

Virginia Cooperative Extension

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VITICULTURE NOTES Vol. 27, No. 1 (2012)

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

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I. Current situation

We've had a number of questions about the early bud break and how this might affect time of bloom and harvest, emergence of grape pests, and other aspects of vine management. Clearly, the early budding has increased the anxiety that we face about potential spring frosts. As indicated in a recent, separate communiqué, "quick" fixes for avoiding frost are generally either not effective or, as with flying helicopters, are expensive. That does not mean that the expense should not be considered, but it would have to be considered relative to the value of the grapes (or wine) being protected. In some cases, and depending on the nature of the freeze event, the cost of such protection can be justified. The National Weather Service climate centers report the probability of spring frosts on or after certain dates. The probabilities are based on the most recent 30-year periods of reference (e.g., 1981-2010). In Winchester we don't drop to a 10% probability of a subsequent spring frost until May 1, and 13 May is generally considered "out of the woods". Further south, these dates are advanced a bit. Needless to say, we have about a month of "nail-biting" ahead of us.

This is the earliest (3rd week of March) that I've seen budbreak, although we were pretty early way back in 1998 as well. What is perhaps most unusual about this spring (2012) is the extent of the East that was affected by warm March weather. The normal latitudinal differences that we see in phenology or plant development – as much as 3 weeks just in Virginia – were compressed; it got warm quickly over a large area.

Aside from increased risk of spring frost injury, what are the drawbacks to an earlier bud-break? Well, we have seen a measurable lengthening of the growing season, defined as the frost-free period. Here in Winchester, our "normal" bud-break date for a variety such as Chardonnay has been advanced from around 21 April in the early nineties, to around 7 April, on average, over the last 5 years. In an area with an already long growing season (180 to 200 days or more, frost-free), the extra season does not really benefit us. The downside to the longer season is a

longer period in which grapes are at risk of insects and fungi for which growers have to provide protection. And grapes can be ripening under warmer (even “hotter”), seasonal temperatures (e.g., early September vs. late-September), which may be undesirable from a wine quality standpoint. Grape pests such as insects and other arthropods (e.g., mites) are generally influenced by the same temperature drivers as grapevines are. Therefore, there is little reason to expect a significant difference in the *relative* concurrence of grapevine phenological development stages and the appearance of grape pests.

To an extent, early budbreak would be expected to translate to an earlier bloom, earlier veraison, and – *perhaps* – an earlier harvest. The budbreak to bloom period is fairly predictable – about 50 days, depending on variety; the period from bloom to harvest is about 120 days. This varies significantly (95 to 135 days) depending on variety (Table 1). Chardonnay is about 110 and Cabernet Sauvignon is about 125 days.

Table 1. Developmental periods for selected grape varieties evaluated at Winchester VA from 1988 through 1995.

Variety	Average number of days from:		
	Budbreak to bloom	Bloom to harvest	Budbreak to harvest
Muscat Ottonel	48	96	144
Viognier	46	108	154
Chardonnay #4	51	112	163
Traminette	51	114	165
Tannat	53	114	167
Cab. Sauvignon	49	124	173
Vidal	49	126	175
Petit Verdot	47	130	177
Norton	52	129	181
Petit Manseng	49	133	182
Charbono	55	128	183

Although the early part of the season can be fairly predictable knowing the budbreak date, ripening and harvest date is much more difficult to predict. If it gets hot and dry (e.g., 2007 and 2010 seasons), we can see substantially advanced harvest date (up to a month). If we have cool, persistently wet weather (e.g., 2011) during ripening, the harvest date can be substantially retarded as growers wait (and wait!) for things to dry out and the grapes to ripen. So, the harvest “window” for a particular variety might be 6 or more weeks, depending on the vintage conditions. I’m no weather forecaster, so I won’t venture out on that limb. The sage advice is to hope for the best but prepare for the worst.

Disease and insect management updates: Be sure to visit Dr. Mizuho Nita’s grape disease web blog (<http://grapepathology.blogspot.com/>) to stay abreast of disease development and for useful links to the more in-depth disease (and other pest) management information. Dr. Nita updates the blog almost daily and there is a tremendous amount of information posted there, including fungicide efficacy data from his 2011 trials (Dr. Nita discussed those trials at the VA Vineyards Association’s winter technical conference in early February), a spray schedule “template” that organizes your disease management strategy, and much, much more.

