Lake Erie Regional Grape Program- *Vineyard Notes*

June 2015

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New York State Agricultural Experiment Station, Geneva, NY 14456

Cornell University
Cooperative Extension

Lake Erie Regional Grape Program

2015 Coffee Pot Meeting Schedule

May 6- 10:00am-Dan Sprague- 12435 Versailles Rd. Irving NY 14081

May 13- 10:00am- Phillip Baiderne- 7935 Route 5, 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

Business Management

Kevin Martin
Penn State University, LERGP,
Business Management Educator

Nitrogen Requirements & Costs Explained

Hate math? Check out the Nitrogen Worksheet on our webpage:
http://lergp.cce.cornell.edu/submission.php?id=89&crumb=business%20management|business_management

It is Nitrogen season and just as a reminder LERGP developed a Nitrogen worksheet a number of years ago. While, there is a small amount of variance based on conditions the assumptions in the nitrogen worksheet will give you a fairly accurate estimate of nitrogen requirements for vines that did not suffer significant winter injury. Nitrogen applications should be avoided where vines sustained significant winter injury. For the rest of the acreage, one simply needs to fill out the worksheet.

Soil organic matter can provide much of the nitrogen required by the vine. Uptake of available N through organic matter is slow and steady. Organic matter can provide as much as 95% - 100% of the N required by the vine. Each percentage of organic matter represents 20 pounds of N per acre. Concords require 50 pounds of actual N per year. Theoretically, just 2.5% organic matter represents 50 pounds per acre. However, Concord nitrogen needs are not always slow and steady. To help satisfy sporadic needs, organic matter should be between 3% and 5%.

Needs intensify around bloom. With 4% - 6% organic matter, along with healthy balanced soils, often no nitrogen application is necessary. Without an accurate picture of overall soil health, a small maintenance dose around bloom is recommended. The worksheet shows this recommendation.

To determine the amount of fertilizer, it is necessary to determine the percent of actual N in the fertilizer. Urea is the most commonly used fertilizer; it contains 46% nitrogen.

Uptake efficiency is a critical way to control nitrogen application costs. Ineffective timing of nitrogen applications results in nearly a doubling in cost. Overall uptake efficiency is rather inefficient. Building up organic matter is a much more efficient method of supplying the vine with the majority of nitrogen needs. Uptake efficiency peaks around 17% of applied N. Early spring applications, depending on weather conditions, can drop below 10%.

Fertilizer costs vary between type. Currently urea prices are a bit out of wack, when compared to their long-term averages. Despite recent increases in Urea prices, it still remains the most cost-effective method of nitrogen application. Additives and blends typically add costs that are not justified by the potential cost savings that may or may not result. Broadcast applications of fertilizer typically cost large growers less than $7 per acre. Multiple applications of different fertilizer types can be more cost effective than blending.

Soil test is a simple way to determine organic matter and accurately plan for a lowest possible cost fertilizer program.

Nitrogen Requirements & Costs Worksheet for Concord Vineyards

		Sample (1)	Sample (2)	Sample (3)	Your Vineyard	Units
1	Soil Organic Matter (OM): Values can be obtained from soil test reports	3.50%	1.90%	1.00%		% OM
2	Pounds of N / % soil OM	20.0	20.0	20.0	20.0	lbs N/acre
3	Pounds of N/acre supplied by mineralization of OM (Line 1 x Line 2 x 100)	70.0	38.0	20.0		lbs N acre
4	Equivalent lbs N/acre required by Concord	50.0	50.0	50.0		lbs N/acre
5	Lbs N/acre required from supplemental fertilizer (line 4 - Line 3)	3.5	12.0	30.0		lbs N/acre
6	% N content of supplemental fertilizer	46%	34%	46%		% N
7	Lbs of fertilizer/acre to apply assuming 100% uptake (line 5 / (line 6)	7.6	35.3	65.2		lbs F/acre
8	Uptake efficiency of N: At budbreak .1; Two weeks pre bloom .17	17%	10%	10%		% Uptake
9	Pounds of fertilizer per acre (line 7 / line 8)	45	353	652		lbs F/acre
10	Cost per ton of fertilizer	600	650	600		$/ton
11	Cost per acre (Line 10 / 2000 x Line 9)	13.43	114.71	195.65		$/acre

