

**Subject:** New England Grape Notes, July 12, 2010  
**From:** Sonia Schloemann <sgs@umext.umass.edu>  
**Date:** Mon, 12 Jul 2010 18:24:19 -0400  
**To:** Sonia Schloemann <sgs@umext.umass.edu>

## *New England Grape Notes*

July 12, 2010, Vol. 5, No. 5



Phenology: vines are at or approaching bunch closure in most varieties.

---

Canopy Management:

Drought Stress, Vine Performance, and Grape Quality  
*Joe Fiola, University of Maryland*

Although it is generally accepted that grape and ultimate wine fruit quality is better in relatively "dry" seasons, it is clear that water STRESS or excessive drought is NOT desirable for balances of yields and wine quality. Excessive water is not desirable but adequate water to keep the plant systems active and productive is mandatory!  
Effects of "excessive" drought stress:

- Vine growth is inhibited – may seem desirable, but if old leaves are diseased or damaged there will be no replenishment of new leaf surface for photosynthesis.
  - The desired leaf-to-fruit ratio is about 12–15 leaves per cluster.
  - Growth processes like shoot growth and early berry growth are very sensitive to water stress.
  - Early drought stress will not allow the development of the proper ratio and the vine will not have the capacity to properly ripen fruit.
- Reduced photosynthesis – optimum wine quality does not come from stunted vines with non-functional leaves.
  - Leaf photosynthetic function is less sensitive than growth, however, postveraison stress (now) may slow down the photosynthetic function and suppress ripening.
- Fruit ripening may be delayed or suppressed, potentially decreasing quality and increasing risk of disease and bird predation.
  - Brix may appear to increase, but may be the result of dehydration, not actual increase in sugar.
  - Post veraison berry growth is quite resistant to water stress.
  - Small berries typically are associated with high quality, but if the small size is due to excessive stress, the grapes may not produce high quality wines.
  - Varietal character (secondary products) develops in the last few weeks before ripening, so late stress also affects flavor development.
  - Wines made with grapes from drought stressed vines have typically been characterized by having dull or little fruit, less complexity, and relatively short life.
  - Untypical or Atypical aging (UTA or ATA) has been associated with grapes that have been produced in seasons of drought stress, either directly or through drought induced nitrogen deficiency.

The desirable scenario of drought stress for optimal grape wine quality:

- Adequate water early in the season to have good, but not overly-vigorous, canopy and cluster development through bloom.
- Mild stress should gradually develop after bloom so that good fruit set can occur, but the growth of the berries and shoots are slowed somewhat.
- After fruit set, the canopy should be filling the trellis, and at this time the stress should increase so that the shoots slow growth markedly, the berries stop growth at a somewhat reduced size, and yet the leaves are still fully functional.
- Mid-season to harvest, the vines should be maintained at the intermediate stress to reduce

vegetative growth, but keep the leaves healthy through harvest.

- There should be minimal basal leaf yellowing before harvest if the canopy is kept properly open.
- Stress does not get too severe at any point. Look for signs of leaf wilting and tendril drying.
- Irrigate if vines become too stressed during ripening, especially just after veraison.
- Canopy management should be meticulous.
- Careful cluster thinning to balance the crop is critical – do not try to maintain a large crop on drought stressed vines.

For newly planted and young newly bearing vines:

- A very conservative approach should be taken with young vines just beginning their bearing cycle (2–5 years old).
  - Crop should be thinned or even dropped completely under severe drought conditions as it may affect the winter sensitivity (cold damage) and long term survivability of the vines.
  - Irrigate if necessary to avoid severe stress.
- For newly planted vines, drought stress needs to be avoided – irrigation and weed management are necessary – to maintain good establishment.
  - Poor winter survival is a much greater risk in newly planted vines that have been exposed to severe drought stress.
- Pay special attention to new “replants” in existing vineyards as these are sometimes forgotten at this point.

High wine quality appears to require adequate, but not excessive, water supply early in the season to support the crop. Moderate stress later will help limit further vegetative growth, but allows healthy leaves to fully ripen the fruit. Severe stress should be avoided. (*Source: Maryland Timely Viticulture, Late August 2006*).

