New England Grape Notes

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Phenology: Vines are at veraison in most locations. Disease pressure in the vineyard remains high. Continue scouting regularly for leaf and cluster infections. Petiole analysis is useful at this time to assess the nutrient status of your vines. Crop load adjustments can also be made at this time. Prepare for bird management where it will be needed. See more on these topics below.

General Vineyard Management:

Crop Management

Joe Fiola, Univ. of Maryland

The goal of most grape growers is to produce high quality grapes for wine. For making the best wine, the highest quality grapes are often the most mature and uniform. In today's quality driven marketplace, the best fruit will command the highest prices and the greatest demand. Climate, environmental circumstances, and cultural practices are all important in determining fruit quality, however, few techniques may impact fruit maturity more than regulating yields to achieve a balanced vine and uniformly mature fruit. A previous "Timely Viticulture" discussed estimating the existing crop in the vineyard. Once tons per acre or pounds per vine data is collected, it is easy to work backwards towards a targeted yield. This issue will address adjusting the crop level for the desired outcome.

Problems associated with over cropping:

- In the Mid-Atlantic region, where many vineyards reside in areas of marginal season length, achieving full ripeness is a challenge, especially with late varieties (Cabernet Sauvignon.)
- Delayed ripening
- Uneven ripening
- Poor color
- Poor sugar content
- Poor varietal character intensity
- Inadequate tannin ripeness
- A vine that is over cropped will be much more sensitive to winter damage.

For young vineyards:

- Crop regulation usually involves removing any fruit in the first and second years, except on vines of exceptional vigor.
- Even in the third year, reducing the crop by half may be a wise measure to keep the vine healthy.
- A vine that is over cropped when it is young will be much more sensate to winter damage and/or may never reach its full production potential.

Factors to consider when setting a target yield:

- Timing of veraison. If the season is late, the crop may need to be thinned more severely to allow the fruit to ripen in a shorter period.
- If significant tropical storm activity is predicted (as is this year), a grower might elect to carry a smaller crop to allow it to be less sensitive to significant swings in moisture.
- If early frosts are expected, a smaller crop should be carried to allow the crop to ripen earlier and to allow the vines to recover and prepare for winter.
- If canopy has been compromised by disease (defoliated by downy) or insects (laced by Japanese beetles) the crop should be reduced.

An experienced grower will know his site and will develop a sense of what the optimal yields are to achieve full ripeness in certain varieties and fields.

Fruit thinning. After the target yield has been determined, the fruit must be thinned to the proper level.

- Veraison thinning is desirable, especially for red varieties and it is easy to determine and thin the clusters that are behind in ripeness or uniformity of ripeness.
- Veraison thinning is also desirable to help reduce vigor on vigorous sites by allowing more "sinks" (grapes) to sap some of the extra energy.
- If the vineyard soil has high K content, if you wait until veraison to thin, the extra clusters can also be used as

"sponges" to absorb the excess K to keep the pH of the remaining fruit from rising too quickly.
- Remove disease or damaged fruit first.
- Remove clusters that are behind in ripening.
- In most cases, remove apical clusters (highest on shoot for VSP).
- Remove clusters that are receiving less sunlight.
- For Smart-Dyson trained vines, allow about 65-70% of the crop on the top canopy and 30-35% of the crop on the lower canopy to help to synchronize ripening.
- Remove an even number of clusters on each side of a bilateral vine.

(***Source**: Maryland Timely Viticulture, Early August 2008*)

Disease Management:

To view the disease model predictions for southern New England go to
http://www.hort.uconn.edu/ipm/grapes/htms/09diseaseriskupd.htm.
Vermont's IPM Updates can be seen at http://pss.uvm.edu/grape/newsletters/.
New York has some grape disease models available at http://newa.nrcc.cornell.edu/newaDisease/grape_dis.

For those interested in organic disease management in grapes, a good resource can be found at:
http://www.oardc.ohio-state.edu/fruitpathology/organic/grape/index.html.

