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Vineyard and Winery Information Series:

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I. Seasonal recap:

Virginia's 2010 growing season was much like other eastern US states in terms of record heat, coupled in some cases with periods of severe drought. The contrast from a long, cold winter was stark. We were fortunately spared significant winter injury – the worst that we saw in our own vineyard was trellis damage and the breaking of several vines' trunks from the weight of a compressing, 10-foot snow drift. An extremely warm start to April advanced bud break by two weeks or more, and this was followed by scattered frosts in late-April and again on 10 May. Growers in Loudoun and parts of Fauquier Counties, in particular, saw some significant crop reductions due to those spring frosts.

Precipitation was about normal for many areas of the state through bloom, and established vines also had ample soil moisture reserves from winter precipitation to meet early season needs. As temperatures climbed in mid- to late-June, moisture deficits began to be noticed in some areas, particularly in the northern Shenandoah Valley, Virginia's historically driest region. What was so unusual about the 2010 season was the persistence of heat – Charlottesville, near the center of the state, recorded 14 days over 90F (and 9 above 95F) just in September. Here in Winchester (AHS AREC), we accumulated about 3900 heat units (based on 50°F base for daily mean) for the period 1 April - 31 October 2010, compared to about 3200 heat units for the same period of 2009 (Figure 1). Our average is around 3300 heat units.

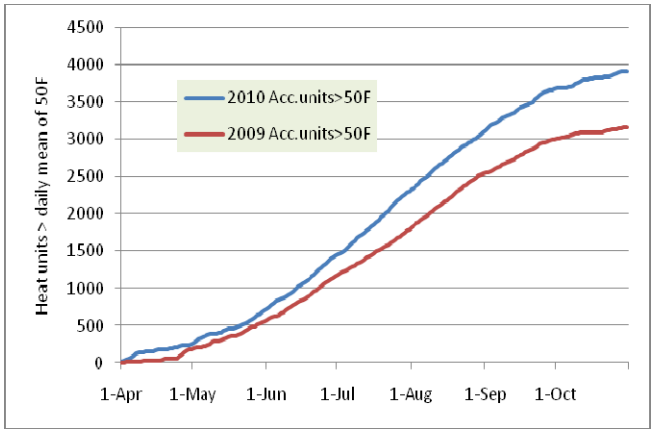

Figure 1. Comparison of accumulated heat units at AHS AREC during 2009 and 2020 (April-October, inclusive).

The fact that we weren't higher than 3900 may relate to our relatively dry summer, reduced humidity, and cooler night-time temperatures which had the effect of reducing daily mean temperatures, despite the high maximum temperatures.

Grape harvest was significantly advanced in 2010, owing to the combined effects of a very early bud break, the greater heat and some drought stress. Here at Winchester, we harvested Cabernet Sauvignon in mid-September -- a full month earlier than in 2009, and at least 3 weeks earlier than "average." Some growers have mentioned reduced crop levels in 2010. That could reflect the scattered spring frost and a smaller berry size caused by the hot, dry weather. Many reported very high fruit quality – at least from the standpoint of freedom from disease and "sugar" ripeness. In fact, soluble solids concentrations were often greater than average (our Cabernet averaged 25° Brix), with titratable acidity lower and pH greater than normal. The above-average heat of harvest might be expected to diminish the potential flavors and aromas of some varieties; however, it's still too early to even generalize on that. Disease and most insect problems were at lower than average incidence, although growers in northern Virginia were seeing the vanguard of brown marmorated stink bugs just as harvest was commencing.

In many ways, the 2010 vintage has been compared to 2007, particularly with respect to elevated sugar levels and reduced fruit acidity. Time will tell how the wines fare. As an aside, I've heard at least one meteorologist state that 2010 is what we have to look forward to every year by 2050, if not earlier, due to global warming.

II. Tremain Hatch hired as Viticulture Extension Associate: We are pleased to announce the recent hiring of Mr. Tremain Hatch as **Viticulture Extension Associate** at Virginia Tech's AHS Agricultural Research and Extension Center at Winchester.

Tremain received his MSc degree from Virginia Tech in 2010. His Masters degree research dealt with assessing the response of Cabernet Sauvignon to various means of restricting vegetative development, and included an assessment of treatment impact on wine quality. Tremain has presented findings of his research at the Virginia Vineyards Association's annual winter conferences, as well as at national meetings. Tremain's job responsibilities will be two-fold: Approximately one-half of his time will be devoted to assisting with requests for extension assistance, similar to roles previously fulfilled by Mardi Longbottom, Fritz Westover, and others here at Winchester. Tremain will assist with vineyard trouble-shooting, occasional assistance with site evaluation, assisting Virginia Cooperative Extension Educators, and responding to other requests for viticultural assistance. We are also tasking Tremain to help with several broader extension projects in the coming year, thus his time for one-on-one assistance will be balanced with those other "big picture" projects. One-half of Tremain's salary and travel support is provided by the Virginia Wine Board, and we gratefully acknowledge that support. Tremain will also be coordinating meetings, communications and providing some of the extension deliverables associated with our recent award of a large USDA/National

Institute of Food and Agriculture grant (see next news item). The USDA grant will take approximately one-half of Tremain's time, but also pays for one-half of his salary, which we also gratefully acknowledge. Please welcome Tremain aboard when you have the opportunity. In his words: "I am pleased to re-join the viticulture program at Virginia Tech. I have 8 years of viticulture experience here in Virginia. I have worked and learned at three levels of the Virginia Industry: I've spent the last 7 months working at Barboursville Vineyards appreciating the work required to sustain a large wine operation producing high quality wines. In early 2010 I completed a Masters degree at Virginia Tech where I focused on vineyard practices to reduce vine vegetative growth and to determine the impact of those practices on resulting wine quality. Through my time in the industry I have remained active on my folks' small (less than 5 acre) farm winery in northern Virginia. I have also gained international viticulture experience working in Marlborough, New Zealand (2009) and Alto Adige, Italy (2006). Experience with these different aspects of the industry will be helpful as I turn attention to assisting Virginia grape and wine producers, regardless of operational size. I look forward to meeting and working with the Virginia viticulture community." Tremain can be contacted at thatch@vt.edu, or (540) 869-2560 x11.

