LERGP Crop Update
August 01, 2024

photo credit:
Kim Knappenberger

Cornell Cooperative Extension
Lake Erie Regional Grape Program

PennState Extension

Building Strong and Vibrant New York Communities
Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.

In this copy:

Jennifer Phillips Russo - LERGP Viticulture Specialist:
jjr268@cornell.edu
Cell: (716) 640-5350

Megan Luke –LERGP Penn State Extension Viticulture and Tree Fruit Educator
MFL5873@psu.edu
Cell:(716) 397-9674 Office:(814) 825-0900

Andrew Holden-LERGP Penn State Extension Business Management Educator
azh6192@psu.edu
716-792-2800 ext 202
Cell: 716-640-2656

Kim Knappenberger – Extension Support Specialist
ksk76@cornell.edu
716-792-2800 ext 209

Kate Robinson – Administrative Assistant
kjr45@cornell.edu
716-792-2800 ext 201

Click here to watch Podcasts

The Lake Erie Regional Grape Program is a Cornell Cooperative Extension partnership between Cornell University and the Cornell Cooperative Extensions in Chautauqua, Erie and Niagara county NY and in Erie County PA.

Business Management

Andrew Holden, Business Management Educator, Penn State University, LERGP

PA Equipment Grant and Other Updates

Resilient Food Systems Equipment-Only Grant

Today, I have a brief update for Pennsylvania growers that applied for the **Resilient Food Systems Infrastructure Program Simplified Equipment-Only Grant**. On the PDA webpage, under the equipment grant section, they have added, "**Due to a high volume of submissions, correspondence will not occur until late August 2024**". This is good news to those who have not yet heard from the state about the progress of their application. Keep an eye out for any correspondence in the meantime, and please let me know if you receive word either way on your application.

Other Updates/Articles from The Cornell Ag Workforce Journal

- **August 6 is Farmworker Appreciation Day: Plan your recognition in advance!**
- **Webinar on the 2024 H-2A Farmworker Protection Final Rule to be Held on August 7, 2024 by U.S. Dept of Labor**

My Contact Information:
Andrew Holden
Business Management Educator
Lake Erie Regional Grape Program

Mobile (call or text): (716) 640-2656
Office: (716) 792-2800
Email: AZH6192@psu.edu

Viticulture

Jennifer Russo, Viticulture Extension Specialist, LERGP

In the Vineyard

I am going to start you off with some sunny news! The NEWA weather forecast for Portland, NY has sun in the forecast. See the screenshot of the dashboard in Figure 1 below.

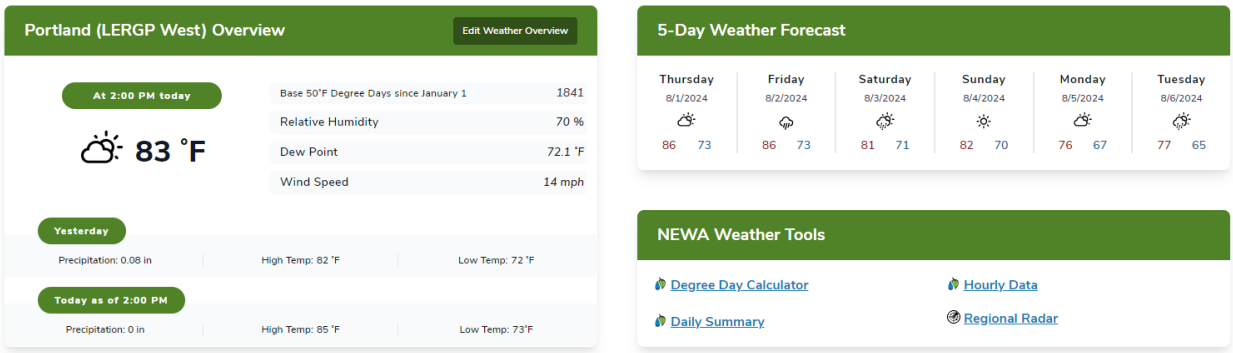


Figure 1. NEWA weather forecast for Portland, NY

Now to a serious and not so sunny topic. It was brought to our attention two days ago that the EPA has reviewed the registration for Mancozeb and decided to remove grapes from this chemistry. The U.S. Environmental Protection Agency (EPA) issues Proposed Interim Decisions (PIDs) as part of a multi-step process to identify risks and actions to mitigate them. PIDs are related to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), which requires the EPA to review pesticides every 15 years. The goal is to ensure that risk assessments are based on the best available science and that registered products don't pose unreasonable risks to human health or the environment (Click Here for EPA information). With that said, I am absolutely in favor of protecting human health and the environment, however, decisions must be made with all of the facts and be fair and equitable. This decision to remove Mancozeb from our industry was the only proposed removal while other commodities are still allowed to use it with more stringent PPE requirements. This decision was partly made off of the data the California grape industry does not utilize this chemistry widely and based on the Return Entry Interval (REI) required to pass being greater than 36 days. This is a very important chemistry for disease management in eastern cool-climate viticulture where water is abundant via rain and humidity during our growing season. Dr. Katie Gold and other grape pathologists in the east are mobilizing to make an argument in our favor and this crop update is a call to action.

Decisions are being made because we have not had a voice in this matter. The open comment session is active and closes September 16, 2024. We need growers to submit comments that help to tell our story to the decision-makers and persuade them to reconsider their decision. The Lake Erie Regional Grape Program created a grower petition letter very quickly because we had two in-person grower meetings yesterday, July 31, 2024. We wanted to get as many signatures and bring awareness to the continued efforts that we will be asking our growing and industry stakeholders to voice their opinions. I have pasted a copy of the letter below for you to review:

Printed Name: _____

Street Address: _____

City, ST ZIP Code: _____

Date: _____

Melanie Biscoe

Pesticide Re-Evaluation Division (7508P)

Office of Pesticide Programs, Environment Protection Agency

1200 Pennsylvania Ave. NW

Washington, DC 20460-0001

Dear Melanie Biscoe:
I am writing in regards to the use assessment for grapes conducted as part of the registration review for mancozeb Docket (EPA-HQ-OPP-2015-0291), document EPA-HQ-OPP-2015-0291-0094.

