

New England Grape Notes

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**UMass
Extension**



Phenology: Dormant

See <http://fruit.cfans.umn.edu/grape/IPM/appendixa.htm> for good chart on growth stages

Meetings: Nothing on the near horizon. Stay tuned.

Crop Management:

Balance Pruning

Joseph A. Fiola, University of Maryland

A major theme of viticulture is that for a vine to consistently produce high quality fruit it must be “in balance.” That means that the amount of vegetative growth (shoots and leaves) is just right to properly ripen the reproductive growth (fruit load). Too little fruit may lead to an over-vigorous vine, shaded fruit and lower quality. Too much fruit may decrease vigor to a point where there is not enough photosynthetic area to properly ripen the crop leading to under-ripe fruit and reduced quality.

The first step in achieving proper vine balance is choosing the proper training system for that variety on that site. The next step to annually adjust and maintain that balance is through dormant pruning. Mature grapevines require annual pruning to remain productive and manageable. An average grapevine will have 200 to 1000 buds on mature canes capable of producing fruit. If all of the buds were retained it would result in the over-cropping scenario described above.

To avoid this situation, researchers have developed a method of pruning to balance the fruit productivity and vegetative growth that will give maximum yields without reducing vine vigor or wood maturity. This procedure is appropriately referred to as “Balanced Pruning,” as the amount of pruning is based on the vigor of the vine.

Here are some of the specifics of proper balanced pruning:

- The way to quantify vigor is through vine size, which is determined by the weight of one-year-old cane pruning.
- To balance prune a grapevine and estimate the vine size, roughly prune the vine, leaving enough extra buds to provide a margin of error.
- Then weigh the one-year-old cane prunings (small spring scale) that you just cut off and apply the weight to the pruning formula to determine the number of buds to retain per vine.
 - For Concord vines, the pruning formula is 30+10, which means leave 30 buds for the first pound of prunings plus 10 buds for each additional pound. A vine with three pounds of prunings would require a total of 50 buds, 30 for the first pound plus 10 for each additional pound.
 - Here are some other variety examples and their “typical” bud count formula. Remember, each variety will behave differently in different environments, so these are meant to be suggestions and used as a starting point and adapted for the vigor of your site.
- To final prune that vine, continue to prune the spurs or canes until you have remaining the number of buds you calculated from the pruning weight formula for that vine.
- Remember we are ultimately looking for 3–5 shoots per linear foot of row during the growing season, depending on the cluster size of the specific variety.

Pruning formulas for selected varieties:

Variety	Formula
Cab Sauv	20+20
Cab Franc	20+20

Chardonnay	20+20
Riesling	20+20
Seyval	5+10
Vidal	15+10
Other Hybrids	20+10
Concord	30+10
Niagara	40+10

Timing

Pruning a vine causes it to deacclimate similarly to a warm spell, so do not prune (especially very sensitive varieties) when you know you will experience very serious cold shortly afterwards.

The best thing to do is to try to delay pruning as long as practically possible. If you could accomplish all of your pruning in the last two weeks of March that would probably be best, although that is typically not enough time for most commercial vineyards.

Delayed pruning also allows for better estimation of winter injury to buds so that adjustments in bud number can be made.

If you cordon prune it is sometimes best to “rough prune,” maybe down to 12–16 inch spurs initially and then down to your final 2–3 bud spurs.

- This “rough pruning” will inhibit the development of the critical count buds on the spurs you are maintain– ing compared to cutting directly back to a 2–3 bud spur.
- For early budding varieties (Chardonnay) pruning to final 2–3 bud spur is accomplished only after danger of late frosts has passed.

As much as possible, prioritize your pruning schedule according to the relative susceptibility to winter injury of each variety.

- Prune vines on the best sites first and the worst sites last.
- Prune American varieties first
- Followed by the cold resistant hybrids (Foch, Baco Noir, Seyval)
- Followed by the more cold sensitive hybrids (Vidal, Traminette Chambourcin)
- Save the vinifera for last, doing the least cold sensitive first. (Riesling, Cab Franc)
- And the more sensitive vinifera (Merlot?) for very last.
 - You may have developed a feel for the “relative” cold sensitivity of the vinifera varieties at your site based on experiences in test winters. Remember, the relative hardiness may change from region to region and vineyard to vineyard.
- Also early budding varieties (Chardonnay) should be pruned as late a possible to delay bud break and avoid late frosts. Rough prune first as described above, and only make final cuts down to count buds after all danger of frost has passed. (**Source:** *Maryland Timely Viticulture, March 2010*)

Dormant Grapevine Pruning Webinars

Fritz Westover, Texas A&M

These are some of the best explanations of the principles and practices involved in pruning wine grapes that I've know of. Take some time to watch them and brush up on your pruning skills. You can sharpen your pruning tools while you're watching (haha...)

<http://winegrapes.tamu.edu/grow/pruning.html>

Enjoy!