Insect management updates are routinely provided by Dr. Doug Pfeiffer (dgpfeiff@vt.edu). Contact Dr. Pfeiffer if you wish to receive these updates. His most recent update was on flea beetle and climbing cut worm injury and control on 21 March.

Also, be sure to attend one or more of the meetings coming up this month that will feature disease and insect pest management updates with Virginia Tech specialists.

II. Botrytis fungicide resistance in Virginia: preliminary report

Dr. Anton Baudoin, Plant Pathology, Physiology and Weed Science Department, Virginia Tech

Botrytis samples collected in the fall of 2011 in Virginia vineyards revealed fungicide resistance issues that should be considered when designing spray programs for the current season. Testing is still incomplete, and I am contacting those who provided samples as results become available, but some trends have already become clear from statewide data.

Table 1 lists anti-Botrytis fungicides registered for use in Virginia grapes that are thought to be subject to resistance development due to their single-site mode of action. In addition, captan and copper materials also have some effect against Botrytis, but are thought to be at much lower resistance risk, and have not been tested here.

Table 1. Preliminary results of a resistance survey of *Botrytis cinerea* from Virginia grapes to single-site anti-Botrytis fungicides.

FRAC code	Fungicide	Trade names	Year ^a	2011 Resistance survey	
				Frequency	Level
1	Thiophanate methyl	Topsin M	1973	14/20	High
2	Iprodione	Rovral, Meteor	1979	8/20	Low
7	Boscalid	Endura, component of Pristine	2003	9-15/19	Mod-High
9	Cyprodinil	Vanguard, component of Inspire Super, Switch	1998	4-10/19	Moderate
9	Pyrimethanil	Scala	2005	Nt ^d	
11	Trifloxystrobin	Flint, component of Adament	2000	18/20	High
11	Azoxystrobin	Abound	1997	Nt	
11	Kresoxim methyl	Sovran	2000	Nt	
11	Pyraclostrobin	Component of Pristine	2003	Nt	
12	Fludioxonil	Component of Switch	2000 ^c	None	--
17	Fenhexamid	Elevate	1999	None	--

^a Year: approximate year of introduction.

^b Resistance frequency: number of isolates with resistance / number of isolates tested

^c On other crops; registered for grape only in 2010

^d Nt: not tested, but performance can be estimated based on compounds in the same FRAC (mode of action) group

Not previously documented in Virginia grapes, but Flint (QoI or strobilurin, FRAC group 11) resistance in Botrytis was VERY common (18 of 20 isolates, from 14 different locations). This may be no surprise in light of the widespread strobilurin resistance of grape powdery and downy mildew in our area. Although only Flint was tested, Abound, Sovran, and the QoI component of

Pristine are expected to be affected just as much, based on results from other areas.

Boscalid resistance was also common: at least 9 (high level resistance), and probably 6 additional isolates (moderate level) of the 19 tested. Boscalid is marketed as Endura, and in combination with Qol, as Pristine, and in locations where both Qol and boscalid resistance are found, both Endura and Pristine are likely to suffer control failure.

Of the Vanguard and Scala mode of action group (FRAC group 9), only Vanguard has been tested so far. As much as half of the isolates produced an intermediate reaction indicating a moderate level of resistance, and I need to spend more time on it.

Neither resistance to Switch (a mix of fludioxonil and cyprodinil, the latter being the same active ingredient found in Vanguard) nor Elevate have been found in the samples tested. This suggests that both are better bets than the other products mentioned. However, resistance to Elevate has been found in a Pennsylvania greenhouse, in strawberry fields in Florida, California, and the Carolinas, in grapes in Germany and in other countries at considerable frequencies, so it would not be at all surprising if we were to find some in Virginia. Fludioxonil (Switch) resistance has not been common.

How about the older materials that have not been used as much in recent years? Back in 1992-93, we found benzimidazole resistance (then Benlate and now Topsin M) in 9 of 14 vineyards sampled statewide and in 66% of all isolates tested; in this survey, Topsin M resistance was still common (14 of 20 isolates, pretty much the same proportion). Low-level Rovral resistance was found at 7 of 15 locations (8 of 20 isolates), from all regions in 2011. This reduced Rovral sensitivity is likely to hamper its performance but may not produce outright control failure.

