Cornell Cooperative Extension Lake Erie Regional Grape Program







photo credit- Kim Knappenberger

LERGP Newsletter - November 2021 Harvest Wrap Up Edition



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The Lake Erie Regional Grape Program is a partnership between Cornell University, Penn State University and the Cornell Cooperative Extension Associations in Chautauqua, Erie and Niagara County NY and Penn State Extension in Erie County PA. The team at CLEREL would like to say thank you for another year of support and working with us. We hope that you have a blessed holiday season.

Happy * Thanksgiving

Business Management

Kevin Martin, Penn State University, LERGP, Business Management Educator

Crushing It: Overcoming Most Grape Challenges

For Concords, an early spring frost set off alarm bells. With many varieties in short supply, Concord included, nothing could be worse than having a shifting demand curve with a lack of supply. Whether it was bud count, fruit set, or large berries most frost damaged vineyards saw smaller crops than their neighbors but still above average. Then there was the hail, it initially appeared to impact a significant number of acres. Some appeared to have visual damage, but it did not seem to significantly impact yield.

Weather issues.

Unfortunately, for a small percentage of growers it was a complete disaster. It was significant enough to cause some issues with the local pinot noir market. The surprise here is that these disasters



initially appeared to be widespread events that might have lasting market consequences. As we wrap up the season it appears that all but those who had the most severe frost damage had above average yields and did not struggle with brix accumulation.

Record yields.

For some, gross revenue will set records this year. Natives produced at volume for juice and wine and were harvested timely, which resulted in a rare combination of both high yields and high prices. No doubt this publication covered the general theme of rain induced berry swelling and dilution. A few growers did struggle with brix accumulation to make timely cash market deliveries.

Minimum soluble solids.

Concord processors all report receiving either a record amount of fruit or close to it on a per acre basis. Average soluble solids for juice grapes are around 15.7° Brix across all processors in the Lake Erie Region. This is significantly lower than average. It is also difficult to imagine having a year with a lower average unless changes in minimum standards across all processors were implemented. As far as Cooperatives are concerned the theme is similar. Brix accumulation was a larger concern and is likely to impact revenue for some cooperative growers – who get paid over a few years as the Coop sells juice from the 2021 crop. These growers cannot know for sure exactly how gross revenue will shake out. The crop load and the weather delayed harvest and left some fruit unharvested. Approximately 5,000 tons were unharvested either because the fruit did not meet minimum standards or could not be practically harvested quickly enough. This impacted multiple Cooperatives as well as the cash market.

Market Outlook.

Most signs point toward a healthy market. Growers certainly expect some carry-over of high prices and retail conditions seem extremely healthy. Rising business costs, particularly related to the containment of such large crops, may impact payments somewhat. Overall these markets seem competitive with the bulk cash market. They're also in better shape than smaller markets right now. There is some potential here to see some record-breaking revenue for growers that reached minimum brix standards. Around 15% of the market continues to struggle through harvest. Until harvest is complete, the verdict is out. Many individual growers that have completed harvest report some of the highest yields they've ever had. Products that indirectly compete with grapes have seen significant increases in price. This is most apparent in the juice grape market as corn, processing apples and other commodities have increased in price. This provides us with some expectations that prices going forward will be reasonably healthy for the next 11 months.

The longest harvest ever?

This will easily break records for the longest overall harvest at 10 weeks for Concords with other varieties harvested before and during that period. Crop containment has led to increased concentrate volume, trucking and even unharvested fruit. Typically, when seasons break records for length, crop loss is substantial. Breaking a record by weeks, not hours or days, one would've thought this spelled disaster. Losses reported the first week of November were nearly identical to the second week of October. Shelling occurred early and growers named every factor you could imagine. We saw berry moth, mildew, nutritional deficiency, splitting, fruit flies and more. Frost – the real killer here – didn't happen until the 10th of November. Even that, only impacted about 20% of the grape growing areas. Shelling due to harvest delay amounted to less than 2,000 tons of fruit.

Challenges ahead.

