Lake Erie Regional Grape Program-

Vineyard Notes

Photo courteousy of Tim Bigham

In this Issue:

Cornell University
Cooperative Extension

April 2- 9:00am- 12:oopm, Core Pesticide Training Class, CLEREL, 6592 W Main Rd. Portland, NY 14769
1:00pm NYS DEC Pesticide License Test, CLEREL

April 6- 10:00am Worker Protection Standard Training, Frank Bratt Agricultural Center, 3542 Turner Rd. Jamestown, NY 14701

April 8- 6:00pm Twilight Meeting at North East Fruit Growers, 2297 Klomp Rd. North East, PA 16428
*** Dinner will be served at this meeting and pesticide credits are available.***

April 9- Wine Workshop- 8:30am-4:00pm, CLEREL 

April 15-6:00pm Twilight meeting at Militello Farm Supply, 2929 Route 39, Forestville, NY 14062
*** Dinner will be served at this meeting and pesticide credits are available.***

April 29- 10:00am-Noon-Core Training at Northeast Township Building, 10300 West Main Rd. North East PA 16428
2:00pm- 4:00pm- Core Training at Girard Township Municipal Building, 10140 Rideg Rd. Girard PA 16417

May 6- Coffee Pot meetings begin, see last page for full schedule! 

For full details on these events, visit our web-site at: http://lergp.cce.cornell.edu/

Many of the registration forms are located at the end of this newsletter.

Kevin Martin
Penn State University, LERGP,
Business Management Educator

Decreasing Risk and Maintaining Yields:

Business Impact of Mechanized Crop Load Management

Mechanized pruning always had its benefits. Early on, costs were comparable and benefits were opaque. Trends in bud break and bloom have increased the probability of early season frost. Pricing trends have continued to pressure growers to reduce labor costs and increase yields. Furthermore, in an attempt to increase yields, the probability of midseason crop load management has gone up significantly.

While initially developed in an attempt to reduce labor cost, mechanized pruning has evolved into a multi-pass system approach to crop load management. Growers are using mechanization to affordably reduce crop load multiple times at a comparable or lower cost. The benefits do not necessarily result in a higher expected value. Rather, the target is to maintain the expected value, while reducing risk. A reduction in risk is measured by the variability in crop size.

Measuring Yield Per Unit of Risk

One illustration of success is a modification of a traditional finance rule known as the Sharpe ratio:

$$S(X) = (r_x - R_f)/\sigma_{\overline{\chi}}$$

Where:

- (X) is the Investment
- r_x is the average rate of return of x
- R_f is the best available risk free return
- $\sigma_{\overline{\chi}}$ is the standard deviation of r_x

In English:

Sharpe Ratio = (Actual Return – Theoretical Risk Free Return)/ Standard Deviation

The Sharpe ratio is a tool to compare grape yields with the same averages to the risk associated with that average yield. For example, two vineyards may both average 7 tons per acre. Assuming production costs are the same, net revenue may be the same. However, the risk associated with that net revenue is unknown. Take the following examples:

High Risk Vineyard

- Yields
  - 9 Ton
  - 5 Ton
  - 11 Ton
  - 4 Ton
  - 6 Ton
- Average Yield: 7 Ton
- Standard Deviation: 2.6
- Sharpe Ratio
  - (7 – 4)/2.60
  - 1.2

Low Risk Vineyard

- Yields
  - 8 Ton
  - 7 Ton
  - 9 Ton
  - 5 Ton
  - 6 Ton
- Average Yield: 7 Ton
- Standard Deviation: 1.4
- Sharpe Ratio
  - (7 – 4)/1.4
  - 2.1

The additional risk associated with higher than historical yields, when ripening was never a risk is expressed by the Sharpe ratio. For each unit of risk (standard deviation) additional 1.2 and 2.1 tons are produced, respectively. This ratio becomes particularly useful when comparing differing yields.

A simple way of calculating this in excel is =(Average(yield)-4)/STDEVP(yield). Without excel, standard deviation gets a little more involved. Using the back of an envelope, you'll have to calculate the individual deviation from the mean (7) for each datum by subtracting the mean and squaring the result. For a yield of 5 ton: (5-7)^2 = -2^2 = 4. After calculating the deviation for each result, the average deviation is equal to standard deviation. If you need some help, send me your yield data. I'll be able to tell you what your yield gains per unit of risk are. They vary considerably from grower to grower.

Commercial Results: Sharpe Applied

Applying the Sharpe Ratio to thinning really illustrates the benefits of late season crop load management. It also shows that mechanization is just a tool that helps make thinning a more logical decision. However, even if a grower continues to hand prune, thinning decisions still substantially increase return per unit of risk.