As a producer of juice/wine grapes in the Lake Erie Region, I do not feel as though the needs of my industry have been adequately assessed in the decision-making process for mancozeb. The document does not account for the challenges faced by generations of producers in this historic grape-growing region. High fungal disease pressure demands the frequent use of fungicides, and few multi-site fungicides are available for use on *Vitis labrusca* "Concord" due to sensitivity to sulfur. It makes no sense to disallow mancozeb in grape production while allowing it in all other fruit and vegetable production systems: tying and stringing tomatoes would have similar worker exposure risks as tying and positioning grapes, yet the label will still allow up to 8 applications of mancozeb per season in tomato production.
Mancozeb has become a key component to integrated pest management in this region, and through the use of pre-bloom application it allows for fewer fungal applications through the growing season. This in itself causes fewer chemical interactions to protect applicator/handlers, field workers, as well consumers. Additionally, mancozeb is the **ONLY** chemistry registered to protect this crop from Phomopsis which can weaken rachises and cause severe crop loss at harvest.
If the intent of removal of the product is aimed at protecting handler/applicators or field worker, we need to consider the potential of mechanical controls such as a Closed Venturi Induction System, recirculating sprayers, and the use of increased PPE, etc. In addition, as an industry we have made a great investment in mechanization that drastically reduces human exposure in the vineyard.
Removing mancozeb from our repository of registered chemistries will result in immediate loss of productivity and crop yield, creating economic impacts through the processing grape industry and threatening the livelihood of thousands of producers, many of whom have farmed their vineyards for 6+ generations. **The loss of a multi-site fungicide will cause the breakdown of single-site chemistries and interfere with all resistance management practices, leading to higher pathogen pressure and higher rates of fungicide application**. Processors will be forced to seek imported grapes and an entire stable industry will collapse.
I respectively request that you consider the impacts of your proposed decision and include grapes among the other commodities with increased mitigation measures and label updates and that you DO NOT cancel the use of mancozeb on grapes.
Sincerely, Your Name

Dr. Katie Gold has asked us to distribute this regarding Mancozeb call to action:

SUBJECT: Mancozeb

As you may have heard, the EPA released a proposed interim decision (PID) on mancozeb that would deregister its use on grapes. My colleagues and I in eastern grape pathology are reeling from the unexpected speed the EPA has moved with its mancozeb review. I am quickly mobilizing with these colleagues and CCE to coordinate a strategic action plan to effect a coordinated response. Comments are due September 16th, while we have the opportunity to request an extension, we must move forward with the assumption that this is our deadline.

Now is the time to SHOUT with our collective voice. Losing mancozeb entirely would be an unfathomable loss to NY grape production. Please read the below in detail.

I have consulted with my predecessor Wayne Wilcox and Julius Farado, USDA's plant pathologist in residence and liaison to the EPA, to build what we hope will be a successful action plan. By mandate the EPA is required to do a cost/benefit analysis. Our efforts are focused on educating the EPA on the unique benefits mancozeb offers to Eastern grape growers.

1-Grower letter campaign- We are aiming for sheer numbers here. We want everyone who touches the vineyard in any way to sign one of these. This letter will be tailored to each growing region by its respective CCE. Letter will hit four key themes:

Respectfully drawing attention to inadequacy of the data used to make decision (CA only)
Attesting to the importance of mancozeb for DM resistance management, lack of suitable alternatives

Attesting to the importance of mancozeb for Phomopsis control

Explanation of how lack of control will compound over time given perennial nature
Please be on the look out from a template letter from your respective CCE specialist by Friday 8/9.
Please see Jenn's article for template letter.

2-Key stakeholder letters: Individuals representing larger operations and/or organizations that can attest to the above 4 themes broadly, but also specifically in the below ways with either quantitative, economic, and/or scientific numbers:

Adoption of new sprayer technologies that reduce drift and chemical loading to environment (e.g. X number of growers associated with us have adopted Y technology that reduces drift)

Adoption of decision support systems (e.g. forecasting tool) adopted by growers that reduce fungicide applications (e.g. We invested in weather systems to improve NEWA model use over X acres)
Prevalence of fungicide resistance occurring in your sphere of responsibility (X growers who have reported it, X vineyards tested positive, etc)

Adoption of cultural practices (e.g. Y trellis system) that could help reduce occupational exposure (e.g. % of acres, growers who have adopted new practice)
Survey data conducted from growers and grower meetings on the value of mancozeb
Economic impact analysis relative to disease control and mancozeb in particular (e.g. $ losses suf

fered when DM or phomopsis went unchecked one year)

Export/import impacts (e.g. MRL/tolerances issues)
Changing weather patterns (e.g. climate change impacts in your region) (e.g. we have experienced X more damaging weather events in Y years than the previous decade).

Extension or otherwise bulletin where mancozeb is the recommended as standard treatment (e.g. mancozeb is recommended in our spray guidelines for X growers who interact with us)
Please reach out to Katie AND your CCE representative (cc us on the same email, kg557@cornell.edu) if you are willing to write a more extensive letter than the template. We will be able to provide you guidance.

3-My letter: I will focus on overviewing quantitative data (e.g. trial data, cost/benefit analyses, etc) that supports 4 core themes (trials, resistance surveys), precedent for geographic consideration in chemical use, potential economic damage, and illustrating examples of how we are adopting and moving towards strategies that allow for more strategic usage. I am in contact with colleagues gathering extensive data, published and unpublished, that will attest to these things. The examples and numbers shared in your letters will contribute to the case I am building in my letter.

4-Leveraging connections: We are surveying what strings we can pull to arrange 1) the benefits of mancozeb in eastern vit to be included in a broad range of comms from influential governmental offices (e.g. the NASA visit in August) and 2) for an in person meeting with the EPA decision makers where I can respectfully educate them on the benefits of mancozeb use in eastern vit. If you have a lead on either of these, please reach out to Katie AND your CCE representative (cc us on the same email, kg557@cornell.edu)

Thank you in advance for your cooperation. If you have any questions, please email both myself and your CCE representative together.

Best,

Katie Gold
Asst. Professor of Grape Pathology
Cornell University
Katie Gold, MS PhD | She/Her
Assistant Professor of Grape Pathology
Susan Eckert Lynch Faculty Fellow
Cornell AgriTech
Plant Pathology and Plant Microbe Biology
Cornell University
221 Barton Laboratory
15 Castle Creek Drive, Geneva, NY 14456
P: (973) 634-4215 | E: kg557@cornell.edu
W: https://blogs.cornell.edu/goldlab/ | T: @kaitlinmgold
Schedule: https://calendly.com/kg557/30min

I have copied and pasted portions of the Docket Number EPA-HQ-OPP-2015-0291 below for your review, but you can get the entire document at the link below.
Docket Number EPA-HQ-OPP-2015-0291 www.regulations.gov
4

I. INTRODUCTION

This document is the Environmental Protection Agency's (EPA or the Agency) Proposed Interim Registration Review Decision (PID) for mancozeb (PC Code 014504, case 0643).

The Federal Insecticide, Fungicide, Rodenticide Act (FIFRA)1 mandates a periodic review of existing pesticide registrations every 15 years, referred to as registration review.2 During registration review, the Agency ultimately determines whether a currently registered pesticide continues to meet FIFRA's registration standard.3 Where appropriate, the Agency may issue an Interim Registration Review Decision (ID) before completing a final registration review decision.4 However, issuance of an ID is not a decision on whether a pesticide's registrations continue to satisfy the FIFRA standard for registration.5 Rather, the ID may include mitigation measures and changes to labeling that EPA has determined would address risks of concern, identify data or information needed to complete registration review, and include schedules for submitting such data, conducting the new risk assessment, and completing the registration review.6 The Agency is issuing this PID for mancozeb to identify risk mitigations that EPA has determined would address risks of concern for mancozeb, as presented in Section IV and Appendices A and B.