III. USDA awards Virginia Tech $3.8 million to stimulate eastern U.S. wine industry: The USDA's National Institute of Food and Agriculture (NIFA) awarded $3.8 million to Virginia Tech and six other institutions for a grant application entitled, "Improved grape and wine quality in a challenging environment: An eastern US model for sustainability and economic vitality". The five-year project seeks to create, refine, and encourage industry adoption of grape and wine production practices that integrate research-based recommendations with key market drivers to achieve a robust and sustainable grape and wine industry in the region.

The grant application was a major effort (TKW) last fall and we were excited to learn in April that the application had been recommended by the peer reviewers for funding. Industry members were involved in the application via stakeholder meetings in NC, VA and NY. Twenty researchers and many additional collaborators and cooperators are involved in the project.

The underlying research addresses unique challenges of quality grape and wine production in the East, including unpredictable but often excessive rains during the growing season, frost and winter injury problems, unique grape varieties, and the high costs of grape production that result from the relatively small scale of most Eastern vineyards. The research also explores consumer buying preferences and perceptions about regional wines relative to other domestic and foreign brands.

The viticulture research conducted in Virginia will focus on practical measures to achieve more desirable vine "balance" -- that elusive optimum ratio of leaf area to crop that is generally associated with high wine quality. Balance is particularly elusive in environments that have unpredictable, but often surplus moisture, as growers in Virginia are well aware. The research explores practical means by which growers could more predictably measure and attain balance, while reducing the amount of labor and other vineyard inputs. Cover crops, rootstocks and root restriction techniques are being examined in a long-term field experiment with Cabernet Sauvignon. The work is funded in part by the Virginia Wine Board, The Virginia Agricultural Council, and by the Viticulture Consortium:East. The USDA grant will allow an expansion of the project to consider additional ramifications of the treatments on vine nutrition and wine sensory analysis. Tremain Hatch was involved with this work at Winchester in 2008 and 2009 and my current MSc student, Cain Hickey is continuing the research. Wines were made in both 2009 and 2010 and preliminary sensory analyses demonstrate that field treatments can carry through to

impact wine sensory characteristics.

Virginia Tech's Center for Geospatial Information Technology (CGIT), under the direction of Peter Sforza, is also involved with the USDA-funded project. The CGIT will expand and further refine a new Web-based, interactive geographic information system (GIS) platform that allows users to evaluate their property for vineyard suitability and match the property's location to appropriate grape varieties. Not only will users be able to review the climatic and physical attributes or liabilities of their site, but we'll be able to offer recommendations on which grape varieties could be grown at the property based on length of growing season, summer heat, and winter low-temperature considerations. The GIS platform has also been supported by a grant from the Virginia Department of Agriculture and Consumer Services, arranged through the Virginia Vineyards Association. It will be expanded to other regions of the East through the recent USDA funding.

Other partners in the project include North Carolina State University, University of Maryland, The Ohio State University, Pennsylvania State University, Cornell University, and the Connecticut Agricultural Experiment Station.

In addition to coordinating a broad research agenda, the grant provides major funding of Extension and outreach tools to ensure that research-based recommendations are adopted by the wine industry. One of the four objectives in our project is a detailed plan for benchmarking current industry practices and charting adoption and satisfaction of recommendations that are delivered over the life of this project. A broad range of media and teaching methods will be employed to reach producers, including Web-based and print media, eXtension Community of Practices, workshops, and regional short courses.

The National Institute of Food and Agriculture awarded more than $46 million through the Specialty Crop Research Initiative, which was established by the 2008 Farm Bill to support the specialty crop industry by developing and disseminating science-based tools to address the needs of specific crops. Specialty crops are defined by law as "fruits and vegetables, tree nuts, dried fruits and horticulture and nursery crops, including floriculture." Funded projects address five focus areas: (1) improve crop characteristics through plant breeding, genetics, and genomics; (2) address threats from pests and diseases; (3) improve production efficiency, productivity, and profitability; (4) develop new innovations and technologies; and (5) develop methods to improve food safety.

Endnote -- New book: "Effective Spraying of Vineyards' published: Dr. Andrew Landers has visited Virginia several times to speak on vineyard pesticide spray application technology. He also authored a chapter in the Wine Grape Production Guide for Eastern North America on spray drift mitigation. Dr. Landers has recently published a book entitled "Effective Spraying of Vineyards". The book is based on his research and education programs conducted through Cornell University over the last 10 years. The subject matter is presented in a practical, informative style. The cost of the book is $55 plus tax and shipping. You can learn more about the book, including how to order it, at http://www.effectivespraying.com.

IV. Upcoming meetings:

Mark your calendar:

17 – 19 2011: Virginia Vineyards Association's Annual Technical Conference
Omni Hotel, Charlottesville
Thursday afternoon session on rising star varieties

Full, 2-day program will feature a mix of research reports and industry perspectives on vineyard design trends and a half-day focus on Norton wine growing. Full private pesticide applicators recertification credit is anticipated.