

Sentinel Vineyards “State of the Grape in the State” Report 1 (08/19/22)

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Introduction to the Sentinel Vineyards project

At this point, we hope that many of you are aware of the Sentinel Vineyards initiative, but just in case, here is a quick recap: The Sentinel Vineyards project is a collaboration between Virginia Tech’s Viticulture and Enology team (Mizuho Nita, Tremain Hatch, Dana Acimovic, and Beth Chang) and a network of industry partners to collect, analyze and disseminate data on the status of the grape growing and winemaking season. We hope that the information provided on relevant statewide viticultural, pathological, meteorological, and enological parameters will aid in your decision-making process. In addition, these evaluated metrics, e.g. disease incidents, weather conditions, fruit chemistry, provide longitudinal data for establishing a baseline tailored to Virginia’s climate. We thank the Virginia Wine Board for funding this project for a 3rd year, and our industry partners for contributing so much time and energy to making it a success.

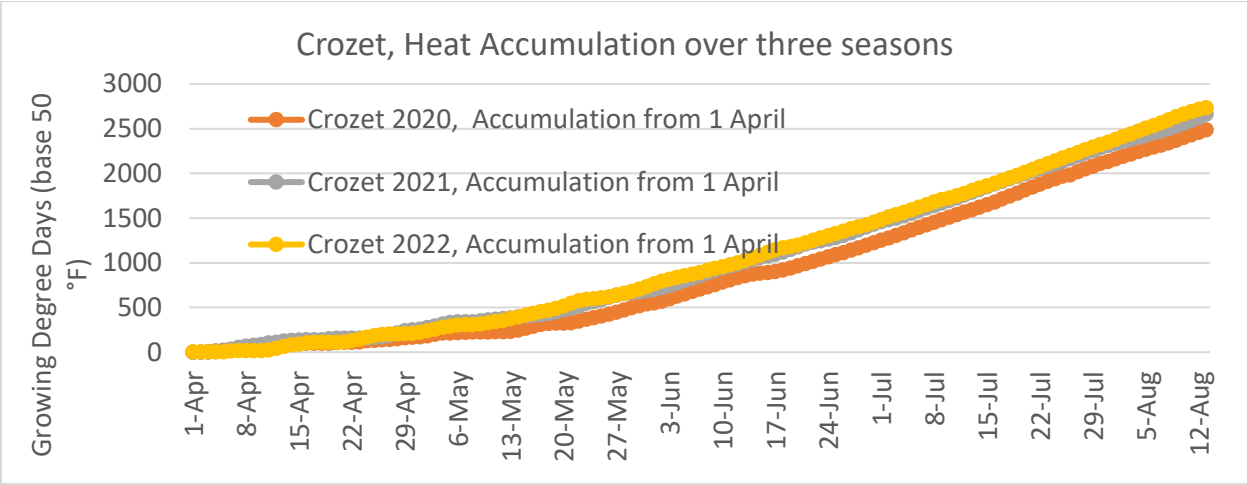
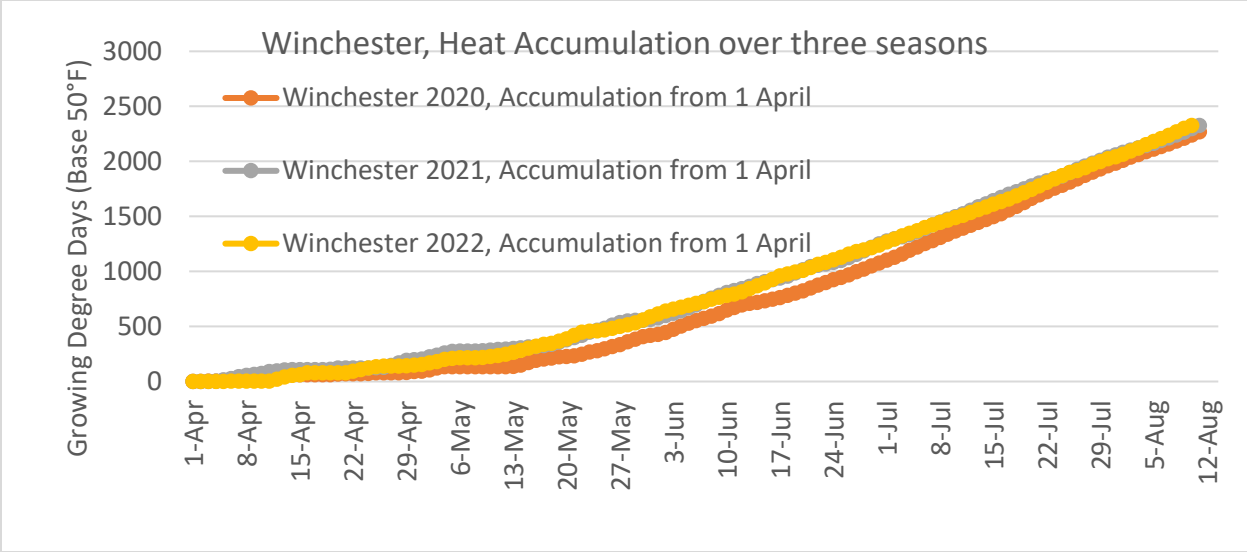
Vineyard Update

