Lake Erie Regional Grape Program- *Vineyard Notes*

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Cornell University
Cooperative Extension

Lake Erie Regional Grape Program

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Coordinating Harvesting and Scheduling

The consolidation of harvest operations continues. As low prices and contract cancellations are creating obstacles for growers, we are seeing operators exit the industry. The decline in harvest operations appears to be outpacing the decline in acres. On average, larger growers were able to maintain and grow their markets as relationships with multiple processors had the potential to provide avenues to purchase or expand contracts.

From a capital perspective, harvest remains inefficient and costly. In an industry where the theoretical capacity of a harvester is at least 350 – 400 acres, the average harvester covers only 100. To a degree, this is sustainable because harvesters beyond their useful life need only justify repair, maintenance, and operating costs. As those costs rise and grape markets apply pressure, we see a decline in harvest operators. These consolidations represent easy gains in efficiency for many harvest operators looking to improve cash flow.

A few harvest operators are on the edge, harvesting at or near maximum capacity. These growers seem to be the most willing to take on additional acreage. Operators in this group may need to rework their strategy to ensure timely harvest for their farm and their customers. Given the current market, capital investments that improve efficiency are more likely to be modest in size.

Brix Testing

Brix testing before and during harvest can pay large dividends. The primary concern, of course, is to meet minimum quality standards. Not only are growers looking to avoid rejected loads, but also looking to avoid low payments. For some, maximizing average brix may be enough. National grape growers also benefit by avoiding particularly low brix loads. With various payment bands, two loads at 15.5 are typically much more valuable than one load at 15.4 and one at 15.6.

Increasing your average delivered brix by .05 will increase revenue for the 125-acre grower by $11,500. Such a moderate increase can be accomplished simply by harvesting grapes with more ripening potential later. Often this means harvesting the ripest grapes first. One note of caution for the cash market, simply delaying harvest to accumulate brix can result in both scheduling and allocation issues. That should be avoided whenever possible.

Brix testing also avoids cancelled loads. While a harvester may not pass that cost onto a grower, certainly grower owned harvester operations see a substantial cost to cancelled loads. At a minimum, a load cancelled after the crew shows up will cost $60. The cost of cancelled loads has been known to balloon well beyond $60 per acre. If the cancelled load necessitates a relocation of equipment, costs quickly exceed $100. Costs last year typically ran as high as high as $2,000. A cancelled load was not rescheduled until after the first frost. A lost load is typically worth $8,000. More brix testing last year would have saved a few growers from a lost load or two.

Tracking Data, Making Good Decisions and Increasing Brix Payments

During harvest closely tracking progress in a way that allows quick decision-making for scheduling and location decisions would add to the efficiency of pre-harvest data. Compiling slip information can help with paper blending decisions, brix totals, and scheduling requirements. This information further improves scheduling

locations to reduce travel time between blocks. A previous newsletter article discussed the use of Google drive to expedite both data collection and review. I'll revisit this topic in a future newsletter article. If you would like some more information on how to use the free cloud based resource on your operation, please contact me.

Changing Labor Recommendations in the Short-Term

For the most part, long-term recommendations are to make capital investments in harvest operation to decrease labor costs. Given current pricing pressure, many growers may find the payback period too long. An additional laborer may provide the necessary relief for overwhelmed harvesters.

For growers with average to above average crops, additional staff may provide some benefit. Occasionally, but not always, the choke point of efficiency is at the truck or moving equipment. A laborer to assist with moving and tie down may prove to be beneficial. Over the long-term bulk makes more sense, but a laborer may result in the same efficiency gain in speed without the large capital investment. In a year like this finding someone flexible is important. The cost of additional labor is quite high when yields are short. The ability to harvest blocks with 2-3 people will help compensate for custom harvest revenue losses when yield falls below 4 tons per acre.

Gondolas are a classic example to reduce labor and increase speed. Without capital investment improving the number of acres covered per hour can be challenging. Conversion to gondolas or bulk trailers can be helpful. However, in a year with a light crop, loading grapes may not necessarily be a choke point. Payback periods on gondolas are relatively quick, usually within three years for large harvesters. Bulk trailers can take between 5 and 7 years, due in part to the lack of processor adoption.

