~ Sonia Schloemann

Disease Update

Alice Wise, Cornell Cooperative Extension of Suffolk County, NY

Words of wisdom from NEWA, the Network for Environment and Weather Applications (<http://newa.cornell.edu>), along with local observations.

Phomopsis - 'At this time, protect against rachis infections and prevent infections that move from berry stems into fruit later in the season.; Everyone has a little phomopsis, apparent on both leaves (yellow spots with necrotic centers), and shoots (scabby lesions). The research vineyard has a bit more than usual, meaning that a timely schedule of protective fungicides will be necessary through fruit set. There are no post-infection fungicides for phomopsis.

Downy mildew - Attempts to use the NEWA DM prediction model were erratic. It was available for some stations and not others. where it was running, it listed either no DM infection periods or just a few. However, pre-bloom DM is not uncommon in wet years, due in part to rapid shoot growth. When shoot

growth is so explosive, new growth can be unprotected even with a weekly fungicide schedule. Scout vineyards to catch early outbreaks.

Powdery mildew – 'A lot of powdery mildew the previous year = more primary inoculum to cause infections this spring. The [NEWA] model logs potential primary infection events. **Caution:** Prolonged cloud cover (lack of sunshine), high RH (>60%), and warm (63–86 °F) weather significantly increases the risk of powdery mildew infections.' While the NEWA model actually does not list any recent PM infection events (surprisingly), it is prudent to maintain PM protection as we enter the highly susceptible pre-bloom period. More from NEWA: 'Fruit is extremely susceptible to powdery mildew from immediate prebloom through fruit set.

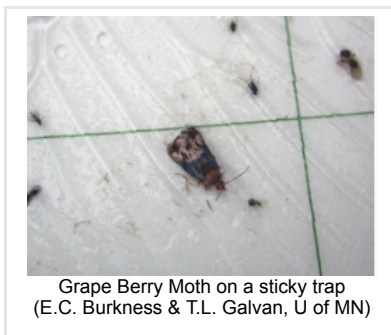
This is the most critical period to protect from fruit infections. Management programs should be at their peak, emphasizing the use of effective fungicides, full rates, appropriate spray intervals, and superior spray coverage.' PM fruit infections in early fruit set are difficult to address and often result in significant crop loss. Beyond fungicides, many growers are leafing the cluster zone in the pre-bloom period, either partially or fully, to reduce humidity, improve drying of clusters after rain and improve spray penetration. (*Source: Long Island Fruit & Vegetable Update, No. 9, May 31, 2018*)

Grape Berry Moth

Tederson Galvan, Suzanne Wold-Burkness, and E.C. Burkness, Department of Entomology, University of Minnesota

The grape berry moth (GBM), *Endopiza vitana* Clemens (Lepidoptera: Tortricidae), is a major pest of grapes in the Eastern U.S., and is capable of causing serious economic loss to commercial vineyards in the Midwest. It is native to the eastern United States, and can be found as far west as the Rockies. The grape berry moth feeds only on grapes and has two to three generations per year in Minnesota. Damage is caused by larvae feeding on flower clusters and fruit.

Identification



Grape Berry Moth on a sticky trap
(E.C. Burkness & T.L. Galvan, U of MN)

The adult grape berry moth is an inconspicuous, mottled brown-colored moth with a bluish-gray band on the inner halves of the front wings. It is approximately 1.2 cm long, with a wingspan of 0.8 to 1.3 cm. The newly hatched larva is creamy white with a dark brown head and thoracic shield. Later instars are green to purple in color, and are 0.8 cm in length when fully grown.

Biology & Life Cycle

Grape berry moths overwinter as pupae within curled grape leaves and in the leaf litter along the edges of woods and under vines. Adult moths emerge in mid to late May, and mate. Females lay eggs on or near grape flower clusters. Larvae hatch from eggs in 4-8 days, depending on temperature. Emergence of the overwintering generation peaks in mid-June and continues to mid-July. Larvae that hatch in June make up the first generation. Larvae feed on stems, blossom buds, and berries. Often they feed inside webbing which can cover the entire

cluster. Larvae will burrow into berries that are 0.3 cm in diameter, and will successively feed on 2-3 berries. When the first generation is mature, larvae either move to a leaf where they cut out a circular flap to construct a pupation chamber or pupate in the fruit cluster where they fed.

