Lake Erie Regional Grape Program- Vineyard Notes

July 2016

In this Issue:

Save the Dates!!!

There are many events coming up in the next few months, please take a look at the flyers at the end of the newsletter for information on each and instructions on how to register. I hope to see you at some or all of the events.

Important dates:

August 2, 2016- Wine QualityWorkshop (rescheduled from April 13, 2016) at CLEREL
August 3, 2016- Grape Twilight Meeting and Erie County Horticulture Society's Annual Chicken BBQ
August 11, 2016 Craft Beverage Summit at CLEREL
August 15- IPM Climate Workshop
August 31, 2016- Cornell Vegetable Program Field Day at CLEREL
September 1, 2016- Cover Crop Conference at CLEREL

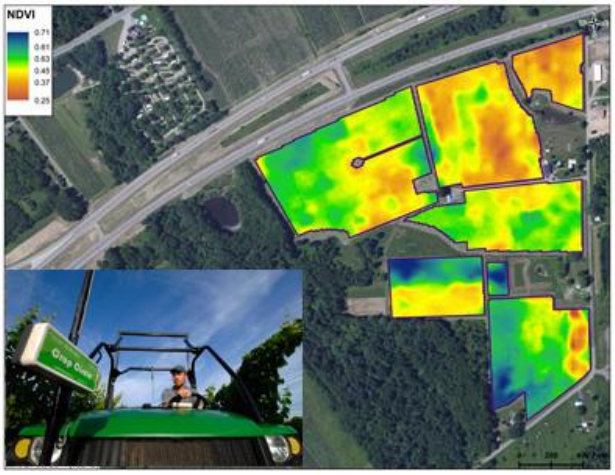
Cornell University Cooperative Extension

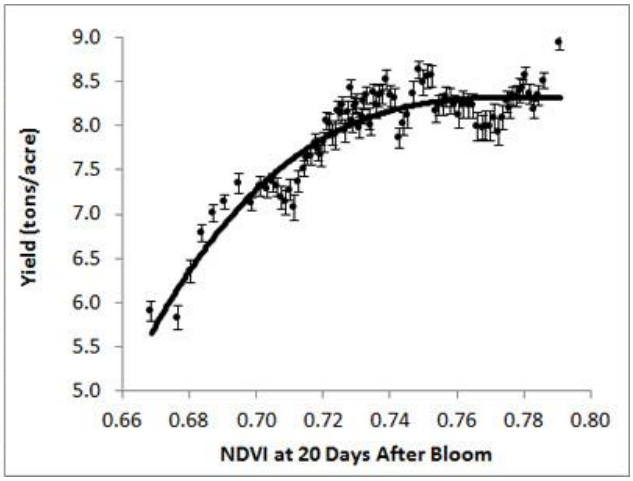
PENNSTATE College of Agricultural Sciences

Spatial Data Driven Concord Crop Estimation and Adjustment

Terry Bates, Director, CLEREL

As part of the Specialty Crop Research Initiative project on vineyard spatial crop load management, we have been investigating ways to use sensors and spatial data to (a) improve the accuracy of mid-season crop estimates and to (b) test the ability to perform variable rate fruit thinning in NY Concord vineyards. Last week, the CLEREL team performed spatial crop estimates in seven different commercial vineyards. The following update summarizes a portion of the research done on crop estimation and variable rate thinning in cooperation with the Betts family in Westfield, NY.



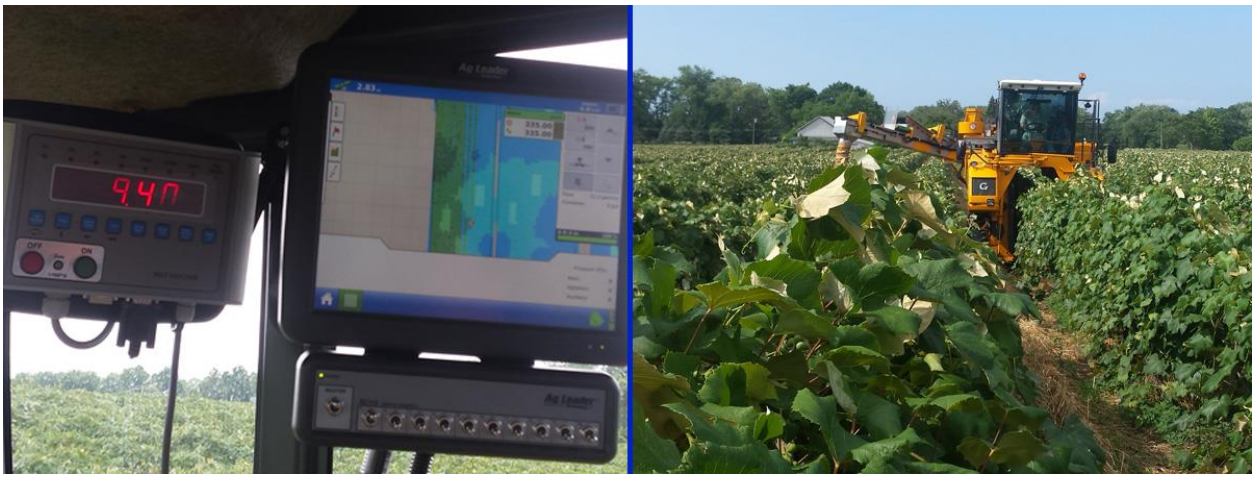


Characterizing spatial vineyard variation: The first step in improving crop estimation through directed vineyard sampling is to understand the spatial growth patterns within vineyard blocks. This project uses mobile soil (DualEM) and canopy (CropCircle – NDVI) sensors to measure and map both soil and vine growth patterns (left). The objective is to identify healthy regions of the vineyard with higher production potential as well as identify regions of weak vine growth that may need additional management for improvement. For example, the research shows that early- and mid-season canopy sensor data relates to harvest yield potential (right). Similar to pruning weight measurements, vines with a low NDVI sensor readings because of lower canopy growth and, therefore, lower sunlight interception have lower fruit production potential. In contrast, big vines with large canopies and full light interception have higher yield potential.

Stratified Sampling: In contrast to picking random sample locations across a vineyard block, directed or stratified samples may be more accurate by taking into account known sources of variation identified by the sensor data. The continuous spatial sensor maps are simplified into management classification maps with 2, 3, or 4 classifications that make sense to the vineyard manager. In our crop estimation example, the vineyard was broken into classifications of low, medium, and high NDVI (and potentially low, medium, and high yield). Crop estimation sample locations were generated so that the low, medium, and high vineyard regions were all sampled. In each sample location, vines were cleaned picked with a harvester and the fruit was weighed. In this case, the sample size was one percent of an acre identified with a rope on the ground (left). The harvester is also equip with a field computer and grape yield monitor (right). The field computer runs precision agriculture software (AgLeader, SMS) which shows the spatial management classification map (generated by Rhiann Jakubowski at CLEREL) and the location of the harvester in the field. The yield monitor records the weight of fruit as it goes over the cross conveyor belt.

Recording Fruit Weight: The stratified sample locations were clean picked with a grape harvester and the green fruit was discharged into a bucket on a platform scale and weighed by Dawn Betts (left). At the same time, the grape yield monitor recorded the fruit weight as it was discharged over the cross

conveyor belt. The yield monitor data was then compared to the actual scale weights to test the performance of the yield monitor (inset). For each management classification, sample fruit weights were multiplied by a berry weight factor to give the predicted harvest yield. In this case, crop estimation was done at 30 days after bloom with the assumption that the berries were 50% of the final berry weight; therefore, sample weights were multiplied by 2 to give the predicted harvest yield. For the whole field estimate, a weighted estimate was calculated by multiplying the management classification yield estimate by the size of each management classification.

