Petit Verdot from Bedell Vineyards, Cutchogue, NY, hits the sorting table.

I remember walking through the Buffalo airport a few years ago and seeing a sign that bragged about western New York’s “hurricane-free summers and falls.” Responding to places like Florida and their smugness about winter weather seemed like a great idea, at least until it snowed six feet in October and everyone’s roof almost caved in.

Why am I thinking about that poster now? Easterners can be a little smug about the predicted effects of climate change in our neck of the woods. Warmer temperatures? It’s about time. Less water? We have lots. Then 2016 reminded us just how fragile our ecosystem really is. The message: No one is climate-proof, especially when it comes to agriculture. Oh, and 2016 New York wines should be terrific.

Winter. After two particularly brutal winters, 2015-2016 provided a welcome change. Temperatures stayed far above zero Fahrenheit and very rarely dipped much below 20. Unless you purchased a season pass at a nearby ski area, owned one of those ski areas, or tried to get out of work/homework with a snow day, it was a great winter.
Depending on where you were in the state, there may have been a day or two with a low below 10° F, but only a day or two, and not very far below.

Anna Wallis noted that even the Lake Champlain portion of the North country was mild (Thousand Islands—not so much, although it wasn’t a particularly harsh winter by their standards). Except for one day. Valentine’s Day 2016 went below 10°, below 0° and even below -10° F in many New York vineyards.

Michael Migliore, owner of Whitecliff Vineyard & Winery, notes that “the massacre” split the Hudson Valley in two, with places north of Gardiner seeing -12° F while southern locations only reached -5°.

Depending on the grapes, the site and the actual low temperature, some vineyards saw significant damage (see Fig. 1). For those who were experiencing a third consecutive year where winter took a bite out of the potential yield, it was an exasperating end to the season.

Spring: N/A (Not Applicable). Yes, I used that joke in 2014 too. I guess there was a spring in 2016, but when the winter is warm and the spring is cool, they can be pretty hard to tell apart.

Looking at Figure 2, you’ll notice April played no meaningful part in the growing degree day (GDD) accumulation for Geneva this year. It seemed to go from cold to hot at the flick of a switch. Figure 3 shows Geneva catching the long-term average by the end of May, meaning May was warm enough to atone for April. Long Islanders had a pronounced delay in the switch-flicking, and it stayed cool and even damp into June.
was no month before October where Geneva received anything close to average rainfall. Meanwhile, GDDs were at or above the long-term averages in every month after April (Fig. 2), and August 2016 had the highest monthly GDD on record. Michael Migliore called it a “Napa Valley summer” in the Hudson Valley, and was grateful to have drip irrigation on new plantings because “they would be dead as a doornail if we didn’t.” Growers were left with very low disease pressure and great fruit ripening conditions, combined with a low-grade dread that the vines might just collapse at some point.

On Long Island it was not quite as dry but still warm, and “the heat of August and early September really accelerated ripening,” according to Rich Olsen-Harbich of Bedell Cellars.

Fall, part 1. In western New York the harvest started “early, hot and heavy,” according to Kris Kane of 21 Brix Winery.

“Our vintage started out at a rampant pace with a lot of our early whites needing to be picked quickly as the acidity just raced out of the varieties.” Since September stayed warm, the later varieties started to look like earlier varieties too.

In the Finger Lakes, Kelby Russell mentioned getting “absolutely crushed” by Riesling, as a two week period accounted for 80% of their harvest. The late warm weather in the north country allowed most varieties to achieve optimal ripeness, according to Craig Hosbach.

The rest of the state was already noticing abnormally dry weather, however. Up north, the season began normally as Craig Hosbach of Tug Hill Vineyards describes it with “cautious optimism and the hope that we’ll have enough primary bud survival to achieve a full crop.”

Does he sound paranoid? Would it change your mind if I mentioned that the Watertown Airport measured -37° F on Valentine’s Day?

Summer. I realize I may not be the first person to tell you this, but it was pretty dry this summer. It was actually very dry in the spring as well (at least in some parts of the state), but in the spring we tended to think significant rainfall was just around the corner. By summer, we knew to totally disregard the little raincloud that was always five days away in the long-term forecast.