During the whirlwind of harvest, it is difficult to think outside of the box of yield, price and gross revenue. Market issues and challenges outside of these areas will continue to challenge growers going forward. The success most growers have had this year with yield, price and revenue will put them in a position to sustain and even invest to reduce the impact of other challenges. Some of these challenges are immediate and cannot be avoided. Going forward, grape prices will need to average more than they did 5 – 20 years ago to remain sustainable. Rising fertilizer prices have been the most dramatic change in input costs. Labor availability is easily the most expensive challenge. This has been a long-term issue that is less surprising but has been worsening rapidly. Most surprising has been the bottlenecks in the supply chains, as this impacts growers just as it does other industry. It is not just toilet paper anymore. Seemingly random supplies become more expensive, unavailable, or delayed. Imports are one challenge, but it has not been limited to imported goods. In addition to paying more, going forward growers will need to plan more. As real-time inventory is failing the system, it is becoming clear that inventory is the responsibility of the end user. This is not the most efficient allocation of resources.

The best year ever?

For many growers this may well be the most successful year ever. Of course, in the midst of success we must acknowledge the issues and disasters of other growers as well as the future challenges that the industry will inevitably face. In some ways it is rather exciting as the success of today creates the resources to respond, to change and to grow. With many future challenges mostly knowable the success of the industry and individual growers will depend on the decisions and allocation of resources that were created by 2021.

Far past the frozen leaves

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Viticulture

Jennifer Phillips Russo, Viticulture Extension Specialist, LERGP

A recap of the trials, tribulations, and victories in the WNY grape industry ranging from frost/freeze damage, hail, perfect weather conditions at fruit set and subsequent large crop, to the never-ending rain throughout the summer and continued harvest well into November.

Well, this year started out as normal as any COVID pandemic year could. Cornell and Penn State Universities continued to follow regulations of social distancing in efforts to keep everyone safe and we did not offer an in-person growers conference. Instead, the Lake Erie Regional Grape Team combined efforts at B.E.V. NY, the annual conference for the grape and wine industry, merging the resources of Cornell's Extension Enology Lab, the Finger Lakes Grape Program, the Charles H. Dyson School of Applied Economics and Management, and the New York Wine & Grape Foundation. The conference invited academic and industry experts to present information that address important issues for the industry, and to do so in a way that provides practical information to those who attended. We were glad to be able to share this virtual education.

Our Viticulture Planning Calendar was delivered to our members. The printed calendar is a portable data management tool, providing useful resources including contact information, a history of the Lake Erie Grape Industry and the Lake Erie Regional Grape Program (LERGP), and research-based tips for vineyard management. Each month features a beautiful vineyard photo, calendar reminders, an area for notes and interesting historical data. Calendars include additional information each month on the activities and information most critical to success. It was well received, and we are working on the 2022 version presently. The New York Wine and Grape Foundation reached out to us to partner on the calendar efforts this year to include a calendar with every membership package. Their mission is to promote the world-class image of New York grapes and wines from our diverse regions to responsibly benefit farmers, producers and consumers through innovative marketing, research, communication, and advocacy. We are ecstatic, they want to include our educational outreach efforts in their mission.

Also due to COVID restrictions, many of our growers needed pesticide recertification credits when the NYDEC removed the grace period. LERGP held our second annual Pest Management Spray Schedule meeting in April. This virtual program was intended to be interactive so that growers had the ability to ask questions concerning specific pest problems or potential problems in the 2021 season. Topics that were addressed included timing of spray applications at critical growth stages, pesticide options, efficacy, and resistance management. It was well attended and LERGP worked with NYSDEC to be able to offer credits.

Coffee Pot News

Pandemic regulations continued forcing the Lake Erie Regional Grape Program to continue our Virtual Coffee Pot Meetings. In 2020, we created our Virtual Coffee Pot Meetings for educational outreach, with the use of technologies, that bridged the gap of a paused society and allowed for solutions that would have lasting effects to enhance our program for years to come.

Coffee Pot meetings have been a staple of the extension work done by the Lake Erie Regional Grape Program for many years. During these meetings researchers and extension associates come together with growers in a relaxed setting to share up-to-date information and advice on how to take care of the issues that arise in their vine- yards as well as offering time for the growers to collaborate on what works and what doesn't work. In addition, pesticide recertification credits are given to those in attendance who present their pesticide applicator license. COVID 19 halted in-person meetings and threatened to derail the events where one could obtain pesticide recertification credits. LERGP Specialists worked closely with the New York State DEC and Pennsylvania Depart of Agriculture to get pesticide recertification credit approval for these courses and were approved for one credit for both New York and Pennsylvania growers for each meeting. We were able to offer 13 chances for recertification credits with over 300 in attendance for this year.