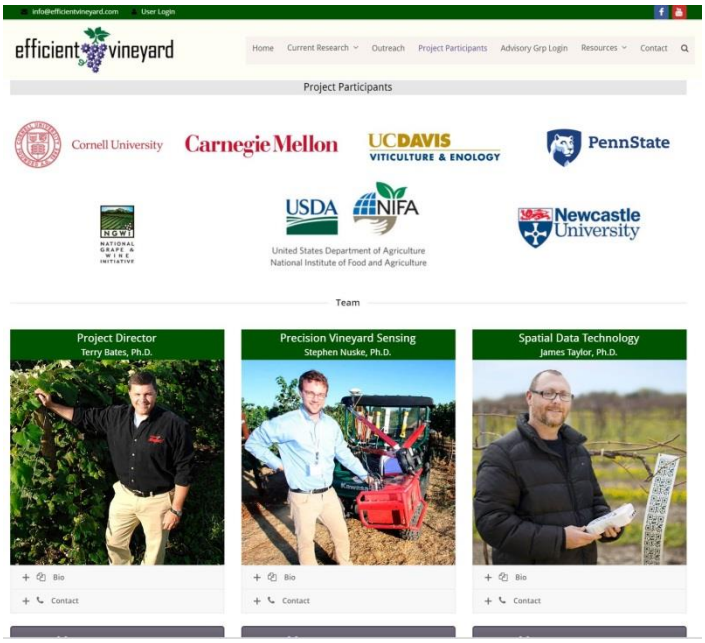


Variable Rate Crop Adjustment: Once an accurate crop estimate is calculated, the fruit thinning or crop adjustment procedure starts with the vineyard manager making an educated decision on if the crop needs to be reduced in any particular management classification and how much the crop should be reduced within that management classification. A manager may decide that no fruit thinning is needed, or only that the weak vines need to be thinned, or that all the zones need to be thinned at different rates. In this case, Thom Betts set up his harvester so that the shaker rod RPMs could be adjusted through the harvester hydraulic system and controlled by the AgLeader software. With a little testing in each management classification, shaker speeds and ground speeds were determined to reach the desired yield levels in each vineyard area. These values were entered into the field computer software. The harvester was then driven over the whole field while the shaker speed and thinning rate were adjusted on-the-fly by the field computer. Check plots where no fruit thinning was done (seen as the small light blue boxes in the left image) were incorporated into the prescription map. At harvest, the grape yield monitor data will be used to measure the effect of this variable rate thinning trial.

www.EfficientVineyard.com: This work on crop estimation and variable rate fruit thinning is just a portion of the larger specialty crop research initiative project on spatial crop load management. The project is national in scope with research in juice, wine, and table grape industries and multi-disciplinary with project leaders in engineering, viticulture, precision agriculture, economics, and extension. The project is also made possible by the innovation and effort of industry cooperators, such as the Betts, in directing and integrating research into real-world practice.

Efficient Vineyard Website On-Line

Damian Dodd, Extension Aide & Media Specialist,
NYS IPM Program/Lake Erie Grape Program



As media specialist, I have helped create a new website for the USDA/NIFA Specialty Crops Research Initiative (SCRI) project led by Dr. Terry Bates. The web-site is called EfficientVineyard.com. The website will have an overview of the project, current research, outreach data, as well as, bios and photos of project members.

Part of my job is to create content (video, images, text) for the site and then push that content out through our social media channels, i.e. Facebook and YouTube. While we want the site to be a storehouse of information for those involved in the project, we also want it to be a resource for anyone who is interested in learning about, or using, technology to manage their vineyards more efficiently.

Social media has evolved from a megaphone to a conversation. And we encourage feedback and interaction with Efficient Vineyard's content, either through our social media channels or via the contact form on the site. Quality social media involves more than us giving the latest news, it should be a give and take between our expertise and yours.

Our plans for the near future are to flesh out the 'Current Research' page with lots of great content – hopefully with some cool animated charts and graphs. And to start blogging regularly on what's happening with the Efficient Vineyard SCRI project. Snippets of the blog will then be used for our Facebook and YouTube channels. This platform allows us to reach grape growers on different levels and keep them informed on current advancements in sensor technology.

We invite you to come and visit our website often to see what's new!
https://www.efficientvineyard.com/

Vineyard Investment: Observations and Recommendations

Kevin Martin, Business Educator, Penn State University

As vineyard owners move through this grape market cycle, observing the various strategies employed to position the operations for future continued success is both interesting and informative. While bulk prices have fallen by 60% from peak, farm gate value of Concords with markets has fallen between 20% and 60%. While there is no average grower, the weighted average decline in farm gate value is 30%.

Growers entering the period of price decline in varying financial positions. As a result, we are seeing varying strategies on operations. Equipment investments are almost holding steady. Primarily the focus has been on mechanization and renewal of depleted assets. Many of these investments are sometimes less than optimal for the vineyard but they remain evidence of strong farm finances thus far. Controlling capital expenses can improve financial efficiency, unless the investments provide significant improvements in operational efficiency. That being said, it does indicate that some growers remain in a position of relative strength.

As markets were disrupted by marketing contract cancellations and reductions, we are seeing an increase in the growth of average farm size. These investments make a great deal more sense. The increase in farm size usually shows a decrease in the amount of capital per acre. Over the long-term these investments, when priced correctly, should provide positive returns for these growers. The main concern in increasing business size during a commodity price trough is planning cash flow for the entire length of the recovery.

In prior cycles we have seen this work out to varying levels of success. With credit now tightening a bit growers that over extend themselves sometimes rely on reducing production costs in an attempt to weather the storm. Sometimes in a dry year like this, there is money to be saved on spray applications. Overall, though, consistent and forced frugality based on available finances tends to lead to vineyard decline. In a business where maximum production is highly correlated with maximum gross profit, this can undermine a business plan that justifies a mortgage very quickly.

On the other side of things, growers that have the financial resources and make conservative yield and price estimates tend to do well. For instance, if a grower can make a land purchase work operating under the assumption of 85% of historical yields at current prices for 5 years, that grower is in a sustainable position to survive under some of the greatest historical challenges the industry has faced. His risk would be a challenge of unprecedented proportions based on a new normal, rather than historical information.

We are seeing some growing pains as the number of vineyard operators managing more than 300 acres is growing very quickly. Despite multi-row equipment, new harvesters, and innovative strategies at these sizes full-time laborer(s) are a new normal. Traditionally the growth of acreage has not outstripped the pace of technological innovation. Now we are seeing a dramatic increase in paid labor costs between May and August. This was a period in time when only the largest growers hired help. Now, we have a significant number of 100 – 200 acre growers finding a need for full time labor. Those growers are no longer the largest growers in the industry.

At 200 acres a farm can justify some year-round paid labor. With the average age of growers very close to social security early retirement age, I don't see outside labor putting an undue strain on farms if kept to a minimum and managed well. There's the rub, of course. Growers typically specialize in growing, not managing a workforce. Farms less than 175 acres also require year round labor that should likely total less than full-time, unless the grower owner is above retirement age.

One real struggle with full-time labor management will be the balance of a growers' ability to pay as compared with the workers' ability to find opportunities elsewhere. The trend of increasing paid labor during the growing season began during the 2007 downturn, when local unemployment got very close to double digits. Contrast

that with today, a market with declining unemployment, increasing wages and low grape prices.

A typical model is about one FTE per 100 acres of grapes, minus the first 100 acres. So a typical grower would have 1 FTE on a 200-acre farm or 2 FTE on a 300-acre farm. All of the labor is not new. Typically, year round labor does replace many of the functions and services traditionally provided by seasonal and temporary work. Even so, as a point of reference, every dollar of wage increase is an additional cost of three cents per vine or $20 per acre.

Growing a farm from 100 acres to 200 will require the development of some labor management skills. Effectively using and managing hired help and delegating tasks will increase the efficiency of hired labor to allow for adequate compensation and the relative growth of farm profitability.

For some perspective on justifying the cost of labor to increase farm size, we only need to look as far as capital and depreciation. A 100-acre grower would usually see a decline in depreciation from over $300 per acre to $200 per acre by doubling farm size. Furthermore, the capital invested in the farm, on a per acre basis would also decline. Capital investment would decline from $7,250 to $6,500.

The decline in depreciation and capital investment are operating on many of assumptions but those assumptions are based on typical farms we observe. A relatively frugal farm would have relatively lower expenses. A farmer with newer and more advanced equipment would have higher expenses. Generally speaking, the relative savings is somewhat uniform. More specifically, though, we should address the extremes. A grower likely to over-invest in capital will be much more successful with a larger farm. A grower that drifts toward being overly frugal will operate with more relative success on a smaller farm. He will still improve efficiency by growing, but perhaps less so. As an example, eventually the repair work on the Mecca harvester becomes cost prohibitive and represents a strategic risk for the business and its ability to harvest before processors close.

Despite the example above, generally speaking the grower that tends to be overly frugal on capital expenditures, but not operating costs, will likely be the most successful of all grower types as that grower expands his operation and remains flexible and open to strategic and important capital investments.