Kelby Russell of Red Newt Cellars noted the “astounding” lack of rainfall that brought about Extreme Drought classification by the National Weather Service in the “exact heart of the grape growing region.” As Figure 4 clearly shows, there was no month before October where Geneva received anything close to average rainfall. Meanwhile, GDDs were at or above the long-term averages in every month after April (Fig. 2), and August 2016 had the highest monthly GDD on record. Michael Migliore called it a “Napa Valley summer” in the Hudson Valley, and was grateful to have drip irrigation on new plantings because “they would be dead as a doornail if we didn’t.”

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Figure 4. Monthly rainfall accumulation in 2016 vs. long-term average.

Figure 5. Cumulative rainfall in the three driest years since 1973 vs. the long-term average in blue. The October “monsoon” makes 2016 look more like the other two years.

Whole cluster Marquette grapes ready for pressing at Tug Hill vineyards, Lowville, NY. Photo by Craig Hosbach
On Long Island, the heat slowed down in early October, meaning folks could “cruise slowly to the finish line,” as Rich Olsen-Harbich says.

Andrew Rockwell of Premium Wine Group notes that the cooler nights may not have helped to push maturity, “but they’ve helped to keep acids and pH from getting out of hand.”

Rockwell and Michael Migliore (in the Hudson Valley) both report historically large harvests, which is not the case in many other parts of the state.

Finding red *vinifera* for sale in the Finger Lakes was not easy despite higher posted grape prices. But while quantity is variable, quality is consistently high across varieties and regions.

**Fall, part 2.** If you remember our earlier article about drought and wine quality, we said that we needed a whole lot of rain just to reach the rainfall total of 1982, the driest year on record. That’s exactly what happened (Fig. 4).

Over about three days Geneva received 4.5 of the 15 inches of rain we’ve had over this entire period. During that period Geneva got as much rain as in April, May, June and July combined. Read those sentences again. All or nothing is the theme, and you could say that the hot, dry switch had been turned the heck off.

As Kelby Russell says, “rarely is there such a clear end to harvest.” On Long Island, Hurricane Matthew tracked away at the last minute or 4.5 inches could have been a passing shower. “Dodged a huge bullet,” says Rich Olsen-Harbich.

Kris Kane notes that on a few occasions they “danced around rain showers,” but overall it was a nice to be able to choose harvest dates as opposed to “being told by the weather man.”

There was definitely some hustle before the deluge in the Finger Lakes. Kelby Russell remembers “driving from Hector to Geneva multiple nights at 2:00 am or 3:00 am the week before the rain, I saw machine pickers out working as everyone worked to beat out the rain—even on Sunday.”

Michael Migliore sums up the feelings of most everyone who still has fruit hanging: “it was a great vintage but we are exhausted and want it to come to a close.”

**Summary.** So there you have it. Looking at Tim Martinson’s final plots of cultivar progress throughout *Veraison to Harvest* (See p. 7-9), we see that sugar was generally high, while acids and especially berry weights were generally low.

I would say that if there’s a striking thing about the data, it’s the fact that the numbers are not particularly striking. Given the weather extremes many parts of the state witnessed at some point in the year, the final juice chemistry is almost anti-climactic—although in a decidedly positive sense. The vines (and the people) have been through a lot, but—at least for now—everything looks good.

Rich Olsen-Harbich has great words to sum it all up: “There are no easy vintages here. It takes hard work, lots of dedication and tenacity to make wine in the East—but the results are beautiful and so worth it. It’s what makes what we do so triumphant and rewarding.”

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Thursday, October 27. The Finger Lakes wakes up to significant, but temporary snow accumulation, as seen in this vineyard on East Cayuga Lake, near Interlaken.

Photo by Tim Martinson
Late Season Rains Help the 2016 Sweet Concord Crop Reach Near-Average Yields

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For all Lake Erie grape growers, 2016 was one of the hottest and driest growing seasons on record. Many area vineyards showed water stress symptoms at some point between bloom and veraison. Very timely rains starting around veraison increased vine health and berry size pushing this year’s Concord crop very close to the 10-year average. The hot, dry weather contributed to a very sweet crop. With brix averages in the upper 16’s to mid-17’s and some growers reporting soluble solids above 18° brix, 2016 will go down as one of the sweetest crops in recent history.