I gathered data from commercial vineyards in 2013 and 2014. Luke Haggerty presented it at the annual growers conference. It showed a slight increase in total average yield for growers that thinned in 2013. Average yields in thinned vineyards were 7.7 tons. Average yields in unthinned vineyards were 7.0 tons. Given the cost of thinning, net revenue was approximately the same across blocks.

However, looking at the same data per unit of risk shows an entirely different result. Unthinned vineyards gained 1.8 tons per unit of risk per acre. Thinned vineyards gained 7.2 tons per unit of risk. Again, this is not a reflection of increased tonnage, but a reflection of dramatically lower risk. Standard deviation for unthinned vineyards was 1.7, for thinned vineyards it was .5.

Yield Related to Risk

According to anecdotal evidence from growers, mechanization allows for a lower standard deviation in yield data. This lower level of risk associated with higher yields is not typically attributable to lower operating costs. Rather, the lower operating costs make it practical to incur later season crop adjustments.

Cost Comparison of Crop Load Strategies

The same results could be reached through hand pruning, but such practices tend to be cost prohibitive. A grower leaving up 175 buds still incurs an identical cost of $215 - $225 per acre, despite the decreased impact

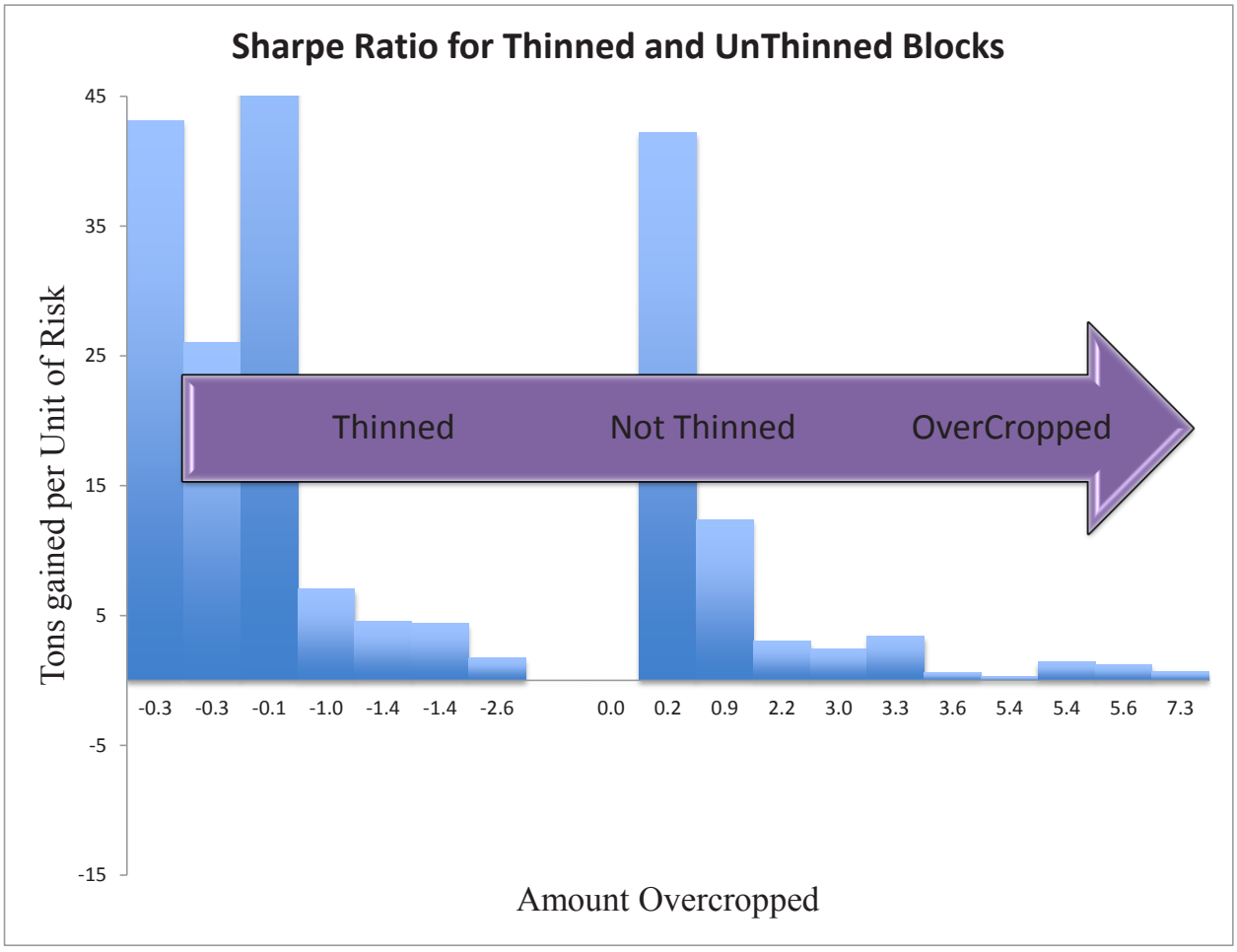
on crop size. In a mechanized operation, costs are slightly lower and operating costs are significantly lower. As a result, a large grower may prune, hand follow-up, shoot thin and crop thin for $271 per acre. This provides the grower with four distinct opportunities to reduce crop, for minimal additional costs. Furthermore, operating costs for all of these activities will range between $50 and $95, significantly lower than a hand pruning operation.

