



Vol. 2 Issue 2
May 13, 2015

Grapes News

ENYCH Program Educators:

Fruit

James O'Connell
Phone: 845-691-7117
Email: jmo98@cornell.edu
Berries & Grapes

Anna Wallis
Phone: 443-421-7970
Email: aww232@cornell.edu
Grapes & Tree Fruit

Laura McDermott
Cell: 518-791-5038
Email: lmg4@cornell.edu
Berries

Dan Donahue
Phone: 845-691-7117
Email: djd13@cornell.edu
Tree Fruit

Vegetables
Chuck Bornt
Cell: 518-859-6213
Email: cdb13@cornell.edu

Amy Ivy
Phone: 518-561-7450
Email: adi2@cornell.edu

Teresa Rusinek
Phone: 845-340-3990 x315
Email: tr28@cornell.edu

Crystal Stewart
Cell: 518-775-0018
Email: cls263@cornell.edu

Maire Ullrich
Phone: 845-344-1234
Email: mru2@cornell.edu

Kevin Besler
Phone: 845-344-1234
Email: krb98@cornell.edu

Business and Marketing
Bob Weybright
Phone: 845-797-8878
Email: rw74@cornell.edu

Jesse Strzok
Phone: 608-556-4365
Email: js3234@cornell.edu

Layout: Lindsey Pashow

Content Editor: James O'Connell

Serving the educational and research needs of the commercial small fruit, vegetable and tree

Phenology:

North Country: 2-3 leaves separated on all varieties, 1-2" growth

Lower Hudson Valley: 3-5" growth on vinifera, 4-8" growth on hybrids

Pest Alerts:

Steely beetles (aka grape flea beetles) have been found in the Lower Hudson Valley. Mainly a problem during bud swell, later adults can feed on tender leaf tissue. Scout for feeding injury or presence of the beetles, particularly near woody areas.

- Sevin (4F, 80 Solupak or XLR) or Danitol 2 EC (Check grape guidelines for rates)
- Phomopsis – highly susceptible varieties (e.g. Niagara) or blocks with heavy infestations
- Captan or Mancozeb products offer forward protection
- Rally (other DMI's) or Revus Top or Inspire Super can offer post infection control if needed
- Powdery mildew – If control lapsed last year. Sulfur, stylet oil are good choices



1-to 3-inch shoots



4-to 8-inch shoots

Summary of vine stages and target diseases

Stage	Target Diseases
1-3 Inch Shoots - 2 Weeks Prebloom	Phomopsis Powdery Mildew* Black Rot* Downy Mildew* Phomopsis & Anthracnose (problem areas, if wet) * <i>Vinifera</i> and highly susceptible hybrids
Immediate Pre-bloom - + 2 Weeks Post-bloom	Powdery Mildew Black Rot Downy Mildew Botrytis (problem varieties, if wet) Phomopsis & Anthracnose (problem areas, if wet)
3-4 Weeks Post-bloom (transitional period)	Powdery Mildew – foliage maintenance Downy Mildew – foliage maintenance Botrytis may be important This is a transitional period. What you spray and how often will depend on weather, varieties (susceptibility) and inoculum i.e. conditions last year. Berry susceptibility is decreasing, but not 'out of the woods' yet.
Mid to Late Summer	Powdery Mildew – maintenance required through veraison Downy Mildew – maintenance required through post-veraison Botrytis – through veraison and/or pre-harvest

Vineyard Disease Overview

As we head into the growing season, there are several important diseases you should be prepared to control. In chronological order, here are the diseases along with critical information about the biology and control of each:

Phomopsis

Biology

- Fungus persists (years) on infected wood
- Spores produced early, spread by rain-splashing to a couple feet

Control

- Prune out dead wood
- Critical spray time: when clusters first appear, 3-5" shoot growth

Anthracnose

Although rarely considered a problem in *vinifera* varieties, it has been identified as a problem in some of the cold-climate varieties, including Marquette and several older Swenson varieties.

Biology

- Fungus overwinters primarily in cane lesions on the vine (also diseased berries on floor)
- Spores produced in spring, dispersed by splashing raindrops (short-distances)
- Likes it warm (70's and 80's) but infects at colder temps if wet long enough
- Young shoots, leaves and stems are susceptible. Berries are also susceptible through veraison

Control

- Remove infected tissue from the vineyard, tilling/mulch diseased berries on ground
- Critical Spray Time: 'delayed dormant' Lime-sulfur; early season broad-spectrum fungicides targeting phomopsis will also be effective against anthracnose.