The strategic expansion of vineyards will continue to be a long-term trend. For individual operations, expansions should be timed when cash-flow, resources and labor allows. Growers with an ability to meet those criteria are the most likely to find expansion sustainable. Given the current market climate, the ability of growers to take on significant acreage is surprising. It does bode well for the long-term sustainability of the industry, as it appears most of these investments are likely sustainable.

Despite some recent indications that prices are rising very slightly, those trends are young and processor specific. When planning out over the next 2 – 5 years, I do think it is fair to plan for relatively flat prices. I don't expect dramatic declines in price at this point. Some upside, at some point, is inevitable. Trying to determine exactly when that happens is impossible. I might expect higher prices in the next 5 years, but when planning for business operations I would not count on it.

High and Low Crop Levels Paired with Dry Conditions Make 'Concord' Crop Estimations Important

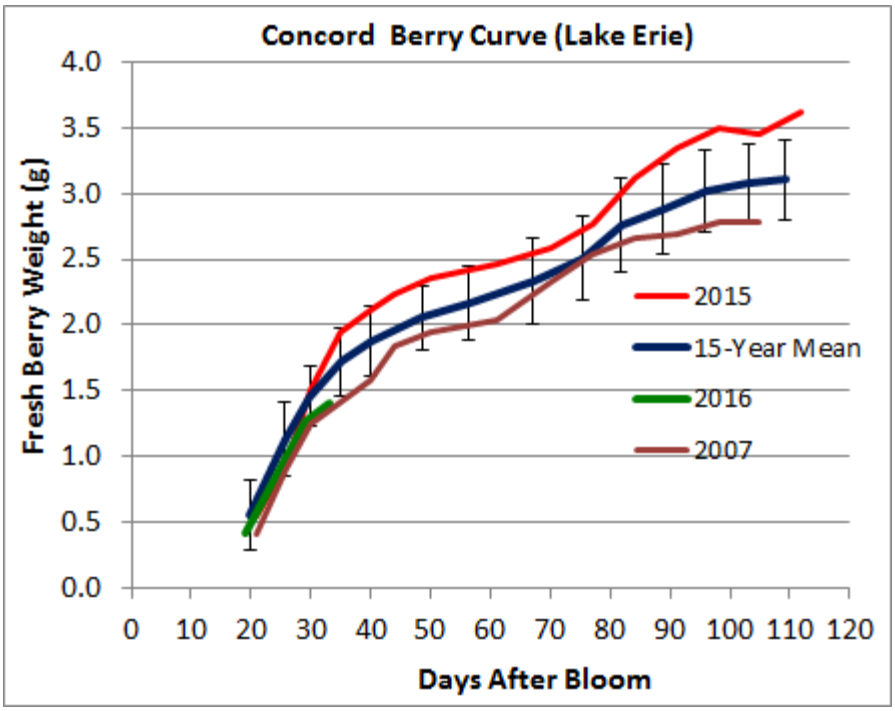
Luke Haggerty
Viticulture Extension Associate
Lake Erie Regional Grape Program

The dry conditions across the Lake Erie grape belt have added to the variation in both berry and crop size. After bloom it was apparent that some area vineyards are at risk of over-cropping. Water stressed vines are showing reduced berry size making most crop sizes manageable and others under-cropped. As of July 12th, NOAA classified most of the grape belt as "Moderate Drought". Combined vine stress from over cropping and water deficieny has the potential to cause ripening problems and decreased vine health. The possibility of continued water stress makes crop estimation extremely important this year.

Jake Jankowski weighing Concord berries thirty days after bloom (July 12).

Crop estimation is a vital tool for all grape growers to assist in making predictions of potential yields before harvest. Estimating potential crop allows growers to let their buyers know how much fruit to expect, provides time to adjust crop load to meet quality targets, and will dictate how the vineyard is managed the remainder of the growing season. For many Concord growers crop estimation has become a common practice to help make these decisions. This article will address how to use the crop estimation chart based on Concord berry weight and days-after-bloom (DAB).

During the second week of July the CLEREL staff was been busy crop estimating vineyards around the area. Crop and berry size seems to vary between blocks and across the region. Our estimations ranged from 2 – 10 tons per acre, with most samples showing between 6 and 8 tons per acre. Berry size 30 DAB were between 0.94 grams and 1.80 grams, which is below average. *See chart on next page.*



Crop estimating at 30 DAB is a common practice for most growers because the berries are at 50% of the final berry weight making the math simple. All you needed to do for final estimation is shift the decimal point over one place. Now that we are past the 30 DAB, don't worry, the estimation table will work throughout the season.

Steps for using the Concord Crop Estimation Chart

The "Crop Estimation Chart" referred to in these steps can be found on the last page of the article.

Row Spacing:

Like bloom date, you'll need to know your vine spacing. The more vines per acre means having the potential to produce more tons per acre. Row spacing determines the length of a row that will equal 1/100th of an acre and the length needed to be cleaned picked and weighed. The wider the row is, the shorter the sampling length will be. For example, sampling a block with a 10' row you will need to clean pick 45.9 feet. Narrow rows that are at 7.5' spacing, need 85.1 feet clean pick. With a 9-foot row spacing and panels are at 24 feet the math is easy. Clean pick two panels (48.4 feet). It is best to determine your row spacing and cut a length of rope to guide your sampling lengths rather than rely on post lengths that have been changed out over the years.

Length of rope to guide harvester on distance of sample (determined by row width)

Sampling:

Once the row spacing and sample distance are calculated, clean pick and weigh the samples. This can be done with a harvester or handpicked. Accuracy will increase with the number of samples taken. It also helps to take samples from areas of known variation across the vineyard. For example, take 2-3 samples from high vigor, medium vigor, and low vigor sections across the vineyard and apply your predictions appropriately to those sections. NDVI maps are very useful when determining where to sample. If you are using a harvester to clean pick panels walk behind afterwards to assess how many grapes are still on the vine/or that are on the ground.

Weighing green Concords clean picked from 1/100th of an acre.

Using the Chart:

Once you know the weight of the sample, you can use it as a reference point on the chart, and the rest is calculated for you. The "Crop Estimation Chart" system is based on bloom date, and in order to increase accuracy you need to know when your grapes were at 50% bloom. In Portland and Fredonia, 50% bloom occurred on June 12th; two days before the 50 year average of June 14th. Count off starting at your bloom date and accrue the respectable days-after-bloom (DAB). On the chart the DAB is found in the shaded "Time of Season" and not to be confused with "% of Final Berry Weight" directly below. Follow the corresponding DAB down and the respective weight over and you have the estimated tons/acre at harvest. For example, let's say its July 22th or 40 DAB (bloom on June 12th) or 60% of the final berry weight and the sample weighed 60 pounds. I would have an estimated 5.0 tons/acre potential crop.

Things to keep in mind:

- If you have an accurate bloom date for your vineyard, follow the crop estimation chart to predict final harvest weight. If you're not and you are using the actual berry weight samples to come up with your multiplication factor, be reasonable in what you think your final berry weight will be. A final berry weight of only 2g -3g for 2016 is reasonable based on the dry conditions. Some vineyards tend to have smaller average weights and others tend to be larger – and you should have an idea where your vineyard fits.
- Getting it right is important. Underestimating crop potential can lead to delayed harvest waiting for the grape to ripen and the BRIX to rise. Overestimating a crop load may result in unwanted thinning or unnecessary expensive chemicals being used to care for a crop that is not there. Accuracy will increase with the number of samples. With practice and experience comes efficacy.
- Crop estimation and crop thinning are two different things. Sometimes these practices get lumped together when, actually, they are very separate. Just because you crop estimate does not mean you have to thin your grapes. Accurate crop estimations should help you make most all cultural practice decisions for the rest of the season… crop adjustment is just one of these decisions.