Luke Haggerty
Viticulture Extension Associate
Lake Erie Regional Grape Program

Renewing Damaged Trunks

With temperatures dipping down to -17 to -30^{o}F throughout the region, winter injury was inevitable. The winter's extremely cold temperatures have left most of the Lake Erie grape region in a varied state of damage. *V. vinifera* cultivars suffered the majority of the loss/damage with many 'hybrid' and 'native' cultivars also suffering winter injuries. As the growing season progresses, the apparent bud and vine vascular damage can be seen by dead or stunted shoots on injured vines. Depending on the severity of the damage, growers are taking action by replanting dead vines or renewing vines/trunks that have suffered damage.

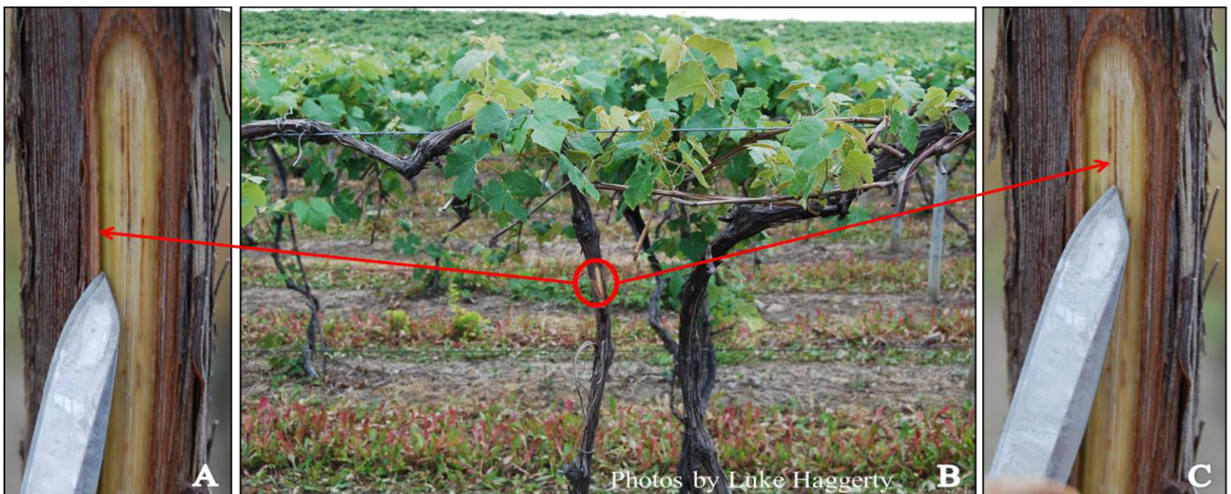

Figure 1. Winter damage on a 'Niagara' vine (A) damaged phloem (B) combination of dead buds (blind nodes) and stunted yellowed shoots (C) brown streaking indicating xylem damage.

With bloom closely approaching all trunk and cordon vascular tissues (phloem, vascular cambium, and xylem) should be functioning in full force. Trunk damage occurs from the outside in; making the phloem first tissue to show sign of injury. Damage to the phloem (Fig. 1A) will prevent the flow of carbohydrates needed for shoot development. Damage to xylem (Fig. 1C) will restrict flow from the roots to the canopy resulting in stunted, coloristic (yellowed), or dead shoots (Fig. 1B). Phloem and xylem damage can be assessed by cutting a shallow strip off of the trunk, cordon, or canes and examining the amount of browning.

Figure 2. (A) Healthy 'Niagara' vine (B) shallow cut exposing phloem and xylem.

Figure 3. Sever winter damage to ‘Pinot gris’ (A) vine collapse (B) stunted shoots with chlorosis.