Downy mildew

Biology

- First infections come from spores in soil or on fallen leaves
- Specific weather conditions required: prefers warm, humid nights (64-72°F) and rain (>0.1")

Control

- Improve air circulation to speed drying time of leaves
- Critical Spray Time: apply a protectant beginning 2-3 weeks before bloom, then every 7-10 days

Powdery mildew

Biology

- Does NOT require free water (rain or dew) for infection
- Warmer temperatures speed sporulation (mid 60s-80s)
- Sensitive to direct sunlight (UV) exposure

Control

- Canopy management to improve air circulation and sunlight exposure
- Critical Spray Timing: starting at 3-5" shoot growth and depending on weather conditions. Protection of bloom through pea-sized berries is CRITICAL

Black rot

Biology

- Fungus overwinters in mummies, infects during rain

Control

- Sanitation: Remove mummies from vines and trellis
- Critical Spray Time: start of bloom through +4 weeks

Botrytis

Biology

- Many fungus sources, especially old cluster stems
- Infection can occur during bloom and remain latent until berries begin to ripen

Control

- Improve air circulation through site selection, canopy management, and loosening clusters
- Critical Spray Time: varies by season and is weather-dependent

Whenever you are spraying ANY pesticides remember:

- **The label is the law.** Read it before mixing your tank and applying. Only apply as directed, including the site/crop specifications, rates allowed, and personal protective equipment required.
- **Rotate groups.** Using the same material over and over can lead to insect and disease resistance in your vineyard. This means the insects and diseases will build up a tolerance to those materials, and you'll have to eliminate them as control options. So use more than one product. Make sure to look for the FRAC or IRAC group number and rotate these groups between consecutive applications.

Looking for *more* information on specific diseases?

Check the NYS IPM Fact Sheets for Grapes

<http://www.nysipm.cornell.edu/factsheets/grapes/>

-AW

Continued on next page

Growers. Start your sprayers!

This is only the second grape newsletter of the season and for growers in the Lower Hudson Valley (LHV), the starting gun has sounded, and the season is off to a running start. Winter seemed to linger and be unwilling to relinquish its hold. Spring finally arrived, but at least in the Lower Hudson Valley, it appears to have abruptly ended and we have now jumped right into summer.

Vinifera vines at the Hudson Valley Research Lab were just at bud break and hybrids at 1" shoot growth on May 4, 2015. Several days of warm weather and sunshine, the growth has advanced to 1" on the vinifera and 3" on the hybrids. This trend is likely to continue, with the long range forecast predicting more sun and warmth. At 3-5" growth stage, phomopsis may be of concern. Susceptible varieties (e.g. Niagara) and vineyards with a problem of phomopsis should definitely apply fungicides. As the warmth continues, and growth stages advance, by the time of this publication, growers may find their vineyard advancing past the 3-5" growth and should apply fungicides for phomopsis.

Sprays for black rot shouldn't be needed right now unless we suddenly enter an extended wet period. Sprays applied for phomopsis should offer forward protection from black rot. Powdery mildew may be a concern in vineyards where control lapsed last year.

Captan, Mancozeb, or Ziram are effective protective materials for phomopsis.

Sulfur (liquid or powder) is effective against powdery mildew.

Stylect oil is an option for sulfur sensitive varieties (no captan within 7-10 days of application).

For more options and rates, check the 2015 NY and PA Pest Management Guidelines for Grapes.

For more information on vineyard spraying and spray technology, see Andrew Lander's website on Vineyard spraying and his book, *Effective Spraying*.

<http://web.entomology.cornell.edu/landers/pestapp/grape.htm>

<http://effectivespraying.com/>

Small Sprayers for Smaller Vineyards

By: Andrew Landers

There are many important points to consider before purchasing a sprayer, not least of which is the area to spray, the proximity of the local supplier, standard of manufacture etc. A fact sheet on Machinery selection – crop sprayers for orchards and vineyards is available from the author. There are many growers with small vineyards who don't require airblast sprayers and have a need for spraying equipment ranging from backpack sprayers to small truck or ATV mounted machines.

Canopy sprayers

Backpack sprayers

Small capacity (4-5 gallon) sprayers will produce up to 150 psi pressure. Weight is an important consideration and growers should select a sprayer with good, wide, padded straps to ease the load. Correct nozzle selection according to the target is very important to ensure even coverage. A good size filling hole at the top is also important. \$95-150 approx.