Contributor: Tremain Hatch, Viticulture Research and Extension Associate

Rain is the main feature of this growing season. We are on a similar trajectory of heat accumulation as previous years. However, we have had more rainfall than last year in the central and northern parts of the commonwealth. The surplus of water is leading to continued vine vegetative growth and disease pressure. I am impressed by the canopy management of the vineyards I have been in over the past couple weeks. The season is not a loss, just keep working diligently in the vineyard.

Most vineyards are seeing color change and sugar accumulation in the fruit – with this change is a reminder to keep the fruit protected from the wildlife– fencing, netting, and all numbers of deterrents help to this goal. There may not be a silver bullet for wildlife – but combining methods can keep fruit safe.

Speaking of pests, a number of spotted lanternfly adults have been seen in central and northern Virginia counties. This will be an important pest to monitor over the next couple seasons.



Charlottesville Airport Rainfall (1 April-13 August)		
2021	11.2	inches
2022	20.8	inches
Dulles Airport Rainfall (1 April - 13 August)		
2021	13.6	inches
2022	19.1	inches
Winchester Rainfall (1 April - 13 August)		
2021	14.8	inches
2022	22.4	inches

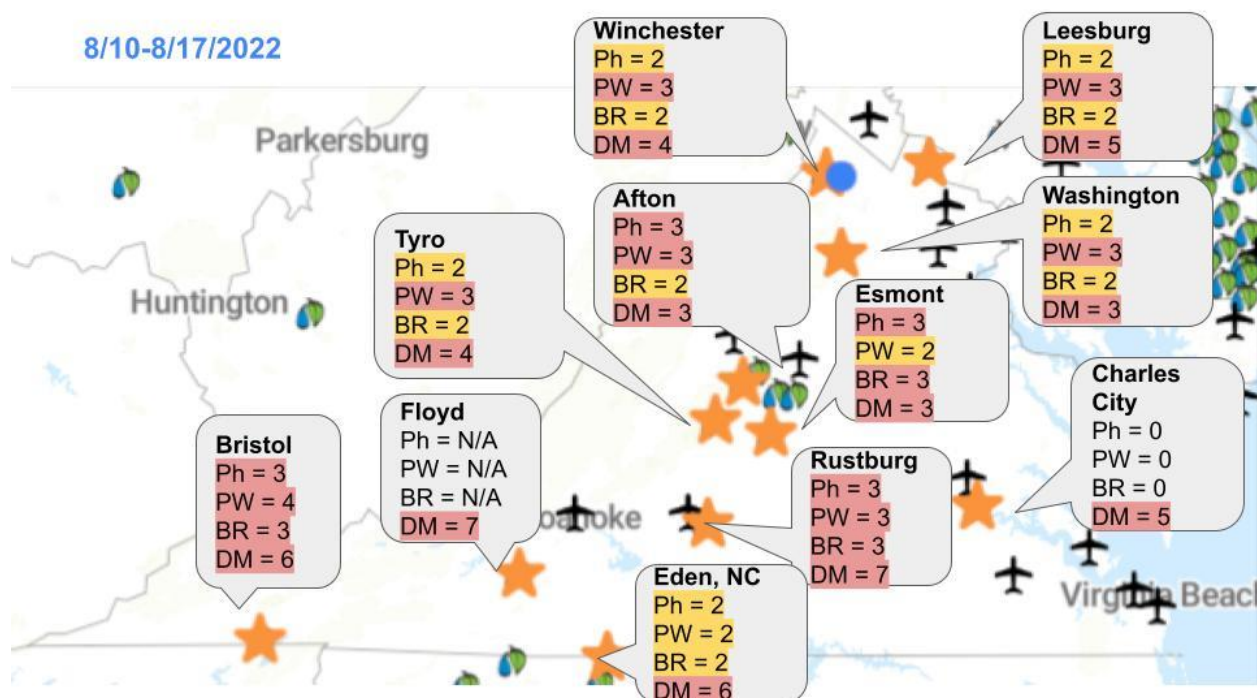
Disease update

Contributor: Mizuho Nita, PhD, Associate Professor & Extension Specialist for Grape Disease Management

Overall, it has been a wet year, which drove several diseases, especially downy mildew and black rot. Reports from the Sentinel Vineyard Core Group also indicated development of downy mildew in multiple locations. At this point, vines passed critical period for cluster infections for both downy mildew and black rot. Thus, clusters are not susceptible for infection, but you still need to protect your leaves against downy mildew to keep canopy established until the end of the season. Heavy downy mildew infestation can lead to defoliation, which will negatively impact fruit maturity and winter survival of the vine.

Good news is that you do not need to spray for black rot at this point. However, if you have experienced unexpected outbreak of black rot (i.e., you have sprayed a DMI fungicide, but black rot showed up), please contact me (nita24@vt.edu).