In cases of severe trunk damage, the xylem and phloem no longer function and the vine can collapse (Fig. 3A). 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.

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 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.

Grape Insect and mite pests-Highlights for the 2015 field season

Greg Loeb
Department of Entomology
Cornell University
New York State Agricultural Experiment Station
Geneva, NY 14456

Rather than proving an exhaustive review this year of the important arthropod pests of grapes in our area, I decided to zero in on a relatively few species where there is either new information available or I want to re-enforce things I and other extension educators have been discussing recently. For a more comprehensive review, you can see my 2014 review at the following web site: http://www.fruit.cornell.edu/grape/pdfs/Loeb-Grape%20Insect%20Mite%20Pests%202014.pdf.

Update from NY and Pennsylvania Grape Guidelines and other chemical news

There are very few important changes to the arthropod components of the grape guidelines for 2015. NY DEC has granted 2(ee) exemptions for four insecticides labeled on grapes in NY for grape rootworm. These are 1) Sniper (a synthetic pyrethroid, active ingredient = bifenthrin, EPA # 34704-858), 2) Leverage 360 (a combination of a synthetic pyrethroid [cyfluthrin] and neonicotinoid [imidacloprid], EPA # 264-1104), 3) Danitol 2.4 EC 9 (also a pyrethroid, fenpropathrin, EPA # 59639-35) and 4) Admire Pro (a neonicotinoid, imidacloprid, EPA # 264-827). Prior to these exemptions, Sevin [carbaryl] was the only insecticide labeled for control of grape rootworm. See section below for an update on ongoing entomological research on this pest, which is resurging in some areas of the Lake Erie grape belt.

Review of key arthropod pests

Plant bugs

As I am writing this article (beginning of June), we have moved past the risk period of several insect pests of grapes (grape steely beetle and cutworm larvae) and soon will get past the risk from several other potential early-season pests (banded grape bug, *Lygocoris* bug, grape plume moth). These insects are only a threat up to bloom. If your grapes have not reached bloom stage, it still might be worth scouting clusters at this time for plant bugs (banded or *Lygocoris*). Both species overwinter as eggs, presumably on grape canes, emerging as nymphs shortly after budbreak to 5 inch shoot growth. The banded grape bug (BGB) nymph is greenish to brown in color with black and white banded antennae (see Fig. 1). Nymphs of *Lygocoris* are pale green with thin antennae (Fig. 2)


Fig. 1, photo J. Ogrodnick


Fig 2 Lygocoris. Photo: J. Ogrodnick

and about half the size of BGB. Nymphs of both species **can** cause serious economic damage by feeding on young clusters (buds, pedicel and rachis) prior to flowering. Adults, which appear close to bloom, do not cause economic damage and for at least one of the species (BGB), become predaceous on small arthropods. There is only one generation per season. Monitor for nymphs by examining flower buds on approximately 100 shoots along the edge and interior of vineyard blocks. These plant bugs are sporadic from year to year and from vineyard to vineyard; most vineyards will not require treatment. If present at relatively low numbers (1 nymph per 10 shoots), they can cause significant yield reductions and hence it is worth the time to check. Pay particular attention to vineyard edges. Remember, though, if you are already at bloom, it is too late to treat. There are several insecticides labeled for use against plant bugs (Imidan [phosmet], Danitol 2.4 EC, and Assail 30 SG [acetamiprid]).