In addition, the Virtual Coffee Pot Meetings invited guest speakers with expertise in their fields to present their research in an informal setting and entertain grower questions and comments. These face-time interactions with researchers provided an opportunity to share grower experiences, ask questions that may have always been on the forefront of your mind, and influence future research. We have had many compliments from our grower stakeholders and guest speakers about the productivity of these meetings and requests to continue this virtual format throughout the year. Even the growers who were unable to attend in person during the virtual meetings, were pleased with the recorded sessions that are available to watch at their convenience on our website.

After preparation, meetings and discussions with both universities, podcasts officially went live at the beginning of this year. 18 episodes were produced with just over 400 downloads during one quarter alone. This content is also distributed through our YouTube channel as a video blog. The video blog has been around for a few years and views are typically just a little bit higher than the podcast. Overall, we increased total viewership by more than 50% due to the increase in distribution methods. Podcasts are also very on trend during the pandemic and a few guest speakers are more than happy to participate in the trend.

HeyMarket

LERGP has developed several different contact lists for purposes of meeting reminders, phenology updates and other promotional materials. HeyMarket allows us to distribute this material and information via text message.

Growers can respond to these alerts, and we have been able to quickly answer questions and expand contacts with this technology. We began to use this texting service this year and have sent out over 1,000 text messages. A large majority of growers attending virtual meetings prefer to get these reminders via text and report receiving them as well. Growers would often get an e-mail reminder prior to a meeting but read it after the meeting was over.

CAPS (Grape Commodity Survey)

The 2020 Grape Commodity Survey was conducted again this year in the Lake Erie Region. There were 108 traps set up in 8 vineyards and 2 nurseries. This year the target moths include *Cryptoblabes gnideiella* (Christmas Berry Web- worm), *Lobesia botrana* (European Grapevine Moth), and *Eupoecilia ambiguella* (European Grape Berry Moth). The traps were set in early June and remained in the vineyards and nurseries for 14 weeks until mid-September. All moths were counted and recorded, but none of the target moths were found. These results are communicated to NYSIPM and published in their state report.

Spotted Lanternfly Outreach

We published an article in Appellation Cornell, *Raising awareness in tasting rooms about spotted lanternfly*, that instructed wine tasting rooms (and those of other craft beverages) how they can provide a unique opportunity to educate consumers about the spotted lanternfly and its potential impact. The article was also run in Fruit Grower's publication. We also had information in our crop

updates, video blog, and podcasts.

In the Vineyard

The 2021 growing season started off in April with an unusual warm spell that woke the vines up a bit earlier than usual pushing the tender green shoots. In late April and early May the cold weather returned at minimum slowing growth, and in some vineyard blocks, the primary shoots and flower clusters experienced damage and death due to frost/freeze events. Then the weather warmed up again and set the stage for a great fruit set after bloom. June was almost at drought levels and the vines grew well. The Concord industry experienced bloom a week earlier than the historical average increasing the growing season by a week. Research by Dr. Terry Bates developed a Concord berry curve and determined that at 30 days after bloom the berries are half of the size they will be at harvest, therefore we do crop estimates at 30 DAB to project the crop at harvest.

The Lake Erie Regional Grape Program was contracted to analyze 182 crop estimation samples across the Lake Erie Grape Region for the third year in a row. The data collected projected very large crop sizes across the region with questions of whether the vines could support that much fruit and if not, what should happen to ensure a follow up crop in 2022. Specialist conducted many grower visits, podcasts, and video blogs as educational opportunities to discuss healthy balanced vines this season due to the large crop across the region.

There were questions from growers as to why the sugar accumulation seemingly stalled out in October. The below figure depicts the work that Dr. Terry Bates tested on different pruning level vines at different sizes and where those vines will be under-cropped, balanced, and over-cropped. A two-pound vine is balanced at 8 ton/acre and could ripen 10 ton/acre under the proper weather conditions, but it cannot ripen 12 tons/acre. This stresses the importance of knowing what your crop estimation in your blocks is and your options for crop management strategies. Keeping your vines balanced and your leaves clean ensure quality standards and wood maturation for the dormant season and next year's potential.

The weather conditions the first half of the growing season were conducive to pushing your vines into an overcropped situation, but some vines were severely overcropped. Then the weather just did



not cooperate in the second half of the growing season delaying veraison. Where we started a week early, we then lost 3-4 days.