Dr. Terry Bates: Crop Estimation and Thinning Table: 7/16/2003

	Time of Season														
	20DAB			25DAB		30DAB			40DAB	50DAB		Veraison			Harvest
	% of Final Berry Weight														
Pounds of Fruit Removed in 1/100th of an Acre	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**90**	**100**
10	2.5	2.0	1.7	1.4	1.3	1.1	1.0	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.5
20	5.0	4.0	3.3	2.9	2.5	2.2	2.0	1.8	1.7	1.5	1.4	1.3	1.3	1.1	1.0
30	7.5	6.0	5.0	4.3	3.8	3.3	3.0	2.7	2.5	2.3	2.1	2.0	1.9	1.7	1.5
40	10.0	8.0	6.7	5.7	5.0	4.4	4.0	3.6	3.3	3.1	2.9	2.7	2.5	2.2	2.0
50	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2	3.8	3.6	3.3	3.1	2.8	2.5
60	15.0	12.0	10.0	8.6	7.5	6.7	6.0	5.5	5.0	4.6	4.3	4.0	3.8	3.3	3.0
70	17.5	14.0	11.7	10.0	8.8	7.8	7.0	6.4	5.8	5.4	5.0	4.7	4.4	3.9	3.5
80	20.0	16.0	13.3	11.4	10.0	8.9	8.0	7.3	6.7	6.2	5.7	5.3	5.0	4.4	4.0
90	22.5	18.0	15.0	12.9	11.3	10.0	9.0	8.2	7.5	6.9	6.4	6.0	5.6	5.0	4.5
100	25.0	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7	7.1	6.7	6.3	5.6	5.0
110	27.5	22.0	18.3	15.7	13.8	12.2	11.0	10.0	9.2	8.5	7.9	7.3	6.9	6.1	5.5
120	30.0	24.0	20.0	17.1	15.0	13.3	12.0	10.9	10.0	9.2	8.6	8.0	7.5	6.7	6.0
130	32.5	26.0	21.7	18.6	16.3	14.4	13.0	11.8	10.8	10.0	9.3	8.7	8.1	7.2	6.5
140	35.0	28.0	23.3	20.0	17.5	15.6	14.0	12.7	11.7	10.8	10.0	9.3	8.8	7.8	7.0
150	37.5	30.0	25.0	21.4	18.8	16.7	15.0	13.6	12.5	11.5	10.7	10.0	9.4	8.3	7.5
160	40.0	32.0	26.7	22.9	20.0	17.8	16.0	14.5	13.3	12.3	11.4	10.7	10.0	8.9	8.0
170	42.5	34.0	28.3	24.3	21.3	18.9	17.0	15.5	14.2	13.1	12.1	11.3	10.6	9.4	8.5
180	45.0	36.0	30.0	25.7	22.5	20.0	18.0	16.4	15.0	13.8	12.9	12.0	11.3	10.0	9.0
190	47.5	38.0	31.7	27.1	23.8	21.1	19.0	17.3	15.8	14.6	13.6	12.7	11.9	10.6	9.5
200	50.0	40.0	33.3	28.6	25.0	22.2	20.0	18.2	16.7	15.4	14.3	13.3	12.5	11.1	10.0

Row Spacing determines length of 1/100th of an acre
10.0 feet row spacing = 43.5 feet = 1/100th of an acre
9.5 feet = 45.9 feet = 1/100th of an acre
9.0 feet = 48.4 feet = 1/100th of an acre
8.5 feet = 51.2 feet = 1/100th of an acre
8.0 feet = 54.45 feet = 1/100th of an acre
7.5 feet = 58.1 feet = 1/100th of an acre

Calculation
43, 560 square feet per acre
Divide by row spacing and then
divide by 100 to get 1/100th of an acre

Example:
A grower has 9 foot row spacing and clean picks 48.4 feet at 25 days after bloom. The fruit weighs 80 pounds and the grower estimates that the berries are between 35% and 40% of final berry weight. According to the table, the crop estimate is between 10.0 and 11.4 tons per acre.

Disclaimer:
This table gives the relationship between time of season and % final berry weight on an average year. Year to year variability in weather related berry growth adds error to this table. Information on current year berry growth can be obtained from the Fredonia Vineyard Lab (or) it is strongly suggested that individual growers start collecting berry weight information from their own individual vineyard blocks.

Weather Update

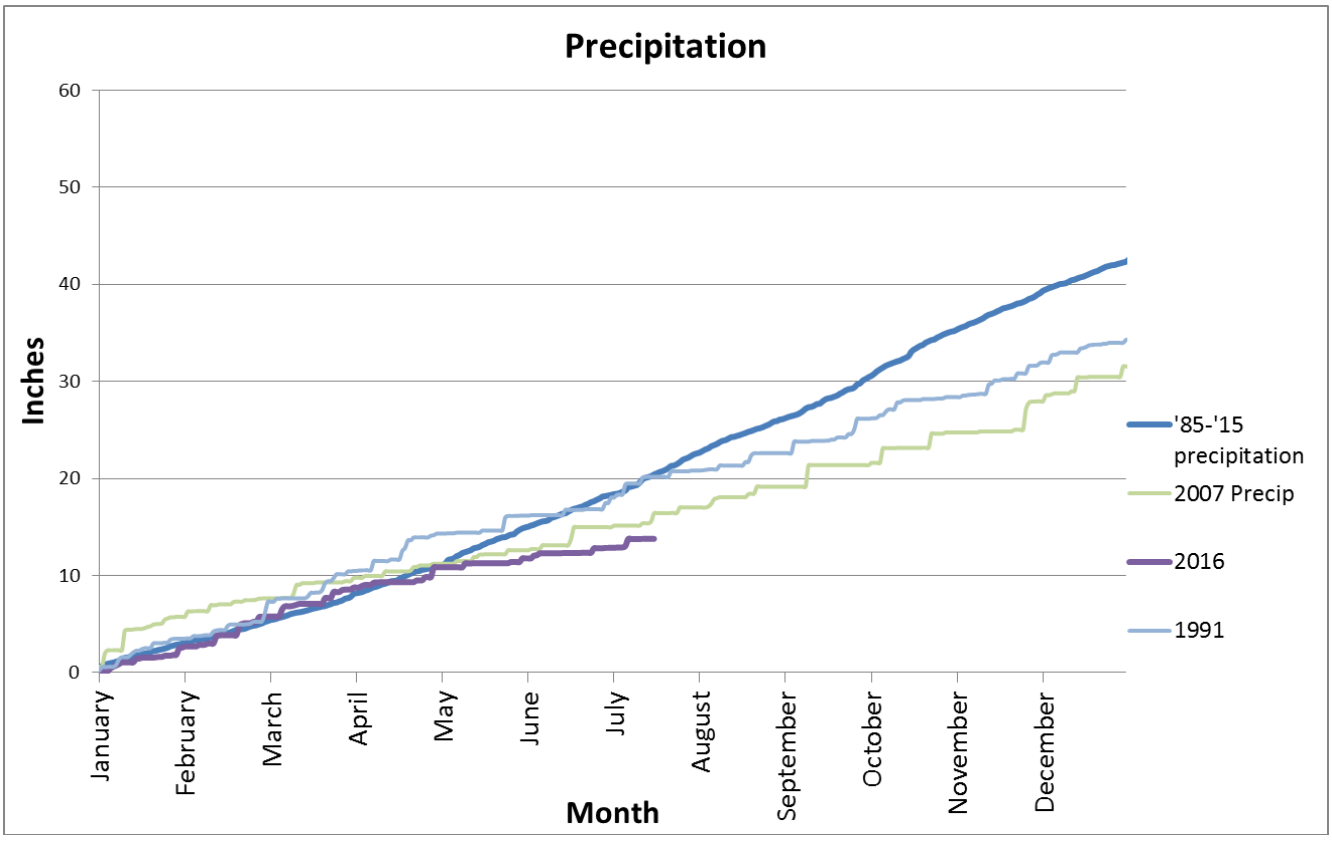
Luke Haggerty and Dr. Bates

The lack of rain has been a continued topic in conversation for over a month now. Another dry week has contributed to changes to the NOAA 'Drought Monitor', Niagara county, part of Erie county and most of the Finger Lakes status upgraded from "Moderate Drought" to "Severe Drought" status. The greater part of the Lake Erie region has stayed at "Moderate Drought" status.

