

Virginia Cooperative Extension

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VITICULTURE NOTES Vol. 26 No. 4, September - October, 2011

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I. Current situation

Gloomy. That sums up the current situation. 2011 is shaping up to be one of those years that we just look forward to putting to rest. The lucky growers were those who got some of the earlier varieties picked before Irene and then tropical storm Lee churned up the eastern seaboard. Rainfall here at the research center is at about 6 inches for the month of September, with much of that occurring as the remnants of Lee moved through the region on 6-8 September. If only it had then cleared off... Unfortunately, the weather has been very unsettled since early September and this has brought considerable cloudiness, rainy periods, and high humidity; just the recipe for increased fruit deterioration. The current meteorological malady is a cut-off low pressure system which has not been under the normal steerage of westerly winds; it's just been sitting in the midwest pulling moisture up from the Gulf and out of the Atlantic for the last 4 or 5 days.

The situation in Virginia is not unique, as the weather pattern has affected much of the eastern US; we might even be better off than some locations, although that's small consolation if fruit is not ripening. Many growers have been in a holding pattern since early September, waiting for fruit to ripen under cloudy skies. There's an understandable temptation to try and attribute the fruit funk to a specific problem; perhaps a management misstep, a missed spray, or a hail event. In reality, it is often very difficult to pinpoint a specific event or causal factor in delayed ripening and fruit rots. The underlying causes, in our experience, could be traced to one or more of numerous factors (not the least of which is the crappy weather): variety susceptibility (some varieties are more prone to berry splitting and subsequent fruit rots), bird damage which opened avenues for fruit rot organisms; botrytis, which rapidly proceeds to non-specific fruit rots in wet weather; and other pests such as grape berry moth injury. There are some bright spots: Petit Manseng, for example, is generally holding up, but ripening slowly, and some growers have commented on the high quality of early maturing varieties that were brought in earlier in the month. Obviously, an industry can't be built on just one or two varieties, but as one diversified

grower commented, it's years like this that a diversified portfolio really helps spread the risk and pay the bills.

Some last-minute canopy and disease management considerations are still possible before harvest. Pulling yellowing, senescing leaves away from fruit clusters can help with botrytis management. Botrytis has been very abundant since mid-September and, with repeated rains, it can quickly morph to non-specific rots or sour rot. We recently applied Switch (7-day PHI) and phosphorous acid (0-day PHI) in our vineyard, mainly because our Cabernet was starting to show some signs of Botrytis, and downy mildew was starting to show up in the top of the canopy. Our "normal" harvest date is around mid-October, so we're not really running "late" on ripening. But following a year like 2010, grapes certainly seem to be ripening later. Vineyards that appear to be faring better than most had little or no fruit damage going into September, had excellent canopy architecture and leaf quality, and those vineyards were comprised of varieties that normally resist bunch rots and berry splitting. Many growers commented on heavier than usual bird pressure this summer and we netted earlier (around veraison) than we've ever had to in the past due to one species – robins. That early feeding injury was a primary site of early fruit decay. But even growers who have done it all correctly are commenting on the challenges of this harvest – we have some harvests like 2010, and others that are, well, challenging.

With a good bit of fruit (mostly reds) still on vines in central and northern VA, the critical question is whether to pick now, or wait and do even more sorting, and lose more crop by delaying harvest. This is certainly not the first year that growers have faced the question and it's one that I cannot answer for you. It's a decision based in part on your tolerance of risk, financial buffering, and the degree of harmony on the harvest decision between you and the winemaker (the same person in cases). When berry skins start to soften and break down, the whole crop can be quickly lost quickly. We saw this berry skin softening and subsequent fruit breakdown in more than one year with many of our varieties grown at our Blackstone. If we had confidence in the weather forecast, the "hold or fold" question would be easier to answer. It's my impression, however, that there were many more sunny days *forecast* this past month than what we *actually saw*. Sunny, dry and cooler weather is forecast for the weekend and most of next week, at least here in the northern Shenandoah Valley. We're holding for now (Cab Sauvignon and Petit Manseng), but we know we are going to be spending a LOT more time doing fruit sorting at harvest. Good luck with the rest of this season.