Mancozeb is the only currently registered member of the ethylene bisdithiocarbamate (EBDC) family of fungicides, which formerly included the related active ingredients maneb, metiram, nabam, and zineb. Maneb, metiram, nabam, and zineb are now cancelled in the United States. There are no existing tolerances for maneb, nabam, or zineb; however, there are remaining metiram tolerances that allow for the importation of commodities that have been treated with metiram outside of the United States.

Mancozeb is a multisite mode of action fungicide used for prevention and control of fungal pathogens. Providing a broad spectrum of disease control, products containing mancozeb are registered for both foliar and seed treatment use on a wide variety of agricultural sites, including fruit trees, potatoes, and vegetable crops, and as an in-furrow use on onions. It is also registered for foliar use on ornamental plants and turfgrass and as a dip treatment for asparagus crowns and caprifigs. This PID also covers the degradate ethylene thiourea (ETU), which is shared with metiram. The first product containing mancozeb was registered in 1948. The Agency completed the reregistration eligibility decision (RED) for mancozeb in 2005.

EPA has not yet fully evaluated mancozeb's effects on federally threatened and endangered (listed) species or designated critical habitats. However, consistent with its obligations under the Endangered Species Act (ESA),7 EPA expects to complete effects determinations and any necessary consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (the Services) before completing the mancozeb registration review and issuing a final registration review decision. For more information on EPA's ESA obligations during registration review, see Appendix C.

EPA continues to work with the Services to improve the consultation process for pesticides in registration review. In April 2022, EPA released its ESA Workplan, which outlines strategies and actions for the Agency to meet its ESA obligations for FIFRA actions.8 9 Consistent with the ESA Workplan, EPA is focused on steps it will take during registration review to reduce exposure for listed species as it moves toward fulfilling its ESA obligations and making final registration review decisions. In November 2022, EPA released its first ESA Workplan Update.As part of this update, EPA announced that, going forward, EPA may include a variety of FIFRA Interim Ecological Mitigation (IEM) measures in its registration review decisions that seek to reduce exposures for nontarget organisms based on its FIFRA ecological risk assessment(s). EPA expects that this

mitigation may also reduce pesticide exposures for listed species.
As part of this PID, EPA has considered a variety of FIFRA IEM measures based on the risks and benefits of mancozeb to reduce exposures to nontarget organisms, including listed species, while EPA works toward a final registration review decision. While these mitigation measures do not satisfy EPA's ESA obligations, EPA has determined that early mitigation may shorten the consultation process and improve protections for listed species from currently registered pesticide products. EPA also has determined that the FIFRA IEM measures that the Agency is proposing for mancozeb in this PID (Section IV.B) would fulfill EPA's obligations under Section 711 of the Consolidated Appropriations Act, PL-117-328 (Dec. 29, 2022). Among other things, Section 711 requires EPA to "include, where applicable, measures to reduce the effect of the applicable pesticide on" listed species and designated critical habitats in any ID noticed in the Federal Register between December 29, 2022 and October 1, 2026 for which EPA has not "made effects determinations or completed any necessary consultation under [ESA Section 7(a)(2)]."
Before completing registration review, EPA will also address its Federal Food, Drug, and Cosmetic Act (FFDCA) section 408(p)(6)-related commitments and obligations to ensure the protection of public health for mancozeb. For more information on EPA's review of mancozeb under this FFDCA provision, see Appendix D.

A. Summary of Mancozeb Registration Review

On June 23, 2015, the Agency formally initiated registration review for mancozeb with the opening of the registration review docket for the case.10 The following summary highlights the docket opening and other significant milestones that have occurred thus far during the registration review of mancozeb:

- *Mancozeb (PC# 014504) Registration Review: Assessment of Use, Usage, Benefits and Impacts of Potential Mitigation for Foliar Uses in Apples, Pears, Almonds, Walnuts, Mango, Papaya, Grapes, and Cranberry* (June 28, 2024)

Usage

Agricultural Usage

According to national surveys, from 2017-2021 about 6.1 million pounds of mancozeb are used to treat about 3.7 million acres of agricultural crops each year.13 Some smaller acreage crops are not surveyed at a nationally representative level, and are not included in this estimate; therefore, these national usage values may slightly underestimate total national mancozeb usage.
In terms of total pounds of A.I. applied from 2017 to 2021, top sites include potatoes, sugarbeets, apples, and walnuts, where about one million pounds AI were applied on average annually to each use site. Top sites in terms of the percent of crop treated (PCT) were lettuce, walnut, onions, and pears.
Crops that were surveyed but reported low usage nationally between 2017 to 2021 were: almonds, grapes (raisin, table, juice, and wine varieties), wheat, carrots, corn, peanuts, and tobacco. Though national grape PCT was low, it is important to note that there were regional differences in mancozeb usage on grapes due to differences in disease pressure resulting from different moisture conditions.

III. SCIENTIFIC ASSESSMENTS

A. Human Health Risks

The Agency has summarized the 2024 HH DRA below. The Agency used the most current science policies and risk assessment methodologies to prepare this risk assessment in support of the registration review of mancozeb. For additional details on the 2024 HH DRA, see *Mancozeb and Ethylene Thiourea (ETU): Revised Draft Human Health Risk Assessment (DRA) for Registration Review* in EPA's public docket (EPA-HQ-OPP-2015-0291-0085).

1. Risk Summary and Characterization

assumption that these products are not for homeowner use and has not conducted a quantitative residential handler assessment.

c. Residential Post-Application Risks

No dermal point of departure was selected for mancozeb at this time (no dermal hazard); therefore, a quantitative post-application dermal assessment was not conducted for mancozeb. A dermal post-application assessment for ETU was conducted using a point of departure from the extended one-generation reproductive toxicity study (EOGRTS) in rats. There are no assessed non-cancer risks of concern from post-application exposure from use on golf course turf. Residential post-application dermal cancer risk estimates for ETU for adults from exposure to golf courses is 4 x 10-7. Exposure and potential risk concerns are expected from residential turf and ornamental uses; however, an agreement was reached with the registrant to voluntarily cancel these uses and thus they were not assessed in the 2024 HH DRA.

d. Bystander Risks

Risks to bystanders were assessed in areas adjacent to mancozeb applications, both for turf and lawns and on agricultural crops. No risks of concern were identified for mancozeb. However, ETU risks of concern were identified for children at the field edge for some agricultural uses.