Lake Erie Grape Region NEWA Weather Data				
Location	Precip. July Past18 days	Precip. June total	Precip May total	Total March GDD
North East Lab, PA	1.01	1.92	2.13	1274
Harborcreek, PA	0.80	1.74	1.68	1259
North East Escarpment	1.00	2.37	1.52	1165
Ripley	0.55	3.86	1.50	1269
Portland CLEREL	1.07	1.44	1.48	1237
Portland Escarpment	0.67	1.24	1.56	1301
Dunkirk	0.17	2.16	1.13	1159
Silver Creek	1.06	NA	1.78	1179
Sheridan	0.45	2.23	1.85	1252
Versailles	0.55	1.47	1.72	1172
Appleton North	0.08	1.41	0.71	1088
Somerset	2.09	1.53	0.94	1199
Ransomville	0.27	0.93	0.92	1293

Note: All Weather data reported as of 7/18/2016
NA=Sensor Malfunction

How dry are we? During coffee pot meetings growers have mentioned 1991 and 2007 as recent dry years. Below we have graphed the precipitation data 1991, 2007, and 2016. Comparing weather data from the past 30 years CLEREL is 7 inches below average. However, depending on your location this amount may change. Visible symptoms of water stress should be raising your awareness for the potential for more severe and damaging water stress if the dry weather pattern continues. WE ARE 7 INCHES BEHIND NORMAL in precipitation for this time of year and the vines are at their highest plant water demand.



Here are the FACTS:

A) From bloom to about 30 to 40 days after bloom, Concord leaf area and canopy fill goes from about 40% to 100% and canopy water demand increases with leaf area. Research on Concord in Washington State estimates a Concord vine with a full canopy on a sunny, warm, low-humidity afternoon used about one liter of water per hour! That's a lot of water.

B) Early season berry cell division impacts late season berry size potential. (Wine grape growers use water stress during cell division to make smaller berries with higher skin to pulp ratios at harvest). Through crop estimations this year we have found a large range in berry size. Early water stress may have contributed to small berries in our samples.

C) Most Concord growers do not replace soil water with irrigation; therefore, soil water **conservation** is the main strategy for vineyard water management. Did I mention that we are STILL 7 INCHES BEHIND NORMAL?

D) Weeds are the number one enemy to vineyard soil water conservation – especially on own rooted Concord vineyards where the grapevine roots are primarily shallow rooted.

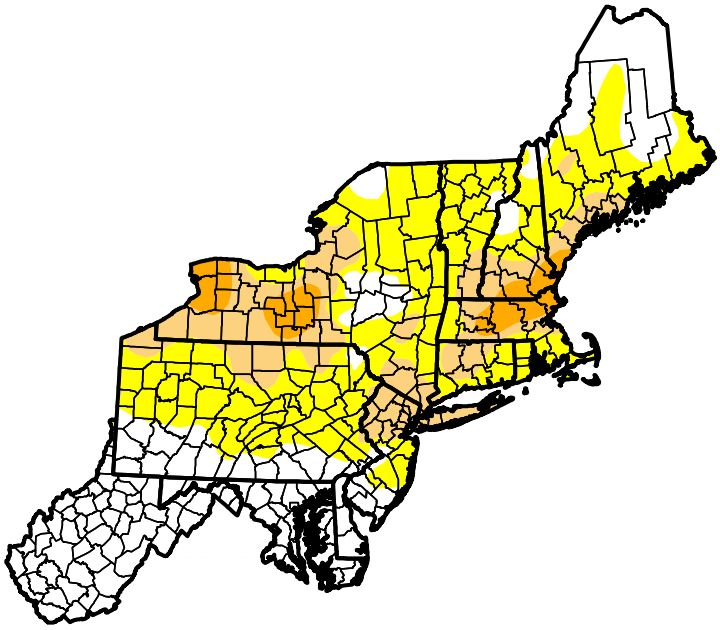
You should currently have an aggressive weed management program in place in your vineyard. You need to conserve what soil moisture you have and fully capture any precipitation that falls for the grapevines. Yes, this is a risk management strategy. If the sky opens up and we have plenty of rain late in the season then your aggressive weed control would not be needed. However, if the weather stays dry, a weedy vineyard runs the risk of low vine water status which leads to low photosynthesis, low fruit ripening, as well as, incomplete periderm formation for next year.

Vineyard row-middle management research from Pool and Lakso has shown that when it comes to vineyard water conservation, treatments rank like this:

1. Hay mulch – blankets the ground, smothers weeds, prevents evaporation.
2. Killed annual rye grass – covers like hay and extends weed free period.
3. Herbicide – eliminates weed competition.
4. Light Cultivation – eliminates weed competition. Cultivation can cut shallow roots but in a dry year it is better to get rid of the water competition than to do nothing.
5. Anything green – weeds have higher rooting density than grapevines and out compete the vines for water every time. Therefore, get rid of the weeds! Mowing doesn't count.

U.S. Drought Monitor

Northeast



July 12, 2016

(Released Thursday, Jul. 14, 2016)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	35.97	64.03	22.79	5.08	0.00	0.00
Last Week *7/5/2016*	34.35	65.65	20.82	1.82	0.00	0.00
3 Months Ago *4/12/2016*	88.13	11.87	0.00	0.00	0.00	0.00
Start of Calendar Year *12/29/2015*	62.10	37.90	6.60	0.00	0.00	0.00
Start of Water Year *9/29/2015*	42.41	57.59	9.00	0.00	0.00	0.00
One Year Ago *7/14/2015*	91.18	8.82	2.25	0.00	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
David Miskus
NOAA/NWS/NCEP/CPC

http://droughtmonitor.unl.edu/

University of Minnesota releases its latest cold-hardy wine grape

Press release from the University of Minnesota

The University of Minnesota released its fifth cold-hardy wine grape, named "Itasca."

The new grape, which will be used to make dry white wines, is the latest in a series of cold-hardy cultivars released by the university that led to the nascent wine industry in Minnesota and other northern climates around the world. Itasca has lower acidity and high sugar levels, said U of M grape breeder Matt Clark, coupled with high resistance to common grape pests such as downy and powdery mildew and the insect phylloxera. It's shown cold hardiness as far north as the U. S. Department of Agriculture's Zone 4.

"We believe these traits will make 'Itasca' a preferred variety for vineyard managers, because they will be able to reduce their spray inputs, and for wine makers in making a dry-style wine," said Clark, an assistant professor of horticultural science. Licensed nurseries will begin selling the new cultivar in 2017.

The Itasca grape, which will be used to make dry white wines, is the latest in a series of cold-hardy cultivars released by the university that led to the nascent wine industry in Minnesota and other northern climates around the world. Photo Credit: CFANS

Itasca produces a wine that is light yellow to straw in color and has aromas of pear, quince, violet, melon, minerals, and subtle honey notes. "This is a very nice grape with lots of potential as a wine maker's grape," said Bryan Forbes, the university's wine maker. "It is clean and pleasant with pear and floral notes and mineral notes with a long finish."

Itasca joins the grapes known as Frontenac, Frontenac Gris, La Crescent and Marquette, all developed by the U of M. The cold-climate grape-growing and winery industry is estimated to have a $401 million economic impact nationwide, a 2014 university study found. Since Frontenac was released in 1996, producers in 12 states have planted an estimated 5,400 acres of cold-hardy grapes, including 3,260 acres of the U of M varieties.

'Itasca' was identified in 2009 as an elite seedling and has been known as MN 1285 since 2009; Clark announced the new name at his annual research update for the Minnesota grape industry at the University of Minnesota's Landscape Arboretum.

Source: http://discover.umn.edu/news/food-agriculture/university-minnesota-releases-its-latest-cold-hardy-wine-grape

Insect Management- Read the Label, Avoid the Fine

Tim Weigle, NYSIPM, LERGP Team Leader

At the writing of this article on July 19, 2016, there is very little going on in the way of insect pests. Japanese Beetle are starting to ramp up the populations in certain areas (see Andy Muza's article in this newsletter), grape leafhopper feeding can be found in some vineyards, Grape rootworm has been absent for the past two weeks in our 8 project vineyards and, according to the grape berry moth (GBM) model on NEWA "The most effective time for treatment of second generation grape berry moth is over", and we have a ways to go until we reach the next scouting opportunity at 1470 DD.

