Concord vines on a sunny June day at CLEREL- Jennifer Phillips Russo

CROP UPDATE
June 22, 2023

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.

CORNELL UNIVERSITY FOUNDED A.D. 1865

2023
LERGP Coffee Pot Meeting Schedule

May 3, 2023	**10:00am**	**Double A Vineyards** **10317 Christy Rd. Fredonia NY 14063**
May 10, 2023	**10:00am**	**Niagara Landing Wine Cellars** **4434 Van Dusen Rd. Lockport NY 14094**
May 17, 2023	**10:00am**	**John Schultz & Sons** **9510 Sidehill Rd. North East PA 16428**
May 24, 2023	**10:00am**	**Brian Chess Farm** **10289 West Main Rd. Ripley NY 14775**
May 31, 2023	**10:00am**	**Sprague Farms** **12435 Versailles Rd. Irving NY 14081**
June 7, 2023	**10:00am**	**NO COFFEE POT MEETING**
June 14, 2023	**10:00am**	**Betts' Farm** **7365 East Route 20 Westfield, NY 14787**
June 21, 2023	**10:00am**	**Paul Bencal Farm** **2645 Albright Rd. Ransomville NY 14131**
June 28, 2023	**10:00am**	**Gary Young Farm** **8401 Gulf Rd. North East PA 16428**
July 5, 2023	**10:00am**	**NO COFFEE POT MEETING**
July 12, 2023	**10:00am**	**Zach & Alicia Schneider Farm** **771 Bradley Rd. Silver Creek NY 14136**
July 19, 2023	**10:00am**	**NO COFFEE POT MEETING**
July 26, 2023	**10:00am**	**Westfield Ag & Turf** **7521 Prospect Rd. Westfield NY 14787**

In this copy:

How to reach us:

Jennifer Phillips Russo - LERGP Viticulture Specialist:
jjr268@cornell.edu
Cell: (716) 640-5350 Office: (716) 792-2800 Ext 204

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

Kim Knappenberger – LERGP NEWA and Vineyard Improvement Program Contact
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.

REGISTER

Lake Erie Regional Grape Research and Extension Center Field Day

Join us to learn about the latest research and best practices for grape production in the Lake Erie Region

Free Event | Lunch Provided
PDA and NY DEC Core (2) and Category (2) Recertification Credits Available

Who is this for?

- Juice and wine grape growers
- Vineyard owners
- Wine producers
- Viticulture professionals
- Industry professionals

What will you learn?

- Best Practices for Pesticide Sprayer Calibration and Canopy Coverage
- Wine Grape Cultivar Considerations near Lake Erie and Viticulture
- Programming at Penn State
- Introduction to the MyEV Tool
- Update on Spotted Lanternfly
- Current Grape Disease Development and Management

When: July 6, 2023
(10:00 AM-2:00 PM)

Where: LERGREC
662 N. Cemetery Rd.
North East, Pennsylvania 16428

PennState Extension

Registration deadline: July 5, 2023

Cornell Cooperative Extension

REGISTER

NYFarmNet

1-800-547-3276 | www.nyfarmnet.org

NO MATTER THE REASON, NO MATTER THE SEASON, WE'RE HERE FOR YOU.

ALWAYS FREE, ALWAYS CONFIDENTIAL

financial analysis + decision making
personal well-being | retirement + estate planning
family business relationships | business planning
communication | coping with COVID-19 stress
referrals to additional resources

AVAILABLE TO NY FARMERS, FARM FAMILIES AND AGRIBUSINESS EMPLOYEES.

Dyson Cornell SC Johnson College of Business

Cornell CALS College of Agriculture and Life Sciences

Viticulture

Jennifer Russo, Viticulture Extension Specialist, LERGP

In the Vineyard

We had great conversations this week at our Coffee Pot Meeting at Paul Bencal's in Niagara County. Our numbers for these interactive grower meetings have continued to increase over the past few years and the exchanges have led to grant funding to study topics that are a direct impact from grower input at Coffee Pot Meetings. I encourage you to attend as many as you can, not only for the credits, stimulating conversation, donuts, and coffee, but to share your strategies and concerns with fellow growers. At each meeting, I gather your questions and concerns and try to get you timely responses to share in the Crop Update the following day. Sometimes it takes a bit longer to address, but I will address them.

For this week, we had much discussion around floor management and weed control. I reached out to Dr. Lynn Sosnoskie and Dr. Bryan Brown, both weed scientists. The questions that the group asked for more information on were communicated to them via email: I am reaching out in hopes that one of you may already have an article that I may share with my growers. Yesterday, we had one of our weekly grower meetings and there was a bunch of discussion on floor management options. We had much discussion on how to handle thistle, poison ivy, bindweed, marestail, Japanese knotweed, and more. Basically, they were asking for a class on weed management strategies from soup to nuts. Some wanted to know the most effective way to eradicate, and others do not use herbicides and wondered about different root structures and how to handle without causing more through cultivation. For those using herbicides, it was mentioned to spray often and with a lot of water. Some said that Alion is working, but for how long if it is the only working for them and another one questioned that Zeus is federally labeled but not in NY, and they wondered why. I am pleased to say that I have responses for some of your questions. Below is the email content from Dr. Bryan Brown, NYS IPM:

Hi Jennifer,
I'd like to hear Lynn's thoughts, but I'm surprised about the water volume comment. I would think that for the perennial weeds mentioned, they would want the highest concentrated rate. Something landscape professionals do for large established weeds is cut the perennials at the base and spot spray the stumps with a highly concentrated dose of glyphosate. (Lynn added: Certain contact herbicides want a higher spray volume to ensure good coverage. But glyphosate wants to be concentrated, so low GPAs are recommended.)

