I come to bury 2018, not to praise it. I mean, yuck. New York agriculture presents challenges every season, but this one bordered on ridiculous.

The past 15 years have brought everything from devastating winter freeze events to superstorms, but this is the year that many around the state are calling their most challenging ever, and these aren’t even the folks who were hit with seven inches of rain over two hours in August. I don’t have the heart to ask those people about the season, like I wouldn’t ask Mary Todd Lincoln how she liked the play.

For everyone except the north country, there was humidity, rain and rot; the north country had humidity and a drought. We know that our winemakers have plenty of tricks up their sleeves—it’s just that 2018 called for extra sleeves.

**Winter.** According to our bud mortality tracking, the 2017-2018 winter was not particularly dangerous for grapes. There was one period in January where Lake Erie and the Finger Lakes got cold enough to reach the 10% threshold for primary bud damage on some varieties, but for the most part temperatures stayed above zero Fahrenheit. I don’t think the lows ever reached the LT₅₀ point in any of the places Cornell was tracking.

In the north country it was much colder, but not by their standards, and on Long Island it was much warm-
lated enough heat to catch up to and then exceed the long-term average. While the heat caught up, rainfall lagged behind, with April and June both being drier than average (Figure 2).

On Long Island, it was a cool, wet spring that Rich Olsen at Bedell calls “more or less the norm for the North Fork.” They started a little behind, but these days Long Island picks up 3000 GDD with out fail. The Hudson Valley seemed to get the lousy downstate spring and lousy upstate summer, making for what Michael Migliore at White cliff calls “the most difficult season in 40 years of growing grapes.”

Summer. By late June, lawns were actually starting to brown a bit and people upstate talked more of dryness than anything else. July was also a little dry, meaning that in Geneva three of the four months from April through July were below the long term average for rainfall (see Figure 2).

That feels like a long time ago, or maybe some dreamed alternate reality. Whatever the feeling, “dry” is not a word I will associate with my memories of 2018.
August changed the narrative in a number of ways. First, there was the heat and humidity. While August was above average by GDDs, it wasn’t hugely above average, especially by recent standards.

Syracuse.com meteorologist Glenn Coin looked at August in Syracuse, and noted that while the highs were 1.3 degrees warmer than average, nightly lows were 4.3 degrees warmer than average. He then used the Iowa State Mesonet system to produce an astounding chart of the summer hours with dew point at or above 70°F, which is basically hours where it’s Too Dang Humid (TDH).

The year 2018 had more than twice as many TDH hours as the next highest year, at least in Syracuse. I looked at weather stations across the state, and found that while not all of them were recorded.

breakers, 2018 was as humid as it gets in every part of the state (see Figure 3).

Then came the rains. I’m part of a group that goes running every Saturday morning at the north end of Seneca lake. I’ve been doing this for a few years now, and in that time we’ve seen all sorts of lake activities and weather conditions.

What I hadn’t seen until this year was piles of debris washing up on shore, as if from a shipwreck. It wasn’t from a shipwreck, of course, it was the remnants of the freak storm and resulting floods that hammered the middle of the lake on August 14 and 15. Some areas received as much as seven inches of rain in two hours, and Hector received 11.3 inches over those two days (Figure 4).

Water destroyed fields, roads and bridges, and the landscape still shows plenty of scars. That catastrophic event was like some almighty on-switch, and it feels like New York hasn’t gone a week without significant rain since then.
Meanwhile, just across the lake near Dresden, the rainfall ‘only’ totaled 2.3 inches, and the flash-flood produced little damage to infrastructure or vineyards (Fig. 4, bottom).

Geneva received relatively little of the August Deluge, but you can see that we still doubled the long-term average for the month. And when it didn’t rain, it was cloudy. August featured more cloudy days at 1 pm than any on record at the Penn Yan airport (Figure 5).

Fall. Labor Day felt a little like the bell to end a round in a boxing match between grapes and mother nature—a boxing match that was not going particularly well for the grapes.

What had begun with reasonable hopes and relative success had somehow gotten wildly out of hand, and now we could only hope to escape without too much more damage. In the years I’ve been writing these season recaps, one of the more frequent narratives has been the iffy summer followed by the excellent fall to save the season.

Again in 2018 we were in desperate need of a warm, dry September and October to boost maturity and ease disease pressure. Spoiler Alert: no dice.

Maybe it was the damage already done by the humidity (Figure 6). Maybe it was the rain, which never left for more than three days in a row.

Maybe it was a combination of these factors or other factors that were harder to perceive, but for whatever reason, sometime around September 15th the rot index went from suboptimal-but-manageable to Zombie Apocalypse, Vineyard Edition.
From this point on, harvest entered the salvage phase. Sullen, soggy grape growers delivered fruit to sullen, sticky winemakers, as quickly and efficiently as possible. Sugars were low, acids were low, morale was low. Rot and frustration were high. Almost everywhere, grapes were harvested early and/or at lower sugar levels.

