People always ask me, and probably ask you if you're reading this, “how are the grapes looking this year?” In three of the past four years, the answer from April to Labor Day has mostly been some version of a shrug (“Hard to say…I don’t know…not sure”).

Right. Yes, if you actually work in vineyards, the answer is long and detailed, probably involving gestures, definitely involving swearing, eventually resulting in the question-asker making a hasty retreat when the vineyard worker pauses to wipe a tear from his or her eye. It’s always hard to make early predictions, but in many years there has been an enormous range of possible scenarios, from raging success to outright fiasco.

It hasn’t been easy. The seasonal team has been struggling. Winter’s been hogging lines and stepping on everyone’s toes. Summer seems to lose focus.
Spring—okay I’ll say it because we’ve all noticed and someone has to say something—spring just doesn’t seem to care enough to show up when it’s supposed to—if it even has the common courtesy to show up at all. Spring has not been a team player.

Fall, on the other hand, fall has really been coming through. When it comes to making wine in New York, fall has been playing a critical role in the quality and maturity of agricultural products statewide. Such was the case in 2014 and 2015, and once more in 2017. Let’s review.

Winter. N/A. Hallelujah! Winter has been trying to elbow its way into this article for years now, with varying degrees of success. “Spring’s not even trying,” it says. “I’m where the real drama happens,” it says.

In 2016-17, winter finally took the hint about not providing a healthy environment for the kind of work we’re trying to do and went to sulk somewhere else (see Figure 1). We wish it all possible success in future endeavors. It’s welcome to provide fluffy snow for Christmas, winter ski weekends, and any day a food science departmental faculty meeting is scheduled. Please also avoid B.E.V. NY (February 28-March 2, 2018- save the date!). I probably just guaranteed a blizzard.

Spring. I know I bashed spring already, so it’s probably only fair to admit that the upstate New York April was actually pretty nice in 2017. On Long Island, Rich Olsen of Bedell Cellars recalls it as “typical- cool and wet.” In Geneva, low April GDD (Figure 2) may have held back bud burst,

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*Figure 1. Mild winter. Bud hardiness data for Riesling at Geneva as determined by differential thermal analysis. Blue lines indicate recorded vineyard temperatures while black line on lower plot shows temperatures necessary to kill 50% of the primary buds (LT50). The lowest temperature at Geneva, NY was well above 0° F, so winter bud injury was minimal—the lowest in four years.*

*Figure 2. In 2017 (Top), Monthly growing degree days (GDD, Base 50° F) at Geneva (blue bars) were at or below the 30 year average (red bars) through August - and above average in September and October vs. the long-term average. This is in contrast to 2016 (Bottom) where GDDs exceeded the long-term average for the entire growing season from May to October.*
Vigorous growth continued, and disease pressure (the sneaky sibling of vigorous growth) became a challenge as well. By the end of the summer, 2017 had seen about four times as much rain as 2016. Looking at Figure 4, you can see why averages can be so misleading. The blue line would represent 2016 and 2017 combined and averaged, but it doesn’t really do either year justice.

Before we let spring entirely off the hook: May was cooler than average and also quite wet. Words like vigor and crop load (also disease pressure, unfortunately) were a much greater part of the viticultural conversation in 2017 than in 2016, and the early days helped set that stage.

Summer. GDDs stayed pretty close to average in the summer, although August was a little cooler than the mean. The big difference compared to other years, and especially last year: rain (see Figures 3 & 4). Every month was a little wetter than average, but July brought roughly twice the average monthly accumulation to Geneva. Lake Erie didn’t see this effect.

“...and slightly above-average May GDD got us past the dreaded May 15 final-frost date. April and May seemed to allow for a beginning to the season devoid of much (if not all) of the late-freeze drama, and the conditions for fruit-set were fruitful.

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“In the Hudson Valley the prospect of harvesting ripe, mature fruit was saved by a warmer than usual September and October with little rain and
above average temperatures,” says Michael Migliore at Whitecliff.