Anyways, in general, perennial weeds have a lot of stored energy (carbohydrates) in their roots that need to be depleted and it can take time. It's a different mindset than with annual weeds which we just try to prevent seed production. Any time perennials have more than a few leaves, they are putting energy into their storage reserves in the roots and probably spreading underground. But on the flip side, every time we can kill the top growth and the plant has to send up a new shoot, that takes energy and depletes the root a little bit each time. So repeatedly spraying or removing the top growth will eventually starve the root system. Also, the roots have to survive all winter without food (photosynthesis) so towards the end of the summer and into the fall, they are especially active in sending energy into their root system and that is the most effective time to use systemic (translocating) herbicides like glyphosate. So even though many repeated applications of

glyphosate would maybe be most effective, I think you could probably save on herbicide usage and get nearly the same level of control using repeated physical removal of the top growth then using glyphosate in the fall. We showed something similar in the articles below. But even with the most intensive control, 2-3 years would be required for eradication.

The other most effective options for those perennial weeds are synthetic auxins like dicamba or 2,4-D which even a small amount would kill the grapes unfortunately.

Otherwise, without herbicides, if the top growth can be repeatedly removed before plants have put on ~5 leaves that will starve the plant after a few years. Another potentially less labor-intensive option for weeds that aren't sharp like thistles, is to smother them with a heavy silage tarp. They may push it up, but as long as they aren't getting sunlight it's depleting the root system. It's good to extend the tarp at least 10' beyond the plants as they will grow outward to get around it. But as I write this I'm realizing that it would be difficult to wrap the tarp tight around the grapevines. Perhaps a better option for those interested in this method is to use a woven polypropylene mulch, which I've seen some growers cut and overlap from both sides to tightly mulch their vines. Let me know if you want more details on this method. Unfortunately, natural mulches like hay, straw, or woodchips do nothing to control perennial weeds.

Make sure that folks know not to use flame or thermal weed control on poison ivy as it puts the toxic oils into their lungs.

Tim Martinson prepared these slides that sum up many of the management options: https://rvpadmin.cce.cornell.edu/uploads/doc_544.pdf

Bryan also shared the following report of a bindweed trial that Hans Walter-Peterson and Don Caldwell conducted:

Evaluation of Methods for Management of Bindweed in New York Vineyards
Project Leaders
Hans Walter-Peterson, Cornell Cooperative Extension Bryan Brown, NYS IPM Program Donald Caldwell, Cornell Cooperative Extension
Objectives
The objectives of this project were as follows:
Objective 1. Determine the carryover effects of the 2019 treatments on field bindweed (Convolvulus arvensis). Because of its perennial nature, it is important to understand not just how well the treatments worked in a given season, but also if they have any impact on regrowth of the weed in subsequent years.
Objective 2. With one year of efficacy and economic data from several herbicide, non-chemical, and integrated treatments in both hedge bindweed (Calystegia sepium) and field bindweed, we aimed to replicate these trials to better gauge the variability between years.
Objective 3. Disseminate our findings to New York growers.

Methods
Objective 1
Unfortunately, our assessment of weed density and ground coverage to evaluate carryover effects from 2019 treatments needed to occur in spring 2020 prior to weed maintenance operations at our on-farm trial site in Branchport, NY, but it was hindered by COVID-19 restrictions. To make up for this deficit, more in-depth assessments will be conducted by Co-PI Brown in 2021.

Objective 2
At the Finger Lakes Teaching & Demonstration Vineyard in Penn Yan, NY, we replicated the treatments applied in 2018 targeting *hedge* bindweed *(Calystegia sepium)*. The four treatments were as follows:

1. Untreated.
2. Three hoeing events – May 30, June 22, and July 22. Hoeing was conducted by hand, butin a manner representative of tractor hoeing.
3. Three applications of glyphosate ('Makaze', 2% v/v) – May 30, June 22, and July 22.
4. Two applications of rimsulfuron ('Matrix', 2 oz/A + AMS at 2.5% v/v) – May 30 and June 22. Rimsulfuron was not applied on the final date due to label restrictions.

At the on-farm trial in Branchport, NY, we replicated treatments applied in 2019 targeting *field* bindweed *(Convolvulus arvensis)*. The six treatments were as follows:

1. Untreated.
2. Three hoeing events – May 30, June 22, and July 22. Hoeing was conducted by hand, but in a manner representative of tractor hoeing.
3. Three applications of glyphosate ('Makaze', 2% v/v) – May 30, June 22, and July 22.
4. Two applications of rimsulfuron ('Matrix', 2 oz/A + AMS at 2.5% v/v) – May 30 and June 22. Rimsulfuron was not applied on the final date due to label restrictions.
5. An integrated treatment of cultivation on May 30, followed by an application of glyphosate ('Makaze', 2% v/v) on June 22, followed by an application of rimsulfuron ('Matrix', 4 oz/A + AMS at 2.5% v/v) on July 22.
6. A pre-emergence application of dichlobenil ('Casoron', 2.8 gal/A) on April 29 immediately following a hoeing event to ensure bare ground.

All treatments were replicated four times in a randomized complete block design. Weed groundcover and density in the under-vine strip was assessed using three 0.7 m^2 quadrats two weeks after treatments. Hedge or field bindweed was assessed specifically, whereas all other weeds were grouped into a separate category. Aboveground weed biomass was collected September 22, dried for 7 days at 38 degrees Celsius, and weighed.

Statistical analysis of efficacy based on aboveground weed biomass was conducted using nonparametric methods (Wilcoxon tests) due to one treatment resulting in zero weed biomass, which does not satisfy ANOVA assumptions of constant variance. Finally, we estimated the relative cost of each treatment through use of a partial budgeting analysis following Davis et al. (2020). Although our applications were made with a backpack sprayer, the economic modeling assumed the use of a tractor-drawn directed sprayer and a tractor-based glyphosate rate ('Roundup WeatherMax', 44 oz/A). Similarly, the modeling assumed the use of a tractor-drawn grape hoe, but our plots were hoed by hand in a manner to simulate mechanical cultivation.