Shoot Thinning Advantages

Data from the mechanization trial yielded important economic results from shoot thinning. Shoot thinning is far less expensive than crop thinning. Sensor based shoot thinning is far less expensive to implement. Furthermore, the adjustment potential of shoot thinning is nearly limitless. This is particularly important for a grower that is trying to increase vine size. It can be difficult to decrease yield with a harvester to a level that increases vine size. It is a tool that reaches its potential only by maintaining existing vine size. Shoot thinning is also particularly useful for crop reduction during a late spring. The probability of frost is significantly lower than average, while the risk of ripening an oversized crop is significantly higher.

Risk Analysis

The advantages of mechanizing crop load adjustment lie in the reduction of risk. This provides a critical advantage that helps compensate for other industry related hardship. We are seeing these mechanization tools actually begin to lower cost. Despite that trend, the real reason for adoption lies in risk. There is a tendency to simply look at a return on investment. In order to fairly compare returns, however, it is essential to compare the risk necessary to obtain that return. This tendency is not limited to grape growers, or even agriculture. Most mutual fund companies will advertise a Sharpe ratio, or something similar. However, these measures of risk are largely ignored, to the detriment of business and investors. Take your business by the vine, know your risk and you'll succeed when others struggle.



Cultural Practices

Luke Haggerty
Viticulture Extension Associate
Lake Erie Regional Grape Program

Assessing Winter Damage

Luke Haggerty, LERGP Viticulture Extension Associate

On February 16, 2015 the Lake Erie grape region experienced extremely cold temperatures as a crippling cold front moved through the region. These subzero temperatures tested and exceeded the cold hardiness limit of many area vineyards and impacted all vineyards in the belt to some extent. Although we will continue to provide information on the freeze damage results we find within the region, the best way for you to determine the extent of the freeze damage on your site is to do an assessment of your own.

Freeze damage can affect grape vines in multiple ways and can vary in severity. The two main areas to examine are the buds and vascular tissues (trunk and canes). Assessing bud damage is the easiest and quickest way to determine if your vines are injured. Freeze damage in the trunk and canes may not be visible until well into the growing season. When assessing either bud or vascular damage it is important to sample from multiple areas within a block and record data.

Vertical cut exposing damage of primary bud.

Have a plan. It is very easy to be biased by cutting a few buds or slicing away the bark from a couple trunks and making generalized assumptions. If you do not record the data and figure out an average you will base important decisions on what you remember seeing and skew your actions one way or the other. To avoid this, collect samples that are representative for the entire block and record what you find. The larger your sample the more accurate it will be.

After this year's bud assessment I have many examples of why sample size is important. Here at CLEREL we have taken multiple samples from all of our blocks. The vineyard block behind the barn and along route 20 had 5, 100 bud assessments over three weeks, all from different areas within the block. The primary bud mortality results were 62%, 27%, 46%, 34%, and 64%. If we would have made pruning decisions based off one sample we could have been off by 30%. The average from these five samples was 47% primary bud damage. When the snow was deep, collecting canes was difficult everywhere and most samples were taken close to driveways and roads and from an isolated area. Now that the snow is melted, covering a large area is much easier. I was able to collect canes at random throughout this block again and out of 100 buds I found that 44% of the primary buds were dead. By increasing the sample area this assessment was only 3% off from the average.

Assessing Bud Freeze Damage: Cutting buds is necessary to evaluate bud damage after a freeze event. After practice, this process is as simple as making a single cut and scoring dead or alive on a sheet of paper. The most important part of accurate bud assessment is cutting the bud at the correct depth.