Scenarios of concern include both orchard crops 14, vineyards, and typical-acreage field crops15, with combined (dermal + incidental oral) margins of exposure (MOEs) for children ranging from 140 to 590 (LOC = 300) for screening level exposure scenarios (e.g., fine to medium droplet size, high boom, etc). For orchard, vineyards, and typical-acreage field crops, a 75 foot distance from the edge of field is required to reach the LOC of 300 for aerial applications when using a fine to medium droplet size. For groundboom and airblast (orchard crops only) applications, this distance is 10 feet. Droplet size also plays a role in the resulting MOEs, with smaller droplets leading to reduced MOEs (or higher risk) for all scenarios. For groundboom and airblast application to orchard crops and typical-acreage field crops, passing MOEs at the field edge are achieved when considering larger droplet sizes (i.e., medium to coarse droplets). However, for aerial application to orchards, vineyards, and typical-acreage field crops, the largest droplet size modeled (coarse to very coarse) will still require a 10-foot buffer to reach the LOC of 300. There are no risks of concern for adult bystanders.

g. Occupational Handler Risks

EPA has identified risks of concern for occupational handlers who mix, load, and apply mancozeb to greenhouse crops, orchard crops, vineyard crops, field crops, and turf. The agency has also identified risks of concern for handlers performing seed treatment activities in the same crops, in both on-farm and commercial settings. Risk estimates are summarized below for both the parent mancozeb and degradate ETU. Additional details and full list of scenarios-specific MOEs are provided in the 2024 HH DRA. Most current mancozeb product labels require handlers to wear single-layer baseline attire (long-sleeved shirt, long pants, shoes, and socks), but do not require additional personal protective equipment (PPE).

Endpoint selection and Level of Concern (LOC)

For mancozeb, an occupational inhalation endpoint was determined using a subchronic inhalation study in rats, where toxicity manifested as alterations in thyroid hormones, increased thyroidal weight, and thyroid lesions. A dermal point of departure (POD) for mancozeb was not selected based on a lack of observed dermal toxicity. The LOC = 10 [1X to account for interspecies extrapolation (10X reduced to 1X due to the calculation of HECs accounting for *pharmacokinetic interspecies differences* and the *toxicodynamics interspecies differences* in the human vs. rat thyroid function), 10X to account for intra-species variation, and 1X FQPA SF].

For ETU, both dermal and inhalation occupational endpoints were selected using the extended one-generation reproductive toxicity study (EOGRTS) in rats. Thyroid toxicity also results from ETU exposure, with the addition of pituitary effects. Due to inhalation and dermal routes of exposure having the same effects, combined risk estimates are provided for occupational scenarios. The LOC = 300 (3X to account for interspecies extrapolation, 10X to account for intra-species variation, and

10X FQPA SF).

Mancozeb non-cancer risks from foliar uses

There are no non-cancer inhalation risks of concern from these exposure scenarios.

ETU non-cancer from foliar uses

Risks of concern are present from ETU in many occupational handler scenarios. Dermal and inhalation MOEs are combined, with dermal exposure being the main driver of risk. Risk values for occupational handler scenarios in the 2024 HH DRA are provided for each combination of formulation, application and/or loading method, and crop. Each unique scenario was initially assessed with baseline attire (single-layer of clothing plus gloves). For scenarios of concern with baseline attire, PPE was added to the calculations to determine at what point, if any, the level of concern (LOC = 300) could be reached. With baseline attire, several scenarios are of concern with MOEs ranging from 3.7 to 110,000. With the maximum assessed PPE (APF10 respirator, double layer clothing (long sleeve shirt, long pants, shoes, and socks, plus coveralls), and gloves) and/or engineering controls (closed-loading systems and/or enclosed cockpits), there are still some scenarios that remain of concern, with MOEs ranging 28 to 280. The lowest MOEs (28) all come from application of liquid, wettable powder (WP), and dry flowable (DF) formulations with handheld equipment, assuming double layer clothing, gloves and a APF10 respirator. Another particularly low MOE (87) comes from aerial application to sod, assuming engineering controls (i.e., closed cab) with gloves and a respirator. Scenarios of concern occur across all crops with different combinations of formulation, application and/or loading method, and handler activity (mixer/loader, applicator, flagger, and combined mixer/loader/applicator). See the 2024 HH DRA for a full list of occupational handler foliar scenarios and associated MOEs.

ETU post-application risks from foliar uses

Dermal exposure from ETU is the only category for which post-application risks have been estimated. Both cancer and non-cancer risk estimates are included in the 2024 HH DRA for post-application exposure.

Non-cancer risk estimates are crop and activity-specific and are expressed with a days after treatment (DAT) value to indicate the number of days since treatment for which the associated MOE is calculated. At DAT = 0 (same day as treatment), 48 crop/activity combinations are of concern (MOEs range from 16 to 12,000, LOC = 300), and represent a variety of crops and activities including orchard/vineyards, ornamental, turf, and field crops. For activities that are of concern at DAT = 0, an additional DAT was calculated to represent the point at which a passing MOE would be reached. These values represent the restricted entry interval (REI) that would be needed for occupational post-application risks to become no longer of concern. These REIs range from 1 to 34 days. Some scenarios, particularly post-application activities on grapes, are not able to reach a passing MOE even with REIs >30 days. At a DAT of >30 days, grape activity MOEs still range from 56 to 190. Existing REIs and preharvest intervals (PHI) are not adequate to address most scenarios of concern.

ETU post-application risks from seed treatment uses

Post-application exposure from seed treatment applications is not expected and no assessment was conducted for these scenarios.

2. Human Incidents and Epidemiology

EPA reviewed mancozeb incidents reported to both the Incident Data System (IDS) and the Sentinal Event Notification System for Occupational Risk (SENSOR). As of EPA's latest search on November 30, 2020, IDS and SENSOR showed 19 low- to medium-severity incidents reported from January 1, 2015 to July 29, 2020. These searches provided information consistent to the identified risks of concern and the conclusions of the incident reporting are of high certainty. Mancozeb was included in the Agricultural Health Study and EPA continues to monitor the results of that study. More detailed information can be found in *Mancozeb: Tier II Incident and Epidemiology Report* (EPA-

HQ-OPP-2015-0291-0026). The Agency intends to monitor human incidents for mancozeb and will conduct additional analyses if necessary.

…

Benefits of Foliar Use of Mancozeb on Crop Sites

Mancozeb provides moderate to high benefits to users in most sites and high benefits in some, including many vegetable crops (asparagus, cucurbits, lettuce, pepper, tomato); several field, bulb and root vegetable crops (potato, sugar beet, ginseng, sweet corn, onion, garlic); several orchard crops (apples, pears, walnuts, mango, papaya); and grape and cranberry. Mancozeb supports season-long disease control, particularly in regions where weather (high humidity, rain, and/or optimum temperature for disease development) presents greater disease pressure, and frequent (e.g., weekly) fungicide applications may be needed. Mancozeb may be applied several times, depending on use site and location (few as once or twice up to seven times on average) throughout the growing season alone or in combination with one or more other fungicides.

Mancozeb is used for preventative control of a broad spectrum of pathogens. For some applications mancozeb is combined with various single-site fungicides for effective disease control and resistance management. Because single site fungicides are prone to resistance development in target pathogens, mancozeb, which acts on multiple fungal pathways and is therefore at low risk of resistance developing, plays an important role in preventing/delaying resistance to these other fungicides.

