

# Despite regional challenges, most vintners across U.S. consider this year's harvest a success

By Stacy Briscoe

**F**ires to the west, hurricanes to the east, extremes in temperature variation within the central states and continuing labor struggles throughout North America — the 2018 growing season kept grapegrowers around the country on their toes. Yet almost across the board, industry experts agree that 2018 proved to be a fruitful year and predict successful winemaking.

"2018 will go down as a good vintage that should make balanced wines with good acidity, mature tannins and great tastes that are very capable of aging," said Glenn McGourty, the University of California Cooperative Extension (UCCE) farm advisor for Lake and Mendocino counties.

McGourty was one of several advisors, academics, growers and winemakers who participated in *Wines & Vines*' annual vintage report. Regional write-ups were provided by experts throughout North America, including California, the Pacific Northwest, Midwest and eastern states, as well as Canada.

Each region faced its own challenges, due to the unforeseen acts of Mother Nature. In California, as in 2017, smoke proved to be a concern, as wildfires spread throughout Lake and Mendocino counties. The effects continue to be assessed and, while neighboring regions like Napa and Sonoma reported no notable impacts, some growers within fire ravaged, or smoke-filled areas did see their fruit rejected by buyers fearful of smoke taint.

However, on the whole, California vintners reported a slow and steady growing season, resulting in excellent fruit structure. A dry winter, cooler-than-average spring and the absence of heat spikes in the summer months seemed to be the pattern throughout the state, resulting in what many are calling a "normal" harvest after so many years of excessive drought conditions.

Overall, pests and vine diseases appear to have been less of an issue in 2018 than in previous vintages in most California regions, though some growers needed to switch fungicides, as certain strains of mildew became resistant to those used in the past.

Mumm Napa was one of the first to harvest grapes in Napa County with a Pinot Noir pick on Aug. 15.

There are, of course, exceptions to the rule. Monica Cooper, UCCE farm advisor for Napa County, reported that August and September were marked by spreading populations of vine mealybug, widespread potassium deficiency symptoms, late-season mites and variegated leafhoppers. She also stated that leafroll and red-blotch disease symptoms were more severe and appeared earlier in the season than in past vintages.

According to Lynn R. Wunderlich, the UCCE farm advisor for the Sierra Nevada foothills region, cooler temperatures brought on frequent instances of powdery mildew. When and where heat stress occurred, mites became a problem, especially in Zinfandel blocks.

Yet the 2018 crop was fruitful across California, with vineyards producing higher yields than early-season estimates.

On the east side of the country, 2018 proved to be a difficult year, marked by a lack of sun and heat and an overabundance of rain from hurricanes Florence and Michael sweeping through many states. "By the end of September, New Jersey had already received a year's worth of rain," said Gary C. Pavlis, associate professor at Rutgers Cooperative Extension.

The excessive moisture led to an increase in vine disease such as sour rot, botrytis and various kinds of mildew. "Growers had to be on top of their fungicide spray schedule and canopy management plans to minimize the risk of disease," said Michela Centinari, assistant professor of viticulture at Pennsylvania State University.

But even those who were on top of crop management reported that red wines will be lighter in color, as many grapes did not reach optimum ripeness, with some varieties barely reaching 20° Brix in certain regions. "Some winemakers chose to utilize more red fruit for

rosé-type wines than an average year," said Tremain Hatch, extension associate at Virginia Tech.

Overall, East Coast correspondents were less enthusiastic about the 2018 vintage than vintages past but remain optimistic that those growers who remained diligent in the field and were able to bring in clean fruit will produce good wines.

In the Midwest, a warm spring and dry summer meant less disease pressure than usual, but a few areas, such as Indiana and Iowa, reported that Japanese beetle infestation was extremely bad during the 2018 growing season. Late-season rainfall also meant more instances of downy and powdery mildew, as well as sour rot due to harvest and post-harvest rains. And Bruce Bordelon, professor of viticulture at Purdue University, stated that Indiana farmers are seeing more instances of trunk disease across the region, causing major concern for growers.