II. Question from the field: I am concerned about an unusual discoloration in the leaves of my Chambourcin, which is either lacking or not as evident in my other varieties. It looks like it might be a nutritional issue. The leaves initially yellow and then develop brown patches (**see photo**). The grapes do not seem to be ripening on schedule, but not all clusters are lagging in maturation. Can you give me some advice on this?

Response: For whatever reasons, Chambourcin seems to express nutrient deficiencies more readily than do other common varieties grown at the same location. This does not mean that the tissue mineral standards are unique for Chambourcin; rather, I'm suggesting that Chambourcin vines are perhaps not as efficient as many other varieties in taking up nutrients or recycling them within the plant. Foliar symptoms of apparent nutrient deficiency are usually associated with sub-optimal nutrient level(s). Which nutrient is deficient is sometimes difficult to determine unless you do a tissue analysis. The symptoms in your photo could be due to low potassium, or low magnesium, or they may be simply due to low nitrogen. There is also a possibility of phytotoxicity, such as due to spray material. High rates of sulfur could, in some cases, cause somewhat similar "burning" appearance on the leaves. In many cases, plant tissue analysis reveals that the principal problem is simply low nitrogen – the accompanying photo here is consistent with that notion. This can be corrected by the addition of nitrogen fertilizer to the



total of 40 pounds of ACTUAL nitrogen. You can use whatever form of N you can locally obtain, but urea is typically the cheapest form. You can also use compost, but we would need to talk about the N concentration of the compost, and accept that it would not be as rapid in its response.

In the meantime, collect a petiole sample (50 leaf petioles) and submit these to one of the diagnostic labs per directions at our website. In addition to low nitrogen, the photo that you sent suggests that either potassium (K) or magnesium (Mg) might also be low in your Chambourcin. The plant tissue analysis will provide diagnostic information on that. Correcting nutritional disorders can take 2 or more years -- the response in the year of application can be slow, but the vines typically respond well in the following year. Weather conditions of a particular year can also affect the response.

Fast-forward. The producer submitted a tissue sample which came back with all essential nutrients either at or above optimal levels EXCEPT nitrogen (0.56%) and potassium (0.41%), both of which were very low in terms of ranges recommended for late-season-sampled leaf petioles (Bates and Wolf, 2008). Recommendations were given for increasing nitrogen levels via a split application of nitrogen during the 2012 growing season, and for increasing potassium levels via potassium chloride application this fall (details are also found in Bates and Wolf (2008).

This is not an isolated case. We see examples of nutrient-deprived Chambourcin every year. Own-rooted vines tend to suffer more than do grafted vines, but even grafted vines can show deficiencies when vinifera and even other hybrids in the same vineyard are apparently healthy. The frequency of apparent nutrient problems – particularly nitrogen deficiency – was greater than usual in 2011, and I attribute some of this to the very abundant rainfall that we had in the early part of the growing season, coupled with extensive vegetative development. Two things happen under these conditions: nitrate nitrogen can be leached out of the rootzone by heavy rains (remember, soil organic matter is converted to nitrites and then nitrates, the latter of which can be taken up by the plant). Secondly, all of that vegetative growth of the grapevines has to be adequately supplied with N or nutrient deficiency symptoms may be expressed. Nitrogen is used by the plant to synthesize amino acids and proteins, including enzymes. It is also a structural component of chlorophyll, the green pigment of leaves. Nitrogen can be remobilized within the plant to support growth and development. Thus, older leaves may show deficiency symptoms first as N is scavenged from those tissues and remobilized to developing shoot tips and fruit. Growers sometimes balk at our recommendation to apply N during the growing season. “My vines are already vigorous. I’ve had to hedge twice already. Adding more N is going to make them grow even faster”. Well, it does sound a bit incongruous to add N to big, vigorous grapevines. But keep in mind that the growth of grapevines is due to availability of soil