First generation adults begin to fly in late July, and the flight peaks in early August, however, adult moths continue to emerge until early September. Second generation larvae usually burrow into berries where they touch or where the berry is connected to the stem. Conspicuous red spots develop on the berries at the point of larval entry, and are referred to as "stung" berries. Larvae of the second generation complete their development in late September and pupate in fallen leaves and debris on the ground. Typically this is the 2nd and last generation of the year but with high summer temperatures a 3rd generation may be possible.

Damage

The larvae cause economic injury in three ways: 1) contamination of fruit, 2) reduction in yield, and 3) entry points for diseases.

Late-instar first generation larvae, and all larval instars of the second generation feed only on the berries. Injured berries ripen



Grape Berry Moth injury (E.C. Burkness & T.L. Galvan)

prematurely, split open and shrivel. Webbing produced by larvae prevents the berries from dropping. Feeding by GBM larvae not only reduces yield and contaminates the crop, but their feeding creates infection sites for fruit rots and feeding by fruit flies. At harvest, severely infested clusters may contain several larvae. Wine made from this fruit may be poor quality.

Management

Monitoring

Most vineyards have either consistently high or low damage from GBM each year. Because of this, researchers at Cornell have come up with a relatively simple risk assessment that growers can use to assess the potential threat of GBM damage in their vineyard. Three major factors that predict GBM damage severity in a vineyard are 1) whether vineyards are bordered by wooded areas or hedgerows, 2) winter temperature and snow cover in the vineyard and 3)

GBM infestation history in the vineyard. See the 1991 publication, *Risk Assessment of Grape Berry Moth and Guidelines for Management of the Eastern Grape Leafhopper*, for more information <http://nysipm.cornell.edu/publications/grapeman/files/risk.pdf>

Grape Berry Moth pheromone trap (E.C. Burkness & T.L. Galvan, U of MN)



Grape Berry Moth pheromone trap (E.C. Burkness & T.L. Galvan, U of MN)

Sticky traps with a pheromone lure can be used to monitor GBM emergence. Traps should be placed in the vineyard in the early spring, prior to bloom (see picture, left). A minimum of 3 traps/10 acre vineyard block should be used. Traps should be hung from the top wire of the trellis, and placed around the perimeter of the vineyard. Check the traps twice a week for the presence of GBM and record the date of the first moth capture.

Visually examining grape clusters is necessary to determine the severity of grape berry moth damage. As a part of the Cornell IPM program, the following sampling protocol is recommended: select four areas in the vineyard to be sampled (two in the center of the vineyard, and two on the edge of the vineyard). Visually inspect, at random, 10 clusters on each of five vines (a total of 50) in each of the four areas. Record the number of GBM-damaged clusters in each area. Compute separate totals for the center areas and the edge areas to determine the percentage of damaged clusters. For the July sampling date,

treatment should be applied if the percentage of the clusters with damage exceeds six percent.

Cultural & Physical Control

Destroying dead leaves may reduce grape berry moth emergence in the spring. In addition, burying leaf litter covering leaves with one inch (2.5 cm) of compacted soil will prevent emergence. Both of these actions must be completed three weeks prior to bloom.

In light infestations, injured berries can be removed by hand; however this may not be a feasible option for larger vineyards.