As a part of the Sentinel Vineyard Project, we have installed several weather stations that are connected to the NEWA (<https://newa.cornell.edu/>), which is a big agricultural weather station network. I have been presenting the number of risk events for downy mildew, powdery mildew, Phomopsis leaf and cane spot, and black rot every week through my blog (<https://ext.grapepathology.org>), and the image below is the information from 8/18/22.



These number represents days with infection risk for each disease. (Ph = Phomopsis, PW = Powdery mildew, BR = Black rot, and DM = Downy mildew). As you can see, all stations showed more than 3 days with downy mildew risk event, and it has been the case since mid-June. It is a snapshot of what happened, which I hope helps you to determine what to do next. More importantly, you can obtain more detailed information by visiting the NEWA website including weather data, disease and insect pest

models, and forecasted risks for some diseases. We paid the annual fee so that growers in Virginia can freely access NEWA. Please take advantage of the resources.

I use my blog as the main outlet for my extension education. Please visit it if you have not. You can find tips for grape disease management and other useful information, such as past presentations to discuss seasonal disease management and a list of short PHI fungicides.

Good luck with the harvest!

Fruit Chemistry Update

Contributor: Beth Chang, PhD, Enology Extension Specialist

On the fruit chemistry side of things, for better and for worse, I would concur with feedback from several industry partners that we are 7-14 days behind where we were last year. I'll try to do a closer analysis in our next report as more data comes in, but preliminary comparison indicates that sugars are especially low. Luckily, thus far, pHs and TAs likewise are low and high, respectively. If you have already begun checking numbers for harvest, expect some "bounce" due to dilution from the frequent rainfalls, and try your best to collect samples after they have had a chance to dry out after storms. As with previous years, Chardonnay and Cabernet Franc are agreed upon as the "sentinel varieties" due to being widely planted, the early ripening of Chardonnay, and the tendency to let Cabernet Franc hang as late as possible. In addition, we'll be adding some commentary on other varieties common in Virginia. For this week, I'm only showing numbers from Chardonnay samplings, as Cabernet Franc sampling has yet to reach full veraison; industry partners report color change ranging from 10 – 80% across the state.