vineyard. The rates of application need to be a bit higher than what we normally recommend for vinifera. Chambourcin rates are on the order of 40 to 50 pounds of actual N per acre per year, depending on the organic matter of the soil. My recommendation would be to apply 40 pounds of actual N per acre next year (2012) via a split application -- put down one-half of that amount just before bloom, and the other half 6 weeks later, or towards the end of July. Do both applications for a

moisture (high in spring of 2011!), carbohydrate reserves in the vine, nitrogenous reserves and nitrates taken up in the season of growth, hormones, and of course good growing conditions. Among these drivers, heat and water availability are dominant factors. We often see very vigorous growth early in the season and then those same vines reveal very low N tissue N levels in late-summer or early-fall during the final phase of fruit ripening. Some of this can relate to low soil moisture levels and an inability of vines to uptake additional N, but on low organic matter soils, there simply may be insufficient soil nitrates to meet vine needs (a further analysis of the Chambourcin grower's situation did reveal a very low organic matter soil content and consideration was given to adding composted organic matter). Small to moderate applications of N (e.g., up to 25# of actual N per acre) in the summer, prior to veraison, do not appear to stimulate vine vigor, and they can help ensure that foliage and fruit nitrogen levels are adequate for leaf function and eventual fruit fermentation.

A final note on Chambourcin. As previously commented on in this newsletter (<http://www.sites.ext.vt.edu/newsletter-archive/viticulture/06julyaugust/06julyaugust.html>), Chambourcin does have a peculiar leaf spot, "rupestris speckle", that is often apparent, but more so under nutrient or drought stress. This is a physiological disorder and not believed to have negative consequences itself. However, the presence of speckle might be a clue that the canopy is suffering from other stressors, such as nitrogen deficiency.

Bates, T.R. and T.K. Wolf. 2008. Nutrient management, In: Wine Grape Production Guide for Eastern North America. NRAES. Ithaca, NY.

III. Virginia Secretary of Agriculture and Forestry Encourages Farmers and Producers to Report Losses from Hurricane Irene (reprint of memo issued 8 September 2011)

This information was circulated via Cooperative Extension offices and through other agricultural agencies earlier this month. Although it specifically relates to hurricane Irene, there is interest with the Virginia Vineyards Association and our office in knowing the full impact of both Irene and tropical storm Lee on **Virginia** vineyards (readers in other states might have similar opportunity for input in your own state). It might be difficult to say definitively that those storms were the fundamental cause of problems that you've seen in the vineyard since the 9th or 10th of September, but if you're seeing weather-related losses, please let the Cooperative Extension office in your county know the extent of losses. Virginia Vineyards Association's president Bill Tonkin also indicated that they are trying to gauge the impact of those storms on vineyards via the VVA's "community" website: <http://www.virginiavineyardsassociation.com/community/> You can also communicate this information directly to me via email at vitis@vt.edu. The information would be treated confidentially.

RICHMOND – Virginia Secretary of Agriculture and Forestry Todd P. Haymore today encouraged farmers and producers in localities impacted by Hurricane Irene to report losses of their crops, livestock, and farming infrastructure in order to potentially qualify for federal government assistance. Secretary Haymore also encouraged boards of supervisors in localities with agricultural damage to work closely on the reporting process with their impacted constituents.

Speaking to the losses, Secretary Haymore said, "Having had the opportunity to visit four regions of the Commonwealth impacted by Hurricane Irene and reading crop reports from other localities, I know that a number of our farmers and producers have had their crops severely

damaged. That's why reporting those losses as quickly and accurately as possible will potentially help farmers and producers obtain federal assistance many of them will need. In addition to negatively impacting a farming operation, the loss of farm income will affect the city or county in which the farm is located."

Preliminary reports estimate that agricultural losses in Virginia will reach at least \$60 million, but that figure is expected to grow as more crop information is gathered. Corn, cotton, tobacco, and tomatoes appear to be the most impacted crops from Irene. All four crops were of above-average, good, or excellent quality and forecasted to produce higher yields from increased plantings in 2011 versus 2010 plantings and yield figures.