When cuts are made too shallow live buds may appear dead and if you cut too deep dead buds will appear live when they are actually dead. The illustrations in this article show how to accurately cut buds for evaluation.

Collecting canes for sampling:
Collect healthy canes that should have viable buds (canes that would be saved when pruning). There is no need to collect diseased canes, laterals, or bull wood as these types of canes are less hardy and are not expected to have viable buds. Collect samples from areas in the vineyard that will give you the best representation of that area. Collect approximately 10-15 canes (100 buds) from different areas within a vineyard block.

Handling and Timing: If you are assessing your buds after a recent freeze, make sure to give the buds enough time to oxidize (turn brown and black) and show the damage they have received. It is best if the canes are left in room temperature for 24-48 hours. From my experience, the longer you wait after the cold event the better the damage shows up.

Making the Cut: The following examples show the cutting of a healthy Concord bud (figure 1-4). Remember cutting down to the correct depth is very important. Because depth is important it is best to make a series of shallow cuts when first starting out. Using a razor blade, make a cut that is parallel to the cane taking the top third of the bud off.

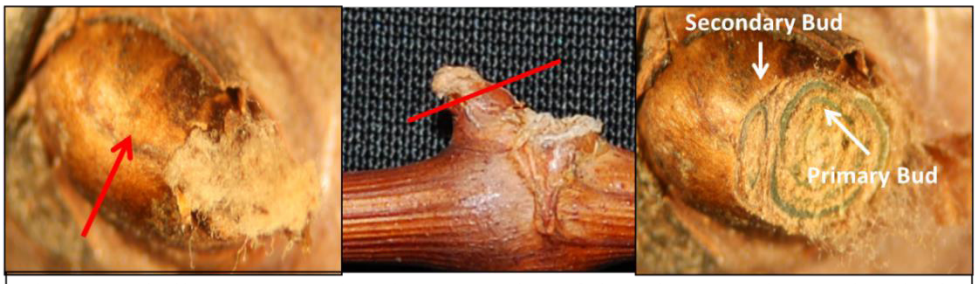


Figure 1. Shallow cut exposing the top portion of the primary and secondary bud.

The cut in figure 1 is too shallow to get an accurate assessment if the bud is alive or dead, but is good a view of the top portion of a healthy bud. The light brown material surrounding green tissue is normal and is not to be mistaken for damaged tissue.

Figure 2 is an example of the correct depth needed to determine if the primary bud is alive or dead. Bright green tissue signifies the primary bud is viable/healthy and should be scored as an alive bud. The secondary in the figure 2 needs to be cut deeper for assessment.

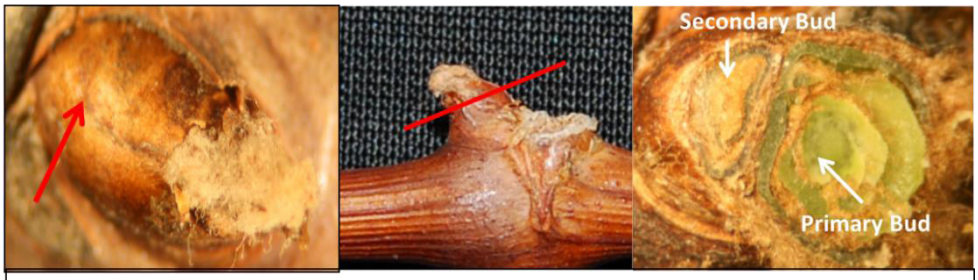


Figure 2. Cut exposing primary bud at correct depth for assessment and top portion of secondary bud.

Figure 3 shows the secondary bud cud at the correct depth for assessment. Be careful not to cut too deep. Figure 3 is the lowest I would recommend cutting for evaluation.

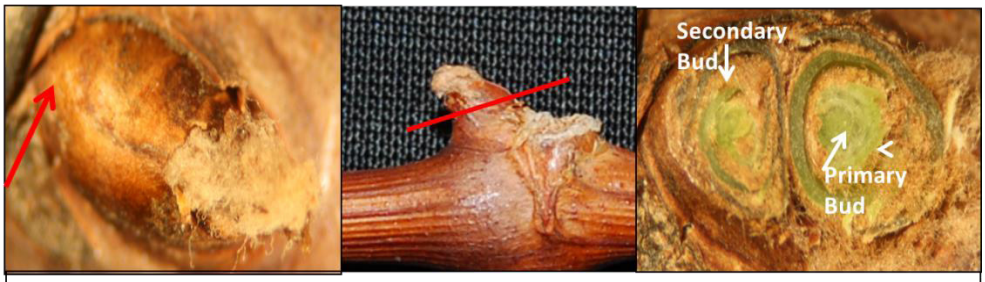


Figure 3. Cut exposing secondary bud at correct depth for assessment, primary bud is almost cut too deep for accurate assessment.