Grape Phylloxera

The next insect pest I want to address is grape phylloxera, both the leaf gall form and the root form. Leaf galls are in the shape of pouches or invaginations and can contain several adults and hundreds of eggs or immature stages. Root galls are swellings on the root, sometimes showing a hook shape where the grape phylloxera feed at the elbow of the hook. At high densities, leaf galls can cause reduced photosynthesis. Root galls likely reduce root growth, the uptake of nutrients and water, and can create sites for invasion of pathogenic fungi. There is a wide range in susceptibility of grape varieties to both gall types. Labrusca-type grapes and vinifera grapes tend not to get leaf galls. Some hybrid grapes, such as Baco Noir, Seyval, and Aurora, can become heavily infested with leaf galls. Labrusca grapes will get root galls but these tend to be on smaller diameter, non-woody roots that may reduce vine vigor in some cases, but are not lethal. We believe many of the *V. vinifera* interspecific hybrid wine grapes grown in the region also get some galling on roots, although we know less about their impact on vine productivity. We have done research, discussed in previous years, on the benefit of treating Concord vines with the systemic insecticide Movento [spirotetramat] to reduce root galls in terms of vine growth and yield. Overall, after several years of treating mature Concord vines with Movento, we observed modest yield benefits. One of the questions we would like to explore in the future is to assess the benefits of treating root-form phylloxera for some of the interspecific hybrids. Stay tuned.

There are a couple of insecticides labeled for the control of leaf-form grape phylloxera, although we do not have a well-defined treatment threshold at this time. The neonicotinoid Assail SG and the pyrethroid Danitol 2.4 EC (fenpropathrin) are also labeled for the leaf-form of grape phylloxera as is the systemic insecticide Movento. Soil applied Admire Pro is also systemic to the foliage and therefore will provide control of leaf-form phylloxera as well as some other sucking insects such as leafhoppers. Similarly, the neonicotinoid Platinum [thiamethoxam] is also labeled against grape phylloxera. Leaf-galls first appear at low densities on the third or fourth leaf, probably originating from overwintered eggs on canes. The crawlers from these first generation galls disperse out to shoots tips and initiate more galls around the end of June or beginning of July. These second generation galls tend to be more noticeable to growers.

Imidacloprid applied to the soil/root zone (e.g. Admire Pro) is labeled for the grape phylloxera as is Platinum and can provide some control, especially when applied through a drip system. Movento [spirotetramat], applied as a foliar spray, has also shown some reasonably good efficacy on root-form phylloxera in our trials both with *V. vinifera* vines, but also with concord.

Grape Rootworm

Grape rootworm was a key pest of grapes in NY and surrounding areas in the early 1900s. Since the sixties, broad-spectrum insecticides targeting grape berry moth greatly reduced the impact of grape rootworm. However, with the use of more selective materials and less use of insecticide overall in recent years, growers are observing more evidence of this pest, especially in the Lake Erie Region. Grape rootworm is a beetle in the Family Chrysomelidae (flea beetle family). The adult (Fig 3) feeds on leaf material, creating characteristic chain like feeding damage (Fig 4). This damage is not economically significant. The adults emerge over the middle part of the season, starting around bloom time. After an initial bout of leaf feeding, they mate and the females lay clusters of eggs on older canes, often under loose bark. The eggs hatch and the larvae drop to the ground where they work their way into the soil to find fine grape roots to feed on. Feeding damage by larger larvae cause reduced vine growth and vigor, increased vulnerability to stress, and reduced yields.