In some sites (e.g., potato, tomato, pepper, cucurbits grown in the southeast, upper midwest and/or northeast), chlorothalonil, another multisite fungicide, plays a similar role and the two are used in tandem to provide season-long disease control. Recently, the Agency proposed to reduce the maximum annual application rate of chlorothalonil which effectively constrains or reduces the number of applications growers could make. The benefits of using mancozeb are high for use sites where chlorothalonil use is proposed for annual application rate restrictions (e.g., anticipated to impact tomatoes in the southeast and potatoes grown in the upper midwest). Without mancozeb, some growers could use copper but copper is not very effective in controlling plant diseases and it has been reported to be phytotoxic in many cases. Growers that cannot use copper would be solely reliant on single-site fungicides which increases the likelihood that resistance would develop, compromising control and resulting in yield and quality losses. Further, the single-site fungicides are generally substantially more expensive than mancozeb.

In tomato and pepper, use of mancozeb is also highly beneficial because it provides control of bacterial diseases, which can reduce crop yields and the quality of the produce. Bacterial leaf spot in tomato and pepper has shown resistance to copper, the only other fungicide with activity against bacteria. Therefore, mancozeb is the only effective control method.

The Agency found that use of mancozeb has low or low to medium benefits in almonds, broccoli, cabbage, and grapes grown on the West Coast due to low disease pressure and/or the availability of cost-effective alternatives.

d. Occupational post-application

To address risks to workers entering treated grape fields, the Agency is proposing to cancel mancozeb use on all types of grapes (including table, wine, juice, and raisin). Multiple grape activities show failing MOEs of 190 (LOC = 300) at 30 days post-treatment. A restricted-entry interval (REI) long enough to bring MOEs above the LOC would render mancozeb use on grapes impractical.

If mancozeb is unavailable in grape, growers would have to rely on single site fungicides (such as myclobutanil) to control black rot that could increase fungicide costs and affect fungicide resistance management in this disease. . For more information on the expected impacts to grapes see the supporting document *Registration Review: Assessment of Use, Usage, Benefits and Impacts of Potential Mitigation for Foliar Uses in Apples, Pears, Almonds, Walnuts, Mango, Papaya, Grapes,*

and Cranberry.

We encourage you to educate yourself on what is happening by reaching out to ask questions of us, read the docket, and please talk to your fellow growers and industry representatives on how we can protect this chemistry for our industry. Megan Luke has given how to steps in her article for you to reference.

Downy Mildew News

Jessica Clippinger, Lake Erie Grape Research and Extension Center

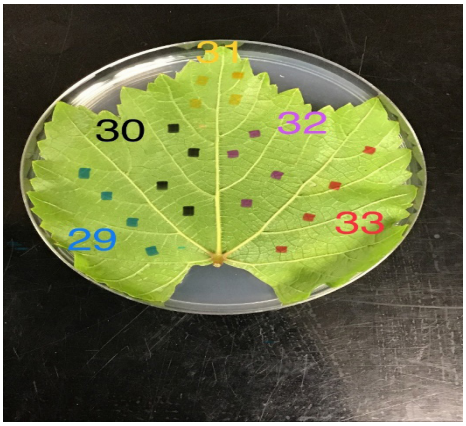
Downy Mildew Fungicide **RESISTANCE** Testing

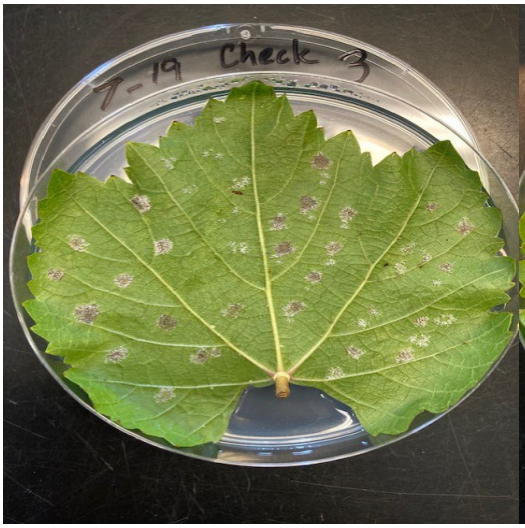
In 2023, the Penn State Grape Research and Extension Center in North East, PA, in coordination with the University of Maryland, conducted leaf disk bioassays to determine if downy mildew fungicide resistance was present in the Pennsylvania portion of the Lake Erie grape growing region. We looked at 8 sites scattered throughout North East and Harborcreek, PA, and included 9 different cultivars. For Fungicides, we looked at strobilurins (FRAC 11, Abound), carboxylic acid amides (FRAC 40, Revus), phosphorus acid and salts (FRAC P07, Reliant) and mefenoxam (FRAC 4, Ridomil).

Leaf disk bioassays are conducted using the following steps:

1. Collect approximately 10 moderately to highly sporulating leaves that are placed in in individual ziplock bags with a wet paper towel to sporulate overnight.

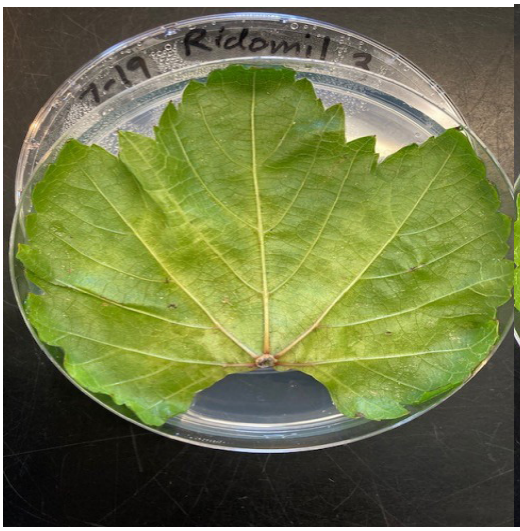
2. Sterilize clean Chardonnay leaves from the greenhouse in a beach solution.
3. Immerse sterilized leaves in pesticide for one minute and allow to dry. Some leave are left untreated as a check.
4. Harvest spores from the infected leaves to make a spore solution.
5. Inoculate pesticide treated leaves with drops of spore solution and incubate overnight at high humidity and 77 degrees Fahrenheit. Different number correspond to different leaves in the sample.
6. After 24 hours, dry plates and place them under lights with a day/night cycle maintaining temperature at 77°F and high humidity.
7. After about 8 days, compare and rate downy mildew growth in the treated plates to the growth in the untreated plates. (Examples below)





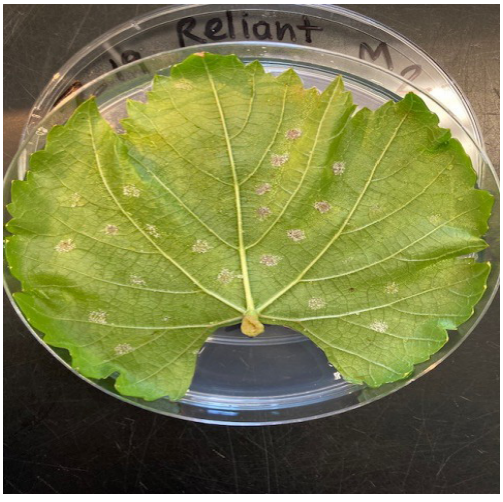
UNTREATED CHECK

ABOUND PLATE



RIDOMIL PLATE

REVUS PLATE



RELIANT

Results For leaves sampled from PA sites:
Abound 92% Resistant
Phos Acid 95% Resistant
Revus 68% Resistant
Ridomil 0% Resistant

Because of these results, control failures are possible with strobilurins, CAAs, and phosphorus acid and salts if used singly, rather than as part of a tank mix with an effective downy mildew fungicide from an unrelated FRAC group.