A few general notes on the figures below:

- The Central 7 data, i.e. the points with greatest fruit maturity, were taken from fruit harvested for sparkling wine
- The Shen 2 chardonnay are young vines; reports on more mature fruit in the Valley indicate that Chardonnay is quickly approaching full color change, but we do not yet have numbers to report.
- Centrals 5, NoVa 1, and Shen 2 have 1 time point (and therefore no fit line).

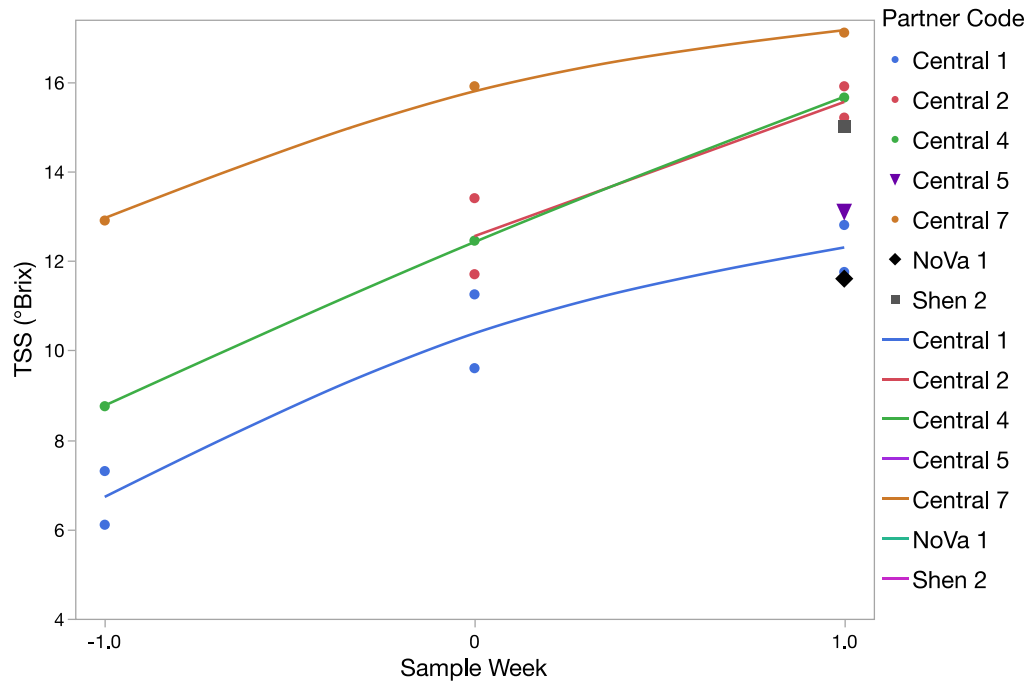


FIGURE 1 (above) is a quick snapshot of ripening trends at several vineyards (Centrals 1,2,4, 7) throughout the state that have been sampling for the past few weeks. The 1st collections for partners Central 5, NoVa 1, and Shen 2 are also displayed. Sample week 1 is from this past week (08/09 – 08/15), with sample weeks 0 and -1 being from the prior two weeks. Ripening (i.e. sugar accumulation) was assessed by measuring total soluble solids (TSS) in °Brix.