Parts of our region were hit with hail in July that caused damage to canopy and clusters. New York State Department Ag and Markets and New York State Liquor Authority reached out to me to discuss the possibility of potential shortages of grapes to preserve flavor profiles due to terroir for the wineries affected. We contacted vinifera growers on our membership list to substantiate their loss and, depending on the proximity to the band that went through, it ranged from 10-50%, but it could lead to secondary injury by harvest increasing the amount of damage. Staff substantiated the amount of Niagara Escarpment Vinifera production loss due to the 7/20 storm to ensure whether an exemption

to the NY purchasing requirement may be granted and, overall, can be considered a regional "varietal" as it pertains to appropriate ABC law.

After veraison, the LERGP team also collected weekly samples from 10 different varieties in the region and berry development was tracked. A state-wide Cornell publication named Veraison to Harvest was produced weekly containing regional data for growers to track progress. The blocks that were damaged by frost/freeze early in the season still yielded 6/7 tons/acre. Some of the fruit thinned blocks did exceptionally well this season with reports of 20% increases over past years. Unfortunately, some of the blocks continued to hang fruit into the second week of November struggling to make quality standards. The constant rains in the second half of the season may have contributed to less photosynthesis, delayed sugar accumulation, and dilution factors. Most of the harvested vines have experienced leaf fall and teams have begun pruning. I am slightly concerned about wood maturation and acclimation for vines that may have been severely overcropped. If you pushed them this year, please be sure to balance them or even leave a lower bud count for next season to let the vines recover. At this point in the season, we begin our bud hardiness sampling and reporting for our research, industry representatives, and grower members. Please visit our website to access the dormant season cold hardiness information.





PA Update

Andy Muza, LERGP Extension Team/Penn State Extension- Erie County

2021 Vineyard Scouting – A Recap of Crop Updates

This article provides a recap of scouting information from the 2021 Season. Vineyard scouting was conducted weekly at various sites extending from Girard/Lake City area to North East, Pennsylvania. The objective was to provide timely information, throughout the season, on potential/developing pest problems in vineyards. Monitoring of vineyard blocks began in May and continued into September. Scouting information along with accompanying photos of pest problems, obtained during the weekly monitoring, were reported in the Crop Updates from May 6 – September 9.

Freeze/Frost Events

Three freeze/frost events occurred from April 21 – April 26, 2021, across the Lake Erie Region. NEWA station sites from Lake City, PA to Ransomville, NY were checked to determine low temperatures during this period.

On April 21 (8 - 9 A.M.) - Low temperatures ranged from 27.8 F at the Harborcreek (Escarpment) site to 31.2 F at the Silver Creek site.

On April 22 (5 - 6 A.M.) - Low temperatures ranged from 25.7 F at the Versailles site to 31.8 F at the Harborcreek site.

On April 26 (4 - 6 A.M.) - Low temperatures at the PA NEWA sites ranged from 26.0 F at the North East – (Sidehill & Escarpment) sites to 32.5 F at the North East Lab site. Low temperatures at the NY NEWA sites ranged from 28.6 F at the Ripley (Escarpment) site to 33.4 F at the Silver Creek (Double A Vineyards) site.

Bud Injury Assessments – (Figure 1)

Primary bud injury assessments were initially conducted on May 3 & 4 in vineyard blocks from

(north of Rt. 5 to south of Sidehill Road and up the escarpment in Erie County, PA). Assessments of vineyard blocks were continued over a 4-week period and were reported in Crop Updates from 5/6 – 5/27.

Vineyard blocks assessed (from north of Rt. 5 to midway to Rt. 20) - There were minimal to low levels of freeze/frost injury (at majority of sites) in these areas.

Vineyard blocks assessed (just south of Rt. 20 to midway to Sidehill Road, North East, PA) - Dead primary buds ranged from 5% - 18% on May 6. However, some primary shoot growth exhibited a light green - yellowish coloration and appeared stalled/stunted between 1.5"– 3.5" in these blocks. Some leaves exhibited scorched (brown) tissue along the margins with superficial browning on a variable number of clusters.



Figure 1. Dead primary and 1" secondary shoot (Concord). Photo – Andy Muza, Penn State.

By May 20, (in vineyard blocks just south of Rt. 20), shoots were categorized into 2 groups. 1) -

Primary shoots (with no injury to the shoot tips); and 2) - Primary shoots (with freeze/frost injury to shoot tips) – these shoots remained stalled at $1.5^{\circ} - 3.5^{\circ}$, with lateral shoots just starting to grow from axillary buds at leaf axils. Secondary buds ranged from bud swell – budbreak stages.