Results
Objective 1
Visible carryover effects generally seemed to follow in-season effectiveness of treatments in 2019. More in-depth assessments will be conducted by Co-PI Brown in 2021.
Objective 2

HEDGE BINDWEED
At the Finger Lakes Teaching & Demonstration Vineyard in Penn Yan, NY, hedge bindweed groundcover generally increased through the season in untreated plots, while density remained

relatively constant (Figure 1). Hoeing, rimsulfuron, and glyphosate were all effective on the hedge bindweed, with slight visual increases in efficacy in that order. Results were similar for the other weeds present – mostly annual grasses – with the exception that in untreated plots groundcover and density increased as the season progressed.

Control efficacy based on aboveground hedge bindweed biomass was greatest in the glyphosate and rimsulfuron treatments (Figure 2), but due to sporadic emergence of the hedge bindweed, only glyphosate was significantly different than the untreated plots. For the other weeds, glyphosate and hoeing were most effective. Rimsulfuron treated plots did not statistically differ from the untreated plots. Many annual grasses are effectively controlled by rimsulfuron, but only when at the seed stage or when they have just recently emerged, so any escaped weeds may have grown past rimsulfuron effectiveness.

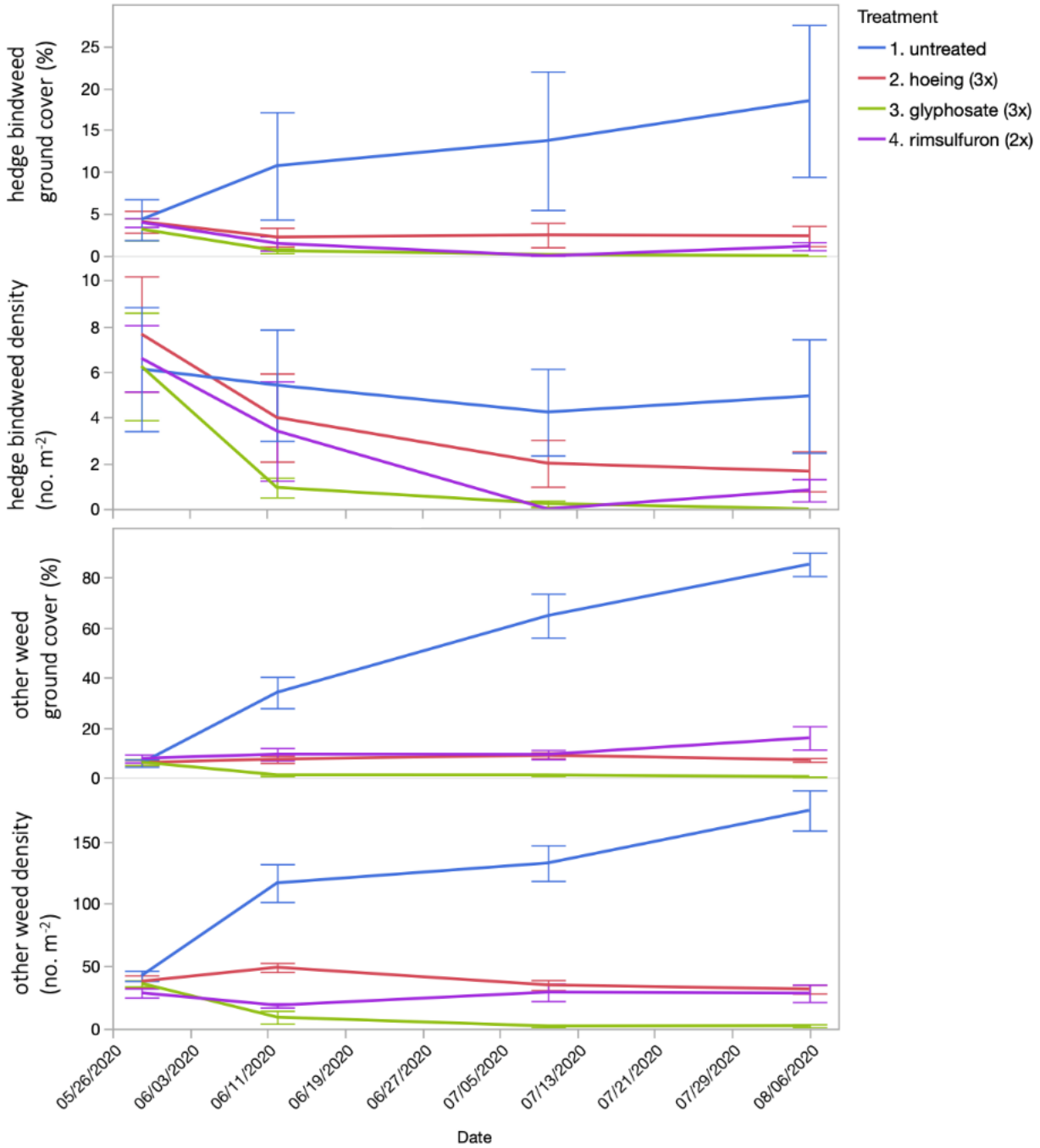


Figure 1. Effect of treatments on groundcover and density of hedge bindweed and other weeds over the course of the growing season at the Teaching and Demonstration Vineyard in Penn Yan, NY.