Also, for a good presentation about drought stress in grapes, go to: <http://www.virginiavineyardsassociation.com/o8Presentations/Drought%20Stress%20Intrigoliolo-3.pdf>

---

Weed Management:

2010 Herbicide Drift Awareness Workshop Summary  
by David Scurlock, Viticulture Outreach Specialist OSU/OARDC

Thank you to our four hosts of the Herbicide Drift Awareness Workshops, attendees, Monsanto and Dow representatives and to the Ohio Grape Industry Committee for their sponsorship. The workshops were held in Licking County at The Winery of Otter Creek co-owned by Mike and Jackie Evans and Jeff and Christi Chrisman, Valley Vineyards in Warren County owned by Kenny Schucter, Dead Drop Vineyards in Seneca County owned by Tom Newcomb and Dee Jackson and the final workshop was held at the Ashtabula Agricultural Research Station and managed by Greg Johns. Attendees were given a wagon tour of the AARS and herbicide drift treated vines were viewed in the field at AARS.

Presentations were given by Dave Scurlock on Timely Viticultural Practices and the main presentation was given by Dr Linjian Jiang on New Herbicide Resistant Crops and Their Impacts on the Grape Industry. The presentations were followed by a simulated drift demonstration to illustrate the effects of wind, nozzle size, height of nozzle and pressure on drift potential. Water sensitive paper was used to detect the drift and the various factors of wind speed and nozzle size were displayed so the differences could be easily seen. [See Table 1](#)

The demonstration showed how the choices you make to spray or not to spray because of wind or the selection of nozzle can have an impact of the distance drift can travel. Drift can not be completely eliminated but, it can be greatly reduced. Another interesting point that was brought to light was that even in completely still or no wind conditions you can still have drift potential. The herbicide can volatilize and form a vapor cloud that under an inversion type of condition can rise up and travel a great distance (several miles) and then descend onto a crop that may be sensitive. This type of situation is hard to decipher where the drift came from. This complicates the scenario even more when

you have tried to do all the applications to the best of your ability and injury can still occur.

The central theme of the workshop was to facilitate communication between Soybean growers and Grape growers to build awareness to the fact that glyphosate, dicamba and 2, 4-D herbicides can cause severe damage to grapevines. This can have long term effects on yield, quality, cold hardiness and long term profitability. It was emphasized that among the fruits and vegetables grown in Ohio, grapes are the number one most sensitive crop that potentially can be affected. Soybeans in Ohio account for almost 4.3 million acres out of the 14 million acres of available farmland in Ohio. This is almost 1/3 of the total farmland acreage meaning the likelihood of being near or surrounded by soybeans is great. These new 2, 4-D and dicamba ready soybeans can be on the market as early as 2014.

The meetings were attended by representatives from Monsanto and Dow, who also responded to the questions of several growers in attendance. The concern of herbicide drift on grapes is being addressed by Monsanto and Dow through research on new drift suppressing surfactants and drift reducing nozzles. It was really great to see that Monsanto and Dow are taking a proactive position to address some of the concerns and help in the communication process with useful information. We all need to be aware of each other and learn to coexist.

For more detailed information on the workshops, drift watch and software available on calculating drift log on to [www.driftwatch.org](http://www.driftwatch.org) or Driftsim <http://www.ars.usda.gov/services/software/download> or contact Dr Linjian Jiang at: [jiang.138@buckeyemail.osu.edu](mailto:jiang.138@buckeyemail.osu.edu) or Dr Doug Doohan at [doohan.1@osu.edu](mailto:doohan.1@osu.edu) (*Source: Ohio Grape-Wine Newsletter, June 30, 2010*)

---

#### Insect Management:

Japanese Beetle  
*Rufus Isaacs, Michigan State University*

Japanese beetles can be present from June through September. They feed on the upper leaf surfaces, leaving a lacelike skeleton. Injured leaves may turn brown and die if feeding is severe, but clusters are not attacked. Juice grape vines are resistant and tolerate some damage, but vinifera and hybrids are more susceptible. This pest can be a problem particularly in new vineyards using grow tubes. Frequent monitoring is required to reduce the risk of severe damage. Japanese beetle traps may attract beetles to vineyards, so their use is discouraged.

Beetles lay eggs underground in grassy areas near vineyards, preferring soil with moisture. The white, C-shaped larvae (grubs) feed on grass and weed roots and overwinter underground in these areas. Cultural and biological controls of grubs may reduce subsequent abundance of adults. Consult the Michigan Fruit Management Guide (Bulletin E-154) for effective treatment options. (Source: Michigan Weekly Vineyard IPM Scouting Summary, July 13, 2009)

---

#### Disease Management:

Late season rots management tips  
Mizuho Nita, Virginia Tech

There are chance of rain (40–70% across the state) predicted during tonight to Saturday. We really need some rains, so, I'm hoping that we all will get a decent rain. We will see...