So, this is basically a good time to look to the future in developing a good grape berry moth management strategy. I will stress once again that the two most important cornerstones to managing grape berry moth is to 1) take the time to classify your vineyard according to the level of risk it is at for damage from grape berry moth and 2) scout *both* the interior and exterior of all your vineyards on a block by block basis. If you need assistance in classifying your vineyards into a risk category, you can review New York's Food and Life Sciences Bulletin 138 *Risk Assessment of Grape Berry Moth and Guidelines for Management of Eastern Grape Leafhopper* at https://ecommons.cornell.edu/handle/1813/5202. Knowing whether your vineyard is at low-, moderate- or high-risk for damage from grape berry will help you develop a management strategy to use in conjunction with the grape berry moth model found on the Network for Environment and Weather Applications website (http://newa.cornell.edu). Over the past few years I have seen a trend where the lack of scouting allows grape berry moth to spread across a vineyard and populations to build to high levels before they were noticed in vineyards that were previously considered to be at low- or moderate-risk for grape berry moth damage. The statement "They came out of nowhere and I had damage across the whole block" has been made a number of times around harvest when picking crews run into high levels of GBM damage. Regular scouting, timed using the GBM model on NEWA, in all vineyard blocks will take care of this problem. Grape berry moth are not known to be strong flyers so moving across a decent sized vineyard in one year should not be considered practical (The exception to this would be newly planted vineyards 5 acres and smaller that are surrounded on at least three sides by woods and they should be classified as high risk vineyards). While they do increase their population size with each generation as the season progresses we have not seen where they have gone from manageable to devastating from one season to the next. So the take home message is: 1) Know the characteristics of your vineyard which affect its risk for damage from grape berry moth (classify your blocks), 2) Scout every block, every year using the timing provided on NEWA and 3) scout both the interior and exterior of the vineyard block to eliminate surprises.

IRAC Codes, Resistance Management and Understanding seasonal limits for active ingredients of insecticides

For years you have heard about rotating chemistries to decrease the risk of the development of resistance. Table 1 shows the IRAC number for a number of common pesticides used in the New York and Pennsylvania grape industry for both grape berry moth and grape rootworm, along with some of the more popular insecticides not labeled for grape rootworm but found in the same IRAC group as those that are. Just a little review, IRAC numbers help you determine the mode of action of a particular insecticide so you can easily manage resistance by choosing an insecticide with a different IRAC number if more than one insecticide is needed in a season. Or, in the case of grape rootworm, so you can change the mode of action used against this pest from year to year. Grape growers actually have a number of different modes of action to use against grape berry moth. However, there are only four insecticides, representing 3 modes of action that are labeled for use against grape rootworm in New York State. Sevin is labeled while we have FIFRA 2ee recommendations for Admire Pro, Danitol and Sniper. (Note: growers applying insecticides to vineyards in Pennsylvania do not have all of the same restrictions for New York vineyards where both the crop and the pest need to be on the pesticide label). The difficulty is not in the number of materials we have labeled, but the seasonal use restrictions on the more popular modes of action. Note in Table 1 that there are three modes of action; 1A Carbaryl, 3A – Pyrethroids

and Pyrethrins (a subgroup of 3 – Sodium Channel modulators), and 4A Neonicotinoids, a subgroup of 4 Nicotinic acetylcholine receptor competitive modulators). Carbaryl, or Sevin, is the only grape rootworm insecticide that does not share a mode of action with insecticides labeled for grape berry moth, so the seasonal use limits are fairly straight forward; do not use more than 10 quarts (10 lbs of active ingredient) of Sevin 4F in a year.

It is when we start using Admire Pro, Danitol or Sniper for grape rootworm that a closer examination of the label and season use restrictions come into play. Notice in Table 1, if you use Admire Pro (IRAC 4A) for grape rootworm you will need to watch your use of Leverage 360, Leverage 2.7 SE and/or Brigadier for grape berry moth as they all contain the active ingredient imidacloprid (IRAC 4A) which has a seasonal use limit of 0.10 lb AI. It does not matter that you are applying these materials for grape berry moth and the active ingredient imidacloprid does nothing for grape berry moth control, it is the seasonal limit that counts. The active ingredient bifenthrin can present a larger problem when planning grape berry moth management if it was used for grape rootworm as it has a seasonal limit of 0.10 lb active ingredient per acre which is basically only two applications of any of the insecticides containing bifenthrin combined.
Looking at the label and active ingredients you would think you could switch to Mustang Max or Mustang Maxx which have zeta-cypermethrin as the active ingredient. However, looking at the IRAC number you see that it is listed as 3A or Pyrethroids and Pyrethrins as are bifenthrin, ß-cyfluthrin and cyflurthrin. Switching from one to the other would be similar to when we started seeing resistance to Bayleton, our first sterol inhibiting fungicide. Switching to Nova (another sterol-inhibiting fungicide) provided better control of powdery mildew but showed resistance development much quicker than Bayleton. Rubigan was the last sterol-inhibiting fungicide to become available to growers in the eastern US and was effective for a bit but was fighting an uphill battle as this group of sterol inhibiting fungicides gave Concord growers in the Lake Erie region their first good experience with resistance development and the importance of managing it.

The take home messages are;

1. Watch seasonal limits on use of products.
2. Watch seasonal limits on active ingredient as many of the commonly used insecticides can share one active ingredient.
3. The best way to strengthen your resistance management strategy, as well as alleviate the problem with seasonal use restrictions would be to use products with a totally different mode of action (check the IRAC number) such as Altacor, Intrepid (not registered in NY), Belt, Tourismo, Delegate, etc.

If you would like help coming up with an IPM plan for insects in your vineyards, please shoot me an email at thw4@cornell.edu. Our phone system is still down to one line coming in with no ability to leave messages, but if that is your preference give me a call at (716) 792-2800 between 8 and 4 PM.

JAPANESE BEETLE – A Midsummer Pest in Lake Erie Vineyards

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

Distribution

The Japanese beetle has been in the United States since 1916 when it was first discovered in New Jersey. By 1920 this pest had migrated to southeastern Pennsylvania and by 1957 this insect could be found in every county in Pennsylvania. Currently, this pest can be commonly found in all states from Maine to Georgia and as far west as Illinois and Tennessee. Japanese beetle has also been found in parts of Nebraska, Kansas, Oklahoma and in Utah.

Life Cycle and Description

Japanese beetle has 1 generation/year with 4 life stages: egg, larva, pupa and adult.
The beetles are almost ½" in length and ¼" wide with a metallic green body and bronze colored wing covers. An identifying characteristic is 12 patches of white hairs on the abdomen around the outside edges of the wing covers (Figure 1). Beetles can live for 4 – 6 weeks and they spend this time voraciously feeding and mating. Females deposit their eggs in the soil and can lay up to 60 eggs during their lifetime. Eggs hatch in 10 – 14 days and larvae (grubs) begin feeding, mainly on grass roots, near the soil surface. A fully grown larva is about 1" long with a soft, white body, 3 pairs of legs, and a light brown head capsule. Grubs are described as having a curled or C-shaped body (Figure 2). In the fall, larvae move deeper into the soil (4" – 8") to overwinter. As soil temperatures warm in the spring the mature grubs return to the soil surface to feed and pupate.

Figure 1. Japanese beetle adult

Figure 2. Japanese beetle larvae

Emergence

Japanese beetle adults emerge from the soil and can initially be found in vineyards in the Lake Erie Region about the last week in June – the first week in July. This season, in Erie County, Pennsylvania I observed the first beetle in a vineyard on June 22 but by July 6 there was a noticeable increase in beetle numbers. Peak activity of adult beetles in vineyards is in midsummer.

Figure 3. Japanese beetles congregating on Concord leaf to feed

Feeding injury

Adult Japanese beetle feed on over 300 species of plants including grape, tree fruits, small fruits, vegetables, ornamentals and various weeds. The larvae are serious pests of turfgrass. On some crops, (e.g., peaches) beetles can cause significant injury on both fruit and leaves. However, on grapes, feeding is mainly on leaf tissue. Beetles are most active on warm, sunny days and tend to congregate on vines to feed and mate in groups on the top leaves of the canopy (Figure 3). Feeding injury, depending on severity, can result in leaves having a skeletonized appearance due to consumption of the soft leaf tissues between veins (Figure 4). Research and field observations indicate that Japanese beetles prefer smooth, thinner type grape leaves which are characteristic of many wine varieties (e.g., Chardonnay, Traminette, Vidal Blanc). However, large populations of beetles can also cause concern in Concord and Niagara vineyards (Figure 5). Although leaf feeding on Concord and Niagara vines may look alarming, serious widespread injury is not common in our region. Beetle infestations are usually concentrated in pockets and not uniformly spread throughout a vineyard block.

Figure 4. Traminette leaves skeletonized by Japanese beetles.

Figure 5. Concord leaf skeletonized by Japanese beetles.

Management

A presentation "Managing Japanese beetles in vineyards" (Rufuus Isaacs) http://www.isaacslab.ent.msu.edu/Images/talks/Isaacs%20Viticulture%202010%20JB%20for%20web.pdf provides information on various management strategies, scouting, leaf area loss tolerance and insecticide option information. Definitely worth checking out.