By May 27, the Primary shoots (<u>with freeze/frost injury to shoot tips</u>) were still alive, but these shoots were only between 3"- 5". These shoots remained alive throughout the season but never achieved the growth that the uninjured primary shoots exhibited.

Vineyard blocks assessed (around Sidehill Road and up the escarpment, North East, PA) - Vineyard blocks around this area had the highest primary bud injury levels ranging from 88% - 94%. By May 6, secondary buds were starting to push with no indication of injury. Secondary shoot growth ranged from budbreak – 3" by May 20 and secondary shoots were between 5" – 14" on May 24.

Hail Injury – (Figure 2)

During the early morning hours of Friday (July 2), areas of the region in eastern Erie County, PA and into New York were hit by hail. A specific fungicide application for hail injured Concord vineyards was not recommended since injured berries, at this point in the season, would either dry up and shell or scab over their wounds. Growers were advised to contact their crop insurance agent so that injury levels could be accessed.

INSECTS

Grape Plume Moth & Banded Grape Bug – Crop Update (5/27) reported that grape plume moths were observed and that there were reports of banded grape bugs nymphs being found in vineyards.

Rose Chafer - On Monday (6/7) a few rose chafers were found in a Delaware block and in Concord blocks. Usually, beetles emerge about 7-10 days



Figure 2. Concord berries with hail injury. Photo – Andy Muza, Penn State.

before bloom and feed mainly on the flower clusters. This season beetles were just starting to emerge when Concords were already in bloom. Since the tender flower clusters were no longer available, the potential for any economic losses due to rose chafer was predicted to be low this season. But to be cautious, growers were advised to scout for rose chafers for about another week. By June 17, low populations of beetles were still hanging around but the threat of any economic losses due to rose chafer were over for the season.

Grape Leafhopper & Japanese Beetle – By July 22, grape leafhoppers were starting to build up in a few Concord blocks that were scouted. At this point, both adults and nymphs were present. Japanese beetle leaf feeding was also low in Concord blocks that were checked (on 7/19) but was much more evident in some wine grape blocks.

This season, high populations of both grape leafhopper and Japanese beetle were not widespread throughout the region but caused sporadic problems in some vineyard blocks.

Grape Berry Moth – (Figure 3) – Scouting for Crop Updates (6/10 & 6/17) revealed only a few clusters with webbing (from grape berry moth larvae). However, it was mentioned that an insecticide, timed with the First Postbloom fungicide application, may be useful in vineyards experiencing significant crop loss from grape berry moth (GBM) on a yearly basis or in high value *V. vinifera* blocks.

Crop Updates (6/24, 7/1 & 7/8) addressed management of the <u>second generation of GBM</u> and growers were advised to check the NEWA site (<u>http://newa.cornell.edu</u>) closest to their vineyards to determine when to spray high risk areas or when to begin scouting low and intermediate risk blocks. Crop Updates (7/22, 8/5 & 8/12) addressed management of the <u>third generation of GBM</u> and growers were reminded that, "For specific timings for an insecticide application, it is important to check the GBM Degree Day Model in NEWA <u>http://newa.cornell.</u> <u>edu</u>, choosing the closest station near your vineyard. All High and Severe Risk sites should receive an insecticide application for the Third Generation."

Growers were alerted to the possibility of a <u>fourth</u> <u>generation of GBM</u> in Crop Updates (8/19 & 8/26)



Figure 3. Grape berry moth larva emerging from injured Concord berry. Photo – Andy Muza, Penn State.

and should have continued scouting and monitoring GBM Degree Days using the GBM Model in NEWA. Egg laying for the fourth generation should have been occurring at 2430 Degree Days and growers were advised (in Crop Update 8/26/21) to consider whether to apply a late season insecticide application, taking into consideration the history of GBM pressure in their vineyard blocks.

Fruit Flies – Were addressed in Crop Update (9/9/21) since some Concord growers were inquiring about spraying for these insects. Research has shown that these insects play a major role in the development and spread of sour rot. However, sour rot is not a major concern in Concords, and spraying for fruit flies was not advised in Concord vineyards. **But control of these insects is important in the management of sour rot in susceptible wine varieties**.

Spotted Lanternfly – Information concerning reporting of SLF in both PA & NY and resources concerning this invasive insect were included in Crop Updates (10/7 & 10/21).