The weather is never perfect for a farmer, but in September it was darn close: well-above average for GDDs and below it for rain (Figure 2). October had much higher than normal GDDs across the state, and while the Geneva rainfall total looks scary, half of that came in the tropical storm right before Halloween that emphatically ended the mild weather.

Fall wasn’t perfect. The heat and humidity could spell trouble for varieties and vineyards where disease pressure built up throughout the season. Downy mildew (especially at shoot tips) reduced the leaf area on susceptible varieties in some vineyards. No, it wasn’t perfect, but an extended, mostly-dry and sunny fall was essential to the success of the year.

Fruit composition samples. Tim Martinson has charts and a recap of his own later in this issue, so I won’t talk about that information in depth. My short synopsis is that entering the Veraison to Harvest season, acids were relatively high and sugars were low, especially compared to 2016. Things weren’t quite as dire as the early days of the Miracle of 2014, and generally the numbers finished up very close to the five-year average.

The one aspect that I noticed and winemakers have been talking about has been the way TAs stayed relatively high and pH values stayed relatively low. If disease wasn’t forcing the issue, it seemed like the grapes should probably hang as long as possible. Keep in mind that we were generally dealing with much larger crops than in the previous few years, or as Kris Kane of 21 Brix winery calls it: “sneaky huge.”

Wine quality. There were at least a couple of ways to view the mild fall weather. Some winemakers just found it frustrating. “Hurry up and wait…for the chemistry to NOT change,” is how Jonathan Oakes of Leonard Oakes Estate puts it. OK then.

Kelby Russell at Red Newt and Dave Breeden from Sheldrake Point feel like the numbers may not have been jaw-dropping, but the quality definitely improved as fall progressed. “Even if the sugars aren’t sky high, there is no replacing simple hang time for flavor development,” says Russell. Dave Breeden feels that the flavors and chemistry are better in 2017 than in 2016, which he pins on the drought conditions last year.

Different seasons favor different types of wines. 2017, with its acid retention despite plenty of fall heat, seems to lean toward the sparkling wines. “It would be hard to ask for a better season, says Andrew Rockwell at Sparkling Pointe, the Rieslings; Kelby Russell likes the “nice acid, spectacular hang-time, the rosés, and anything else that benefits from an acid backbone”. On Long Island, Rich Olsen likes the aromatic whites but also thinks Cabernet Franc is the “star of the red vintage.” Michael at Whitecliff and Rich both describe 2017 as “overall, a good year.”

Thanks to another great fall, I’m inclined to agree.
All major juice and wine processors have closed and very few grapes are left to be harvested for the small wineries. Temperatures in October were well above average – and some juice grape acreage required the October heat to ripen the crop. Much of the Lake Erie wine tonnage was much riper than average.

For many area growers 2017 was a real success as larger than average crops were harvested at higher than average brix. Average Concord brix was above 16.2 for the region. Yields for many growers were average to above average. Wine grapes were similar, with many blocks yielding more than average. Winemakers were also pleased with much of the fruit that was ripe and had high brix levels.

Some growers delivered a significant amount of Concrds with low soluble solids – mostly due to the significant variability in crop size seen this year. Off-the-cuff crop size estimates were less accurate, with estimates off by as much as 60%. This led to a larger-than-expected crop with low brix levels. And some vineyards with a high crop experienced potash deficiency that reduced the rate of brix accumulations (Figure).

In general, most of the failures and struggles of the 2017 harvest revolve around poor crop estimation and a highly variable crop. While excellent October weather allowed fruit to ripen to minimum standards, financially growers did not universally come out on top this year.
Crop-related K deficiency and low brix. For growers that delivered Concords with soluble solids below 15.0 °Brix, most will receive less than $180 per ton. Some will receive less than $100 per ton. There was a lack of thinning, a lack of emergency potash applications and significant disruptions for harvest logistics. These are the problems that arise when growers miss the mark on crop load management. At least in 2018, it did not appear that growers were unwilling to make the investments in ameliorating their crop load. Rather, growers that had high yields and over-cropped vines, were caught off-guard by their yields.