New Harvest Trend

There has been an upward trend this year in harvester purchases. Declining euros and loonies has led to massive decreases in Gregoire prices. If a grower was in the unusual combination of requiring a new harvester and having substantial cash reserves, a harvester purchase is likely a very good investment. Otherwise, investing cash reserves in currency accounts is now fairly inexpensive. Holding those cash reserves till a harvester is needed makes more sense. Others that do not have a critical need for a harvester will not see an acceptable return on investment. Determining your critical need will depend on your operation. We have seen some improvements over the original next generation harvesters that growers purchased.

Larger and more expensive harvesters also result in an opportunity to cover more ground. Anecdotal reports indicate longer harvesters and side bins improve average ground speed. For growers harvesting more than 200 acres, smaller sized harvesters should not be part of a long-term plan. Three wheelers and short-bodied harvesters tend to reduce ground speed. Of course, a new harvester requires substantial capital. For the most part, such an investment should be avoided at this point. In the meantime, incremental improvements and preventative maintenance can help compensate for operating speed. For harvesters using belts, the poor condition of pulleys and belts can result in reduced ground speed. If some acreage has substantial crops, preventative belt and pulley maintenance may avoid decreases in average ground speed or midseason maintenance. Aftermarket belts can sometimes be a cost savings measure to avoid pulley maintenance or replacement.

Shared Services Agreements

Another technique, given the sheer number of harvesters in the area is a shared services strategy. Operators develop a plan with processors that theoretically allow them to finish at or before the conclusion of harvest. Many processors schedule 85% of estimates or more. Assuming estimates are accurate an operator simply

needs to meet schedule and pick up additional loads on makeup days. Typically, the worst-case scenario is a mad rush the last few days. However, if expected low yields or equipment failure results in an operator falling behind it can become increasingly clear that such factors prevent a timely conclusion to harvest. Sharing services involves a phone call to operators having better luck and getting their harvesters or their entire harvest operation to assist in catch-up.

Long-term harvest plans can also include the elimination of the least profitable clients. With pressure on the main farm business, it will be challenging to harvest blocks that continually underperform. As an alternative, higher per acre rates may accomplish a similar result.

Shared Services Agreements

With the right mix of management strategies and equipment I am confident that it would be possible to reduce the number of harvest operators to less than 100. I'm less confident that it will ever actually happen. As long as farms continue to face consolidation and pricing pressure, we will see the number of harvest operators decline as well. With gains in efficiency hard to come by, bulk harvest and increasing acreage per harvester are welcome signs.

Cultural Practices

Luke Haggerty
Viticulture Extension Associate
Lake Erie Regional Grape Program

Measuring the effects of Cover Crops

The New York Farm Viability Institute awarded a grant to the Lake Erie Regional Grape Program titled "Using Cover Crops to Improve Soil Health and Vine Productivity in Intensively Managed 'Concord' Vineyards". With this funding, we plan on measuring how planting different cover crop mixes affect soil health and vineyard productivity over the course of two years. Although cover crops are not new to area vineyards, our program wants to analyze what is happening above and below ground in order to provide research-based recommendations for cover crop seed mixes in Concord vineyards.

As a perennial crop, grape production implicates many practices that deplete soil health, and over time decrease or limit vine productivity. A majority of the vineyards in the Lake Erie grape region have been in production for over 50 years, with an intense regiment of management practices leading to a range of soil health problems. To combat problems like soil compaction some growers are turning to cover crops as a floor management practice.

In this project we are teaming up with area growers currently using cover crops in order to measure possible benefits in different seed mixes. Finding information on cover crops studies is easy; usually there is a long list of soil health benefits and data showing the reduction of noxious weeds. The focus of this project is to collect physical, chemical, and biological measurements, soil compaction, vine size, and noxious weed data and identify cover crop mixes that have a benefit to Concord production.

Soil

Sites were selected based on soil types. Between these sites, soil type varies from Chenango gravel, Busti silt loam and Niagara silt loam. NDVI is used within each vineyard block to identify areas as high, medium, or low vigor areas. From the identified areas, data is collected from each vigor zone from both cover cropped and unplanted (control) at each vineyard. The data collected includes soil samples, compaction, and soil moisture.