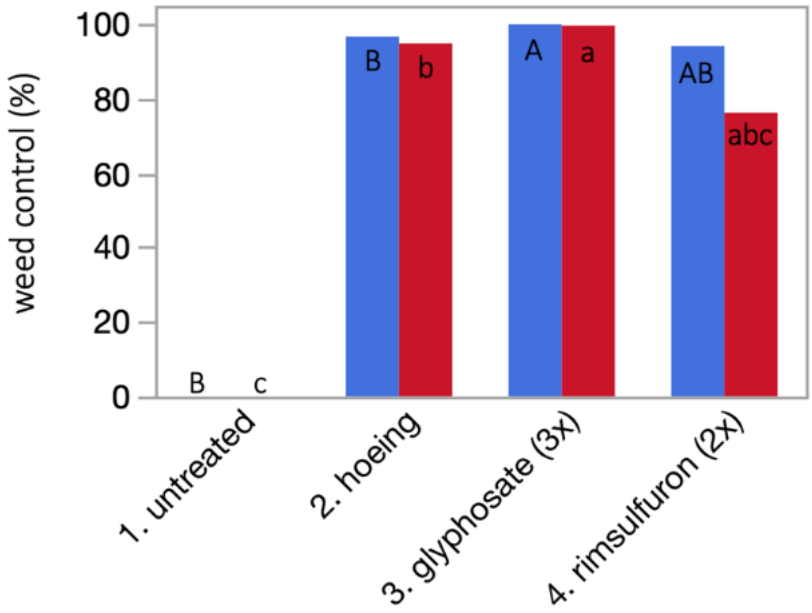


Figure 2. Effects of treatments on the aboveground biomass of hedge bindweed (blue) and all other weeds (red) at the end of the growing season at the Teaching and Demonstration Vineyard in Penn Yan, NY. Bars with the same letter are not significantly different (Wilcoxon Tests, P > 0.05). Capitalized letters should not be compared with uncapitalized letters.

FIELD BINDWEED

At our on-farm trial site in Branchport, NY, field bindweed densities remained relatively constant while ground coverage increased through the season in the untreated plots (Figure 3). Glyphosate, integrated treatment, and hoeing visually performed best, in that order, but interestingly, hoeing resulted in an increase in field bindweed density over the season. This likely reflects the extensive root reserves of field bindweed and its ability to send out new shoots in response to shoot removal efforts. Whereas the herbicides used have systemic activity to potentially target the root system. Unfortunately, despite a doubling of the rate of dichlobenil used compared to 2019, we did not see an improvement in control by this pre-emergence product. The other weeds present – primarily ground ivy (*Glechoma hederacea*), clover (*Trifolium* spp.), and smartweeds (*Polygonum* spp.) increased in groundcover over the season in the untreated and rimsulfuron treated plots. The other treatments satisfactorily suppressed these other weeds through the season, especially glyphosate and the integrated treatment.

Field bindweed control efficacy based on aboveground biomass was greatest in the glyphosate treatment, followed by the integrated treatment, followed by hoeing and rimsulfuron treatments (Figure 4). Dichlobenil had no effect at the time of biomass collection, and in fact, there was numerically more field bindweed than the untreated plots since dichlobenil controlled some of the other weeds and lessened the competition with field bindweed. The other weeds were best controlled by glyphosate and the integrated treatment. The other treatments had only moderate control.

While there was again in 2020 some grape leaf puckering from the glyphosate, there was no visible injury from the treatments that did not contain glyphosate. Due to the timing of applications, it is unlikely that the grape roots were injured by rimsulfuron since no injury was seen in aboveground tissues.

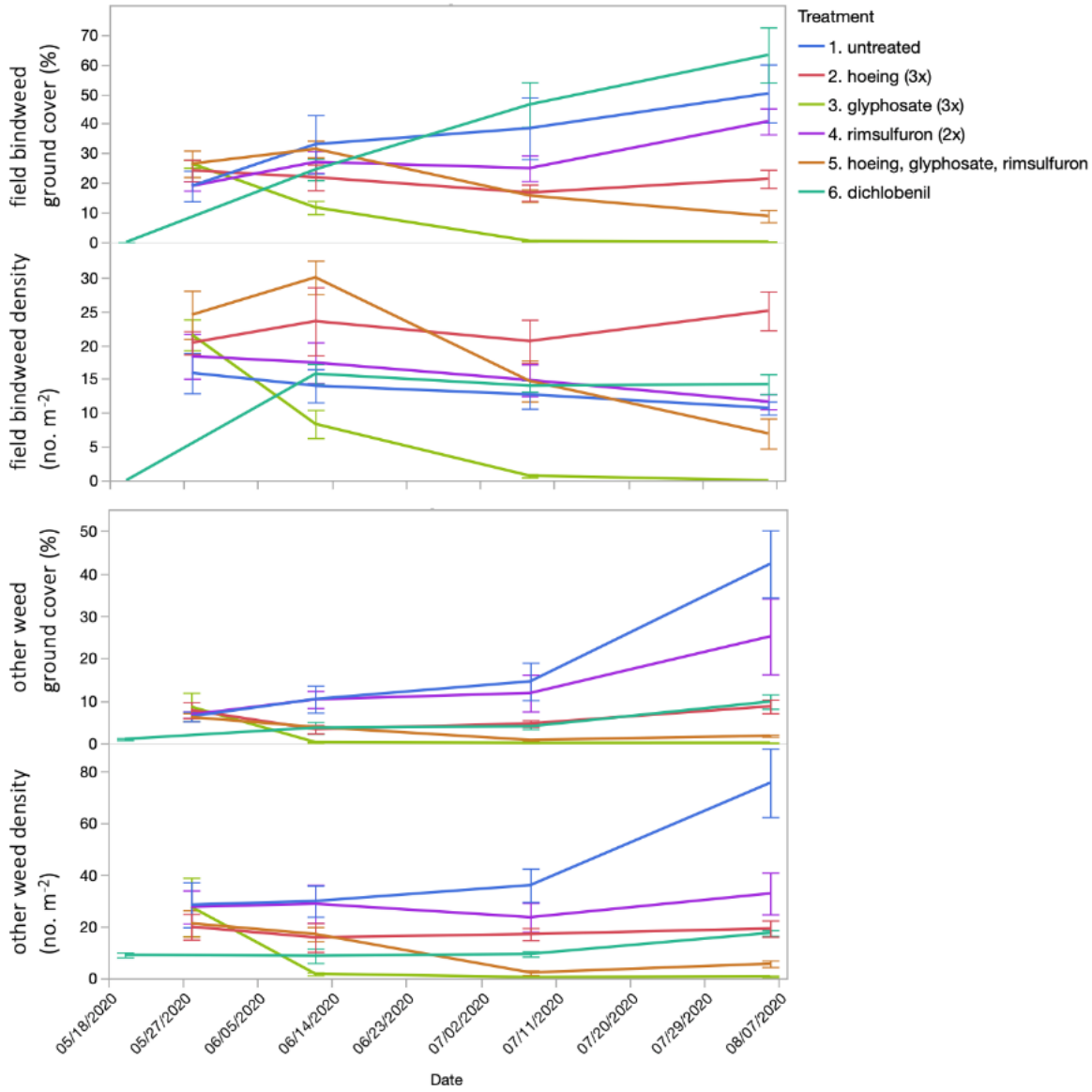


Figure 3. Effect of treatments on groundcover and density of field bindweed and other weeds over the course of the growing season our on-farm trial site in Branchport, NY.