Figure 4 shows a cut that is too deep for a good assessment. The green tissue you see in this picture is the bud cushion. In most cases of freeze damage the bud cushion will still be green and is why it is important not to cut too deep.

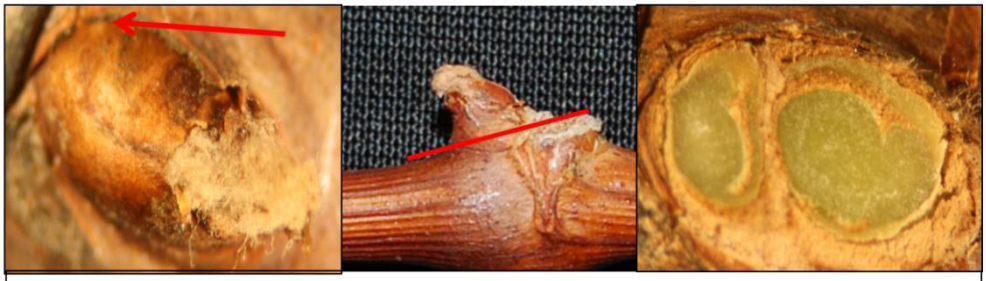


Figure 4. Cut exposing the bud cushion and is too low for accurate assessment.

Tips: Make several cuts while you are learning and first start evaluating buds. Take time to use some sort of magnification (reading glasses or magnifying glass) to get a good look. Good lighting can make a world of difference. The light brown material surrounding the bud tissue in figures 1-3 are okay. They are examples of healthy buds. Key color indicators of freeze damage are gray, brown/green tissues, dark green, dark brown, and black (see examples in figure 6 & 8). Practice makes perfect. Cut 200 buds before you start scoring the damage… or as many as it takes for you to feel comfortable with what you are seeing.

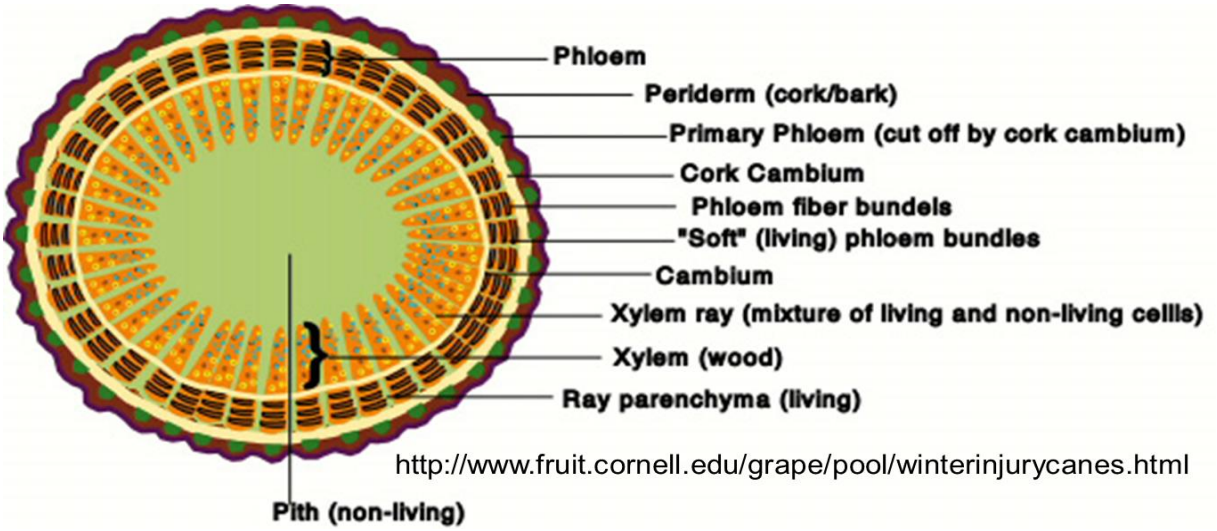
Figure 6. Examples of freeze damage on grape buds.

All picture in this article were taken by Luke Haggerty

For more information on how to assess winter injury to buds or to see a video tutorial visit: http://www.fruit.cornell.edu/grape/pool/winterinjurybuds.html.