Late Summer Disease Control

Alice Wise & Wayne Wilcox, Cornell University

Berry susceptibility to new infections of black rot, downy and powdery mildew is virtually nil. Thus disease control is now limited to cluster rot as well as control of DM and PM on the canopy. Proper hedging of the canopy is one of the best control strategies for downy mildew as it allows leaves to dry out more quickly. Easier said than done given the vine vigor this summer. We have laterals on laterals in the research vineyard. Side nets will be an advantage this season. If vines continue to grow, shoots in the top of the canopy are often crowded together when over-the-row nets are used, leading to poor drying conditions and reduced spray coverage. We've had lots of experience with this at the research vineyard in years past. It has led to persistent DM in the upper canopy with spores raining down on lower leaves. At this point, all leaves are susceptible, not just younger leaves. In a year like this, keeping downy mildew completely out of your vineyard will be difficult. A few spots does not reflect failed management, rather it reflects how difficult the year has been. Treatment options are listed below. Downy mildew control requires a combination of canopy management, rotation of products and vigilance.

- **Mancozeb** - A 66 days restriction on mancozeb products means it is now an option only for later ripening varieties.
- **Ridomil Gold/Copper** is still an option (42 day PHI). Ridomil is very effective, also resistance prone though if used prudently (not applied repeatedly to raging infections), the development of resistance is much less of a risk.
- **Copper** is a good protectant and can be tank mixed with sulfur. Copper can cause phyto, even with a spray lime safener, if drying conditions are poor.
- **Phosphonate** products have been widely used and effective. Many however have felt that they don't hold up under pressure. This slippage is a possible symptom of early resistance. However, given the difficulty with spray coverage and heavy disease pressure year, don't rush to judgment on this topic. These can be tank mixed with sulfur. There have been a few reports of phyto from PA- sulfur tank mixes.
- **Captan** is a good protectant but does not offer post infection control. Should we get into extended wet conditions, captan has the advantage of providing good activity against most of the common non-Botrytis cluster rots that can occur under those conditions. Note that most labels have 48-72 hr REI's, down from 96 hrs.
- **Ziram** is another labeled protectant that offers DM control, although it is not as effective as captan.
- **Revus** is newly registered, reflecting a unique class of fungicides on grapes. It is absorbed into leaves and provides at least some post-infection activity. It has done well in trial this year at LIHREC and last year in Wilcox's trials. It is not a miracle product however and the same warnings about resistance apply to Revus – don't apply to raging infections and rotate with different chemistry products.
- **Strobilurins** – The newly registered Tanos is not tech- nically a strobie but according to Wilcox has the same mode of action as Abound and Pristine. Thus it is not a suitable rotational partner for these materials. Also the Tanos label requires that it be tank mixed with a protectant fungicide. As a group, these products have provided decent control of DM but there have been failures under heavy disease pressure. In more southerly regions, resistance has been documented by researchers. (***Source**: Long Island Fruit & Veg Update, No. 23, Aug. 12, 2009*)

Insect Management:

Controlling Late-Season Grape berry moth

Rufus Isaacs Paul Jenkins, Michigan State Univ.

Grape berry moth is a key insect pest of Michigan vineyards, causing infestation of berries and increasing the risk of cluster rots. As part of recent research projects in 2001-2003 we have closely monitored for grape berry moth eggs and larvae on clusters in SW Michigan vineyards. This has provided some insight into when this pest is most active, has helped point toward strategies to improve control of this pest, and has stimulated some new research currently underway to try and prevent infestations at harvest.

Timing: Sampling at vineyards with high pressure from GBM in southwest Michigan has shown that the first egglaying of the season by GBM moths occurred during and just after bloom. This means that in vineyards with a history of infestation by this pest, the first postbloom spray is the appropriate time for the first insecticide targeting GBM. Depending on the insecticide, this can also control leafhoppers and rosechafers.

One of the most important findings was that egglaying by the second generation of GBM started in middle July around the time of berry touch and continued well into September, with a distinct increase after veráison. The second and third generations of this pest are not distinct, but instead they merge together, leading to difficulty knowing when to time sprays. From experience, mid-July and early August are important times for controlling GBM during most years in southwest Michigan. However, in warm years it will be important not to put the sprayer away at veráison and to keep scouting vineyards to determine whether there is any late-season increase in GBM pressure. Also checking your clusters each week throughout the year is a great way to keep on top of the pest pressure from GBM and other pests. Mid-July through harvest seem to be the greatest danger periods, and regular scouting during this period can help provide information on the level of pest pressure, and whether your spray program is working well. This effort in the middle of the season can help prevent surprises at harvest. Pictures of GBM and its injury symptoms are in MSU's Pocket IPM Scouting Guide or at the website grapes.msu.edu.