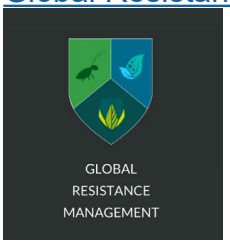
If you are a New York grower and would like to have your vineyard sampled for downy mildew resistance, please see the flyer below.

Fundamentals of Resistance Management

The 5 basic Do's and Don'ts of Resistance Management:

1. DO tank mix high risk fungicides with other chemistries with high efficacy against the pathogen of concern from a *DIFFERENT FRAC GROUP*, preferably a multisite, low risk, fungicide.
2. DON'T spray chemistries in the same moderate to high risk FRAC group back to back.
3. DO alternate FRAC group chemistries.
4. DON'T spray the same high or moderately high FRAC group chemistries several times in a season.
5. DO read the label and follow resistance management strategies stated.

Not sure what FRAC group your Chemistry is? Or if it is in a high-risk group? You can check the 2024 New York and Pennsylvania Pest Management Guidelines, the label, or use the **Global Resistance Management app**:
Global Resistance Management on the App Store (apple.com)



Jessica Clippinger
Lake Erie Regional Grape Research and Extension Center
662 N. Cemetery Rd
North East, PA 16428
jib5787@psu.edu

We need your DOWNY MILDEW infected leaves!

In **2023**, in **PA Lake Erie Region**, high rates of Downy Mildew resistance were found to:

- **stobilurins** (Abound)
- **carboxylic acid amides** (Revus)
- **phosphorous acid** (Rampart)

Resistance!

Many samples showed resistance to *all three* fungicides. No resistance to phenylamides (Ridomil) was detected.

In 2024, NYWGF is funding a survey of New York Lake Erie region vineyards for fungicide resistance.

---NY Growers: contact us when **downy mildew is present in your vineyard** and we will come out to collect 10 or more infected, sporulating leaves. Isolates from the leaves will be grown in the lab to conduct bioassays and genetic testing to determine if resistance is present.

---You will receive information regarding the **percentage and types of resistance** present **on your farm**. A regional summary will be made available to all growers (farms sampled remain anonymous).

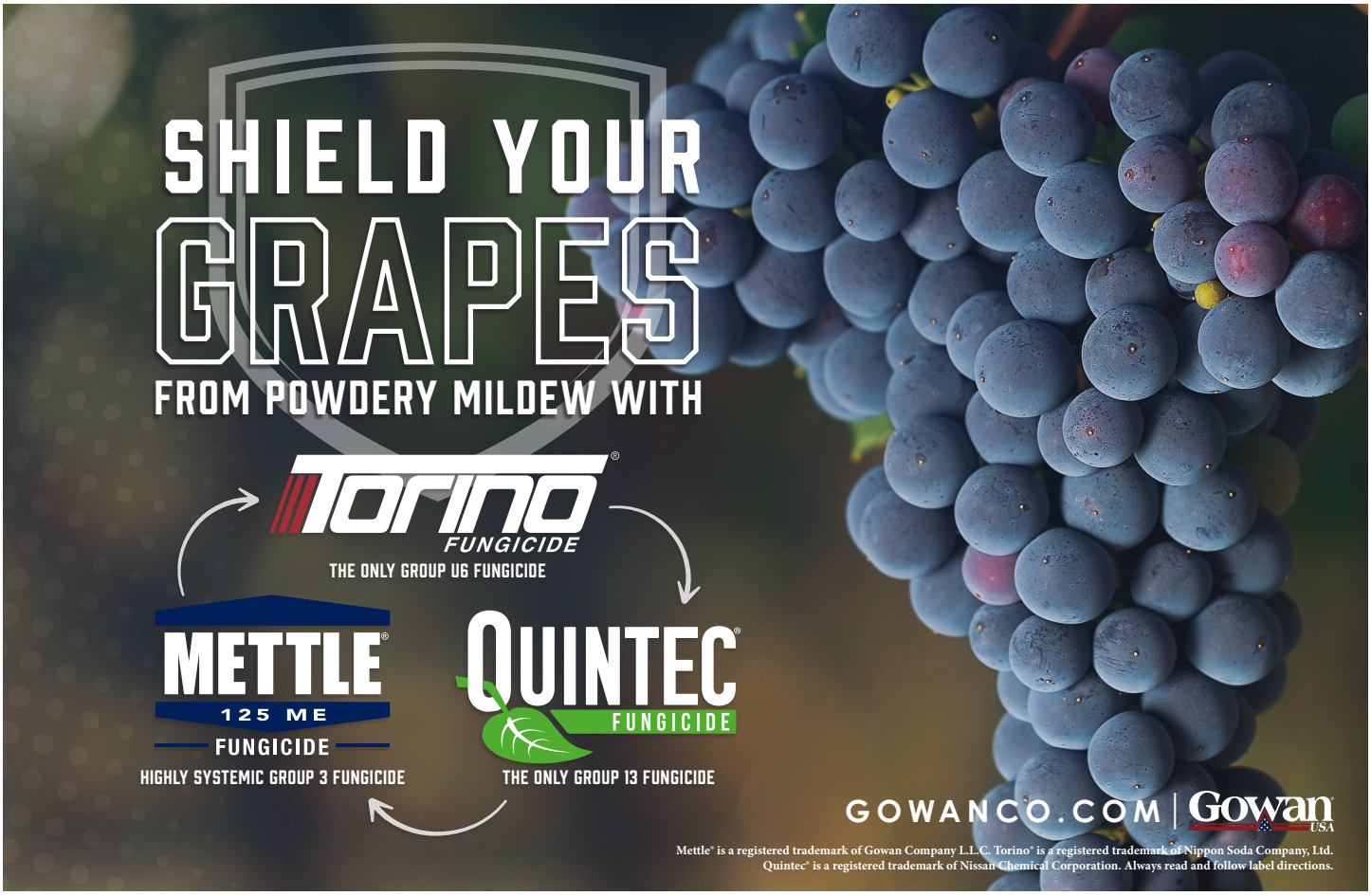
- **Contact *Bryan Hed at 814-725-4601 (bxh38@psu.edu) or Jessica Clippinger (jib5787@psu.edu)* or Jennifer Phillips Russo at *716-640-5350* to get samples collected or with questions. Thank you!**

100% free, 100% confidential

Call 1-800-547-3276

Cornell CALS College of Agriculture and Life Sciences

Dyson Cornell SC Johnson College of Business



MILITELLO FARM SUPPLY INC.