As the growing season begins the apparent bud and vine vascular damage can be seen by dead or stunted shoots on injured vines. The time to assess trunk and cane injuries occurs when temperatures warm up enough for the sap to flow. However, vascular freeze damage can show up anytime throughout the growing season. The full extent of freeze damage will not fully be known until the early summer months when vine canopies are in high demand of water and nutrients, or any time there is additional stress to the vine.

The two main vascular tissues are the phloem and xylem. The phloem transports carbohydrates down to the roots. The xylem transports water and nutrients collected from the roots up to the canopy. Phloem and xylem tissues are regenerated every growing season by cambium tissues. When there is damage to either the phloem or xylem the vine will show slow/stunted growth until these tissues are regenerated by the cambium layer. However, if there is additional stress before the phloem or xylem are regenerated the vine could collapse. If there is freeze damage to the cambium layer the vine will be unable to heal and will die.



To assess trunk and cane damage, make a shallow cut into the trunk or cane deep enough to peel away the bark. Examine the vascular tissue for freeze damage by the amount of oxidation (browning) in the various tissues. Trunk damage occurs in this order; phloem, xylem, and then cambium. Damage to the phloem (Fig. 7A) will prevent the flow of carbohydrates needed for shoot development. Damage to xylem (Fig. 7C) will restrict flow from the roots to the canopy resulting in stunted, coloristic (yellowed), or dead shoots (Fig. 7B). Figures 7 and 8 were taken on the same day and show a good comparison in shoot development between healthy and damaged vines.

Figure 7. Trunk injury on 'Niagara' vine (A) shows damaged phloem tissue (C) damaged xylem.

Figure 8. (A) Healthy 'Niagara' vine (B) shallow cut exposing phloem and xylem.

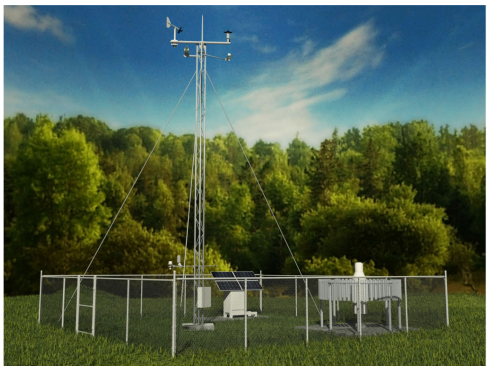
Shoots on the vine in figure 7 (damaged) had an average length of 11 inches; the healthy vine in figure 8 had an average shoot length of 32 inches.

In cases of severe trunk damage, the xylem and phloem no longer function and the vine can collapse (Fig. 9A). Vine collapse occurs when expanding leaf size and overall canopy size demand more water than the trunk can supply. Timing of vine collapse is unpredictable and can even happen the following growing season. Depending on the location of the vascular damage, 'partial vine kill' can occur on one side of the cordon or select canes. In cases of partial vine kill, vines can be managed by pruning out the affected areas. However, when there is obvious or suspected trunk or cordon damage, suckers should be retained with the purpose of vine or trunk renewal. The overall goal of trunk renewal is to balance the amount of living tissues above ground with the potential of the roots below ground.

Figure 9. Sever winter damage to 'Pinot gris' (A) vine collapse (B) stunted shoots with chlorosis.

Trunks should be renewed on any vines that are suspected of trunk injury. Protected below the soil line, root systems are generally unharmed by winter injuries and readily supply carbohydrates to the awaiting plant tissues above ground. When there is trunk damage, hidden (apical) buds at the trunk base awake from dormancy and produce 'suckers'. A vigorous eruption of suckers has long been a sign of trunk damage, and the typical response from most growers is to save the sucker to replace the existing trunk which renews the vine. The amount of sucker and fullness of canopy are cues for guiding decisions on how to balance the vine. If viable, 4 to 6 suckers should be retained to balance the root support when the canopy is severely stunted and or showing visible nutrient deficiency. In vines that have full canopies and produce large vigorous suckers, only 2 to 4 suckers should be retained to obtain balance. Although balance is difficult to put into words, a different decision will need to be made for every vine. The goal of vine renewal is to manage the existing root structure with the amount of living plant material above ground.