DISEASES

Phomopsis – Lesions were visible on basal leaves by May 27. Although leaf infections are not of

concern in further spread of the disease they can serve as indicators of the presence/extent of this disease in the vineyard. Fruit infections can occur from early bloom through the postbloom period, then remain dormant until preharvest. Rachises also remain susceptible during this period. Crop Updates (5/27, 6/10 & 6/17) advised growers to, "Maintain fungicide protection through pea-sized berry period, especially if the weather is wet during this time".

Black Rot – (Figure 4) - A few black rot (BR) lesions were found on Concord leaves for the first time this season as reported in Crop Update (6/3). The Immediate Prebloom through early postbloom periods are critical for management of BR. Fruit are highly susceptible to infection for 2-3 weeks after cap fall.



Figure 4. Black rot on Concord berries. Photo – Andy Muza, Penn State.

During this period growers were advised to maintain fungicide protection.

While scouting Concord vineyards for the Crop Update (8/19), I continued to find more berries expressing various stages of BR development. The symptoms that were occurring at this point were a result of infections that occurred at least 3-4 weeks before, when Concord berries were close to the period of full resistance. (Concord berries reach full resistance to infections about 5 weeks postbloom).

Overall, BR fruit infections were more prevalent this season compared to the 2020 season, so growers should be aware that inoculum levels will be

higher at the start of the 2022 season.

Downy Mildew – (Figure 5) - Reports concerning this disease were addressed in Crop Updates (6/10, 6/17, 7/15, 7/22, 8/12 and 8/19). Although downy mildew (DM) inoculum levels had been low in the Lake Erie region over the last few seasons, Bryan Hed found numerous sporulating lesions on sucker growth in a Chancellor block as reported in Crop Update (6/10). Even though I was not yet finding DM during vineyard scouting, an effective fungicide for DM was recommended to be included in the First Postbloom spray for the management of this disease.

The frequent showers/thunderstorms starting the beginning of July dramatically raised the potential for downy mildew (DM) infections throughout the region. Even with all this rainfall, I still did not think that DM



Figure 5. Downy mildew lesions on upper surface of a young Delaware leaf. Photo – Andy Muza, Penn State.

would become a major problem in Concords, but my concern was for DM susceptible varieties (e.g., Niagara, Catawba, Fredonia, Delaware, Chancellor, *V. vinifera* varieties). So, continuing to scout vineyard blocks (including Concords) to get an idea of the extent of DM infections was advised in Crop Update (7/15).

By 7/22 growers were reporting about finding DM in Catawba, Niagara, and susceptible wine grape varieties. On 8/9, I finally found DM lesions on young leaves in 2 Delaware blocks.

Surprisingly, despite over 6 inches of rain in July, DM infection rates were minimal in Concord and Niagara vineyards that I scouted during the season. However, as expected, highly susceptible varieties (i.e., Chancellor, and *V. vinifera* varieties) exhibited higher levels of infections this season compared to the 2020 season.

Powdery Mildew – (Figure 6) - Reports concerning this disease were addressed in Crop Updates (6/10, 6/17, 6/24 & 7/22). In Crop Update (6/10) it was reported that powdery mildew (PM) was already being found on clusters. Although the numbers of clusters observed with PM were low, the infection rates were higher than usually found before full bloom. Fruit is extremely susceptible to PM from immediate prebloom



Figure 6. Powdery mildew on Concord leaf (prior to harvest). Photo – Andy Muza, Penn State.

through fruit set. This is the most critical period to protect fruit from infections.

By 6/17, I was able to find at least some leaves with small colonies of powdery mildew at about 50% of the sites examined. I was also finding higher levels of PM, than usually observed at this time of the season, on rachises and pedicels (berry stems).

By 6/24, Concord berries were close to being resistant to new infections from PM (i.e., about 2 weeks after bloom) but the leaves, rachises and pedicels were still susceptible to infections. Therefore, growers were advised to scout their vineyards to determine the efficacy of their fungicide program, so far.

By 7/22, the most noticeable symptoms caused by PM infections in Concord vineyards was the distortion and cupping of leaves closer to the ends of shoots. But, overall, canopies looked good, and levels of PM were still at low-moderate levels. Bryan Hed advised that, "control should be targeting leaves at this point and the decision to continue spraying on native juice varieties will be based on crop size."

In August, due to environmental conditions and depending on fungicide spray programs, PM levels increased in vineyards. This resulted in moderate or higher levels of PM in canopies towards the end of the season.