Fig. 3

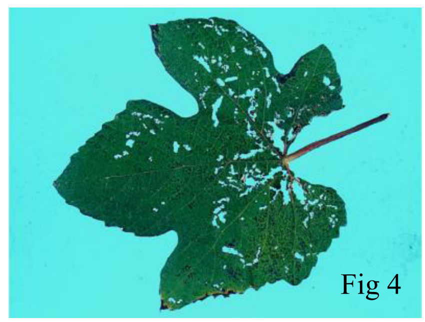
Fig 4

As noted above, we now have five different insecticides labeled to control grape rootworm: Sevin, Sniper (2ee), Danitol 2.4 EC (2ee), Leverage 360 (2ee), and Admire Pro (2ee). Even though the adult stage does not cause significant damage to vines, it is the target of the insecticides to prevent egg laying and larval infestation. Female grape rootworm require a week or two pre-oviposition period (time when they feed and mate, but don't lay eggs), and hence, knowing when adults have emerged from the ground is critical to successful chemical control. Generally speaking, they emerge around bloom and continue to emerge over several weeks. Tim Weigle, NYS IPM Program, and I have initiated a new project to better characterize the timing of emergence, determine degree-day estimates for first and peak abundance, and compare the efficacy of different timings for insecticide treatments. Specifically, we want to determine if use of back to back sprays, starting at first detection of adults, provides significantly better control of damage than spraying once either at the start or in the middle time period of adult emergence. We also will be testing the use of entomopathogenic nematodes against grape rootworm larvae to see if this is a viable biological control option. Hopefully we will be in position to report on our results before the next field season. In the meantime, we recommend you scout for adult feeding damage around bloom for evidence of adult activity. Also, continue to follow email alerts from the regional grape programs. We are fast approaching the timing of adult emergence.

Soft Scales and Mealybugs

Soft scales and mealybugs are sucking insects that spend part of their life-cycle on the canes or the trunk and part out on leaves or fruit. At high densities they can reduce vine vigor or contaminate grape clusters with their sugary excrement, which supports the development of sooty mold. However, the major concern with soft scales and mealybugs in our area relates to their potential to vector leafroll viruses, a serious disease of grapevines (a fact sheet on leafroll virus is available at http://nysipm.cornell.edu/factsheets/grapes/diseases/grape_leafroll.pdf). Soft scales in our area overwinter on canes as large immatures or young adults. At this stage they vary in shape and color but are typically brown or gray and look like bumps or large scales on the canes. They have limited ability to move at this stage. As the spring progresses they complete development, mate and begin laying eggs (mid-May to early-June), often many hundreds to over a thousand per female. The eggs hatch into mobile crawlers that disperse out on to the foliage to feed. Most of the species of soft scales in our area have just one generation per year. As they mature during the season they move back to the canes to overwinter.

Grape mealybug overwinters on canes or trunks as crawlers (first immature stage after hatching from eggs), moving out from trunk wood to first or second year wood in spring (at budswell, see Fig 5). These crawlers like to hide under loose or cracked bark; look where one-year canes have been bent over trellis wire. As they become adults they move back to the trunk region to lay eggs (around mid-June). The first instar crawlers (summer generation) are observed around the beginning of July. These crawlers go on to mature, being found on various tissue including clusters. As they become adults they migrate back to the trunk regions to lay eggs, which mostly hatch and then spend the winter as first instar crawlers.


Fig. 5, photo S. Hesler

Dr. Marc Fuchs, virologist at NYSAES, has evidence that grape leafroll disease has increased within a vineyard over time in a minority of vineyard blocks in the Finger Lakes indicating that insect vectors are likely responsible. Moreover, the causal viruses have been detected in both grape mealybug and soft scale collected from Finger Lakes vineyards. The insects feed on plant phloem and in the process acquires the virus. For this virus-insect relationship, the virus needs to be re-acquired after each molt (shedding of the insect exoskeleton as it grows). Research indicates the crawler stage is the most efficient at transmitting the virus, but other stages likely have the capacity to transmit as well. Note that the virus is not passed on to the eggs from the female. The newly hatched crawler must acquire the virus when it feeds to be able to transmit to virus. Once acquired from an infected plant, if the insect moves on to an uninfected vine before it molts, it can spread the disease. Since crawlers are the most active stage of both mealybugs and soft scale, they are the most likely stage to spread the disease.

Marc and I were interested to determine when during the season mealybugs became infected with virus so we collected them through the season from a vineyard that had a very high infection rate, starting in the fall with overwintering crawlers and through the next season. In November, crawlers did not show any evidence of the virus. This confirms our supposition that after hatching, the crawlers do not move much or feed. However, we were somewhat surprised to discover that in April/earl May the now overwintered crawlers were infected at high levels (>70%) suggesting they had fed on the vine and acquired the virus sometime between late fall and late April prior to budbreak. We went on to show that these crawlers are capable of transmitting the virus to uninfected vines in the greenhouse. We speculate that the crawlers may be particularly important in spreading the virus within a vineyard during the spring since there is little or no foliage to impede movement from vine to vine.