Biological and cultural management tactics are discussed in various fact sheets about Japanese beetle. As early as the 1920's, 2 parasites from Asia (*Tiphia vernalis* and *Istocheta aldrichi*) were released into the United States. *T. vernalis* is a small, parasitic wasp which attacks the larval stage and *I. aldrichi* is a fly whose larva is an internal parasite of adult beetles. These parasites are still found in some areas where they were released and may contribute to the management of population levels in these areas. More recently, research is being conducted by Greg Loeb, Tim Weigle and Elson Shields (Cornell University) to investigate the use of nematodes that attack Japanese beetle larvae as a method to reduce adult beetle population levels.

However, currently, the most practical management in commercial vineyards requires insecticide application(s) aimed at adult beetles. There are numerous insecticides registered for management of Japanese beetle on grapes in Pennsylvania and New York (see Table 4.2.2 page 53 in 2016 New York and Pennsylvania Pest Management Guidelines for Grapes). For a concise explanation of insecticide options refer to "Managing Japanese beetles in fruit crops" (R. Isaacs and J. Wise) http://msue.anr.msu.edu/news/managing_japanese_beetles_in_fruit_crops

Research has shown that grapevines (especially Concords with large canopies) can tolerate a fair amount of leaf area loss without detrimental effects. However, no economic threshold level has been established for leaf injury on grapes caused by Japanese beetle. Therefore, growers have to rely on their judgement and experience to determine leaf injury levels they can tolerate.

Before deciding if an insecticide application is needed in any of your vineyard blocks consider: Japanese beetle population levels, varietal susceptibility, age of vineyard (i.e., young or mature), canopy size, and crop load. In my experience, mature Concord and Niagara vineyards do not routinely require an insecticide application for this pest. Therefore, frequent scouting of vineyards is necessary to determine if heavy infestations are occurring which may warrant an insecticide application. Many wine varieties, young vineyard blocks and vines in grow tubes are especially vulnerable to serious leaf loss by Japanese beetle feeding so consistent monitoring is required.

References:

Japanese beetle, *Popillia japonica* Newman on Grape. (D.G. Pfeiffer and P.B. Schultz)
http://www.virginiafruit.ento.vt.edu/JBGrape.html

Managing Japanese beetles in fruit crops (R. Isaacs and J. Wise)
http://msue.anr.msu.edu/news/managing_japanese_beetles_in_fruit_crops

Managing Japanese beetles in vineyards (R. Isaacs)
http://www.isaacslab.ent.msu.edu/Images/talks/Isaacs%20Viticulture%202010%20JB%20for%20web.pdf

Managing the Japanese Beetle: A Homeowner's Handbook
https://www.aphis.usda.gov/publications/plant_health/2015/japanese-beetle-handbook.pdf

The Japanese Beetle and Its Control (K.M. Vale, F. Hale, H.E. Williams and C. Mannion)
https://extension.tennessee.edu/publications/Documents/PB946.pdf

Cornell University
Cooperative Extension

Winery Quality Control Workshop

Stabilize your wine – Filtration, Sulfur Dioxide and Potassium Sorbate

PENNSTATE College of Agricultural Sciences

Registration: 8:30am; Program- 9:00am-4:00pm
Cost:$50.00 per person(includes morning coffee and lunch)
Where: CLEREL, 6592 West Main Rd. Portland NY 14769
716-792-2800 ext-201

Denise Gardner, Enology Extension Associate, Penn State University
Chris Gerling, Enology Extension Associate, Cornell University
Anna Katharine Mansfield, Associate Professor of Enology, Cornell University

Sulfur dioxide

- pH and SO_2 relationship
- the breakdown of SO_2
- how to add SO_2 to wine

Potassium sorbate

-what is potassium sorbate?
-why is it used in wine?
-the pros/cons of sorbate

Filtration

-explanation of filtration and its uses
-the difference between nominal and absolute
-how to ensure your filtration unit is working
-bottle sterility tests.

Please Register by July 22, 2016

Name of Winery represented:_____Phone:_____
Email:_____
Name(s) of attendees: 1)_____ 2)_____ 3)_____
4)_____ 5)_____6)_____
Total cost @ $50.00/person x ___person/people = $ _____

Please make checks payable to LERGP and mail to:
LERGP, 6592 West Main Rd. Portland NY 14769, ATTN: KATE
Contact Kate at kjr45@cornell.edu or 716-792-2800 ext 201 for more information.

***You may also register on-line at http://lergp.cce.cornell.edu/. You can register up to 3 participants and pay with a credit card.

Cornell University
Cooperative Extension

Lake Erie Regional Grape Program

PENNSTATE
College of Agricultural Sciences

Grape Twilight Meeting
&
Erie County Horticultural Society's Annual Chicken BBQ

Date: Wednesday, August 3, 2016

Place: **Gravel Pit Park**
10300 West Main Road. (Route 20)
North East PA 16428

Time: Grape Program- 5:00pm-6:00pm
Free Chicken BBQ- 6:00pm

Grape Program:
Insect and Disease Management Updates- 5:00pm-6:00pm
Bryan Hed and Jody Timer, Lake Erie Regional Grape Research & Extension Cneter, North East, PA. Andy Muza, Tim Weigle, Kevin Martin, and Luke Haggerty, Lake Erie Regional Grape Extension Team.

This meeting will be assigned 2 category pesticide re-certification credits pending approval by the Pennsylvania Dept. of Agriculture. Pesticide re-certification credits have also been applied for to the NYSDEC for New York Growers.

Note: The Chicken BBQ is FREE, but registration is mandatory! If you do not register , a meal will not be reserved for you. Register by Friday, July 22, 2016, by callling the Penn State Extension Erie County at (814) 825-0900.

Chautauqua Industrial Development Agency, Chautauqua County Department of Planning and Economic Development, Cornell Lake Erie Regional Grape Program, and Cornell Cooperative Extension of Chautauqua County proudly present the inaugural Chautauqua County Craft Beverage Summit

Malting barley, cooperatives, hops production and the potential for the craft beverage industry in NYS will be discussed with all aspects covered from producing the raw materials, producing a craft beverage, marketing the finished product and working together to bring a craft beverage operation to fruition in Chautauqua County.

Thursday, August 11, 2016
8:00 AM - 3:00 PM
CLEREL
6592 West Main Road
Portland, NY 14769
And
21 Brix Winery

Space is LIMITED for this FREE Event
Don't Delay- Register today at:
https://lergp.cce.cornell.edu/event.php?id=270

Thursday, August 11

Agenda (may be subject to change)

- 8:00 am — Registration
- 8:15 am — Welcome
- 8:45 am — Climbing Bines
- 9:15 am — Star Cider
- 9:55 am — NY Craft Malt, LLC
- 10:15 am — Liberty Vineyards
- 10:15 am — Break/CCE Tour
- 11:00 am — Harvest NY
- 11:30 am — Cooperatives
- 12:00 pm — Mazza Winery
- 12:30 pm — Lunch
- 1:00 pm — Five & 20 Spirits and Brewing
- 2:00 pm — Olde Chautauqua Farms
- 2:30 pm — Question & Answers

Lake Erie Regional Grape Program

CCIDA County of Chautauqua Industrial Development Agency

Planning Chautauqua — Chautauqua County Department of Planning & Economic Development

Cornell University Cooperative Extension Chautauqua County

Chautauqua County State of New York

Climate, Weather, Data:
Protecting Our Crops and Landscapes

Save the Date!

When: August 15, 2016, 9:00 – 4:15
Where: Cornell Cooperative Extension Albany County, Voorheesville, NY

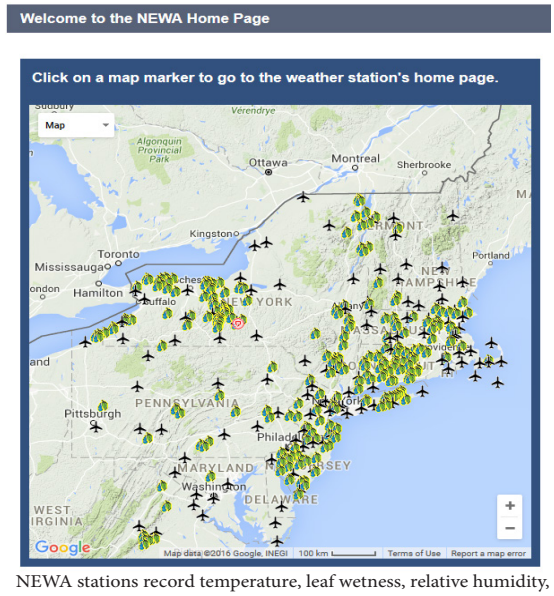
With all the talk about climate change you might be wondering how it will affect food production, pests, and even landscapes - and what you can do about it. The Second Annual NYS Integrated Pest Management conference can help!