Critical Fungicide Application Periods

Immediate Prebloom & First Postbloom Fungicide Applications – Growers were informed to be prepared to apply the **Immediate Prebloom** fungicide spray as early as Crop Update (5/27) and reminded again in Crop Update (6/3). The **First Postbloom** fungicide application was addressed in Crop Updates (6/10 & 6/17). These are critical sprays needed to protect rachises, pedicels (berry stems) and berries from our four major diseases (Phomopsis, Black Rot, Downy Mildew and Powdery Mildew). It was advised, "**DO NOT** stretch spray intervals beyond 14 days during this critical period for protection of the clusters." Due to the frost/freeze events that occurred in our region it was also stated that, "Primary and secondary shoots in frost injured blocks will be at different phenological stages. Therefore, clusters on secondary shoots will also have to be protected against diseases during critical periods (i.e., Immediate Prebloom, First Postbloom)."

A **Second Postbloom** fungicide application (within 10 - 14 days after the First Postbloom fungicide spray) was advised in blocks with native varieties, if powdery mildew, black rot or downy mildew was found without much effort during scouting. A Second Postbloom fungicide application for protection of the fruit, regardless of disease levels, was also advised for blocks of *Vitis vinifera* and highly susceptible hybrids.



PA Update Bryan Hed, Research Technologist, Lake Erie Grape Research and Extension Center

As another season ends, here's a final wrap-up on the 2021 season from the Penn State grape lab at North East. Some of the information below was also posted in the October 20 Crop Update.

On Concords here at the North East lab, we recorded 10% pink at about April 11, and 50% bud break on April 24; 8 days earlier than average. Many vineyards positioned south of route 20, especially anything along or near Sidehill road suffered severe late frost damage to young shoots, leaving many vineyards with a partial crop at best, for the remainder of the season. However, many vineyards outside this 'war zone', (ie, the North East lab) were eventually hanging a huge crop.

For us at the North East lab, the first Concord flowers opened on June 7 (several days ahead of average), and we recorded 50% bloom about a couple of days later. Fruit set was good and we could see an enormous crop brewing by early summer. However, hail during the early morning hours of July 2nd, thinned part of our acreage, and that of other vineyards along the lake. The "stones" were small and did relatively little damage to canopies, but injured a large percentage of the young, developing berries, mostly on the north side of our trellis. The question arose: **should we be concerned about Botrytis and other bunch rots in hail damaged vineyards?** We did not recommend spraying these vineyards for Botrytis as the damage occurred very early in berry development, when fruit are just not very good substrate for rot organisms.

As the season drew on, July delivered over 6 inches of rain, that made disease control on fruit challenging, especially for varieties susceptible to downy mildew. A trial we were running in our Chancellor vineyard, to evaluate a new, unregistered product for downy mildew control, was a great success; we lost over 80% of the crop in the unsprayed check plots (the ultimate challenge!), but the new product provided nearly 100% control of the disease. In addition to the new, 'mystery' product, we also had two "positive" checks in the trial; a registered product called Ranman, and our old standard, mancozeb (Manzate ProStick). Like the new "mystery" product, Ranman provided nearly 100% control of the disease, under high downy mildew pressure. On the other hand, the mancozeb product, although providing significant control when compared to the unsprayed vines, allowed for a crop loss of 14%. How did this happen? Well, as you know, mancozeb products are strictly surface protectants and do not actually enter the tissues of the vine. And although mancozeb is very toxic against the pathogen that causes downy mildew, mancozeb products are not as rainfast as many of the newer generation of fungicides, that actually get into the tissue. The frequent and heavy rainfall in early July may have reduced the mancozeb residues on clusters to critical levels between spray intervals (our intervals at 3 lbs/A, varied from 11-13 days), resulting in greater than expected crop losses. *This is an important* lesson to keep in mind. Even though mancozeb is extremely effective against diseases like downy mildew and black rot, maximum rates (4 lbs/A) and shortened intervals (7-10 days) may be essential to provide commercial levels of control under high rainfall conditions, especially on varieties susceptible to these diseases.

After a slightly cooler and much wetter than average July, we lost some of the lead we had earlier in the season, and veraison for us, was only about 2 days ahead of our long-term average. After veraison (August 20th) the 3-4 critical ripening weeks that followed were met with weather that was a bit warmer and drier than average. In the end, August turned out to be blazing hot, but right around average for rainfall, and September was just a little drier and warmer than average.

And then came October: October 2021 was the warmest October since I got into this "business", 22 years ago. October also made 2021 the warmest growing season (April 1 to October 31) in at least the last 22 years. Upon closer inspection, the first three weeks of October (310 gdds, 2.56" rain) were somewhat of a repeat of the first three weeks of September (388 gdds, 2.23" rain); a stroke of luck for vineyards hanging monster Concord crops. Our Concord harvest began October 18, definitely later than average for us, and we finished up on the 22nd.