Now probably many of you are considering disease management at or after veraison. One of diseases you may be concerned at this time of the season are late season rots (sour rot and/or Botrytis gray mold, caused by *Aspergillus niger*, *Alternaria tenuis*, *Botrytis cinerea*, *Cladosporium herbarum*, *Rhizopus arrhizus*, *Penicillium* sp., and others). These late season rots come in when fruit sugar content accumulates around 8%, and often times, white varieties with tight clusters such as Vignoles and Chardonnay, tend to get this disease more than other varieties because of the structure of the cluster

which can hold water inside and also because of the fair skin.

The sour rot pathogens, including Botrytis, are opportunistic in nature, and the damage and the risk will increase if Botytis rot is involved. Typically, Botrytis management needs to be done at early in the season.

- For example, at bloom powdery mildew management is a key because once these young berries are infected by powdery, even to the point that you don't really see symptoms, it will damage grape berry skin enough to cause wounds later in the season to invite these rot pathogens in.
- Botrytis can infect flower part as well, thus, if it often recommended using Botrytis specific materials at bloom.
- With the same logic, the management of grape berry moth, wasps, and birds can lower the risk of infection.

The cultural practice plays a very important role on the late season rots management.

- Proper shoot positioning and canopy management will decrease the risk of Botrytis infection by lower humidity of the fruiting zone.
- Leaf removal around fruit set has been recommended for some varieties to increase the air movement around clusters.
- Leaf removal around veraison will help thickening of skins.
  - Thus, some people perform leaf removal around fruit set to open up the eastern-side of canopy and do it again around veraison to open the western-side.
  - However, it may also increase the risk of sun damages on the berries, thus, check to see if the leaf removal is a good tactic for your varieties.
- Bunch thinning can also be done at veraison to reduce the risk of having berries with high sugar lying around the vineyard to invite insect pests.

There are only a few options with the chemical management against late season rots, and none of them will provide a complete control.

- Botrytis materials such as Rovral, Elevate, Pristine, etc., and captan is often recommended.
- In addition, the use of a copper fungicide (Bordeaux mixture, etc.) has been recommended as a tank mix with a Botrytis material because in addition to its fungicidal activities, some study showed that copper helps grape berry skins to become thick. (*Source: [Virginia Grape Disease Updates, July 9, 2010](#)*)

---

Weather data: (Source: [UMass Landscape IPM Message #18, July 9, 2010](#))

Region/Location	2010 Growing Degree Days (base 50° from March 1, 2010)	
	1-week gain	total accumulation for 2010
Cape Cod	346	1,215
Southeast MA	346	1,218
East MA	405	1,352

Metro West MA	335	1,186
Central MA	353	1,214
Pioneer Valley MA	319	1,225
Berkshires MA	277	1,214

Additional Weather Data is available from the following sites:

- UMass Cold Spring Orchard (Belchertown MA), Tougas Family Farm (Northboro MA), and Clarkdale Fruit Farm (Deerfield MA) at <http://www.umass.edu/fruitadvisor/hrcweather/index.html>
- University of Vermont Weather Data from several sites around the state at <http://pss.uvm.edu/grape/2010DDAccumulationGrape.html>
- New Hampshire Growing Degree Days at <http://extension.unh.edu/Agric/GDDays/GDDays.htm>
- Connecticut Disease Risk Model Results at <http://www.hort.uconn.edu/ipm/>

In addition, we are working on integrating new base stations into the Network for Environment and Weather Applications program run by the Cornell IPM team at <http://newa.cornell.edu/>. This will include the ability to run disease and insect development models for a wider area. Stay tuned.

---

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:  
Arthur Tuttle and students from the University of Massachusetts  
and Frank Ferandino from the University of Connecticut. We are very grateful for the collaboration with UConn.*

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](#)

---

*Support for this work comes from [UMass Extension](#), the [UMass Agricultural Experiment Station](#), [University of Connecticut Cooperative Extension](#), [NE-SARE](#) & [NE-IPM Center](#)*



[Sonia Schloemann <sgs@umext.umass.edu>](mailto:sgs@umext.umass.edu)  
UMass Extension Fruit Specialist  
Plant, Soil, Insect Sciences  
UMass-Amherst