Compaction and soil moisture data will be used to identify cover crop mixes that decrease compaction and aid in water drainage. Soil tests will be used to show if there is any significant chemical change within the soil.

Cover crop planted in Concord vineyard at CLEREL

Noxious weeds

Mare's tail
Conyza canadensis

Noxious weeds are difficult to control because they are either very robust, have complex root structures or have begun to show herbicide resistance. Cover crop studies have shown to be effective in reducing the number of noxious weeds. Weed counts will be conducted to show overall weed reduction. Counts on specific weeds will also be conducted to determine the effectiveness of cover crop mixes on suppression. These targeted weeds include beggars tick, golden rod, ragweed, horse nettle, and mare's tail.

Vine Productivity

Vine productivity will be measured in multiple ways. To determine change in vine size,NDVI will be collected on all sites and compared to pruning weights. Petiole samples will be used to show any change in nutrient uptake. Berry weight, brix, and TA will be sampled at harvest to show changes in fruit quality.

Cover crop trials

Rye grass planting at CLEREL

Cover crop seed selection varies from single species to a six seed mix. Rye grass and tillable radish are found in most of the mixes in the trial. However, there are multiple combinations of rye grass (perennial, annual and cereal), radish, clover (red, crimson, and white), buckwheat, and winter pea within the trial. Cover crops are planted in the late summer/early fall and terminated the following season. There are multiple plots at CLEREL, and participating growers are planting over 700 acres of cover crops. Separate from the project, there will be a 'timing and seed rate' trial at CLEREL to identify when and how much seed to plant.

Currently USDA, NRCS and other sources fund grants to grape growers to incorporate cover crops into their vineyards. Depending on the grant awarded, growers have many options of cover crop species to include in seed mixtures. As more growers are awarded these types of grants, many of them turn to LERGP seeking a seed mix that will contribute to soil health, reduce compaction and outcompete weeds, but not the vine. If you are interested in cover crops as a floor management practice talk with your local NRCS office and/or contact me at (716) 792-2800 Ext. 204 or email me at llh85@cornell.edu

Tim Weigle
NYSIPM, LERGP Team Leader
Lake Erie Regional Grape Program

Late Season Pest Management

Turning the calendar to August has traditionally signaled the beginning of the end for Concord and Niagara grower's concerns about their pest management programs as getting ramped up for harvest takes center stage. For many vineyards this can still be the case. If you can answer no to the following questions, you could very well be in this category;

1. Do any of your vineyard blocks have a history of problems with late season grape berry moth damage?
2. Are any of your blocks in an over crop situation?
3. Are there current infections from downy or powdery mildew or black rot in any of your vineyard blocks?

If you answered yes to any one of the following questions, you will need to continue to scout your vineyard blocks to monitor the progression of disease problems and/or use the grape berry moth phenology and degree day model on NEWA (http:newa.cornell.edu) to help time scouting and insecticide applications. While most vineyards are not in an over crop situation as described in question 2, hopefully you got out and crop estimated so you know where you stand. Research conducted by Wayne Wilcox showed that the only time powdery mildew foliar infections were a concern in Concords was in an over crop situation where it could have an effect on Brix accumulation.

We continue to see active lesions for downy mildew in many Niagara vineyards, especially on suckers near, or on, the ground. Downy mildew in Concords seems to have hit the clusters more than the foliage at this time but both Concord and Niagara vineyards with existing infections should be monitored closely as downy mildew can be an explosive disease and cause defoliation if allowed to get out of hand. We are also seeing downy mildew infections on many hybrids. Continue to provide protection for wine grape varieties, even those with no crop this year, to ensure that there will be enough leaf surface to allow the shoots to mature and help with winter hardiness.