Despite some situations of over-cropped vines, nearly all (or all) growers reached the absolute minimum quality standards of 14.0 – 14.5° brix. But since processors changed their standards in 2012, growers need to aim for higher than the minimum brix levels to maximize profitability. Additionally, lower brix indicate that these vineyards were over-cropped. We expect this to reduce to 2018 tonnage for individual growers. Since crop load was so variable, it is not likely to impact overall quality or tonnage in 2018.

The wine grape growers faced similar crop estimation challenges. High-acid grapes, used as an ingredient for wine making by major processors such as Constellation Brands, was in short supply this season. This shortage extended across all major wineries in the Lake Erie Region and included Catawba and a number of white varieties. A shortage of acid led to a call for additional tonnage that was thought to be unavailable. By the end of harvest acid needs were not met entirely but tanks were mostly full and growers sold a significant amount of non-contracted tonnage for lower prices. Scheduling and processing was somewhat more difficult both because of high crop load variability and inaccurate crop estimates. 2017 was a great reminder that over-cropping in years when acreage under-cropped increases the risks and financial penalties of over-cropping.

Accurate crop estimation a goal for effective risk management. Overall 2017 will be remembered yet another successful harvest, as we continue to string consecutive above-average years together. Our take-away at extension is that there is still room to improve crop estimation, soil health and risk management as growers continue to manage crops that vary significantly.
Fruit Chemistry Trends: 2013-2017
Timothy E Martinson
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Remember the record 2012 temperatures (a week of 70° F that jump-started development and led to spring-frost injury, particularly in Concers)? This outlier has dropped off our 5-year review, leaving us the relatively cool (but closer to average) 2013 and 2014 seasons, and relatively warmer 2015 and 2016 seasons. This year was in many respects the opposite of dry 2016, when a small crop, varying degrees of drought stress, and a warm growing season led to high juice soluble solids and lower acids. Ample moisture, high bud fruitfulness, and big berries (some varieties) led to high yields among the *vitis* and some hybrid varieties. For comparison, note that 2016 curves are in yellow, and 2017 curves are in red.

**Berry Weight**: Two varieties, Riesling and Tramnette had significantly larger berries (by 0.3 g/ber- ry, which @60 clusters x 60 berries/cluster x 807 vines per acre, adds up to about ¾ Ton additional fruit). Cabernet franc had smaller berries (I can’t think of a reason why). Noiret and Merlot were similar to last year.

**Brix**: Juice soluble solids lagged slightly behind last year, but well ahead of 2014 (light blue). All ended up right at the 5 year average, except for Noiret (based on only one vineyard this year)

**pH**: Juice pH lagged notably in Tramnette and Noiret, but ended up average by harvest in the rest of the varieties.

**Titratable acidity**. TAs in all cases started out well behind 2016s lower values – by as much as 5-6 g/l. By the end of the season, they caught up. The most notable lag compared to 2016 was in the Tramnette samples.

Overall, despite a cooler-than-average summer season, a heavy crop (some varieties) and a modestly late start, the numbers converged on the 5 year average by the end of the season. Heat, sunshine, and an extended frost-free period allowed growers the luxury of harvesting at the right time. To date, we haven’t had a killing frost, grapes are harvested and many vineyards still have functioning leaves. This bodes well for the coming growing season.
Merlot
Top to Bottom: Berry Wt, Brix, pH, TA

Noiret
Top to Bottom: Berry Wt, Brix, pH, TA
Riesling
Top to Bottom: Berry Wt, Brix, pH, TA

Traminette
Top to Bottom: Berry Wt, Brix, pH, TA
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