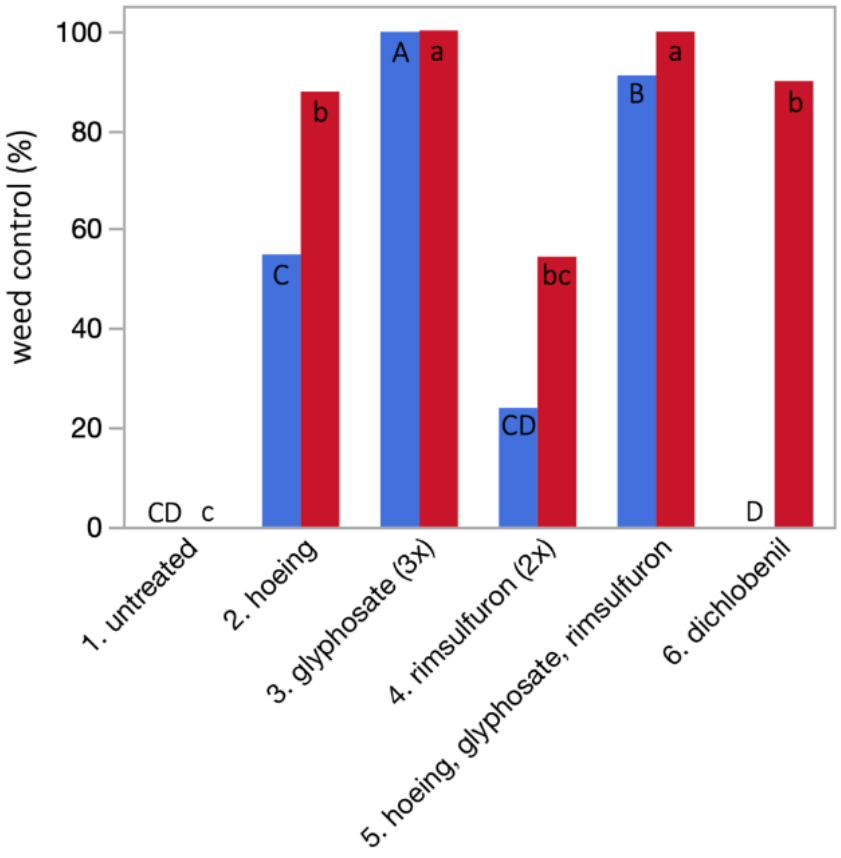


Figure 4. Effects of treatments on the aboveground biomass of field bindweed (blue) and all other weeds (red) at the end of the growing season at our on-farm trial site in Branchport, NY. Bars with the same letter are not significantly different (Wilcoxon Tests, P > 0.05). Capitalized letters should not be compared with uncapitalized letters.

COST COMPARISONS

Of all the treatments examined, the rimsulfuron application was substantially less expensive than all other treatments (Table 1). In this trial, however, rimsulfuron was shown to only be effective at controlling hedge bindweed and should not be considered for use to manage field bindweed. Dichlobenil had the lowest application costs because it is only applied once, but the material costs were 5 times higher than multiple applications of rimsulfuron or glyphosate. While it provided good control of other weed species, dichlobenil should not be used for management of field bindweed based on these results.

The glyphosate and the combination treatment (cultivation, glyphosate, rimsulfuron) both provided excellent control of field bindweed when compared to other treatments. While the combination treatment is about $20/acre more expensive than multiple glyphosate applications, it could be an attractive option for growers who want to reduce their use of glyphosate while still controlling field bindweed. It is possible that the rimsulfuron application in the combination treatment could be eliminated without any significant loss of control, based on its low effectiveness at controlling field bindweed on its own, and therefore reducing the cost even further.

Table 1. Partial budget analysis demonstrating total annual treatment costs for field bindweed treatments. Labor costs based on rate of $23/hour. Labor and equipment rates are taken from Davis et al. (2020). All costs are calculated on a per acre basis.

Treatment Labor Equipment Herbicide Total Dichlobenil	$59.80	$29.54	$225.00	$314.34
Cultivation (3x)	$207.00	$143.76	$0.00	$350.76
Rimsulfuron (2x)	$119.60	$59.08	$45.76	$224.44
Glyphosate (3x)	$179.40	$88.62	$43.38	$311.40
Cultivation-glyphosate-rimsulfuron	$188.60	$107.00	$37.34	$332.94

Objective 3
Outreach opportunities were limited in 2020, but we are scheduled to present these results at the upcoming B.E.V. (Business, Enology, Viticulture) NY conference in March 2021. At that conference, we will use participant polling to better document the project impacts, including number of vineyards that utilized our results to inform their management, number of growers who utilized the 2(ee) exemption to use rimsulfuron to target hedge bindweed, and their approximate increase in profitability per acre due to this project.

We published our 2019 results to eCommons, titled “Field Bindweed Control Programs for New York Grape Production” available at https://ecommons.cornell.edu/handle/1813/69649, where it has been downloaded by 56 growers. A similar publication will be posted in February 2021.
We are also planning to work with Lynn Sosnoskie, Cornell University Assistant Professor of Weed Ecology in Specialty Crops, to publish our three years of results in a peer-reviewed journal such as HortTechnology, and in ‘Appellation Cornell’, which is distributed to industry members throughout New York and other states.