Herbicide drift, especially dicamba, continues to be an issue for Midwestern farmers where wine grapes are grown alongside other crops, such as soybeans.

For the past three years, Missouri has been experiencing intermittent drought patterns, resulting in problems with irrigation. "Missouri would benefit from fall rains or winter snowfall to replace much-needed subsoil moisture," said Dean S. Volenberg, viticulture and winery operations extension specialist at the University of Missouri Grape and Wine Institute.

"New Mexico's ... wide variation in quantity is due to the state's range of mesoclimates," said Gill Giese, extension viticulture specialist at New Mexico State University. This included April frosts, heat spikes in the summer months and excessive rainfall during the harvest season.

Growers in Texas have reported another successful harvest, despite extreme drought conditions in most of the state. Berries were smaller, Brix took longer to develop, but overall yields and quality are good.

The one concern throughout North America is a lack of available labor, which has compelled many growers to mechanize vineyard operations. Those growers who want to continue the use of hand-harvesting are utilizing the federal H-2A visa program to ensure labor is available throughout the growing season.

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# CALIFORNIA

## FRESNO COUNTY

George Zhuang  
Farm advisor  
University of California  
Cooperative Extension

2018 yield is about average in Fresno County, with approximately one or two weeks of delayed ripening. Overall, the fruit quality is excellent across different regions and types of grapes. The growing season of 2018 started with the dry winter and cold early spring. It was reported that there were several incidences of winter freeze and frost damage on various locations and some earlier varieties, like Pinot Gris. In the middle of the growing season, there was an extended period of smoky days due to the wildfires. Disease pressure is relatively low compared to last year. Heavy canopy with less spray coverage and certain disease-prone varieties are most likely to suffer from powdery mildew and bunch rot.

With the continuing vine removal in the southern San Joaquin Valley, particularly Thompson Seedless, it seems that we have reached a shortage of grape supply. We have seen a historical high raisin price of \$2,150 per ton in 2018, as well as high juice price. Due to the ongoing vine removal and not many new grapevine plantings, raisin prices may well stay high in the foreseeable future.

This year I have seen the most raisin vineyards harvested by machine at varying degrees, and it indicates that increasing labor costs are really starting to change the farming practices on grapes. Mechanical leafing is also becoming more and more common in the valley, largely because right now we have an affordable way to meet the demand of wine premiumization with less cost. Water scarcity and increasing labor cost

are and will still be the two biggest challenges for grapegrowing in the San Joaquin Valley (SJV). Ongoing research projects on irrigation innovation and vineyard mechanization are promising to make SJV grapegrowing competitive and sustainable.

Currently, I have five field projects on Pinot Gris with various clones, rootstocks, crop load and mechanical pruning in the SJV. Pinot Gris has started to get popular in the past few years, and the biggest challenge of growing Pinot Gris in the valley is to achieve the economically sustainable yield with better fruit quality and less rot. I am currently also working on Cabernet Sauvignon, the king variety of California, in SJV. Focusing on irrigation and mechanical leafing, hopefully I can improve the fruit quality, particularly the color, of Cabernet Sauvignon, even in the hot climate of SJV.

## LAKE AND MENDOCINO COUNTIES

Glenn McGourty  
Farm advisor  
University of California  
Cooperative Extension

2018 will go down as a good vintage that should make balanced wines with good acidity, mature tannins and great tastes that are very capable of aging.

It was a very nice harvest, with grape yields above average in size and quality. Fruit ripened evenly, at a moderate pace with good hang time, and had great balance of acids, sugar and phenolic maturity. Standouts include Chardonnay, Pinot Noir, Cabernet Sauvignon, Zinfandel, Sauvignon Blanc and most cultivars.

The growing season started late and finished late. Spring was cool, but when bloom occurred in





BOB MCCLENAHAN

Harvested Pinot Noir grapes on the crushpad at Mumm Napa.

late May and early June, weather was ideal for pollination. There was some heat in the middle of the summer, but by harvest, temperatures had moderated and allowed for good ripening conditions. There were just a few instances of mildew due to strains of powdery mildew resistant to fungicides. Harvest proceeded fairly smoothly. More vineyards are being harvested with machines, as labor continues to be tight.