Can insecticide be used to slow the spread of leafroll disease within a vineyard? This is an important question that we are beginning to get some answers to. Experiments conducted over the past several years suggest that using an effective insecticide against grape mealybug, such as Movento, can slow, but not stop, the spread to some degree. The results were not overwhelming, however, and disappeared the year after we stopped applying Movento. It's possible, though, that combining an effective insecticide control with roguing (removing of infected vines) when infection levels in the vineyard are relatively low (less than 25%) may be cost effective. This is something we hope to test in the future.

There are two windows of opportunity for controlling soft scale and mealybugs with non systemic insecticides (e.g. pyrethroids, foliar applied neonicotinoids). The first window is during the spring just before budbreak where the target is the overwintering stage. Dormant oil is often recommended at this time. The idea is the oil will smother the scale or mealybug. We have not tested oil against soft scale, although I suspect it would be effective since the soft scale overwinter out on the canes where they are more exposed and research done by other entomologists supports this. We obtained some data on efficacy of dormant oil just prior to budbreak for mealybug crawlers, however. Although we saw a decrease in mealybug numbers initially, overall it was not very effective, I believe because the overwintered crawlers are often well protected under bark on the trunk and canes at the time the oil is applied. Some of the other contact insecticides may be more effective at this time than oil, but we still need to conduct the trials. The second window is the crawler stage of the first generation. This occurs in mid or late June for soft scale and late June to early July for grape mealybug. The crawler stage is the most mobile stage and hence, you have the best chance of contacting them with insecticides. To make certain of timing, you can check underneath soft scales on canes in June or examine mealybug egg masses under loose bark on the trunk in later June with a hand lens and look for crawlers. In future research, we would like to examine the effectiveness of treating the crawler stage early in the season with a contact insecticide in combination with Movento during the growing season.

During the growing season carbaryl is labeled for European fruit lecanium, a species of soft scale on grapes known to transmit grape leafroll, and an insect growth regulator called Applaud [buprofezin] is labeled for both soft scale and mealybugs. *Note that Applaud is not legal to use on Long Island*. A number of additional insecticides are labeled for mealybugs but not soft scales including Movento, Admire Pro, Assail, Brigadier [bifenthin, imidacloprid and other active ingredients], Leverage 360, Portal [fenpyroximate], Baythroid [cyfluthrin] and Imidan.

Grape Berry Moth

This is a familiar insect pest to most grape growers in our region and I don't have a lot new to add here. However, I did want to provide an update/reminder about the use of the degree-day phenology model to assist in determining the timing of the different generations of grape berry moth during the season. Recall that in our area, we see 2 to 4 generations of this pest. Also recall that once the larva of this moth gets inside the berry, it is hard to reach with insecticides. Hence, determining the exact timing of egg laying for these different generations, especially the second and third flights, is important. As I write this, we are fast approaching grape bloom and for vineyards at very high risk of grape berry moth damage, we continue to recommend an insecticide at around 10 days post bloom, which matches up pretty well with the timing of egg laying of the first flight of overwintered insects. The trick is determining the timing of egg laying for subsequent flights. We have developed a degree day model to help with this determination, available via a web-based system (Network for Environment and Weather Applications) found at the following web site (http://newa.cornell.edu/ and look under pest forecasts, grapes, grape berry moth).