Conclusion
Over the three years of this project, we have found several effective alternatives to glyphosate, which is very important for herbicide resistance management. And since mid-to late-season control efforts are most effective on perennial weeds, such as bindweed species, it is important to find use products that do not injure vines as harvest approaches. These glyphosate alternatives did not visibly injure the grapes, whereas glyphosate caused injury to leaves lower in the canopy and on suckers.

For control of hedge bindweed, rimsulfuron and hoeing provided satisfactory results. For field bindweed, glyphosate and an integrated treatment of hoeing, glyphosate, and rimsulfuron remained the most effective, and rimsulfuron could be dropped from the sequence to decrease costs, likely without a weed control penalty. Dichlobenil was ineffective on field bindweed but very effective on the other weeds present. These results demonstrate that a mix of these alternatives to glyphosate can be used effectively if in conjunction with regular weed scouting and correct weed identification.

Literature cited
Davis T, Gómez M, Moss R, Walter-Peterson H (2020). COST OF ESTABLISHMENT AND PRODUCTION OF V. VINIFERA GRAPES IN THE FINGER LAKES REGION OF NEW YORK-2020. Cornell University. Ithaca, NY.

Acknowledgements
Thank you to Ellen Coyne for her assistance with this project. Funding for this project was provided by the following:

- Lake Erie Regional Grape Research and Extension Program, Inc.
- New York Wine & Grape Foundation
- New York State Department of Agriculture and Markets

Disclaimer: *Read pesticide labels prior to use. The information contained here is not a substitute for a pesticide label. Trade names used herein are for convenience only; no endorsement of products is intended, nor is criticism of unnamed products implied. Laws and labels change. It is your responsibility to use pesticides legally. Always consult with your local Cooperative Extension office for legal and recommended practices and products. cce.cornell.edu/localoffices*

Per requests from the Coffee Pot Meetings, I am including the Spray Slides that Bryan Hed has prepared to help you make research-based decisions, see below:

Table 1. Options for powdery mildew sprays provided by Bryan Hed, PSU

Options for powdery mildew control:

Chemical class/product	FRAC	PHI
Quintec	13	21
Succinate dehydrogenase inhibitors: Luna Experience, Luna Sensation, Aprovia/Aprovia Top, Pristine, Endura, Miravis Prime	7	14-21
Vivando, Prolivo	50	14
Gatten	U13	14
Sterol inhibitors: Rally, Elite,Orius, Rhyme, Mettle, Tebuzo] Tebustar, Inspire Super,Revus/Aprovia/Quadris Top, Luna Experience, Topguard EQ, Viticure, Procure, Cevya, etc	3	14
Strobilurins: Flint, Sovran, Abound...NOT RECOMMENDED!!! Quadris Top, Pristine, Luna Sensation....	11	14
Torino	U6	3, 7
Polyoxin D zinc salt (OSO, PH-D)	19	0
Copper	-	0
Biorationals/Biologicals (Serenade, Regalia,etc)		?
Oils (JMS Stylet,etc)	-	?
Bicarbonates (Armicarb, Kaligreen, etc)	-	?
Sulfur	-	?

Table 2. Spray options for Downy Mildew control from Bryan Hed, PSU

Options for downy mildew control:

Chemical class/product	FRAC	PHI
Mancozeb products (Manzate, Penncozeb, Dithane, etc)	-	66
Gavel	22	66
Ridomil Gold/Copper, MZ	4	42, 66
Ranman	21	30
Ziram	-	21
Revus, Revus Top	40	14
Strobilurins: Flint, Sovran, Abound, Azaka, Quadris, Quadris Top, Pristine, Reason, Luna Sensation	11	14
Zampro	40,45	14
Captan	-	0
Copper	-	0
Phosphorus acid: Prophyt, Phostrol, Fosphite, Rampart, Reveille, etc.	33	0

Table 3. Bryan Hed's What to Use When suggestions for a spray program

What to use, when?....a *basic* framework (wine/juice)

- **3-5" shoots:** Phom = mancozeb (mz), captan, ziram
- **8-12" shoots:** inflorescences/leaves = Phom, blkrot, dmildew?; mz, captan, ziram,
  - pmildew = sulfur, stylet, Sterol Inhibitor (SI)
- **Immediate pre bloom/first post bloom:** critical for fruit protection from ALL DISEASES
  - pmildew = Endura, Gatten, Cevya, Aprovia/Apr,Revus Top, Luna Exp/Sens (new); Quintec, Vivando (old), Sulfur (tank mix partner)
  - blkrot = mz, captan (prebloom only; juice), ziram, an SI
  - Phom = mz, captan (prebloom only; juice), ziram
  - dmildew = mz, captan (prebloom only; juice), ziram, Revus, Ranman, Ridomil, phos acid, Gavel
- **Second post bloom: early July**
  - leaf + fruit pmildew = Torino, Quintec, Vivando, Cevya, Endura, Aprovia/Apr,Rev Top, Luna, SI, Sulfur
  - fruit blkrot = SI, mz, captan, ziram,
  - leaf/fruit Phom, dmildew = mz, captan, ziram, Revus, Ranman, Ridomil, Zampro, phos acid, copper
- **Third post bloom:** 3rd week in July…Phom/blkrot are non-issues if well controlled until now
  - leaf pmildew = Torino, Quin, Viv, Cevya, Endura, SI, sulfur, HrvstMore, Nutlf, Nutrol, Kbicarb, PolyD, etc
  - leaf dmildew = captan, ziram, copper, Revus, Zampro, Ranman,
- **Fourth post bloom:** early August to veraison
  - leaf pmildew= sulfur, HrvstMore, NutLf, Nutrol, Kbicarb, PolyD, etc
  - leaf dmildew= Revus, Ranman, phos acid, copper, captan

PA Update

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

Weather: We have accumulated about 265 growing degree days and 1.44 inches of rain during the first 3 weeks of June (cooler and drier than average). We have accumulated about 576 growing degree days as of April 1. The short-term forecast for North East PA has a 30-40% chance of rain today (June 22), and a 50-80% chance tomorrow, with highs in the mid to upper 70s. The weekend looks like a 20-60% and 40% chance of rain Saturday and Sunday, respectively, with highs around 80F.