These results don't encourage complacency, and more isolates need to be tested and more vineyards represented to obtain a more complete picture. If you encounter Botrytis (gray mold) in your vineyard this season, feel free to submit samples to me. Touching a clean cotton swab (Q-tip) to Botrytis sporulation and mailing the swabs have worked well; please email me at abaudoin@vt.edu for more detailed instructions. I will also request information on spray history of the site where samples are taken.

On a related topic, we have tried to track fungicide resistance in grape powdery mildew in recent years, and have found widespread strobilurin resistance, and various degrees of sterol inhibitor resistance. Resistance to boscalid (Endura and Pristine) and Quintec has not been detected, but early detection if it emerges is likely to be a matter of grower vigilance. Cucumber powder mildew on Long Island has developed boscalid resistance. We have developed a procedure where potted grapevines are placed in a convenient location near a vineyard, and sprayed weekly or every 14 days with a low rate of the fungicide in question. If powdery mildew develops on those plants, it could suggest resistance, which we would then need to confirm by lab tests. If anyone is potentially interested in "hosting" a set of plants, please contact me. Of special interest would be locations with relatively frequent use of Endura, Pristine, or Quintec. All materials and instructions would be provided, but the "host" will need to commit to maintain the plants.

III. Upcoming meetings:

A number of vineyard meetings, arranged by Virginia Cooperative Extension Agents and others, have been arranged for the period from April through June. The format of the meetings is similar to field meetings held in past years and generally include presentations by one to several grape

specialists with Virginia Tech, the Cooperative Extension agents, and by the vineyard host(s). There is no need to register for these meetings, but a contact person is provided for each meeting should you have questions. Based on prior years' experience, we have not scheduled any meetings for the particularly busy month of May.

With one exception noted (June 6th), the meetings are scheduled from 11:00 am – 3:00 pm (+ or – on adjournment) and are held rain or shine. The first hour will be a tour of the vineyard, followed by a lunch and more in-depth topic discussions, followed by a second vineyard visit. Attendees are asked to bring a bag lunch. Presentation topics may be modified slightly depending upon unique seasonal issues. All three meetings will include multiple vineyard visits to allow attendees to see a broader range of vineyard attributes and conditions.

April 11th Horton Vineyard and Winery, Gordonsville (meet at the Winery), followed by visit to Barboursville vineyard
Dennis and Sharon Horton (Horton Cellars) and Fernando Franco (Barboursville Vineyards)
Topics – Seasonal disease, insect and vineyard management considerations: Presenters include Drs. Mizuho Nita and Tony Wolf.
Directions From Culpeper: Take Rt 29 South to Ruckersville, then left onto 33 East; the winery is 8 miles on the left.
Contact: Kenner Love, Rappahannock County Cooperative Extension
klove@vt.edu (540) 675-3619

April 25th **Barren Ridge Vineyards**, <http://www.barrenridgevineyardsva.com/>
John and Shelby Higgs
984 Barren Ridge Rd., Fishersville, VA 22939
Directions: Take Exit 91 off of I-64 (Fishersville). Turn onto Tinkling Spring Road heading towards Fishersville. Turn left on Route 250 West. Just past the Food Lion turn right on Barren Ridge Road and follow for about 3 miles. The winery is on the left.
Topics – Seasonal disease, insect and vineyard management considerations: Presenters include Drs. Mizuho Nita and Tony Wolf and others to be arranged. We will meet first at Barren Ridge Vineyards and then visit one or two other vineyards in the Afton area on the east side of the Blue Ridge. We anticipate finishing the hot afternoon work at 4:00 pm, close to Blue Mountain micro-brewery.
Contact: Michael Lachance, VA Cooperative Extension, Nelson County, 434-263-4035 Lachance@vt.edu

June 6th Stone Tower Winery & Willowcroft Farm Vineyards, Loudoun County
Start time: 6:00 pm at Stone Tower Winery and 7:30 Willowcroft Farm Vineyards
Presenters: Tony Wolf, Mizuho Nita, Bryan Toy, Dean Triplett, Tremain Hatch
Topics – Seasonal viticultural and pest management reminders, North American Grapevine Yellows, planting density, and trends in vineyard installation. The Loudoun County Winegrowers business meeting will follow the vineyard tours.
Directions: Stone Tower is located ~8 miles south of Leesburg, drive south from Leesburg on Rt. 15, right onto Hogback Mountain Road, vineyard will be on the left ~1.5 miles. To Willowcroft- leave Stone Tower and take a left onto Hogback continue ~1 mile and take a left at the T-intersection onto Mount Gilead Road, Continue ~ 1.5 miles and Willowcroft Farm Vineyard will be on the right.
Contact: Tremain Hatch, Virginia Tech (thatch@vt.edu) or (540) 869-2560 x11