Now in our 40th year, we have a tradition of providing quality products, education and superior service to both farm and home growers. Our products and spray programs are tried and tested in our own vineyards, ensuring you have a solid program for your own vineyard. We deliver products, programs and services to our customers in an efficient and personal way to enhance their growth and profit opportunities for the long term.

We are a proud dealer for -

INFACO FELCO DRYSHOD BAHCO

PRODUCTS & SERVICES

- ☑ Herbicides, Fungicides & Insecticides
- ☑ Bulk & Bagged Fertilizer
- ☑ Soil and Petiole Testing
- ☑ Customized Pesticide and Fertilizer Programs
- ☑ Infaco, Felco and Bahco Shear and Lopper Repair
- ☑ Supplies for Trellis, Pruning, Tying and so much more!

Call us
716-679-1240

Visit our website
www.militellofarmsupply.com

Our location
2929 Route 39, Forestville

PA Update

Megan Luke, Penn State Extension Viticulture and Tree Fruit Educator

Alert: A comment period regarding label changes to mancozeb opened and will close Setptember 16th: Please read Jennifer Philips-Russo's update for detailed information and see below for advice on contributing to the conversation.

Mancozeb- has been added to the pesticide review process and has a docket number. Currently, all applications in grapes are being removed from the label, registration of this chemistry will be canceled ONLY in grape production and seed applications.

Other cropping systems are receiving label changes including (but not limited to): increased PPE requirements, closed cab tractor application, 48-hour rain event non-application requirement, increased REI, and respirator requirements for handlers.

If you are interested in commenting on the mancozeb docket, here are a few pointers for creating an impactful statement. Remember: while many of the organizations, processors, researchers, and institutions will be submitting documentation to support the continued use of this chemistry in grape production, they cannot tell your personal story and how this impacts your individual operation. Those stories are important and need to be told as well.

Impactful comments include:

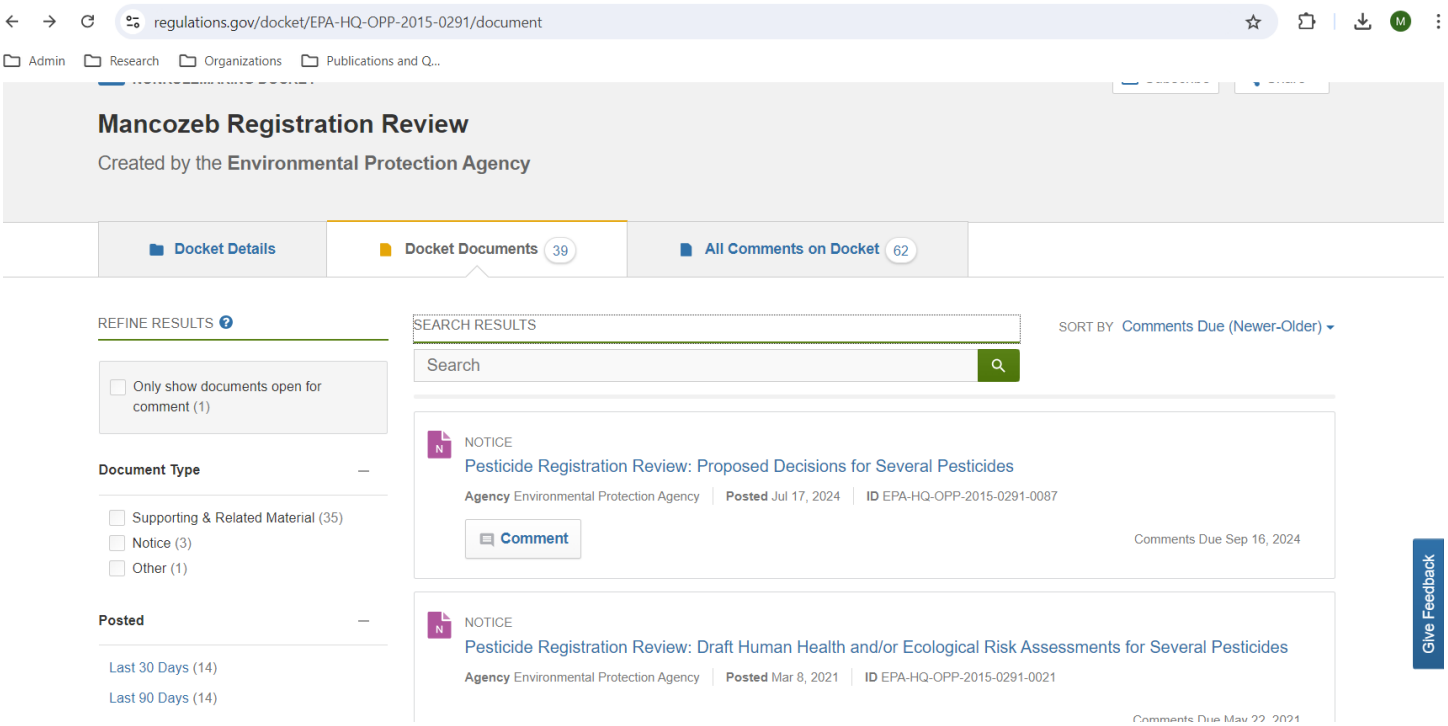
- Anecdotes regarding the benefits of use
- Numbers and percentages where possible: for example, stating that skipping mancozeb in your spray program one year resulted in a 20% crop loss to black rot.
- Concerns around the loss of additional chemistries (cost or resistance issues)
- Practices that you use that allow of safe use of this chemistry
- Possible changes that you would be willing to make to make application safer

When commenting, avoid:

- Angry or abusive language
- Accusations- these changes are not due to malice
- Typos and grammar errors (We are happy to review your comment prior to submitting if requested!)

Our team is working diligently to mobilize efforts to respond to this issue and present an industry-wide unified front. We deeply appreciate your help in these efforts and will update as relevant.

Comment on changes to the mancozeb label: here

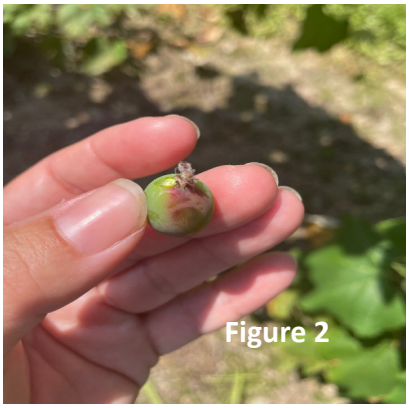


Insect and scouting update

As per Kim's updates this week, most areas have reached the 1620-degree day marker for grape berry moth- check out Kim Knappenberger's article for more information on NEWA models regarding this pest.