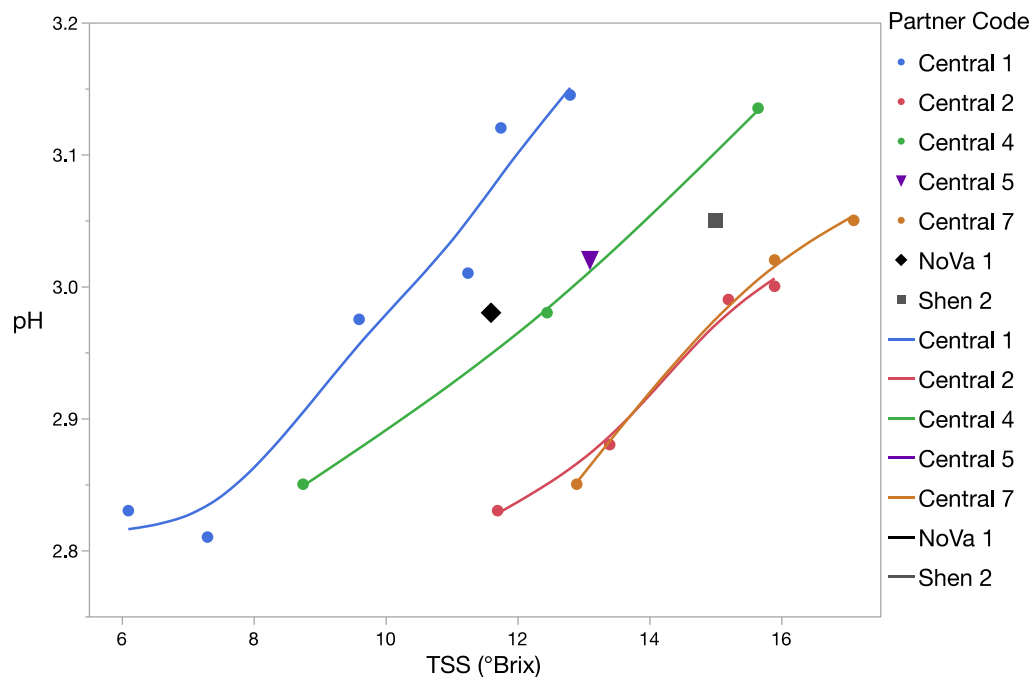


FIGURE 2 (above) shows pH units as a function of total soluble solids (TSS) in °Brix. Overall, much of the Chardonnay measurements hovered around pHs of 3.0, but with large variability in sugar accumulation.