Grape rootworm populations have all but disappeared, Japanese beetle seemed to come on strong but then left quickly when the temperature got up in the high 80's and disease management programs that kept primary infections of the primary diseases in check have all left those growers with little to worry about other than late season grape berry moth damage. The table below shows the results, as of August 4, 2015 for Portland (CLEREL) using the biofix date of wild grape bloom of May 26, 2015. Research conducted by Tobin and Saunders at Penn State discovered that it takes 810 degree days (using a base temperature of 47.14 F) for grape berry moth to complete its life cycle. The Lake Erie region has already experienced the first generation after the biofix, and we are looking for the next generation to occur at 1620 DD (810 DD + 810 DD). The GBM model on NEWA shows that for vineyards close to Portland, by the time you are reading this, it will be time to scout to determine if the cluster damage exceeds the economic threshold of 15%. If scouting shows an insecticide is needed, the best timing will be determined by the type of material that is used. For materials that need to be ingested, e.g Intrepid (PA only) or

Altacor, it is very important to have coverage on the grapes as close to 1620 DD as possible. For materials that work through contact, Leverage 360, Danitol, Bifenthrin, etc. it is better to wait until 1720 DD to allow more of the population to be present before the application is made.

In high pressure vineyards, a bracketed spray starting at 1620 and followed up 7 days later with a different insecticide may be necessary to provide continued covered for the extended egg-laying experienced due to the overlapping of generations. For the most accurate and current information for your vineyard locations, visit the NEWA web site and click on Grape Berry Moth in the Station Pest Forecasts block and input the wild grape bloom date that corresponds to the area around each of your vineyard blocks.

Grape Berry Moth Results for Portland

Wild Grape Bloom: 5/26/2015

Wild Grape Bloom date above is estimated based on degree day accumulations or user input. Enter the actual date for blocks of interest and the model will calculate the results more accurately.

Accumulated degree days (base 47.14°F) wild grape bloom through 8/4/2015: 1448 (0 days missing)

Daily Degree Days for Portland

Base Temp	Past	Past	Current	5-Day Forecast			Forecast Details	
	Aug 2	Aug 3	Aug 4	Aug 5	Aug 6	Aug 7	Aug 8	Aug 9
47.14F - GBM	27	23	21	18	18	18	20	20
Accumulation	1414	1437	1459	1476	1494	1512	1532	1552

NA - not available

Download Time: 8/4/2015 13:00

Pest Status	Pest Management
Second generation larvae are protected within berries and completing their development.	The most effective time for treatment of second generation grape berry moth is over. Prepare to scout all vineyard blocks for grape berry moth damage when DD accumulation reaches 1470-1620 DD. During scouting, determine if the number of damaged clusters from previous generation exceeds the treatment threshold of 15%. If above threshold, control measures should be applied starting at 1620 DD.

Disclaimer: ***These are theoretical predictions and forecasts.*** *The theoretical models predicting pest development or disease risk use the weather data collected (or forecasted) from the weather station location. These results should not be substituted for actual observations of plant growth stage, pest presence, and disease occurrence determined through scouting or insect pheromone traps.*

Back to Portland Weather Station Page

If you have any questions on implementing a grape IPM strategy in your vineyard operation, please contact Tim Weigle at (716) 792-2800 ext 203 or by email at thw4@cornell.edu

Grape Berry Moth: A Review as we approach the start of the Third Generation

Andy Muza, LERGP Extension Team & Penn State Extension – Erie County
Tim Weigle, NYS IPM & Team Leader

Grape Berry moth and why growers should be concerned about this pest?

Grape berry moth (GBM) is an insect in the Order: Lepidoptera (moths and butterflies) and Family: Tortricidae. It is native to the eastern U.S. and has evolved along with wild grapes (e.g., *Vitis riparia*). GBM larvae feed on berries of wild grapevines which are spread throughout eastern woodlands. Unfortunately, this pest also attacks cultivated varieties and is considered a serious pest of grapes throughout all of the eastern U.S.

GBM larvae feed directly on berries causing yield loss due to: consumption of berries; berry shelling; and crop rejection due to contamination. In addition, feeding injury provides entry points for fungi (e.g., Botrytis) and bacteria which can cause cluster rots.