Insect Management:

Early Season Insect Management: Flea Beetles

Joseph A. Fiola, University of Maryland

- Flea beetles (Chrysomelid) are small (4–5 mm) metallic blue–purple beetles that jump when disturbed.
- Flea beetles become active on warm April days
- They are most numerous following mild winters.
- Flea beetles overwinter in surface debris as adults and emerge to feed on developing host plant tissue.
- Flea beetles can be troublesome, particularly near woods so scout the vines row closest to the woods.
- Adult grape flea beetles eat holes into the sides of buds and gouge out the contents as the buds swell; if extensive enough can thereby destroy future canes.
- This damage can have potentially serious consequences if it limits or stops shoot growth on newly planted vines as the number of available buds may be limited.
- Adults also lay eggs in cracks in the bark, at bases of buds, between bud scales, and on leaves.
- Larvae are brown with black spots (10 mm) and can feed on the upper surface of new grape leaves for 3–
- 4 weeks and leave characteristic chain–like feeding marks on leaves.
- At maturity, they drop to the soil, burrow about an inch deep, and transform to the adult stage.
- The new adults emerge about a week or two later and feed sparingly for the rest of the summer. There is only one generation each year.
- Bud inspection for adults is a must at least until there is one inch of new growth; then scout for the larvae.
- Most vineyards do not typically require sprays of this pest if attention was paid to winter vineyard clean up
- and destruction of local habitats.
- A small amount of damage is tolerable with the vigor capacity of most vineyards in the East.
- For more detail information please visit:
 - <http://www.virginiafruit.ento.vt.edu/GFB.html>
 - <http://www.nysipm.cornell.edu/factsheets/grapes/pests/gfb/gfb.asp>
 - <http://grapes.msu.edu/fleabeetle.htm>

(Source: Maryland Timely Viticulture, April 2010)

Disease Management:

There is still time for delayed "dormant" spray against Phomopsis

Annemiek Schilder, Michigan State University

There is still time for delayed dormant sprays in grapes though the vines are technically no longer dormant. The goal of the dormant spray is to kill fungal pathogens that overwinter in the woody parts of the vine. While it is not possible to kill all of the fungus inoculum, it is possible to make a dent in spore-production, reducing disease pressure during the growing season. In most years we have seen a benefit from dormant sprays, but the degree has varied (~10 to 70%). Results tended to be better during relatively dry springs than very wet springs. An early mancozeb spray (1-2" shoot growth) may also work to kill fungus inoculum in addition to protecting new growth.

In 2005, we tested whether applying "dormant" sprays at 1-2 inches of shoot growth was still effective at reducing phomopsis in 'Niagra' grapes (table 1). The difference in spray timing was only 11 days that year, however. A reduction in rachis infection at harvest was seen for both Sulfur 6L and Cuprofix. While Cuprofix at 1-2" shoot appeared somewhat less effective, the differences were not statistically different, which means that they could have been due to natural variation in the vineyard. The season-long fungicide spray program was the most effective at reducing Phomopsis at harvest.

We did not see any phytotoxicity as a result of the treatments in 'Niagara' grapes, even when applied at 1-2 inch shoot growth. 'Niagara' and 'Concord' are only slightly copper sensitive. The risk of copper phytotoxicity to green leaves is greater under cool,

wet, slow-drying conditions which allow copper ions to be absorbed by the leaves. Concord is sulfur sensitive, but sulfur phytotoxicity is much more likely at temperatures above 85-90°F which are unusual at this time of the year.

To get the maximum benefit out of dormant sprays, it is important to ensure thorough coverage of the canes by focusing nozzles of spray equipment only on the cordon, lowering air intake, slowing down and spraying at a sufficiently low volume (e.g., 20-30 gpa) that allows good coverage of the canes but no run-off. This ensures that the product is not diluted too much. Spraying every row is advised.

Dormant sprays should not be used as a stand-alone disease control measure. One or two mancozeb or captan sprays around mid-May when Phomopsis is expected to be most active may be beneficial. A strobilurin fungicide, such as Abound, Pristine or Sovran, applied at bloom or 1st post-bloom is also recommended to provide additional protection of the clusters against Phomopsis as well as black rot, powdery mildew, and downy mildew. Phosphorous acid fungicides also have good efficacy against Phomopsis and can be used throughout the growing season, either alone or in combination with other fungicides (do not tank-mix with copper).

Trial in 'Niagara' grapes in Lawton, MI, 2005		Phomopsis rachis infection at harvest	
Treatment, rate/A	Application timing*	Severity (%)	Control [%]**
Untreated	N/A	26.9 a**	
Sulfur 6L/10 pt	Bud. swell (single spray)	10.6 b	[61]
Sulfur 6L/10 pt	1..-2..” Shoot growth (single spray)	9.6 b	[64]
Cuprofix Disperss/3 lb	Budswell (single spray)	7.4 b	[73]
Cuprofix Disperss/3 lb	1-.2” Shoot growth (single spray)	12.2 b	[55]
Dithane Rainshield/3 lb Abound 2.08 SC/12 fl oz Ziram 76 DF/3 lb	1”, 6-10”, 10-16” shoot Bloom 2nd postbloom 1st postbloom 3rd postbloom	2.7 c	[90]
*Budswell spray: April 14, 2005; 1-2 inch shoot spray: April 25, 2005			
**Values in the same column that share a letter are not significantly different from each other at the 95% confidence level.			
***Percent control relative to the untreated check.			

(Source: Michigan Grape & Wine Newsletter, Vol. 1, No. 1, April 2010)

Weather data: (Source: [UMass Landscape IPM Message #4, March 18, 2011](#))

Region/Location	2011 Growing Degree Days (base 50° from March 1, 2011)	
	2-week gain	total accumulation for 2011
Cape Cod	n/a	n/a
Southeast MA	15	15
East MA	3.5	4.5
Metro West MA	0	0
Central MA	0	0
Pioneer Valley MA	0	0
Berkshires MA	0	0

Additional Weather Data is available form 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](#)

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