Minor Spring Frost Event. A mild winter and a warm March jump-started a relatively early deacclimation process that brought many frost concerns to the Lake Erie region. Temperatures fell below freezing on April 26th causing isolated bud freeze/frost damage to parts of Cattaraugus County, Erie County and the northeastern part of Chautauqua County. For growers in these areas the damage was severe. However the impact from the frost damage was isolated, and the majority of the region escaped this frost event.

Cumulative rainfall (purple line) at the Cornell Lake Erie Research and Extension Laboratory (CLEREL) fell below 30-year average precipitation in May, with little accumulation until mid-August. Normal rainfall in September and October narrowed the deficit at the end of the season.

Dry Weather: Water stressed Concord vine with shriveled berries on August 5. Late season rains helped berries recover.

Photos by Luke Haggerty
Drought. For all Lake Erie grape growers, it has been an extremely dry season. Most of the region received less than ten inches of rain for the months of May, June, July, and August combined. As the growing season progressed into late August and early September the area started to receive timely rains.

Small berries and large crop contribute to average Concord crop. For much of the season the lack of water was having a great impact on berry size. During the dry portion of the season, berry weight was 20% below average. Late season rains increased berry size to within 8% of average by the time harvest started.

Markets and prices. The demand for bulk and retail grape juice remains largely unchanged. As established by prior market cycles, the demand curve for grape juice is particularly inelastic. The 2016 harvest is the second year low prices will really transfer to the majority of grape growers. We are beginning to see growers face significant financial hardship. For the next year or two this will impact leveraged growers most significantly.

These steep market cycles threaten the ability of the industry to maintain 30,000 acres in the region. There is some emerging evidence that contract reductions and cancellations have not materially reduced the over-supply of Concords in the region.

Average cash market prices for juice growers may be significantly higher than prior years. The wine market continues to be a bright spot for bulk producers. Those markets have been commanding higher prices for three years and now represent most of the cash market. While prices are higher on average, juice markets remain less than $150 per ton. Average cash market prices for Concords used in wine production may be above $240 per ton.

The fiscal health of all Cooperatives may be tested as well, depending on the length of this cycle and the needs of its members. At this point Cooperatives have access to inexpensive debt. Those lines of credit have not been necessary to inflate prices for growers/members. The financial health of the majority of members and directors will dictate future utilization of debt.
It’s hard to believe we are five years past the banner 2012 year, when an early March week of temperatures in the 70s prompted an early and compressed harvest season, essentially over by the end of September. This year’s weather combined hot and dry (really dry through August and somewhat dry through much of September), but fruit development turned out to be decidedly middle-of-the-road.

Our summary graphs of weekly Veraison to Harvest samples show the five-year trends for five cultivars: Cabernet Franc, Merlot, Noiret, Riesling and Traminette (dotted black line is the average). We chose them as representatives of major red and white vinifera and hybrids in NY, with 3-15 vineyards represented. Concord berry weight and brix accumulation summaries are shown separately on p. 5-6.

**Berry weights:** Berry weights were low in some cultivars in 2016 (bright red line is 2016), reflecting extremely dry weather (especially in the Finger Lakes, but also western NY) during the critical bloom to ‘lag-phase’ berry development. This is most obvious in Riesling and Cabernet Franc samples (Finger Lakes-centric), in contrast to Merlot (Long Island and Hudson Valley).

**Brix:** Juice soluble solids accumulations were largely average to slightly higher than average (Riesling).

**Juice pH.** In four of the five varieties (Riesling being the exception) juice pH was higher than the 5-year average.

**Titratable acidity.** Although it felt like TAs dropped faster with the warm, sunny weather, the graphs paint a different picture: Over all cultivars, the TA curve fell very close to the five year average.

Overall, in spite of the early and lengthy drought, fruit ripening proceeded at an average pace—despite extra heat in August and September that might have accelerated ripening in a wetter year. Here’s some pure speculation on my part: Perhaps the drought stress was enough to affect vine function (slow things down) to counterbalance the extra heat. Perhaps the ‘push’ and ‘pull’ of these two factors resulted in an ‘average’ ripening season.
Riesling
Top to Bottom: Berry Wt, Brix, pH, TA

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