Shelled concord berries due to GBM infestation
Photo: A. Muza, Penn State

Chardonnay cluster with Botrytis bunch rot
Photo: Greg Loeb, Cornell

Identification and Life Cycle

GBM has four life stages: egg, larva, pupa and adult

Egg – a single egg to a few eggs are laid individually by moths on the surface of the berry; very small (< 1mm); whitish, opaque; flat, oval, scale-like. Hatch in 3 - 8 days (temperature dependent).

Larva – 4 larval stages; Newly hatched – tiny, creamy white with dark head capsule;
Later stages - greenish to purple coloration (10 mm).

Pupa – Light brown to greenish coloration (5 mm). Pupae encased in leaf sections which are easily moved by wind to wood edges, trashy areas.

Adult – Small moth (about 6 mm); brown coloration; base of wings grey- blue; brown patches at tips of wings. Moths active at dusk and fly in a zig zag pattern.

GBM egg on berry
Photo found at:
http://nysipm.cornell.edu/factsheets/grapes/pests/gbm/gbm_fig2.asp

Mature GBM larva on berry
Photo found at:
http://nysipm.cornell.edu/factsheets/grapes/pests/gbm/gbm_fig3.asp

GBM pupa
Photo found at:
http://nysipm.cornell.edu/factsheets/grapes/pests/gbm/gbm_fig6.asp

Adult grape berry moth
Photo found at:
http://nysipm.cornell.edu/factsheets/grapes/pests/gbm/gbm_fig1.asp

Life Cycle

This pest has 3 to potentially 4 generations/year in PA and NY, depending on seasonal temperatures. This insect overwinters in the pupal stage in plant debris on the vineyard floor or in protected sites, such as wooded areas, where leaf debris has collected. The adults emerge in spring (late May in the Lake Erie Region), mate, and females lay eggs on flower clusters and berries. Larvae hatch and web together small berries (early in the season) and feed, or bore into berries (at berry size of about 5 - 7 mm).
Larvae exit berries after completing feeding and either: cut a semicircular flap in a leaf to pupate in the canopy; or more often, drop to the ground and pupate in leaf litter. Adults emerge and continue this cycle for several generations throughout the season.

Grape berry moth pupating within leaf flap
Photo: A. Muza, Penn State

Grape Berry Moth Fact Sheets containing additional pictures of life stages, injury and life cycle information can be obtained at the following sites:

NY IPM Program: http://nysipm.cornell.edu/factsheets/grapes/default.asp

Grapes.msu.edu : http://grapes.msu.edu/uploads/files/Insects_PDFs/GrapeBerryMoth.pdf

Mid-Atlantic Vineyards Grape IPM : http://www.virginiafruit.ento.vt.edu/GBM.html

Ontario Grape IPM : http://www.omafra.gov.on.ca/IPM/english/grapes/insects/index.html

Is GBM present and causing problems in my vineyard?

Indicators of potential GBM problems include: Feeding injury (small holes) in berries, shelling of berries, rotting clusters. The smell of rotting grapes, presence of large numbers of fruit flies or dust-like clouds of fungal spores when harvesting may also indicate potential GBM infestations.

Scouting

Regular scouting throughout the season is a critical component of GBM management and will reveal if this pest is present in the vineyard. A scouting protocol and assigning a GBM risk rating is outlined in "*Bulletin 138, Risk Assessment of Grape Berry Moth and Guidelines for Management of the Eastern Grape Leafhopper*" - http://nysipm.cornell.edu/publications/grapeman/files/risk.pdf

When scouting, pay particular attention to areas most susceptible to infestations such as: border rows near woods, overgrown areas, tree lines, or any protected areas around the vineyard where leaf debris might collect.

Since other disease causing organisms may also cause injuries similar to GBM damage, examine clusters closely. **What to look for:** webbing in clusters; berries with holes, splits or dark tunneling underneath berry skin; reddish or brown discoloration of berries; presence of larva and/or frass (i.e, brown excrement) in injured berries. Observation of eggs can be difficult due their small size so a hand lens is useful. Positioning clusters towards the sunlight as they are examined will aid in revealing eggs. Practice is required to acclimate your eyes for observation of eggs.