Another meeting of interest:

Mark your calendars now for a two-day meeting coming up at Virginia Tech's AHS Agricultural Research and Extension Center in Winchester on **14-15 June 2012**.

14 June (all day): Principles and practices of canopy management

This will be a team-taught workshop featuring VT specialists as well as invited guests, **Alan Lakso** of Cornell University and **Fritz Westover** of Texas AgriLife Extension Service. We are still working on program details, including registration information, but the basic format will be to provide a discussion of canopy management principles indoors for the early part of the day, followed by hands-on canopy assessment and modification for the balance of the day. This workshop will follow-up on the shorter program we presented at last summer's Virginia Vineyards Association's technical program. The intent with the June 2012 meeting will be to present information at a time of the season (following bloom) when corrective measures can still be implemented to favorably affect canopy characteristics, including fruit exposure and crop adjustment. Topics to be covered include the following:

- Practical means of assessing canopy architecture
 - Practical methods of canopy assessment on small, moderate, and large vines
- Remedial canopy management practices
 - shoot topping vsp vs. other systems
 - leaf and lateral pulling... when, how much, how often?
 - shoot thinning and positioning (vsp vs. other systems)
- crop management towards ideal "vine balance"
- water and nutrient management in the context of canopy management

14 June (Evening): Virginia Vineyards Association's summer social

This will also be at Virginia Tech's AREC, in the evening. Plans are to feature an on-site, catered barbeque, a band, wines and other attractions. Arrangements have been made with a local hotel for substantially discounted room rates. We hope to keep many of you over for the next part of this two-day event.

15 June: Vineyard sprayer and spray deposition technology workshop

We will again host Dr. Andrew Landers of Cornell University in a lively and informative workshop intended to demonstrate how most growers can easily improve the efficacy of pesticide spraying in the vineyard. The morning's indoor program will be followed by outdoor demonstrations.

The two-day event will also feature a number of equipment (small and large equipment and materials) vendors and an opportunity to visit with other Virginia Tech specialists.

We will provide further information about registration for the canopy management / VVA Summer Social / spray technology meetings very shortly.

Internships available:

Attimo Winery is pleased to announce the formation of a formal Scholar Internship Program for horticulture, viticulture, enology, and related majors. There will be up to 6 summer internship positions available from May 1, 2012 through August 31, 2012. Over the 4 month period, interns will be exposed to various aspects of the vineyard and winery business and will rotate through several areas (see attached). Our main goal here is to provide quality internship

opportunities to our fellow Hokies and alma mater. We have a very experienced staff, we are located in Montgomery County, and, have already established a strong foundation in the Virginia Winery Industry with several award winning wines. All applicants must be majoring in a BS or MS program in Horticulture, Viticulture, enology, or closely related field. All applicants must be 18 or older (>21 preferred) and have reliable transportation and successfully complete the interview process. For more information and to apply, please send the following to Dr. Richard Obiso at wine@attimowinery.com and Kate Hrezo khrezo@attimowinery.com:

- Current resume/CV
- List of classes completed
- Schedule/Availability during the period May 1 - August 31 2012

Seeking to fill position:

The Williamsburg Winery is seeking a qualified Vineyard Manager/Viticulturist to oversee the daily operations of the vineyards as well as develop future vineyard blocks. The candidate will work very closely with the winemaker and other senior officers of the company to insure a successful and pleasant working environment. Salary is commensurate with experience.

Chosen candidate, after formalization of engagement, will have the use of a Company pick-up truck. Other benefits include medical coverage and a 401k program. Contact Information: Matthew G.R. Meyer (mmeyer@wmbgwine.com).

Position sought:

A Virginia Tech Horticulture student is seeking a summer internship position in a vineyard within commuting range of Prince William County. If interested, please contact: Jacob Dombroski. Email: jdombros@vt.edu