Haymore also added that localities play a key role in the process of requesting an agricultural disaster declaration from the United States Department of Agriculture (USDA). Localities need to reach out to their agricultural community to determine the extent of the damage and be prepared to formally petition Virginia Governor Bob McDonnell for his assistance in having a locality designated as an agricultural disaster area by USDA.

The list of actions to take for having a locality designated as an agricultural disaster area is fairly short, but very important, as is timing. Growers, producers, and localities impacted by Hurricane Irene should be aware of the following:

- Contact their local Virginia Cooperative Extension agent as soon as possible. A list of Extension offices is available at <http://www.ext.vt.edu/offices/index.html>. Agents will assess damage and crop loss for each locality to determine if county-wide losses equal 30 percent or more. If they do, the county may be eligible for a disaster designation from the USDA Secretary. The Farm Service Agency (FSA) provides an aggregate report of localities with losses of more than 30 percent on a major crop and the Governor then requests a disaster designation from USDA. It can take a month or more for a Secretarial designation.
- Contact their local FSA office to learn of all disaster related programs. The office will guide farmers through the application process. A list of FSA county offices in Virginia is available at <http://offices.sc.egov.usda.gov/locator/app?state=va&agency=fsa>. Click on the map to select a region of the state, then on the individual county for contact information.
- A Secretarial designation makes low interest loans available and any supplemental relief that may be provided by Congress. See the FSA's website for additional information on disaster assistance programs:
www.fsa.usda.gov/FSA/webapp?area=home&subject=diap&topic=landing.
- Localities that want to request a disaster declaration will find information on how to do so on the website of the Virginia Department of Agriculture and Consumer Services:
<http://www.vdacs.virginia.gov/news/d-designations.shtml>.

"Hurricane Irene caused significant damage in Virginia," concluded Secretary Haymore, "and the farming community in the Northern Neck, Eastern Shore, Southeastern, and Southside

regions were hit especially hard. I encourage those impacted by the hurricane to work with our federal and state partners on loss reporting. The McDonnell administration stands ready to assist them with their efforts to keep the state's agriculture industry and our farming localities strong and vibrant."

IV. Sustainable Viticulture Practices Workbook:

The Sustainable Viticulture Practices Workbook has evolved out of industry discussions that go back about three years and from an "IPM Elements for Wine Grapes in Virginia and North Carolina" document released by Virginia Tech and North Carolina State University early in 2011.

As stated in the preface, the "Workbook" is one stage of a multi-step project to guide Virginia grape producers who wish to increase the sustainability of their vineyard operations. The project has been an industry initiative from the start, and will continue to have input from end-users such as you, and from an industry steering committee.

The document was distributed in draft form in August 2011 to members of the Virginia Vineyards Association. Based on feedback from that circulation, a revised scoring scheme and other, minor changes to the document were made. It is now posted at our website at:

<http://www.arec.vaes.vt.edu/alson-h-smith/grapes/viticulture/extension/index.html>

Go to Grower Information and Resources and item # 2 "Recommended Publications". The Workbook is the 4th item listed under that heading.

We would like to receive comments back on this version of the document prior to January 2012. If you're interested, please use the workbook in assessing the sustainability of your own vineyard and let us know about your experience. What worked, what didn't, and what would you like to see that was not included in the workbook? For example, one or two people who reviewed the preliminary draft felt that environmental sustainability needed to be strengthened. We welcome these suggestions but would ask for specific suggestions on scientifically-sound methods for improved sustainability.

Your input will help determine the next steps of this initiative. Let us know what you would like to see in a future phase of this project. Tremain Hatch has taken a lead role in organizing the workbook and will continue to be involved with collecting comments and getting this feedback to the Workbook committee in January 2012. You can forward comments to Tremain at:

thatch@vt.edu.

Thank you.