Phenology: Here by the lake, we recorded 50% bloom for Concord on June 18-19, about 3-4 days behind our long-term average.

Diseases: After last week's rain, we've slipped back into a week of dry weather. Rain is in the forecast, so we'll see what happens. We are definitely operating on the dry side so far this growing season, which is potentially stressful for the vines, but good for disease control. With little or no rain, spray timing is easier, and there is minimal threat from black rot, Phomopsis, or downy mildew. That could all change if rains return and become more frequent.

With the infrequent rainfall this spring, we have not seen a lot of primary infection periods for powdery mildew (that do require small amounts of rain). But the pathogen is out there and has moved into secondary cycles, which do not require rain to continue to build. Scouting here at our farm has revealed powdery mildew on unsprayed Concord and Chancellor clusters in check plots of our fungicide trials (Figure 1). So, powdery mildew is building. I'm not seeing it any earlier than I usually do, so I don't have reason to believe that mildew pressure is particularly high at this point, but cloudy, humid weather will help it along, rain or not. Make sure to get that first post bloom spray on in a timely manner: 10-14 days after your immediate pre bloom spray, even if it means applying it before bloom is over. Also, remember to use a good material for powdery mildew in your tank mix (Gatten, Endura, Cevya, Quintec). **DO NOT** rely on strobilurins (Sovran, Abound), Stylet oil, or tebuconazole products (Tebustar, Tebuzol, etc) for powdery mildew control at this critical time for fruit protection.

Figure 1) Powdery mildew on the bottom tip of a blooming Chancellor cluster.

If we get rain over the next few days, I want to remind everyone that Phomopsis is still a threat. With normal amounts of spring rainfall, the overwintering inoculum of this pathogen gets "milked out" by about the time berries reach pea size. Therefore, in a typical year, we stop worrying about Phomopsis at about mid-summer. No infective spores = no disease, even if the host (grapevine) is still susceptible, and the weather is wet. That said, low amounts of accumulated rainfall this spring has left Phomopsis spore sources (wood infected in previous years) with more unspent inoculum than usual. Be sure to mix your powdery mildew material with Ziram (for juice grapes), captan (wine grapes only) or mancozeb (wine grapes only), the next time around. This is especially important if conditions turn wet and stay wet into July. Some of the ste-

rol inhibitors claim Phomopsis control on their labels. However, I have seen little data to show that these are effective Phomopsis fungicides. They're great against black rot, and the newer ones (like difenoconazole in the "Top" products, and Cevya) are effective against powdery mildew, but our limited testing of this fungicide class against Phomopsis has not looked promising. At this point, I cannot recommend any of the FRAC 3s (sterol inhibitors) for Phomopsis control. Stick with the ziram, mancozeb, or captan products for Phomopsis.

I suspect there is little, if any, downy mildew out there so far. The rain we had last week did generate infection periods for this disease, but scouting at our farm has not revealed any downy mildew symptoms. Downy mildew symptoms should be observable about 5-7 days after an infection period.

After the first post bloom spray, reassess your situation by scouting and closely watching the weather forecast. This is especially important if you stretched the intervals between the pre and post bloom spray, beyond 14 days AND/OR you used cheaper, less effective materials. The better job you do right now, the more likely you'll be able to lighten up for the next sprays.

For premium wine varieties, now is the time to use the biggest guns we have for powdery mildew. This may include materials like Luna Experience, Aprovia Top, or Gatten. These materials should be tank mixed with sulfur for use on varieties that are tolerant of sulfur. The sulfur will add extra powdery mildew control and help to manage powdery mildew resistance to the chemistries in these products. Spare no expense with regard to protection from other diseases as well and look for some of the best products for control of black rot, Phomopsis, and downy mildew. Luna Experience and Aprovia Top mentioned above will also provide good black rot control by virtue of the FRAC 3 chemistries in them. However, if you rely on Luna Experience and you need good black rot control, you will need to use the higher rate OR use the lower rate and add extra tebuconazole (which is the cheaper alternative). Mancozeb products can still be used on wine varieties (66 day pre harvest interval) and are great for coupling with something like Revus, Ranman, Zampro, or Ridomil Gold MZ for extra downy mildew control during early fruit develop-

ment, if the weather turns wet. Just remember that a 2.5 lb rate of Ridomil Gold MZ will only provide a half rate (about 2 lbs/A) of mancozeb, so you'll need to add a couple pounds of a 75DF mancozeb formulation to get good Phomopsis and black rot control.

Now is also the time to plan leaf removal in the fruit zone. Leaf removal can be done by machine or by hand and generally provides sizable reductions in bunch rot on rot susceptible wine varieties (Riesling, Vignoles, Pinot noir and gris, Chardonnay, etc). It can even help improve control of other disease as well, like powdery mildew. A trial we have been running for the past three seasons on several Riesling clones and hybrids, compared two different timings of mechanized leaf removal (at just before bloom and about two weeks later (about early fruit set)) with no leaf removal (the control). Using air pulse technology to remove leaves, both timings provide for about a 50% reduction in harvest rots. Leaf removal reduces fruit disease by improving exposure of fruit to light, air, and pesticide penetration. It can also improve fruit quality and may even reduce manual harvest costs by making the clusters easier to see and access by hand harvesters. The downside to leaf removal is the potential to reduce yields. For example, in the first year of our Riesling study, there was no reduction in yield from the air pulse leaf removal. However, in the second year of testing, leaf removal did reduce yields, regardless of timing. We'll be repeating this trial for one more season in 2023.