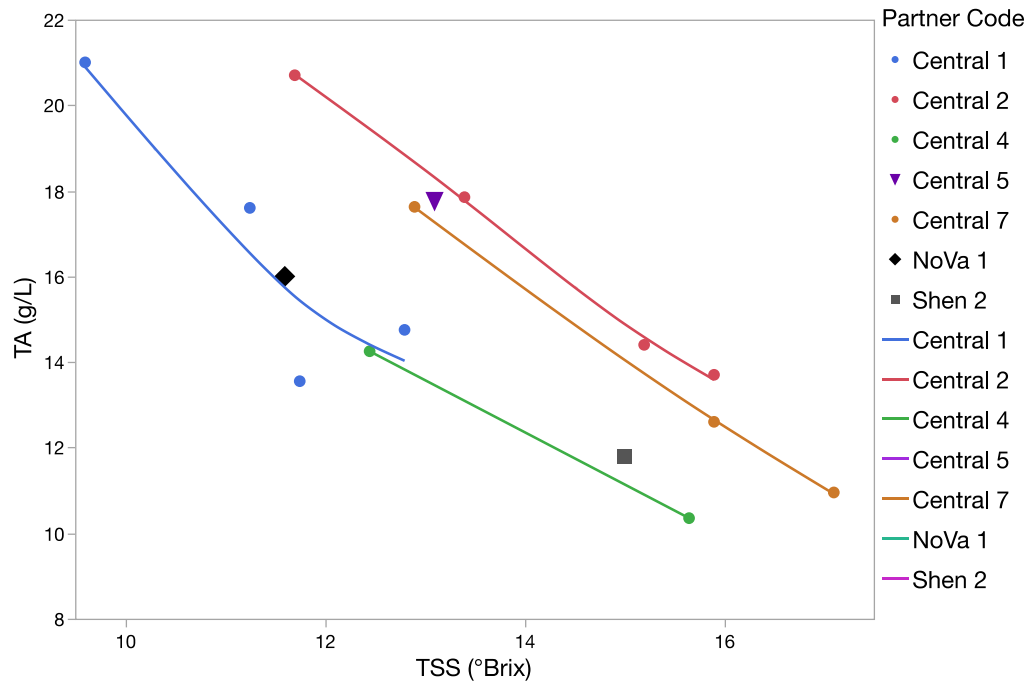


FIGURE 3 (above) shows titratable acidity (TA; measured in grams/liter (g/L)) as a function of total soluble solids (TSS) in °Brix. TAs are dropping rapidly as grapes approach full veraison; time and weather conditions will tell us whether this is anything to be concerned about from the wine production side!

Novel Varieties Trial Summary

Contributor: Dana Acimovic, Viticulture Research Associate

In 2019, the AHS Jr. AREC viticulture program initiated a novel grapevine trial, which encompassed varieties recently released from breeding programs in the USA and European countries. These 0.3 acres of experimental vineyard is now fully funded by Virginia Wine Board and it will serve as a test site for evaluation of 8 red and 7 white grapevines. A criterium for a varietal selection was its resistance to at least one of the common grape diseases combined with high wine quality potential. Following is the portrayal of some of the varieties included in the evaluation.

WHITE WINE VARIETIES: **Fleurtaï 01** and **Soreli 01.1** are interspecific hybrids that contains genes of *V. vinifera*, but also *V. amurensis*, *V. berlandieri*, and *V. rupestris*. They were made in 2002 by an Italian breeding team in Udine, as a cross of Tocai-Friulano and Kozma 20-3. Vines are described as tolerant of temperatures as low as -9°F that buds and ripens early, and are resistant to downy mildew and “tolerant” of powdery mildew. Fleurtaï 01 wines are described as floral, while Soreli 01.1 wines were somewhat more neutral. Another interspecific cross, made in Serbia in 1977, between Kunbarat x Pinot Noir (*V. amurensis* and *V. vinifera*) is **SK-77-5-3 (Petra)**. It buds early and is susceptible to powdery mildew, but has very good resistance to downy mildew. Petra produces white wines rich in alcohol with a muscat tone, suitable for dessert wines or off-dry. In 2017, University of Minnesota released **Itasca**, a mid-season budding and early-ripening variety that is extremely cold-hardy. Itasca vines are vigorous and reported as

resistant to downy mildew. In some years, fruit can be low in acidity. Wine descriptors include pear, kiwi, and honeydew melon.



RED WINE VARIETIES: **Gamaret** and **Garanoir** originated from a cross between Gamay x Reichensteiner, and were made in 1970 by a breeding team in Switzerland. They ripen early, reportedly have high yields and are resistant to both downy and powdery mildew. Gamaret wines typically have moderate tannins, a robust acid structure and an aroma profile of blackberries and sweet spice. However, Garanoir wines may be of low acidity and would be perhaps better suited to cooler parts of western Virginia. Cabernet Sauvignon and Grenache are parents to **Marselan 980**, a French variety with large clusters and small berries. Marselan 980 ripens mid- to late-season and have good resistance to powdery mildew and to botrytis bunch rot. Wines are reported to be generally aromatic, deeply colored, with good structure and supple tannins. One more variety with pure *V. vinifera* background is **San Marco**. It originated in Italy, from a Teroldego x Lagrein cross and was released in 1993. San Marco has loose clusters that ripen mid- to late-season, and are reported to resist splitting and botrytis bunch rot. Vines are reported to be cold-hardy, and exhibit some resistance to mildews. Wines are described with aromas of earth, black fruits, and spices.



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- Enology: contact.vtenology.com
- Viticulture: Viticulture Notes is distributed via a Google Group. Go [here](#) to join the group. Email thatch@vt.edu for assistance joining the group.
- Grape Disease: <https://ext.grapepathology.org/>