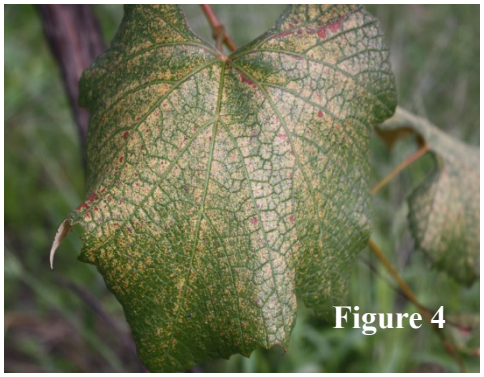
Grape berry moth (GBM): The primary insect pest of concern at this time of year is of course grape berry moth (GBM) (Figure 1). At this time, damage is visible as small holes in berries with a purplish discoloration and sometimes a split in the skin with frass or webbing (Figure 2). In warm years and at high-risk sites, growers need to continue chemical control on a 10-to-14-day interval from mid-August to mid-September. This is due to the fact that while our degree-day model can predict an average hatch date for GBM larvae, this event is, in reality, spread out over several weeks for each flight. That being said- it is a good idea to choose materials that have some staying power on your vines to provide coverage beyond a singular event. Materials that are short acting such as zeta-cypermethrin (Mustang Maxx, etc.) are only efficacious for 1-2 days. If you are looking for a pyrethrin insecticide that has a longer coverage period, you might want a material like bifenthrin which lasts a week or more under optimum conditions. Reminder that grape berry moth has exhibited resistance to danitol in the Finger Lakes region! There are several other classes of insecticide that can be used, be mindful of your rotation and your pre-harvest intervals if you have any early ripening wine grapes in your acreage.

Remember when scouting that the goal is to get a handle on potential damage levels and whether you are exceeding economic thresholds. For Concord grapes, if the percent of clusters that show some GBM damage to berries is **greater than 6% at second flight** and **greater than 15% at third flight**, then a treatment is recommended.



Grape Berry Moth Larvae and Damage *Photos courtesy of Penn State Extension, Andy Muza & Megan Luke*

Grape leaf hopper: Another pest which may become problematic in late-July is the grape leaf hopper (Figure 3). If you see stippling (white dots on leaves caused by leafhopper feeding) throughout the vineyard block scouting should be conducted to determine if an insecticide treatment is recommended (Figure 4). Sampling period for leafhoppers is focused on the abundance or quantity of first-generation nymphs. Check four different areas in the vineyard (two exterior and two interior). At each area look at five lower (basal) leaves (leaves #3-#7 when counting from base of shoot) per shoot on five different shoots at each location and check for leaf feeding. If no damage or minimal injury is observed, proceed to the next sampling site. If moderate to heavy leaf stippling is observed, then begin counting nymphs on the undersides of leaves. If a threshold of five nymphs/ leaf is reached, then an insecticide application is recommended.



Grape leaf hopper adults, leaf damage, and nymph *Photos courtesy of Penn State Extension, Andy Muza*

Japanese beetles: Finally, many folks have issues with Japanese beetles in the vineyard and overall landscape in the mid- to late-summer. While these pests can be quite destructive to the foliage of plants, they are unlikely to cause enough harm to vines to warrant treatment in most cases. However- if you are choosing an insecticide for GMB or leafhopper control, that material should knock down the number of Japanese beetles as well.

Be aware of your rotation of chemistries throughout the growing season, use these links to check your materials before application:

Mode of action (MOA)- This is the method that a specific product uses to kill a pest. Every pesticide on the market has a code for the mode of action. When you rotate your products, you should choose products with different modes of action. The standard recommendation is to rotate between three products with different modes of action. When a pest population becomes resistant to a specific product, it is likely to be resistant to **all** products with that mode of action.

Modes of action for fungicides can be found here: FRAC

Modes of action for insecticides can be found here: IRAC

Modes of action for herbicides can be found here: HRAC

If you suspect that a specific material is losing its effectiveness in your vineyard, contact us to assess your program. Spray tank pH, spray coverage, and tank mix contents can play a role in the effectiveness of a spray application. In the case of true resistance, it is important to document cases so that research can be conducted into how widespread an issue may be. Catching resistant pest populations early is critical to retaining the effectiveness of our chemistries, please help us guide the research accordingly!

Contact information:

Mobile (*call or text*): (716) 397-9674 (*preferred*)

Office: (814) 825-0900

Email: MFL5873@psu.edu

Updates and Information

Kimberly Knappenberger, Extension Support Specialist, LERGP

Station	Wild Grape Bloom Date	GBM GDD 8/1/24	Forecast GBM GDD 8/6/24
Burt (NY Mesonet)	6/1/24	1376	1510
North Appleton	6/1/24	1433	1569
Newfane (Chateau Niag)	5/24/24	1588	1723 (1620 on 8/2)
Ransomville	5/22/24	1718	1857
Lockport	5/22/24	1705	1842
Brant	5/20/24	1718	1846
Versailles	5/20/24	1631	1759
Sheridan	5/20/24	1743	1873
Silver Creek (RT5)	5/23/24	1615	1747 (1620 on 8/2)
Silver Creek (Double A)	5/20/24	1752	1884
Hanover	5/22/24	1623	1754
Forestville	5/22/24	1624	1757
East Fredonia	5/22/24	1609	1743 (1620 on 8/2)
Fredonia (NY Mesonet)	5/23/24	1565	1699 (1620 on 8/3)
Brocton	5/22/24	1615	1747 (1620 on 8/2)
Portland (CLEREL)	5/22/24	1625	1756
Westfield (South)	5/22/24	1642	1773
East Westfield	5/22/24	1592	1723 (1620 on 8/2)
Westfield	5/23/24	1585	1717 (1620 on 8/3)
East Ripley	5/21/24	1717	1855
Ripley	5/22/24	1663	1797
Ripley (State Line)	5/21/24	1691	1825
Ripley (Escarpment)	5/22/24	1607	1742 (1620 on 8/2)
North East (State Line)	5/22/24	1604	1732 (1620 on 8/2)
North East Lab	5/22/24	1650	1789
North East (Escarpment)	5/21/24	1660	1790
North East (Side Hill)	5/22/24	1616	1746 (1620 on 8/2)
Harborcreek Escarpment	5/23/22	1542	1677 (1620 on 8/4)
Harborcreek	5/21/24	1722	1862
Lake City	5/21/24	1698	1835
Lake City (Mason Farms)	5/21/24	1698	1834
Near the next benchmark of 1620			

According to the NEWA website, for materials that are contact insecticides, e.g. pyrethroids and carbamates, apply between 1621-1710 DD in vineyards where scouting found more than 15% damaged clusters. Low risk vineyards rarely require this treatment.