Testing a new option for GBM control: As part of our response to the recent increase in late-season activity of GBM, research is underway to determine whether focus ing on protecting the clusters in the critical period from mid-July through harvest helps to reduce infestation from berry moth. To do this, two 4-10 acre Concord vineyards with similar history of GBM infestation have been studied at each of four farms. Both vineyards were treated with Danitol at the first post-bloom timing for berry moth control. After that, one vineyard at each farm received Sevin, Danitol, or Guthion according to the grower's typical spray program. The other was treated with Intrepid at 12 oz/acre for control of second and third generation GBM. Intrepid is a new selective insecticide option for grape growers that disrupts development of young berry moth larvae. Spray decisions for the selective insecticide program were based on weekly scouting, and Intrepid was applied with a spreader-sticker in enough water to get good cluster coverage. Most of these high-pressure vineyards received three GBM-targeted insecticides after bloom.

To measure how well the programs controlled GBM, we collected 100 infested berries from each vineyard at three times through the late summer. In vineyards treated with Intrepid, significantly fewer GBM survived from berries compared to samples taken on the same dates from vineyards treated with grower standard programs.

Targeting late-season GBM pressure: These results from vineyard-scale trials, coupled with our experience in small-plot trials over the past five years indicate that Intrepid has a good fit against late-season GBM pressure. This is a selective insecticide with long-residual activity and good rain- fastness, but it also has a 30 day PHI. Because of this, growers should focus on the optimal timing if considering Intrepid, targeting the late-season increase in GBM pressure, between berry-touch and veraison. Good cluster coverage is essential with this product, so applications should be made to every row with higher gallonage. An added benefit of using Intrepid is that it is very safe to natural enemies. In our recent studies we have found that mortality of GBM by parasitic wasps was greater in
vineyards treated with Intrepid than in vineyards receiving a standard insecticide program. These wasps lay their eggs inside berry moth larvae and eat the larvae from the inside, killing them in the process.

Future directions: We will continue to compare this selective program to conventional programs at the same farms in 2004-5. This will provide information on the effectiveness of both programs against pest insects, and will reveal indirect impacts on natural enemies. We will also measure long-term effects of these programs in pest abundance.(***Source****: Michigan State University Grape Factsheet series*).

Bird Management:

Bird Control Options (and non-options)

Neil Carter, Hugh Fraser - Ontario Ministry of Agriculture, Food & Rural Affairs

In the last issue of TFGV, I outlined the reasons that European starlings are such successful immigrants to North America and such persistent pests in grapes and tender fruit. Starlings are by no means the only birds that can cause problems in grape and fruit production; other species frequently cited as pests include robins, grackles, mockingbirds, waxwings, and blackbirds, as well as a host of unlikely, but occasional fruit feeders such as goldfinches and even gulls. There are behavioural differences between different types of birds, but regardless of the species involved, the goal of growers is to keep them from damaging fruit and grapes. When planning a bird management strategy, refer to the OMAF factsheet Bird Control on Grape and Tender Fruit Farms, Order No. 98-035, and always remember the fundamentals of bird management:

- Start early before birds establish a pattern of fruit feeding on your farm
- Using a variety of methods is much better than one single approach; no method listed below is a stand-alone solution to the problem
- Unpredictability is the key to successfully disturbing birds - vary devices, timing, and placement for best results with acoustical devices
- Communicate your plans with nearby neighbours to mitigate disputes
- Physical exclusion using nets is the most successful method to keep birds from feeding on grapes

Physical exclusion (i.e. netting)
Pros: best single method of reducing bird feeding on grapes; effective, reliable and not subject to bird acclimation (i.e. they can't "get used to it"); economically feasible over life of netting; best of all neighbours love nets compared to other bird scaring methods; research to best timing of net draping underway and if there are other advantages with training, or disadvantages with growth
Cons: significant cost outlay at first with on-going operating costs

Propane cannons
Pros: effective, familiar and reliable; easy to service; relatively cheap; best uses well - known (never fire at less than 3 minute intervals, move around vineyard frequently, randomized rotating multi-shots units work best, newer programmable units can be turned off at low feeding times such as middle of the day)
Cons: Frequent noise complaints; theft or vandalism of units increasing; acclimation of some birds if not moved around or random