NYS Mesonet Early Warning Weather Detection System



Want to be part of the NYS Mesonet Early Warning Weather Detection System? – It may be as easy as just asking.
Editor's Note: The recent announcement by Gover nor Cuomo's office that a new weather network was to be installed across New York State comes as good news for the growers and users of the Network for Environment and Weather Applications (NEWA). Early indications are that the information collected by the NYS Mesonet will be available for use by NEWA. Please see the following article explaining the mesonet and how you may be able to get a weather station to participate in it.
The New York State (NYS) Mesonet Early Warning Weather Detection System is an advanced, statewide weather station network. This network will be the first of its kind in New York and will consist of up to 125 surface weather stations that will detect weather phenomena across the entire state. This weather detection system will provide federal, state, and local communities with access to high-resolution, real-time data, and more robust predictive models.
Each of the Mesonet's 125 weather stations will measure surface temperature, relative humidity, wind speed and direction, precipitation, solar radiation, atmospheric pressure, and soil moisture and temperature at three depths. In addition, 17 sites will be outfitted with lidars and microwave profilers, providing wind, temperature, and moisture profiles in the vertical. Another 20 sites will measure snow depth and snow water equivalent for hydrological applications. All of this data will be transmitted in real-time to a central location, where the data will be quality controlled and archived, and then disseminated to a variety of users. Upon completion, real-time data along with graphical products/models will be available to the public via a website.
The NYS Mesonet promises a new generation of local weather observations that will support more accurate, more precise decision-making in agriculture, emergency management, energy, ground transportation and aviation. For example, localized soil moisture and temperature data will improve irrigation efficiency, and various pest models will be much improved with more local data inputs.
The NYS Mesonet is now beginning the search for permanent site locations. Each site consists of a 33 ft tower centered within a 33 ft x 33 ft plot of land. To ensure the highest quality of data each station must be at least 300 feet from the nearest obstacle (tall trees, buildings, etc.) or potential heat sources (pavement). If you would be interested in hosting a Mesonet site, please contact Dr. Jerald Brotzge at jbrotzge@albany.edu. If you would like to learn more about the NYS Mesonet, please visit our website at http://nysmesonet.org.

eNEWA for Grapes Project in 2015

Would you like to see the current weather and grape pest information found on NEWA (Network for Environment and Weather Applications) without having to click through the website? Then eNEWA is for you. eNEWA is a daily email that contains current weather and pest model information from a station, or stations, near you. The email will contain; 1) high, low and average temperature, rainfall, wind speed and relative humidity 2) the 5-day forecast for these weather parameters, 3) GDD totals (Base 50F), 4) 5-day GDD (Base 50F) forecast and 5) model results for powdery mildew, black rot, Phomopsis and grape berry moth. The weather information is provided for not only the current day but for the past two days as well.

We will be conducting the second year of testing of eNEWA for Grapes in 2015. You can choose from any number of stations located near you for delivery of this information via email each day at a time specified by you. Please keep in mind that you will receive a separate email (approximately 3 pages in length) for each station you choose. You will be contacting during the growing season and again after harvest to complete short surveys to assist us in improving the eNEWA for grapes email system. If you would like to be a part of this project just fill out the form on the next page and return to: Tim Weigle CLEREL 6592 West Main Road Portland, NY 14769 Or, you can scan it and email it to me at thw4@cornell.edu

eNEWA Grape Project Subscription Sign-Up

Subscriber information

Name_____

Email address _____

City_____

Select Location(s) (circle as many as you like)

Lake Erie Region	**Portland Route 5**	**Geneva**
Appleton, North	**Ransomville**	**Geneva (Bejo)**
Appleton, South	**Ripley**	**Lansing**
Dunkirk	**Sheridan**	**Lodi (Lamoreaux)**
Erie	**Silver Creek**	**Lodi (Shalestone)**
Harborcreek	**Versailles**	**Lodi (Standing Stone)**
Lockport	**Finger Lakes Region**	**Penn Yan**
North East Escarpment	**Aurora**	**Romulus (Thirsty Owl)**
North East Lab	**Dresden (FLGP/FLCC)**	**Varick (Swedish Hill)**
Portland	**Dundee (Weimer)**	**Watkins Glen**
Portland Escarpment	**Fayette 3 Brothers**	**Watkins Glen (Lakewood)**

Select eNEWA Delivery Times (write in times below) Delivery requests should be on the hour.

_____

Mail to: Tim Weigle, CLEREL, 6592 West Main Road, Portland, NY or scan and email to thw4@cornell.edu

Cornell University
Cooperative Extension

Winery Quality Control Workshop

Thursday, April 9, 2015
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

PENNSTATE College of Agricultural Sciences

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

What is HACCP?
-Types of Hazards
-GMPs and SOPs

Morning Break

Responding to CCPs
-Establishing limits
-CCP Monitoring

Lunch

Making a plan
-Record keeping
-Corrective Actions
-Verification

While wineries are heavily regulated in the areas of sales and taxes, they receive relatively little oversight or direction when it comes to plans and procedures to minimize product risk. Every winery should have standard operating procedures (SOPs) for production, sanitation and analysis in order to ensure not just wine quality but also worker and consumer safety. As the Food Safety Modernization Act (FSMA) is implemented, concepts like hazard analysis and critical control points (HACCP) will become more and more ubiquitous. This workshop will teach wineries about identifying, measuring and mitigating potential risk areas while also providing the tools to create SOPs and quality assurance plans.