The working theory is that the warm nights helped acid degradation, while the clouds and rain did not help sugar accumulation. Earlier varieties could (sometimes) be pulled in close to maturity before too much damage materialized. Disease resistant cultivars were good to have this year, but they still lacked ripening conditions. Riesling, being a relatively late variety but also one prone to rot, took it on the chin.

Wines. Michael Migliore is happiest with the early whites, but says “Everything else was picked on degree of rot and weather coming at us.” That picking schedule was an all-too-common theme in 2018. In the Finger Lakes, Kelby Russell says the Bordeaux reds held well, and Kris Kane echoed that sentiment in Lake Erie, while also calling attention to good quality of his Gruner Veltliner.

On Long Island, Rich Olsen agrees on Cab Franc, includes Malbec, and also likes Sauvignon Blanc and Albariño. Andrew Rockwell at Sparkling Pointe says they’re happy with most of what they have, but notes that they picked 7-10 days later than usual to achieve the maturity they were after. Lindsey Pashow from Harvest NY thinks yields were up in the north country, possibly due to a lack of winter/spring damage.

Kris Kane at 21 Brix sums up 2018 perfectly: “It was a real bummer type of year.” Winery owners in the Hudson Valley and Finger Lakes both told me this was their hardest year ever.

When I text my Niagara and Lake Erie contacts, I receive the kind of jokes my dairy farming cousins tend to make, which are of the have-to-laugh-or-I’ll-cry type.

The Long Island reports are more positive, but I still see comments like “it was a good year to be making sparkling wine,” and “I’m grateful for the tireless efforts of my vineyard manager,” which I think can be interpreted as: Challenges Were Faced.

If there’s good news, it’s that the grape growers are now or will shortly be done for the season, and can hopefully at least take solace in the fact that they fought the good fight as well and as long as they could. Grapes are in the cellars, and New York winemakers are not easily fazed. Just don’t be surprised to see them walking around in shirts with eight or nine sleeves.

Acknowledgements:

Glenn Coin at Syracuse.com published the following article that allowed us to find the humidity charts in this article, which were created with the Iowa State Mesonet system:

Improving markets. There has been some good market news for juice. Volume of sales is up significantly for National Grape and Refresco (formerly Cott). The pace of sales and price is on a modest rise for Growers Cooperative. Most importantly for some, Agri-America has set a target of processing 7,000 tons in their newly acquired processing plant in Fredonia, NY (Formally part of Cott/Star).

Not all market news is good news. This was certainty a bright spot compared to recent years but there is ample reason for grape growers to remain cautious. This good news is directly related to Concord juice being offered to more markets. It is not related to a fundamental shift in the demand for grape, juice or other caloric beverages.

On the retail level, low price pressures mostly remain. If demand and price do remain healthy processors will likely increase investment in facilities, increasing long-term profitability and sustainability as those investments have been reduced by most processors over the last five years.

For western New York growers, above-average rainfall throughout the season led to more challenges than most had anticipated. During the latter period of harvest, weather improved slightly, but increased losses from disease, insect and splitting were widely reported. Processors struggled with Concord fruit that pressed as though it was more mature than brix indicated. Brix accumulation during harvest was well below expected performance.

**Yields, sugars, and late-season crop shrinkage.** Average juice soluble solids for the region has been 16.3° brix in the juice grape market. With most plants taking in similar brix, National’s North East plant has been somewhat higher than average at 16.4° brix.

Quality issues that impacted crop size showed up in final yields. Yields were tracking to beat estimates by 5% in the first week of harvest. But by the end of harvest overall yields ended up 5% lower than estimates.

Virtually no growers had issues meeting minimum brix standards. Many growers reported accumulating less than 2° brix throughout the entire harvest season. Those that were just shy of minimum standards found themselves harvesting late and delivering loads in the “penalty zone” of 14.5 – 15.0° brix for National Grape. Growers delivering to other processors typically hit 15.0° brix but lost as much as 20% of yield while waiting.

It serves as a good reminder that even in an unusually good year there continue to be outside risks of weather during the fall that slow ripening. Since we cannot harvest all of the acreage in the last two weeks of harvest it is important to manage different blocks differently. A 15.5 on September 20th is a different target than a 15.5 on October 24th.

The same old challenges all remain; harvest is a reminder that it is never easy. That being said, this may well turn out to be the best harvest some growers have had in the last 5 years.

Kevin Martin
Lake Erie Regional Grape Program, Cornell and Penn State Cooperative Extension
The wine market has also softened. We have seen high productivity in recent years from other regions. The market to supply small wineries is becoming increasingly competitive. Even National Grape Cooperative has entered the space.