Webbing in cluster caused by GBM larva
Photo: A. Muza, Penn State

GBM entry holes in Niagara berries
Photo: A. Muza, Penn State

Grape berry moth eggs on Concord cluster
Photo: A. Muza, Penn State

Map vineyards and keep records – Make detailed maps of your vineyards and surrounding topography. **(Note: Members of LERGP can obtain maps of your vineyards by contacting Kim Knappenberger at CLEREL 792-2800 ext 210).** Keep records of GBM injury levels for each scouting date and vineyard sections checked. These records will provide a GBM history per site.

Pheromone Traps - GBM population levels can be monitored using commercially available pheromone traps. Monitoring traps are baited with small rubber lures impregnated with GBM female sex pheromone for attracting male moths. Pheromone traps can be used as a scouting tool to indicate flight periods and can provide an idea of population levels at your vineyard site. However, **trap data are not used for timing of spray applications** due to ambiguity concerning correlation of capture numbers and berry injury levels.

Monitoring traps are available at:
Great Lakes IPM, Inc. - http://www.greatlakesipm.com/

Scentry Biologicals, Inc. - http://www.scentry.com/Monitoring.htm

Management of Grape Berry Moth

Cultural Practices

Maintain good weed control under the trellis. Poor weed management resulting in excessive vegetation under the vines can harbor GBM pupae. Viticultural practices that promote a more open, less dense canopy resulting in better exposure of clusters to sunlight (e.g., judicious use of nitrogen, shoot and leaf removal in wine grape varieties) will not only improve quality of fruit but will enable better spray coverage.
Vineyard area maintenance such as preventing overgrown, trashy areas around the vineyard will reduce overwintering sites for GBM. If possible, removal of wild grapevines near the vineyard will decrease potential reservoir sites.

Grape Berry Moth degree-day model

A temperature-driven developmental model for GBM was developed by Tobin and Saunders. Collaborative efforts in verification and refinement of the model have been conducted by: Saunders, Timer, Muza (Penn State); Loeb, Hesler, Weigle (Cornell); and Isaacs (Michigan State). Refinement of the model is a continuous process.
The GBM degree – day model is incorporated into Cornell's Network for Environmental and Weather Applications (NEWA - http://www.newa.cornell.edu/) and many grape growers in the Lake Erie Region

have adopted this model to more accurately time insecticide applications for GBM management. Prior to the GBM forecasting model, grape growers in New York and in Erie County, PA used the grape berry moth risk assessment protocol to time insecticide applications. However, cooperative research between Penn State, Cornell and Michigan State Universities has shown that timing of insecticide applications using the GBM degree-day model results in less injury compared with the grape berry moth risk assessment protocol ("*Focus on Females Provides New Insights for Grape Berry Moth Management*", Issue 14, May 2013 - http://grapesandwine.cals.cornell.edu/newsletters/appellation-cornell/2013-newsletters/issue-14/?csModule=security/getfile&PageID=1101424)

(**I highly recommend reading this article by Saunders, Isaacs and Loeb which provides an excellent background concerning the development and explanation on use of this forecasting model.** In addition, refer to Tim Weigle's article **"*Managing Grape Berry Moth: From calendar-based sprays to degree day models*", LERGP Vineyard Notes, Newsletter #4, July 2014 - pages 3-10)** which also provides detailed instructions on accessing and using the model).

Use of this developmental model can improve GBM management. However, to ensure the greatest efficacy a few steps are required:

- Check the NEWA – (http://www.newa.cornell.edu/) weather station closest to your vineyard. If a weather station is not located close enough to your vineyard site (i.e., areas outside the Lake Erie Region) then you will have to record temperature data on your own and follow the procedure outlined in *"Focus on Females Provides New Insights for Grape Berry Moth Management"* .
- Monitor and record the **date of wild grape bloom** (i.e., when approximately 50% of flowers open) for each site and enter these dates into the model. If you do not record a wild grape bloom date for your site then the model will provide an **estimated** date for the weather station that is used.
- Regularly check the model to track degree days.
- Scout both before and after insecticide applications.
- Incorporate GBM selective insecticides (i.e., Intrepid – PA only, Altacor, Belt, Delegate) into your spray program which will also aid in conserving natural enemies.
  Obtain a copy of the *2015 New York and Pennsylvania Pest Management Guidelines for Grapes* - (http://store.cornell.edu/p-189430-2015-new-york-and-pennsylvania-pest-management-guidelines-for-grapes.aspx). This guideline provides insecticide recommendations and efficacy information for grape berry moth management in NY and PA vineyards.
- Spray as close to the designated degree day timings as possible (i.e., the day of or within 1 or 2 days of the recommended date).
- Evaluate efficacy of applications.