To use the model, you need to provide a starting point to begin accumulating degree-days. We have found bloom date of the wild grape *V. riparia* is a pretty good indicator or biofix. The program asks that you provide a date for 50% bloom time of *V. riparia*. For my area around Geneva, NY, we observed bloom of wild grape this year on 26 May. The model actually does a pretty good job of estimating bloom date of wild grape. This year it estimated it as May 28 for Geneva. Based on the biofix, the model accumulates degree days using the nearest NEWA weather station (you choose the weather station on the web site; several new weather stations in New York and surrounding states have been added to the system recently). At any given date, the model will provide the degree-day accumulations from the biofix, a forecast of accumulation over the next several days, and pest management advice based on current accumulations. For example, as accumulation gets close to 810 degree days, the program notes that this is approaching the peak of the second GBM generation eggs and you are advised to apply an insecticide at near 810 for a high risk site and to scout for damage for low or intermediate risk sites. The NEWA forecast makes a distinction between insecticides that need to be consumed (e.g. Altacor [chlorantraniliprole], Belt [flubendiamide], Intrepid [methoxyfenozide] (not allowed NY on grapes)) and those that work mostly through contact (e.g. Brigade, Danitol, Baythroid, Sevin). Note that this model should be used only as a guide for making pest management decisions. However, it's an improvement over the calendar-based practice. If you have questions on using the grape berry moth phenology model, please let me (gme1@cornell.edu), Tim Weigle (thw4@cornell.edu) or Juliet Carroll (jec3@cornell.edu) know.

Spotted Wing Drosophila.

Spotted Wing Drosophila (SWD) (also known as *Drosphila suzukii,* Fig 6) is a new invasive fruit fly that looks superficially like your every day vinegar fly *Drosophila melanogaster* of genetics fame. The name comes from the spots at the end of the wings in the male. Note the female SWD lacks these spots. Female vinegar flies typically lay eggs in damaged and/or overripe fruit. On the other hand, female SWD have very robust ovipositors (the rear end portion of the fly used for egg laying, Fig 7) and will lay their eggs in ripe, marketable fruit leading to damage and contamination with maggots.

Photo: M. Hauser

Fig 6, adult male SWD

Fig 7. Photo: M. Hauser

SWD first was detected in NY in 2011, and since then has caused wide spread damage to vulnerable fruit crops like blueberries and raspberries. Research by several of us in the eastern US indicates that SWD females will lay eggs in some cultivars of grape but this does not seem to be a common event in undamaged berries. Although the risk of direct damage by SWD to grapes seems relatively minor, we do have concerns about its potential, along with other fruit flies, in causing and spreading sour rot. Collaborative research between my lab and Cornell University plant pathologist Wayne Wilcox's lab is under way to evaluate the role fruit flies have in sour rot and whether targeting fruit flies with insecticides near harvest can be beneficial. Stay tuned for more details but it does seem clear that Drosophila fruit flies, in combination with damaged, ripe fruit of susceptible cultivars and suitable weather conditions, contributes to the problem. Our research should help us to identify under what conditions fruit is at risk of developing sour rot and which tactics are effective in managing the disease. For more information on SWD visit http://www.fruit.cornell.edu/spottedwing/. Adult SWD are susceptible to a number of different insecticides including organophosphates (e.g. malathion), pyrethroids (e.g. Mustang Max [zeta-cypermethrin]) and spinosad type insecticides (e.g. Delegate [spinetoram] or an organic alternative, Entrust [spinosad]). Since fruit flies are only a threat near harvest, insecticides with relatively short DTH restrictions are the most helpful.

Summary and Final Comments

There is a seasonality (or phenology) to grape insect pests and checking the electronic updates from your regional grape extension programs is an excellent way to stay on top of what you should be on the look out for during the season. This article was not a comprehensive review of all relevant insect pests that might present problems in 2015.

Rather, I focused on insects that could be problematic from pre-bloom to harvest and where there was some new information to convey. For a more comprehensive review, you can see my 2014 review at the following web site: http://www.fruit.cornell.edu/grape/pdfs/Loeb-Grape%20Insect%20Mite%20Pests%202014.pdf.

Monitoring for insect pests is generally recommended as a way to detect problems while there is time to do something to minimize economic damage and to avoid spending money on control measures if the pest is not causing economic damage. We generally have good chemical control options available for most arthropod pests if necessary. But also keep in mind that natural enemies are present in many vineyards and that they help keep pest populations below economically damaging levels. One way to maintain good populations of natural enemies in your vineyard is the judicious use of chemical control. When using insecticides pay attention to label restrictions and review recommendations in the pest management guidelines. Rotate among materials with different modes of action to reduce development of resistance. If you have questions or concerns please let me know.

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-

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