Lastly, it has come to our attention that a prebloom application of a Stylet oil (at 2% concentration), Cevya, and Manzate tank mix, is likely the cause of phytotoxicity on Concord grape. Observation of the affected vineyards revealed that about 2-3 leaves of affected shoots have marginal leaf burn and interveinal discoloration, resulting in blighted, puckered and distorted leaves (Figures 2 and 3). It appears that the youngest leaves, at the time of the application, were the most severely affected. Older, mature leaves, at the time of application, were least affected or not affected at all. The inflorescences do not appear to be affected and appear normal. My feeling at this time is that the vines will grow through it and subsequent growth and development will be ok. We plan to test this combination on our farm to confirm this suspicion, and we will report back what we find. I suspect it has more to do with the Stylet oil/Cevya mix, than the addition of manzate, so I don't foresee any problems with the Manzate/Cevya combination. In the meantime, I recommend you avoid applying a Stylet oil/Cevya tank mix to Concord grape until we can get a better handle on this.

Figure 2 and 3: Concord vines sprayed prebloom with a tank mix of 2% Stylet oil, Cevya, and Manzate. Note the puckered, distorted leaves; a result of marginal leaf burn of young, expanding leaves.

PA Update

Megan Luke, Penn State Extension Viticulture and Tree Fruit Educator

Concord and most wine grape varieties are moving through their bloom period. At this point in the season, it is important to be scouting several times per week for pest and pathogen pressure. Scouting *after* pesticide applications for material efficacy is extremely important. If materials are *not* giving you the control that you were expecting, please reach out so that we can troubleshoot issues in application strategies or document early resistance in local pest populations.

There is still the possibility of damage from plant bugs in late bloom wine grapes, and continue to keep watch for rose chafer in areas with sandy soils. Grape cane gall maker (*Ampeloglypter* sp.) is active at this time, if it has become problematic in the past, this is the time where control should be applied. While the weevil rarely causes crop damage, the galls can weaken canes and cause damage in newly planted vines and cause breakage on newly trained canes.

Grape cane gall maker and grape cane girdler (*Ampeloglypter* sp.) Gall maker weevils (*Ampeloglypter sesostris*) are reddish-brown adults: small 3 mm long insects with a distinctive curved snout (Figure 1). Except for their color they look similar to the shiny-black adults of the grape cane girdler, (*Ampeloglypter ater)* (Figure 2). Both species overwinter in the adult stage in debris on the ground.

Figure 1

Figure 2

Photo Credit Joe Ogrodnick, Cornell University; courtesy Greg Loeb

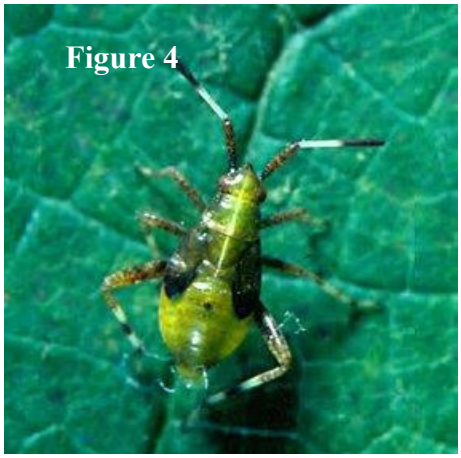
Photos courtesy of Cornell IPM, Joe Ogrodnick and Greg Loeb

Rose Chafer – (*Macrodactylus subspinosus* Fabricius) Adult beetles are about ½ inch long, have a light brown body coloration and long, spiny legs (Figure 3). Sandy soils between the Lake Erie shore and Route 5 are particularly prone to hosting this pest. Scouting for this pest should be conducted daily, if possible, but at a minimum of 3 times/week and should continue for about 2 weeks after bloom. Infested areas can lose extensive numbers of flower clusters if beetles are not detected early and treated. If a threshold of 2 beetles per vine is reached an insecticide application is recommended.

Adult rose chafer. Photo by Lorraine Berkett, University of Vermont

Banded Grape Bug & *Lygocorus inconspicuous* – Continue to be vigilant about scouting for banded grape bug (Figure 4*) and Lygocorus inconspicuous* (Figure 5) nymphs if your grapes are not yet in full bloom. Scout vineyard edges for these insects by examining flower clusters on about 100 shoots in different areas in the vineyard. Treatment threshold to prevent economic loss is 1 nymph per 10 shoots. Scout by tapping flower clusters over a paper plate and count the nymphs that fall off. Only the nymphal stage of these insects is harmful in grapes.

Banded Grape Bug identification and scouting technique: video



Photos courtesy of Cornell IPM, Joe Ogrodnick and Greg Loeb

Continue scouting for noxious or problematic weeds, as many species are easier to deal with in their early stages before producing extensive root systems or reseeding. Take time to familiarize yourself with invasive weed species and their management strategies, as best practices vary significantly by species. Field bindweed and Japanese knotweed populations can be increased through cultivation, herbicide burndown is ineffective for deep-rooted perennial weeds like Canada thistle. Identifying pests correctly will impact the best management techniques.

Honeyvine Milkweed (HvM) – (*Ampelamus albidus*) HvM is a twining, perennial vine with heart-shaped leaves which grows rapidly and can reach lengths greater than 10 feet (Figure 6). Begin scouting now, and frequently throughout the season, to identify areas with HvM. Record areas or flag areas with HvM in your vineyard. Begin spot spraying (check label for restrictions/precautions/ rates) using highest labelled rate when HvM is between 1 - 2 feet in length and/ or before vines start wrapping around grape trunks. Be careful not to allow sprays to contact green, grape tissue. Continue spot spraying as needed.

Photo courtesy of Virginia Tech Weed Science

Please pre-register for the LERGREC Field Day, feel free to contact me if you need help with the registration process.

Office schedule (*June 26th-30th*)

M 8am-4:30pm CLEREL Portland, NY
T 9am-5pm LERGREC North East, PA
W 8am-4:30pm CLEREL Portland, NY
Th 9am-5pm Summit Municipal Building, Erie, PA
F Out of office (available by email or phone)

Contact information:

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

Office: (814) 825-0900

Email: MFL5873@psu.edu