Maintaining a constant flow is crucial for good application. The use of a spray management valve such as a CF valve will ensure a constant output irrespective of hand pump

action.

\$12 approx.

An alternative to the hand pump backpack is the electric backpack, which utilises a small rechargeable battery. Max. pressure is quite low.

\$265 approx.

2. Portable gas sprayers

If weight is a problem, and ground conditions are relatively smooth, a sprayer with a small 1/4hp gas engine, 12 gallon tank and 16" wheels is available from Dramm.

\$930

Larger capacity tanks (14—100 gallons) are often trailed and can be pulled by a lawn tractor, ATV or small tractor.

Often fitted with a small electric, battery powered pump or a 4-10hp gas engine. \$289-3000

3. Portable Mist and air blower backpacks

Knapsack mistblowers are also available and comprise a small fan driven by a petrol engine and a tank and nozzle assembly. The airflow from the fan is emitted via a tube and a nozzle provides the droplets, the resulting spray is blown into the canopy and gives better penetration and deposition than a traditional knapsack sprayer.

Small Sprayers for Small Vineyards, continued from previous page

Where motorised sprayers are used, good maintenance must be practised as they often use two stroke engines which are notorious for poor starting qualities. Besides creating fine drift-prone droplets, they are noisy and you are walking into a mist. \$800- 900

4. Small mounted sprayers

Ideal for mounting onto the carrier rack of an ATV, 15-25 gallons, they use a small electric pump to provide up to 70 psi.

\$230-350

5. Large skid mounted sprayers

Ideal for fitting into the back of a pick-up truck these sprayers have a tank capacity of 35-200 gallons, and electric or gas engine power. \$400-2700

6. Small trailed airblast sprayers

Very small airblast sprayers, such as the interestingly named Lil' Squirt from PMB sprayers with a tank up to 110 gallons, a 5.5hp gas engine and which can be towed by an ATV are available. Larger tank capacity up to 300 gallons is also available. Remember the larger the gas engine, the more important it is to buy an electric start option. \$5000

7. Small mounted airblast sprayers

Three-point hitch, PTO driven models with a 22 or 24" fan, for fitting onto 25hp tractors are available. Beware of drift, consider models which direct the air via deflectors. \$3700+

Herbicide application

1. All the sprayers, 1-5 above, (except the airblast) can be used for herbicide application BUT be very careful that there is no carry-over from herbicide residues in the sprayer, therefore wash out very thoroughly.

2. The use of Controlled Droplet Applicators (CDA) will considerably reduce the need to carry vast amounts of water. A spinning disc (battery powered) will produce 95% of the same-size droplets, thus reducing chemical rates by

50% and water rates. Herbi and Mantis (trade names) are hand-held sprayers \$200-400

ATV or tractor mounted shielded CDA sprayers such as the Environmist from BDi also reduce spray rates. \$2100

3. Wick wipers

Where occasional weeds are a problem, the use of a hand-held wick wiper is an easy-to use, effective option.

\$35 -55

Where to look/buy

BDi Machinery Sales, Macungie, PA
1-800-808-0454
Bdi@fast.net

CF Valve by G.A.T.E, Deerfield Beach, FL
1-800-303-2099
www.cfvalve.com

Demco, Boyden, IA
1-800-543-3626
www.demco-products.com

Forestry Suppliers Inc., Jackson, MI
1-800-647-5368
www.forestry-suppliers.com

Gemplers, Belleville, WI
1-800 332-6744
www.gemplers.com

Hardi Midwest, Davenport IA
563-386-1730
www.hardi-us.com

John Bean Sprayers, LaGrange, GA
1-800 241 2308
<http://www.johnbeansprayers.com>

Orchard Supply OESCO, Conway, Ma
1 -800 -634-5557
www.oescinc.com

PBM Sprayers, Chico, CA
1-800-688-1334

Continued on next page

Small Sprayers for Small Vineyards, continued from previous page

www.pbmsprayers.com

Rittenhouse, St Catherines, Ont. Ca
1-800-461-1041

www.rittenhouse.ca

Superb Horticulture, Plymouth, IN
1-800 567 8264

<http://www.inberry.com/>

Major sprayers, Slimline Mfg., Penticton,
1-800-495-6145

www.turbomist.com

Please note: *Where trade names, manufacturers or distributors names appear, no discrimination is intended and no endorsement by the author or Cornell University is implied.*

Navigating the NYS DEC: How to get your certified pesticide applicator license

As a grape grower in the Northeast, one of your biggest challenges is combating the insects, diseases, and other pests invading your vineyard. Although you do not need a license to purchase or use some pesticides, obtaining your *certified pesticide applicator license* will give you access to more materials that you can add your pest combatting-arsenal.