It is important to be aware that the model provides the optimum timing for an insecticide treatment. However, the decision to apply an insecticide depends on your scouting data and the history of GBM injury at your site.

In vineyard areas with yearly, high GBM injury levels (Severe Risk sites) an initial postbloom application (about 7 days after full bloom) may be helpful. However, at these sites, at least consider using back-to-back insecticide applications for both the second and third generations. The initial application for the second and third generations should be timed according to model information followed by a second spray, 7 – 10 days later. Scout and record injury levels to determine if the additional sprays reduce GBM injury levels compared to single applications per generation.

Spray Application Practices

Obtaining good spray coverage on clusters is critical. However, this can be a challenging feat, particularly later in the season due to the extent of canopy growth. Therefore, it is important that diligent spray practices are adopted.

- Check equipment for proper working order (Hoses, pumps, nozzles, etc.).
- Calibrate Sprayer – sprayers should be calibrated **at a minimum** in the beginning of each season. Preferably 2 - 3 times/season as canopy growth increases. Consider using a patternator to check nozzle output and spray cards or fluorescent dye to check spray coverage. Two YouTube videos which are available to assist in calibration of an airblast sprayer for vineyards include: Calibration of Airblast Sprayers for Vineyards: Part 1 – Selecting and Changing Nozzles. U.S. version and Calibration of Airblast Sprayers for Vineyards: Part 2 – Measuring Liquid Flow. U.S. version by Andrew Landers – Cornell University.
- Be Aware of: Pesticide registrations; pesticide preharvest intervals; reentry intervals and pH of water sources. (The pH of water can vary throughout the season depending on source). Adjust pH if necessary according to the pesticide label.
- Use appropriate gallonage, speed, pressure, and nozzles for good cluster coverage as the size of the canopy increases throughout the season.
- Spray Every Row.
- Minimize Spray Drift.

From the North East Lab

Bryan Hed-Research Assistant
Lake Erie Regional Grape Research and Extension Center

Our July rainfall totaled 5.02" (well above average) and we finished out the month at 1514 growing degree days. We currently have racked up 1598 growing degree days since April 1. Some serious gains in gdds over the past two weeks have helped keep our heat gain close to average for the season, but we finished out July a little below average.

According to DMcast, rainfall may have generated a downy mildew infection period at our location on the morning of the 4th when about a tenth of an inch of rain fell for a brief period in the morning. Although this comes at a time when downy mildew has cooled down a bit due to relatively dry weather over the past 3 weeks, modest rainfall at the end of July and the presence of active sporulation during this period, make for the possibility of limited infection from this wetting period, particularly in parts of the vineyard that remain wet for long periods of time. On the bright side, the short range forecast looks to be dry and sunny, and if this holds, we may be able to take a 'breather' from downy mildew for a while…sheesh.

2015
Hops Harvest and Processing Workshop

August 26, 2015
3 - 5 PM or 6 - 8 PM
Choose the session that best fits your schedule
Cornell Lake Erie Research and Extension Center
Meeting Room and Hop Yards
6592 West Main Road, Portland, NY 14769

Registration: $15
Includes picnic dinner of hamburgers, sausage and sides

Agenda:

How to time your hops harvest?
Why do my hops look like that?
Hop testing for alpha and beta acids and storage
Harvester Demo's - See *Hopsharvester*, *Steenland HH 1000*, *Wolverine Harvester* and CLEREL's prototype harvester in action
Experience hand picking of hops first hand
Demo of University of Vermont's Oast

To Register:
Contact Kate at (716) 792-2800 x202 or kjr45@cornell.edu
For credit cards please visit our website at:
http://lergp.cce.cornell.edu