Spot markets shrunk, with few wineries wanting any fruit beyond the contracted amounts. Smoke issues were a factor due to horrific wildfires in Lake and Mendocino counties. The impact is still being assessed. Some fruit was rejected by larger companies. Many smaller wineries worked with growers to process fruit and clean it up. Other vineyards were definitely affected and were a loss due to smoke flavors.

## MONTEREY, SAN BENITO AND SANTA CRUZ COUNTIES

Larry Bettiga  
Viticulture farm advisor  
University of California  
Cooperative Extension

There was concern after the cool spring that yields could be lower due to poor set and smaller berry size. As the harvest progressed, it became apparent that most vineyards were producing near average yields, with the occasional block producing crop at slightly above average. Quality was very good, with good balance that should bring great complexity to the wines.

The 2018 growing season was a return to a more typical weather pattern for the northern central coast. Cool spring temperatures stretched both the bud break and bloom, and moderate summer

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temperatures with no heat spikes continued through harvest, producing a long hang time and slow, even ripening. Harvest started in late August for sparkling wines, with most grapes picked during September and into late October. The season was not plagued by any severe pest pressure. Powdery mildew pressure was lower than in previous seasons. An early October rain did not seem to increase bunch rot levels, as the typical afternoon winds and dry conditions after the single rain event quickly dried the canopies and fruit.

Growers in Monterey County have begun an areawide approach to reduce the spread of grapevine leafroll virus by its main vector, mealybugs. Vine removal and mealybug controls are being coordinated on a volunteer basis between neighboring vineyard properties.

## NAPA COUNTY

Monica Cooper  
Farm advisor

## University of California Cooperative Extension

Overall, we experienced favorable growing conditions in 2018, including a noted absence of the heat spikes that have characterized recent seasons — disappointing for those folks hoping to get data from shade-cloth or sprinkler-cooling trials! Precipitation patterns through the winter were sporadic, as a high-pressure ridge sat over Northern California in December 2017 and February 2018, resulting in dry soil conditions by mid-February. The sixth wettest April in the last 30 years put us at 63% of mean annual rainfall by the end of that month. Following a normal bud break, the growing season progressed mostly uneventfully.

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Wind-driven wildland fires once again became a concern, sending high-level smoke into the skies over Napa.

Monica Cooper  
Farm Advisor  
University of California  
Cooperative Extension

Concerns developed for our neighbors in Lake and Mendocino counties in late July and early August, as wind-driven wildland fires once again became a concern, sending high-level smoke into the skies over Napa. August and September were marked by ever-spreading populations of vine mealybug, widespread potassium deficiency symptoms, late-season mites and variegated leafhoppers, as well as concern about sugar accumulation disorder. Unlike 2017, leafroll and red-blotch disease symptoms were also quite severe in 2018, appearing earlier than expected in the growing season. Harvest returned to a more average start date compared to recent years, and it proceeded sporadically with periods of high and low activity, continuing into mid-November. Yields were high all around, with initial estimates up 20% over average, and some longtime growers reporting this as one of largest-yielding vintages in their memory.

## SAN JOAQUIN COUNTY

Lodi AVA, River Junction AVA and Tracy Hills AVA

Paul Verdegaal  
Farm advisor *emeritus*  
University of California Cooperative Extension

The 2018 harvest began later than in previous



years and was about on long-term average in early August. Yields were average to slightly below average, with a few exceptions; overall crop was down about 10% to 15%. The maturity of varieties didn't overlap to any extreme, and harvest was well-paced, allowing for orderly deliveries to wineries. Quality was very good to excellent, with ripe flavors and good fruit composition. A harvest rain in early October was very heavy but erratic in pattern, with stations reporting anywhere from no rain to 2 inches.