Do I need a license?

Pesticides are divided into two groups:

General use pesticide: A pesticide that may be purchased and used by the general public.

Restricted use pesticide (RUP): Only certified pesticide applicators are allowed to buy these materials, and only certified applicators or persons under their direct supervision may apply them.

Long story short, to apply RUPs you will need a certified pesticide applicator license.

A word about employees: If you will be supervising employees applying RUPs or training them under WPS, you will also need a certified pesticide applicator license.

What type of license do I need?

Don't need a license	Private Applicator License	Commercial Applicator License
Applying ONLY General Use Pesticides	Applying RUPs to property you own or lease, or property your employer owns or leases.	Any pesticide application not covered under Private Applicator License

How do I get my license?

First, make sure you meet the requirements

Private Applicator	Commercial Applicator
Be at least 17 years of age AND at least one of the following Have at least 1yr relevant full time experience Have completed a 30-hr training course Have an associate degree or higher in relevant field	Have at least one of the following: 1yr experience as a commercial technician, plus 12hrs of category-specific training 2yrs experience as a commercial technician 3yrs experience as an apprentice 3yrs experience as certified private applicator

If you need a commercial license, but do not meet the requirements, you can be a technician or apprentice first, then upgrade to certified applicator later. (Requirements on the NYS DEC Website)

Technician: may use most general use pesticides without direct supervision and RUPs under direct su-

Navigating the NYS DEC: How to get your certified pesticide applicator license, *continued from previous page*

pervision of a certified commercial pesticide applicator. May NOT supervise.

Apprentice: a person engaged in commercial application of pesticides but does not meet the technician or certified applicator requirements.

Next, take the appropriate exam.

Private Applicator	Commercial Applicator
CORE Exam Category 22 (Fruit)	CORE Exam Category 1A (Agricultural Plant)

Find your DEC

Region here: <http://www.dec.ny.gov/about/50230.html>

Find an exam here (search by your region): <http://www.dec.ny.gov/nyspad/find?3&tab=EXAMS>

To pass the exam, study the CORE and Category Manuals. You can purchase them here:

<https://store.cornell.edu/p-189394-core-certification-training-manual-for-pesticide-applicators-and-technicians.aspx>

How do I maintain my license?

After receiving your pesticide applicator license, you’ll have to maintain it by proving you are continuing to get updated education on proper use of pesticides. You can do this by earning recertification credits or by taking the recertification exam at the end of your certification cycle.

Private Applicator	Commercial Applicator
Earn 10 credits every 5 years	Earn 8 credits every 3 years

All of the information above on how to obtain and maintain a license is available in more detail on the NYS DEC website <http://www.dec.ny.gov/permits/45618.html>

Your regional DEC person welcomes any questions you have as you navigate the application process. Information on the DEC Regions website <http://www.dec.ny.gov/about/50230.html>

Grape Disease Control 2015

Wayne Wilcox has finished updating his grape disease booklet for 2015. You may access the PDF online by following this link:

http://enych.cce.cornell.edu/submission.php?id=291&crumb=crops|crops|grapes|crop*45

Optimizing Vine Nitrogen Use in Vineyards

Nitrogen as a nutrient need is often more associated with berry or vegetable crops than with grapes. Although grapes are not a heavy user of this nutrient, Nitrogen still has an important role in vine growth and development. Below is an excerpt of an article by Jamie Hawk and Tim Martinson originally from the May 2006 issue of Sustainable Viticulture in the Northeast, also entitled “Optimizing Nitrogen Use in Vineyards”, with the full article available at: <http://www.vinebalance.com/pdf/newsletters/SustainableViticulture1.pdf>

Nitrogen in the Soil:

Soil microbes transform the nitrogen compounds in the soil, and their rates of activity are driven by temperature. During the winter months, relatively little decomposition occurs, but as the soils warm in the spring and early summer, microbial activity increases, releasing ammonium from organic matter breakdown and nitrifying the ammonium to nitrate for vine uptake. Moisture conditions also influence soil nitrogen levels. Repeated heavy rainfalls, particularly during spring and early summer when the bulk of nitrogen fertilizers are applied, may promote leaching.