Lake Erie Hops At CLEREL

IPM

Lake Erie Regional Grape Program

2015 Lake Erie Regional Grape Program Enrollment

Fees: *****This form is for NY Growers ONLY- PA Growers call 814-825-0900 to register***

$70.00 $_____ **GRAPE Program** -Chautauqua county landowner
(includes Chautauqua County Ag enrollment)

$65.00 $_____ **GRAPE Program**- Cattaraugus, or Niagara
(includes respective county Ag enrollment)

$75.00 $_____ **Grape Program**- Erie County NY
(includes Erie County Ag Enrollment)

Program fees do not include 2015 Cornell Guidelines for Grapes-

$100.00 $_____ **GRAPE Program** -Out of Program Region Resident

$25.00 $_____ Hardcopy mailing of Newsletters***

$30.00 $_____2015 Printed Hard Copy of Cornell Guidelines for Grapes-

You can order On-line access or Printed/On-line Bundles at the Cornell Store:
http://store.cornell.edu/c-875-guidelines.aspx

Total $_____ (Please make check payable to LERGP)

I am interested in the educational work of Cornell Cooperative Extension in Niagara, Chautauqua and Cattaraugus County. Any current recorded enrollee 18 years of age and older shall have voting and nominating privileges to hold office in the Association of their local county.

( ) I am 18 years of age or older and signed_____

( )New ( ) Renewal

Farm Name:_____

Name:_____ Spouse's Name: _____

Address:_____ City:_____

State:_____ Zip Code_____

Home phone:_____ Cell Phone :_____

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Thank you to all who hosted our Coffee Pot Meetings this season! Please contact me if you are willing to host a Coffee Pot meeting for us in 2016.
Katie at 716-792-2800 ext 202 or kjr45@cornell.edu.

2015 Coffee Pot Meeting Schedule

May 6- 10:00am-Dan Sprague- 12435 Versailles Rd. Irving NY 14081

May 13- 10:00am- Phillip Baideme- 7935 Route 5, Westfield NY 14787

May 20- 10:00am- CLEREL, 6592 West Main Rd. Portland NY 14769

May 27- 10:00am-Nick Mobilia- Arrowhead Winery 12073 East Main Rd. North East PA

3:00pm-Evan Schiedel/Roy Orton- 10646 West Main Rd. Ripley NY 14775

June 3- 10:00am- Bob & Dawn Betts- 7365 East Route 20, Westfield NY 14787

3:00pm- North East Lab-662 N Cemetery Rd. North East PA 16428

June 10- 10:00am- Peter Loretto-10854 Versailles Plank Rd. North Collins NY 14111

3:00pm- Dave Nichols-1906 Ridge Rd. Lewiston NY 14092

June 17- 10:00am-Tom Tower 759 Lockport Rd. Youngstown NY 14174

3:00pm-Leo Hans-10929 West Perrysburg Rd. Perrysburg NY 14129

June 24- 10:00am- Kirk Hutchinson-4720 West Main Rd. Fredonia NY 14063

3:00pm- Brant Town Hall- 1294 Brant North Collins Rd. Brant NY 14027

July 1- 10:00am-Ted Byham 9207 West Lake Rd. Lake City PA 16423

3:00pm-Alicia Munch-761 Bradley Rd. Hanover NY 14136

July 8- 10:00am- Rosemary & Brenda Hayes- 6151 Route 5 Brocton NY 14716

July 15- 10:00am-Szklenski Farms- 8601 Slade Rd. Harborcreek PA 16421

July 22- 10:00am- Paul Bencal-2645 Albright Rd. Ransomville NY 14131

6592 West Main Rd., Portland, NY 14769 (716) 792-2800
662 North Cemetery Road, North East, PA 16428-2902 (814) 725-4601
850 East Gore Road, Erie, PA 16509-3798 (814) 825-0900

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Cooperatively yours,

Timothy Weigle
Statewide IPM
Senior Extension Associate

Andy Muza
County Extension Educator

Kevin Martin
Business Management Educator

Luke Haggerty
Area Viticulture Extension Associate

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