A wide variety of speakers from NYS and the Northeast will provide information on the current state of knowledge on climate change, changes in our weather patterns, and how collecting climate and weather data can help us predict and manage pests. Join us to learn and discuss!

$45 includes materials, lunch, and breaks.

The draft agenda, registration information, and map can be found at:
tinyurl.com/hq8tbm2

If you have questions, please contact Amanda Grace at arw245@cornell.edu or 315-787-2208.



NEWA stations record temperature, leaf wetness, relative humidity, precipitation, solar radiation, wind speed and direction.

New York State Integrated Pest Management Program

Save the Date! NYS IPM Climate Conference - August 15, 2016

With all the talk about climate change you might be wondering how it will affect food production, pests, and even landscapes - and what you can do about it. The Second Annual NYS Integrated Pest Management conference can help! ***Climate, Weather, Data: Protecting Our Crops and Landscapes*** *will be held* ***August 15, 2016*** *at the Cornell Cooperative Extension Office in Voorheesville, NY.*

A wide variety of speakers from NYS and the Northeast will provide background information on the current state of knowledge on climate change and changes in our weather patterns, and how collecting climate and weather data can help us predict and manage pests. Mike Hoffmann and Allison Chatrchyan from the Cornell Institute for Climate Change and Agriculture (www.climateinstitute.cals.cornell.edu) will discuss what you can do about climate change, and the Climate Smart Farming Program. Jerry Brotzge will explain the NYS Mesonet (www.nysmesonet.org). Juliet Carroll from NYS Integrated Pest Management will cover the tools for growers in the Network for Environment and Weather Applications system (www.newa.cornell.edu). David Hollinger will present resources from the Northeast Regional Climate Hub (www.climatehubs.oce.usda.gov). Open discussion sessions are included so you can ask your own questions. The final agenda will be available soon, so stay tuned!

We are honored that Richard Ball, the Commissioner of the NYS Department of Agriculture and Markets, will kick off the conference with opening remarks

The program will run from 9:00-4:15 and costs $45 – which includes lunch, and breaks.

Registration information, a map, and the draft agenda can be found at the Climate, Weather, Data website

If you have questions, please contact Amanda Grace at arw245@cornell.edu or 315 787-2208.

Contact: Darcy Telenko, Regional Vegetable Specialist
Cornell Cooperative Extension- Cornell Vegetable Program
Phone: 716-652-5400 x178 (Office)
E-mail: dep10@cornell.edu

FRESH MARKET VEGETABLE FIELD DAY

SUSTAINABLE AND ORGANIC VEGETABLE PEST MANAGEMENT

Wednesday, August 31, 2016 | 3:00 PM – 9:00 PM

Steak dinner included with pre-registration

Cornell Vegetable Program's Fresh Market Research Site
Cornell Lake Erie Research and Extension Laboratory
6592 West Main Road, Portland, NY 14769

The Cornell Vegetable Program is hosting a Sustainable and Organic Vegetable Pest Management Field Day on August 31, 2016 at the Cornell Lake Erie Research and Extension Laboratory in Portland, NY. Extension Vegetable Specialists, Darcy Telenko, Judson Reid, and Robert Hadad along with Abby Seaman, Vegetable IPM Coordinator, and Cornell faculty Prof. Christine Smart and Prof. Stephen Reiners will be leading research site tours and answering questions on sustainable and organic pest management options for fresh market vegetable growers. Information will be provided for both conventional and organic growers at all levels of expertise. Industry representatives will have the opportunity to meet with growers to comment on their products. *DEC and CCA credits have been applied for to be available for this field day.*

Topics:

- Weed Management in Sweet Corn, Pumpkin, Winter Squash and Root Crops
- Disease Management in Organic Cucumber and Tomato Production
- Vegetable Disease Control Update
- Insect management and Specialty Crop Vegetable Variety Demonstration
- Improving Fertility Management in Vegetable Crops
- Updates on Ongoing Research Projects in the Region

Research trials comparing conventional and zone-tillage weed management options in pumpkin and winter squash will be on display. The peculiarities in regards to weed management for each tillage system will be discussed including the practice of a stale-seed bed technique using a herbicide or flame-weeder burn-down treatment as effective weed management tools. In addition, the stale-seed bed technique will be presented for use in beet and parsnip. Growers will be able to view the different weed management tools, look at the economics of utilizing each system, and ask questions. This

session will also include a viewing of sweet corn herbicide programs plots to evaluate their effectiveness in controlling weeds. Judson Reid and Abby Seaman will discuss the major tomato and cucumber diseases in New York in high tunnels and field, what symptoms we are looking for, and organic management tools available including resistant varieties and organic pesticides. Research trials will be showcasing varieties with host resistance and organic programs using disease forecasting. Dr. Christine Smart will discuss the best crop production practices for managing and controlling disease caused by bacteria, oomycetes, fungi, and viruses. New management options including host resistance, products, or techniques that are available will also be discussed. Robert Hadad, will give a hands-on demonstration of how to identify insect the pests; check for management issues that may improve or decrease insect control; and control options. In addition, a number of varieties of a diverse assortment of vegetable crops will be on display for growers to view. Dr. Steve Reiners will discuss the importance of correct crop fertility and how fertility has wide reaching impacts on yield, and more is often not better. Excessive fertility can promote weed growth and insect pressure, while insufficient nutrition leaves crops more susceptible to stresses like disease.

Pre-registration $25 CVP enrollees/$35 all others, includes steak dinner and handouts. Pre-registration required by **August 25, 2016**. Call 716-652-5400 or online at
http://cvp.cce.cornell.edu/event.php?id=565
Walk-ins welcome to join the program $35 at the door, but will not receive dinner ticket unless pre-registered by Aug 25, 2016.

Growers will also be able to view research projects at CLEREL and are encouraged to attend a Cover Crop Workshop and Field Day the next day September 1.
http://lergp.cce.cornell.edu/event.php?id=268

A key component of this event is the support provided by industry organizations. Contributing organizations will be recognized as an integral part of this dynamic event. Sponsorships are available for both the Vegetable Field Day and Cover Crop Field contact Darcy Telenko at 716-697-4965 or dep10@cornell.edu for more details.

About Cornell Cooperative Extension Cornell Vegetable Program

The Cornell Vegetable Program is one of the premier regional agricultural Cornell Cooperative Extension programs in New York, serving a large multi-county region in the Western part of the state. The team's Vegetable Specialists work together with Cornell faculty and extension educators statewide to address the issues that impact the industry. The Cornell Vegetable Program provides educational programs and information to growers, processors and agri-business professionals, arming them with the knowledge to profitably produce and market safe and healthful vegetable crops, contributing to the viability of farms and the economic wellbeing of New York State. Specifically, our program focuses on food safety, variety evaluation, market development, pest management, and cultural practices.

21 South Grove St.
East Aurora, NY 14052
(716) 652-5400

The Cornell Vegetable Program is supported, in part, by twelve county Cornell Cooperative Extensions of Western New York: Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Monroe, Niagara, Ontario, Orleans, Seneca, Wayne and Yates Counties.

Cucumber and tomato variety trials at Cornell Lake Erie Research and Extension Laboratory. Photo Credit Darcy Telenko, CVP.

21 South Grove St.
East Aurora, NY 14052
(716) 652-5400

Cover Crop Workshop and Field Day

Lake Erie Regional Grape Program

September 1, 2016 @ CLEREL

9:00am-4:00pm

6592 West Main Rd.

Portland, NY 14769

Join the Lake Erie Regional Grape Program for a full day of education surrounding cover crops in Concord vineyards.

- Current research
- Leading scientists in cover crop research
- Tour demonstration plots
- Hear local growers sharing their experience

Fee: $ 10; includes morning refreshments and lunch

Register by August 25, 2016 at the LERGP web-site Registration or call Kate at 716-792-2800, e-mail: kjr45@cornell.edu

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Cooperatively yours,

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Contact the Lake Erie Regional Grape Program if you have any special needs such as visual, hearing or mobility impairments.

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