During periods of drought, leaching is less common, but vine uptake of nitrogen is diminished unless supplemental irrigation is used. In strongly acidic soils, aluminum (Al³⁺) becomes soluble and displaces the essential nutrient cations from the cation exchange sites. Raising the pH back into the optimal range for grape production (5.5-7.0) forces the aluminum to precipitate out, opening the cation exchange sites to the desired cations and restoring the soils' potential to hold nutrients. Soil pH also affects the activity of bacteria in the soil, impacting rates of nitrogen fixation, nitrification, and organic matter breakdown.

Nitrogen in the Vines:

Research on Concord has shown that the majority (about 75%) of stored nitrogen in dormant vines is found in the roots, with the remainder stored in trunks and canes (Bates et al. 2002). These stored reserves supply the nitrogen for most of the vines' pre-bloom growth. Uptake of nitrogen from the soil doesn't begin in earnest until midway between bud break and bloom, as soils warm and new root tips develop. Peak nitrogen demand is split into two distinct periods: the 2-3 weeks prior to bloom and about a month-long stretch (the majority of the canopy development stage) starting 2 weeks after bloom (Figure 1). Overall, the annual nitrogen requirement of Concord vines corresponds to about 50 lbs/acre, with a portion derived from the breakdown of organic matter and the remainder supplied by the grower. After harvest, the vines sequester the remaining available nitrogen (found in the soil, leaves and shoots) into their roots and canes in preparation for the next growing season.

While there is no magic formula for determining how much nitrogen to apply, there is a strong case to be made for tailoring application rates and timing to the needs of individual vineyard blocks, rather than uniformly applying a standard rate to all of your vineyards. Doing so involves consideration of the leachability, organic matter content and water holding capacity of your soils, careful observation of vine vigor, and your management goals for the vineyard. ConCORDs and bulk hybrid varieties are generally managed to maximize cropping level and production, and their responses to N fertilization are well understood. V. vinifera grapes and premium hybrids are managed for moderate yields and wine quality, generally at less than their maximum cropping capacity. Therefore, rates for Concord production represent the high end of N requirements in New York vineyards.

Hudson Valley Grapes Program Blog

For important updates, and access to more grape information (fruit school talks, fact sheet links, etc.), check out Jim's blog: <http://blogs.cornell.edu/hudsonvalleygrapes/>

Cornell Cooperative Extension and the staff assume no liability for the effectiveness of results of any chemicals for pesticide use. No endorsement of any products is made or implied. Every effort has been made to provide correct, complete, and current pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly and human errors are still possible. These recommendations are not substitutes for pesticide labeling. Please read the label before applying any pesticide. Where trade names are used, no discrimination is intended and no endorsement is implied by Cornell Cooperative Extension.

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

2015 eNEWA for Grapes Beta Testing

Would you like to see the current weather and grape pest information found on NEWA (Network for Environment and Weather Applications <http://newa.cornell.edu>) 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.

Tim Weigle of the Lake Erie Regional Grape Program (LERGP) will be conducting a second year of beta 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. Once during the growing season and again after harvest, you will be asked to complete a short survey to assist us in improving the eNEWA for grapes email system.

If you would like to be a part of this project please contact Tim Weigle thw4@cornell.edu

Vineyard and Winery Business Management

Champlain Valley
May 27th 5:00 -7:00PM
Clinton County CCE Office
6064 Rte 22
Plattsburgh, NY

Upper Hudson Valley
May 20th 5:00-7:00PM
Saratoga County CCE Office
50 W High St
Ballston Spa, NY 12020

Speakers:

Bob Weybright, Marketing and Business Specialist CCE ENYCHP
Sarah Johnston, NYS Dept. of Agriculture and Markets

This workshop will cover the basics of business management for vineyards and wineries. Bob Weybright, CCE business and marketing specialist, will provide business planning guidance for establishing a vineyard. He will also discuss considerations for obtaining a winery license and marketing your wine. Sarah Johnston will provide information on risk management, and how to obtain insurance for your valuable investment.

Please PRE-Register by May 18th (Upper Hudson Valley) and May 25th (Champlain Valley).

To register or for more information, please contact Anna Wallis 443-421-7970 or aew232@cornell.edu

Feel free to contact your local ENYCHP Grapes Specialist if you have any questions on your vineyard. We'd be happy to assist you in any way that we can.

North Country: Anna Wallis at 443-421-7970 or email aew232@cornell.edu

Hudson Valley: Jim O'Connell at 845-691-7117 or email jmo98@cornell.edu.