Also, wine demand is pointing toward another evolution in consumer taste and behavior. This may lead to some upheaval in major labels. We don’t know what ingredients (grape varieties) will emerge in new product lines. Depending on the severity of shift in consumer behavior, we actually do not know that new product lines will fully replace the old ones.

**Harvested acreage increases.** As a result of good market news (a new processor taking more grapes), we saw an increase harvested acreage and total Concord yields. The region processed nearly 175,000 tons of Concords at a final average brix of approximately 16.3°. The total tonnage includes an estimated 30,000 tons of Concords processed into wine. This average Brix does not include Concord processed into wine, as wineries sometimes intentionally schedule and request low sugar. We did see a significant drop in hybrid prices not sold to the large wineries. Without a frost in the Midwest, I would expect those prices to continue to drop. Without a frost, there may not be a market for all tonnage produced next year.

In 2018, berry weight tracked slightly lower than the long-term average, while soluble solids started out ahead of average, then converged with the long-term average at the CLEREL farm in Portland, NY.
Fruit Chemistry Trends: 2014-2018

Timothy E Martinson
Section of Horticulture
Cornell AgriTech

Last year at this time (2017, yellow bars in our figures), we were looking at what was a very high yielding year for many vinifera varieties, but generally with high brix and moderate acids. Many Concord growers also had above-average yields with good maturity (although some overcropped vineyard ran into K deficiency that stalled ripening).

Our five-year average includes the relatively cool 2014 season (brix starting low and acids starting high, but ending up in the right place at harvest), and the relatively warmer 2015 and 2016 seasons (2016 of course being a drought year with small berry size, high brix and low acids).

This year, all the maturity indicators ended up right in the middle of the five-year average, except for one: Soluble solids.

With the exception of early-harvested Chardonnay (~20 °Brix, but some harvested a week or two later than normal), and champion sugar-accumulator Marquette (24°Brix), soluble solids ended up at the low end of the five-year average. Cabernet franc, Merlot, and Traminette all ended up around ~18.0 °Brix (Range = roughly 18 to 22 °Brix in our 5 year average). Our large sample of 16 Riesling blocks averaged 17. 5 °Brix at harvest (range 17.5-20.5 °Brix).

A look at the brix curves shows a notable flattening around week 4 or 5 (September 23 samples). After that date, there appears to have been very little sugar accumulation across many varieties. Opinions vary about why – but I suspect that saturated soils (some had standing water in row middles at harvest), ample moisture (which may have diluted sugars in some cases) and extensive cloud cover all played a role.

Often the region has either a ‘high brix – low acid’ year (warmer and drier) or a ‘low brix-high acid’ year (cooler and wetter). This year might be remembered as (among other things) a ‘low brix-low acid’ year.
Merlot
Top to Bottom: Berry Wt, Brix, pH, TA

Chardonnay
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
Marquette
Top to Bottom: Berry Wt, Brix, pH, TA

Concord
Top to Bottom: Berry Wt, Brix, pH, TA
Can Sheep Replace Herbicides, Mowing, and Suckering?

Janet van Zoeren and Justine Vanden Heuvel

Weeding and suckering can both be expensive and time consuming in the vineyard, so wouldn’t it be nice to have a laborforce willing to mow and sucker for free?

Justine Vanden Heuvel’s program auditioned a flock of sheep as a free labor source in a trial that took place in a 0.6 acre Noiret block at Cornell AgriTech. If successful, sheep grazing in the vineyard could prove to be a simple, cost-effective method to keep down weeds, add fertilizer, and remove suckers.

It worked. According to Justine, “They ate every weed in the block but the thistle – including poison ivy, Virginia creeper, etc., so that mowing wasn’t necessary. They also did a beautiful job suckering the vines, just as good as a human.”

In Justine’s trial, 23 sheep were released in the Noiret block for 3.5 days in early June. They were kept in the block only as long as there were adequate weeds to forage on, reducing their temptation to feed on the canopy. However, they showed no interest in the fruit clusters. Only one of the 23 sheep showed any behavior of putting its hooves on the trunk or feeding on the canopy shoots.

Some maintenance is necessary to care for the sheep while they’re in the vineyard. In Justine’s trial, they checked on the sheep daily to makes sure they had plenty of water and minerals, fenced them in using a solar powered, moveable electric fence, and provided a shelter to protect them from predators.

Justine, along with Alexia Hain (a local shepherd), has applied for a Northeastern SARE grant to support further studies on using sheep in high-trained vineyards.

Overall, sheep in the vineyard, at least for a short period in the spring, could be a great option for weed and sucker control.

For More Information:
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