Finally, one quick note about the new fungicide, Cevya. The active ingredient in Cevya, mefentrifluconazole, is a sterol biosynthesis inhibitor (FRAC 3), that is very active/effective against powdery mildew and black rot, as evidenced by multiple grape trials in New York, and here in Pennsylvania. Despite the active ingredient being of an older chemical class, known for problems with resistance development by powdery mildew among some of its chemistries, it's a winner! It was initially labeled only for use on *Vitis vinifera* grapes, but we expect a new label for 2022 product that will allow its use on all grapes. There will be more to say about Cevya for the 2022 season, especially regarding price per acre and how best to use it in vineyards, in future updates.





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Extension Programs

Kimberly Knappenberger, Viticulture Assistant, LERGP

VIP

The Vineyard Improvement Program is gaining a little traction again this fall now that harvest is finally wrapping up and growers are making assessments of existing/abandoned Concord blocks and how they fit into their business plan. It is encouraging to see the number of plans being submitted for abandoned vineyards that are currently only serving as a source of pest infection, as well as not creating any revenue for the landowner. This fall there have been 4 projects wrapped up to yield a total of over \$80.000 in reimbursements.



If you want to know more visit <u>the LERGP VIP Web-site</u> or contact Kim Knappenberger (<u>ksk776@</u> <u>cornell.edu</u>), Kevin Martin (<u>kmm52@psu.edu</u>) or Jennifer Phillips Russo (<u>jjr268@cornell.edu</u>).

COVID PPE

No one wants to hear about it or talk about it, but we still have the free masks and hand sanitizer. If you would like some, please contact Kim at <u>ksk76@cornell.edu</u>.

NEWA Update

Fortunately, or unfortunately, depending on your personal perspective, the NEWA 3.0 transition occurred just as harvest really ramped up. This new version of the website is now the only one that you can access through the newa.cornell.edu web address. Hopefully you have had a chance to check it out and learn how to find what you need. If you need assistance there are some great tutorials on how to navigate the new NEWA website that you can watch at this <u>link on the NEWA</u> website, or if you have any questions please feel free to contact Kim at <u>ksk76@cornell.edu</u>.

If you haven't been reading the crop updates, you might not have realized that the Portland Escarpment station has been deactivated and is no longer accessible on NEWA. This was one of our older stations and was experiencing multiple sensor failures. As a result of deactivating that station we were able to move the high gain antenna from there to the North East Side Hill station to enhance the signal. This seems to be helping to keep the data coming in more regularly as it had been experiencing problems with the connection between the station and IP-100.

The last big change that occurred during harvest is that the Westfield station has been changed back to wifi from cellular. The TeleMet was not reporting properly and receiving some interference, so it was removed from service. The IP-100 (wifi) was reinstalled, and it has been working great ever since. At the time of writing this the station has not been reactivated on NEWA, so in the meantime the weather data query shows estimated data. This should be remedied soon. If you have ever wondered how that information is filled in as estimated data, here is an explanation from NEWA:

Missing weather variables

Temperature and relative humidity data points occasionally are missing in a data record and NEWA attempts to estimate missing values following a two-step process.

- 1. The data record is examined for non-missing temperature or relative humidity values in the previous hour and the next hour. If both are found, an average of the two is used as an estimate.
- If the previous hour and the next hour values are unavailable, temperature or relative humidity data from the National Centers for Environmental Prediction's Real-Time Mesoscale Analysis (RTMA) and Unrestricted Mesoscale Analysis (URMA) for the nearest location grid are used.

Precipitation and wind direction missing data are sourced from the RTMA and URMA archive.

Solar radiation missing data are estimated based on sky cover data from the RTMA and URMA archive.



Soil temperature and soil moisture measurements are location dependent and are not substituted or estimated in any scenario.

Estimated data are displayed as brown italics in the weather data listings on NEWA. Currently, no other weather variables, other than forecast data, are estimated in the NEWA weather data listings.

(https://newa.cornell.edu/how-newa-handles-weather-data)

As always, if you notice a problem with your favorite station please let Kim know (<u>ksk76@cornell.</u> <u>edu</u>). Just this week there was a plugged rain bucket and thanks to a tip from a local grower it was cleaned out and collecting accurately again!



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