Biological Control

Trichogramma spp. (Hymenoptera: Trichogrammatidae), an egg parasitoid, can provide some control of GBM. However, since grape berry moth is not a preferred host, relying solely on the resident population of *Trichogramma spp.* is unrealistic. Instead, augmenting the population with releases of *Trichogramma sp.* may be necessary to provide noticeable control. In New York, Cornell researchers made inundative releases of *T. minutum* and found significantly lower levels of berry injury from GBM in plots where releases were made, compared to control plots and plots treated with conventional insecticides

Chemical Control

Where grape berry moth is an annual problem, post bloom sprays of insecticides may be necessary, and mid to late summer may be needed to control the second generation. The number of spray applications depends on the amount of infested berries a grower is willing to accept. Several insecticides provide good control of GBM, and can be found in the [Midwest Small Fruit Pest Management Handbook](#). [Editors Note: recommended materials for New England can be found in the [New England Small Fruit Management Guide](#)]

Mating Disruption

Mating disruption is based on the principle that when a specific pheromone is released in the air in sufficiently high quantity, the males are unable to orient to the natural source of pheromone, and fail to locate the calling female which prevents reproduction. The strategy is implemented by installing pheromone dispensers (Isomate GBM Plus, [http://www.pacificbiocontrol.com/Labels%20&%20MSDS_files/GBMPlus-1PP\(2004,Dec\).pdf](http://www.pacificbiocontrol.com/Labels%20&%20MSDS_files/GBMPlus-1PP(2004,Dec).pdf)) prior to moth emergence at a rate of 200-400 dispensers per acre (higher rates for high-risk vineyards).

The dispensers are easily attached to the upper training wire of the trellis. This strategy has proven effective in both Eastern and Midwestern states. [Editors Note: Isomate GBM Plus is not currently available in the USA]

References

Bordelon, B., M. Ellis, and R. Foster [eds.]. 2007. Midwest Commercial Small Fruit & Grape Spray Guide. <http://hort.agriculture.purdue.edu/pdfs/07SprayGuide.pdf>

Ellis, M. D. Doohan, B. Bordelon, C. Welty, R. Williams, R. Funt, and M. Brown. 2004. Midwest Small Fruit Pest Management Handbook. The Ohio State University Extension. pp. 125-129. <http://ohioline.osu.edu/b861/>

Martinson, T. E. C. J. Hoffman, T. J. Dennehy, J. S. Kamas, and T. Weigle. 1991. Risk Assessment of grape berry moth and guidelines for management of the Eastern grape leafhopper. New York's Life Sciences Bulletin. 138: 1-9.

Weigle, T. H., and A. J. Muza [eds.]. 2007. New York and Pennsylvania pest management guidelines for grapes. Cornell and Penn State Cooperative Extension. <http://ipmguidelines.org/grapes/>.

Meetings:

June 6, 2018 - URI Wine Grape Update: Exotic Insects & Spotted Lantern Fly and Risk Management & Crop Insurance Update, 3:00 - 5:00pm. Newport Vineyards, 909 East Main St. Middletown, RI. 2 pesticide credits. For more information contact Peggy Siligato at siligato@uri.edu or 401-640-0484.

July 10, 2018 - UMass Extension Fruit Program & Massachusetts Fruit Growers Association Annual Summer Meeting,

Webinars:



June 12, 2018 1:00PM EST

#1 - Precision Viticulture at a Glance

This webinar will provide background and scope for the rest of the webinar series as well as straight-talk on how applying Precision Viticulture (PV) can take the guess work out of vineyard management and how a short-term investment in PV can increase profitability, efficiency and sustainability.

Hosted by: Jackie Dresser & Kevin Martin
Research Technician *Business Mgmt. Extension Educator*



To register for this webinar, click here. https://cornell.zoom.us/webinar/register/WN_98dBbBK5OPqWzA-DA_IIxg



[Welcome! You are invited to join a webinar: The Hitchhiker's Guide to Precision Viticulture. After registering, you will receive a confirmation email about joining the event.](#)

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These Efficient Vineyard Webinars will be presented monthly from now until fall of 2019. Registration allows you to have access to all of the webinars. You will be sent email reminders as the next webinar approaches with the content for the month. Format for these webinars will be 15 minutes (1:00–1:15PM) at the beginning for sign on and open discussion. 30 minutes for the presentation (1:15–1:45PM) and then 15 minutes for Q&A (1:45–2:00PM).

We hope you will join us!

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