Please Register by Wednesday, April 1, 2015

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.

Lake Erie Regional Grape Program

***You may also register on-line at http://lergp.cce.cornell.edu/. You can register up to 10 participants and pay with a credit card.

FRAC Group U6

Labeled for Grapes & Cucurbits

Highly Effective on Powdery Mildew

No Cross-Resistance

Protectant / Preventative Action

FRAC Group 3

Labeled for Grapes

Controls Powdery Mildew & Black Rot

Preventative + Curative Activity

Highly Systemic

New High Quality Copper

Excellent Mixing Characteristics

Highly Active at Lower Rates

Enhanced Copper Safety

Mite control on Grapes

Knockdown and Residual

Dave Pieczarka

315.447.0560

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2015 Lake Erie Regional Grape Program Enrollment

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

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

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

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

Program fees do not include 2015 Cornell Guidelines for Grapes-

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

$25.00 $_____ Hardcopy mailing of Newsletters***

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

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

Total $_____ (Please make check payable to LERGP)

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

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

( )New ( ) Renewal

Farm Name:_____

Name:_____ Spouse's Name: _____

Address:_____ City:_____

State:_____ Zip Code_____

Home phone:_____ Cell Phone :_____

EMAIL ADDRESS_____

Due to budget constraints, all correspondence will be conducted through e-mail. Please provide your e-mail address above. If you would like to receive hardcopies, mark the $25.00 additional fee line above and include with payment.

Please return form and payment to:

LERGP (Attn: Katie)

6592 West Main Rd. Portland NY 14769

Feel free to call w/ questions:

716-792-2800 Ext 201

Cornell University

PENNSTATE College of Agricultural Sciences

Cornell University Cooperative Extension

2015 LERGP Coffee Pot Meeting Schedule

May 6- 10:00am-Dan Sprague- 12435 Versailles Plank Rd. Irving NY 14081
May 13- 10:00am- Phillip Baideme- 90 Bliss St. Westfield NY 14787
May 20- 10:00am- CLEREL, 6592 West Main Rd. Portland NY 14769
May 27- 10:00am-Nick Mobilia- Arrowhead Winery 12073 East Main Rd. North East PA
3:00pm-Evan Schiedel/Roy Orton- 10646 West Main Rd. Ripley NY 14775

June 3- 10:00am- Bob & Dawn Betts- 7365 East Route 20, Westfield NY 14787
3:00pm- North East Lab-662 N Cemetery Rd. North East PA 16428
June 10- 10:00am- Peter Loretto-10854 Versailles Plank Rd. North Collins NY 14111
3:00pm- Dave Nichols-1906 Ridge Rd. Lewiston NY 14092
June 17- 10:00am-Tom Tower 759 Lockport Rd. Youngstown NY 14174
3:00pm-Leo Hans-10929 West Perrysburg Rd. Perrysburg NY 14129
June 24- 10:00am- Kirk Hutchinson-4720 West Main Rd. Fredonia NY 14063
3:00pm- Brant Town Hall- 1294 Brant North Collins Rd. Brant NY 14027

July 1- 10:00am-Ted Byham 9207 West Lake Rd. Lake City PA 16423
3:00pm-Alicia Munch-761 Bradley Rd. Hanover NY 14136
July 8- 10:00am- Rosemary & Brenda Hayes- 6151 Route 5 Brocton NY 14716
July 15- 10:00am-Szklenski Farms- 8601 Slade Rd. Harborcreek PA 16421
July 22- 10:00am- Paul Bencal-2645 Albright Rd. Ransomville NY 14131

Lake Erie Regional Grape Program

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

This publication may contain pesticide recommendations. Changes in pesticide regulations occur constantly, and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. Questions concerning the legality and/or registration status for pesticide use should be directed to the appropriate extension agent or state regulatory agency. Read the label before applying any pesticide. Cornell and Penn State Cooperative Extensions, and their employees, assume no liability for the effectiveness or results of any chemicals for pesticide usage. No endorsements of products are made or implied.

Cooperatively yours,

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County Extension Educator

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Business Management Educator

Luke Haggerty
Area Viticulture Extension Associate

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

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