Electronic sound devices
Pros: effective and reliable; generally less irritating to neighbours than cannons; devices that mimic distress calls may also attract hawks which repel pest birds
Cons: not everyone finds them less irritating; distress calls mostly work only on the species mimicked

Whistling or pyrotechnic pistol cartridges
Pros: effective; no firearms acquisition certificate (FAC) needed
Cons: disturbing to some neighbours; require your presence to use

Shotguns
Pros: none
Cons: not generally effective and not as effective as pyrotechnic units; require FAC; disturbing to neighbours; will not reduce population of birds significantly; knowledge of legalities under Fish and Wildlife Conservation Act regarding nuisance wildlife needed

Scare-eye balloons
Pros: effective on some species
Cons: not effective on robins or waxwings

Streamers and flashtape
Pros: cheap; relatively easy to install
Cons: yellow fine for blackbirds but red/silver needed for other species; useless if not maintained properly

Flashing lights and mirrors
Pros: effective against starlings; solar powered units available that require little maintenance besides frequent moving around vineyard
Cons: lights good at dusk and dawn only; mirrors only good in sunshine

Hawk silhouettes, stuffed owls, etc.

Pros: more realistic units on market now; cheap and easy to deploy
Cons: only effective for a short period of time; require very frequent moving

Falconry
Pros: effective if sustained activity
Cons: expensive if hiring a service; birds of prey are not pets and require significant investment in time and training for falconers; long-term commitment necessary

Chemical repellents
Pros: nice idea in theory
Cons: no such product registered; no products used on other crops (e.g. turf) that would not adversely affect flavour of grapes

Personal presence in vineyard (i.e. driving ATV etc. around)
Pros: none
Cons: not very effective for time and energy expended; not feasible in large vineyards; potentially dangerous; physically exhausting as must be constant presence to be effective

Trapping
Pros: none
Cons: expensive to construct traps; must separate and free all migratory birds and non-nuisance birds (hence legal liability issues are important) within 24 hours; must understand all responsibilities and applicable directives under the Fish and Wildlife Conservation Act; nearly constant maintenance of traps needed; must "seed" traps with some live and cared-for birds (must provide water etc. for trapped and "seed" birds); very low return for energy and money expended; American crows, brown-headed cowbirds, red-winged blackbirds, common grackles, starlings and house sparrows may be trapped and killed; will not greatly affect local bird numbers

Poison and adhesives
It is illegal to use poison and adhesives to kill, injure or capture wildlife.
(***Source**: Ontario Tender Fruit and Grape Vine, July 2005*)

Weather data: compiled from http://www.weather.com/outlook/agriculture/growing-degree-days.

Region/Location	Degree Day Accumulation Base 50°F from March 1, 2009	Degree Day Accumulation Base 50°F from March 1, 2008
Cape Cod (Truro)	1,466	1,672
Southeast MA (Westport)	1,641	1,825
North East MA (Ipswich)	1,597	1,718
Metro West (Lincoln) MA	1,732	1,898
Central MA (Hardwick)	1,589	1,739
Pioneer Valley MA (Belchertown)	1,750	1,863
Berkshires MA (Gt. Barrington)	1,388	1,711
South Hampton, NH*	1,586	--

*Reported from groundbased weather station.
Vermont Weather Data can be found at: http://pss.uvm.edu/grape/2009DDAccumulationGrape.html.
Connecticut Weather Data can be found at: https://www.hobolink.com/s/d0696313715dd96f86b25f3552cc1f47

FYI - check out the newly formed Massachusetts Farm Winery and Growers Association and New Hampshire Winery Association and the Vermont Grape and Wine Council. These associations are of, by and for you! Join today!!

For Massachusetts residents, check out the new Massachusetts "Ag Tag" license plate. Each purchase can yield $15 for the Massachusetts Farm Winery and Grower's Association through a check-off plus pooled funds available for various programs or competitive grants. Get yours today!

This message is compiled by Sonia Schloemann from information collected by:
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We also acknowledge the excellent resources of Michigan State University, Cornell Cooperative Extension of Suffolk County, and the University of Vermont Cold Climate Viticulture Program. See the links below for additional seasonal reports:

University of Vermont's Cold Climate Grape Growers' Newsletter
UConn Grape IPM Scouting Report

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