The growing season started with a dry winter, but late rains resulted in just slightly below-average total rainfall. Fewer-than-average 100° F days and cool nights slowed maturity slightly and induced scattered mildew problems. Some cases were severe, with more indications of increasing resistance to older fungicides. Vineyard mealybug was not severe and most other pest problems were limited, except more red-blotch virus was evident.

Grape prices softened for some varieties such as Zinfandel and other reds, but overall were stable. Demand was moderate but weaker in some varieties such as Zinfandel for red. Yields, for the most part, were average at best, with most sites 15% or more below average.

More interest is developing in mechanization of all aspects of vineyard management. Increased use of drones or aerial imagery is being adopted. Soil-moisture monitoring has increased, as well as experimentation in monitoring of evapotranspiration by newer technology.

Biggest concerns for growers and winemakers are labor availability and cost and regulation increases for labor, water and production practices. Also of concern are increased costs in taxes, assessments, fees, permits, licenses, surcharges and penalties. At the same time, foreign competition, subsidized by governments, is a concern. Removal and replanting of old vineyards began two years ago and continues, due to old age and low yields, newer varieties, to reduce labor of head-trained vines, and red-blotch virus effects.

Challenges include navigating an increasingly complex and punitive regulatory landscape, competition for water use with urban and environmental use, labor availability and capability. Successes include more recognition for wine quality at reasonable prices and further strengthening of grower organizations such as the Lodi Winegrape Commission, Lodi District Grape Growers and Farm Bureau. These organizations are helping both growers and consumers appreciate that the region is well-suited for sustainable production of quality fruit and wines, while contributing to the economy and environment.

## SAN LUIS OBISO COUNTY

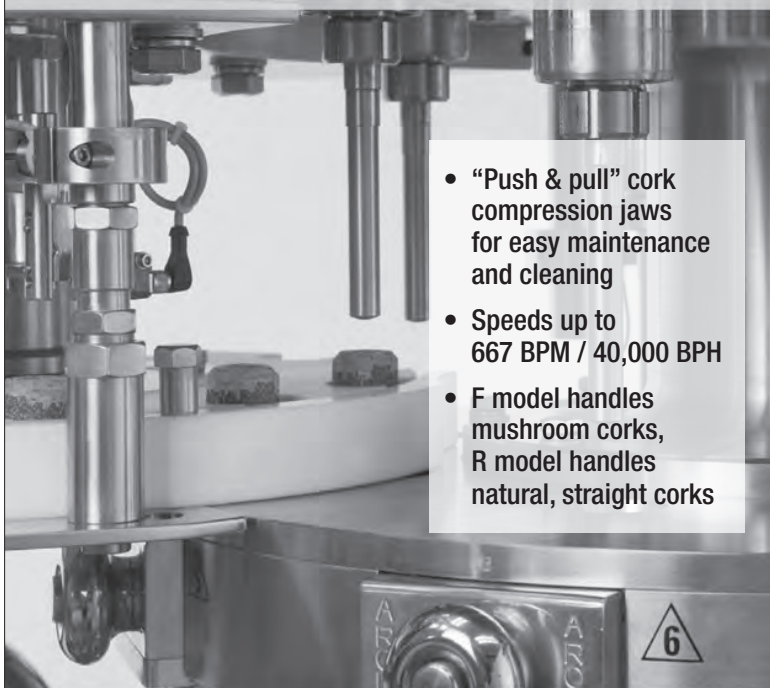
**Jason Haas**  
Partner and general manager, Tablas Creek Vineyard  
Chairman, Paso Robles Wine Country Alliance

Quality looks to be outstanding, with great color, rich texture and vibrant acids. Quantity was down 7% from our near-record levels of 2017, but still about 10% above our long-term average. It seemed as if late-ripening varieties (Roussanne

and Mourvèdre, principally) were down in yields, while the earlier-ripening grapes (like Grenache, Syrah and Viognier) did better, but everything looks strong. Although we started harvest late (about two weeks later than our average this decade), the excellent conditions meant we never had to pause, and we finished more or less at our average time, on Oct. 25. So a short, concentrated harvest that appears to be making powerful, concentrated wines.

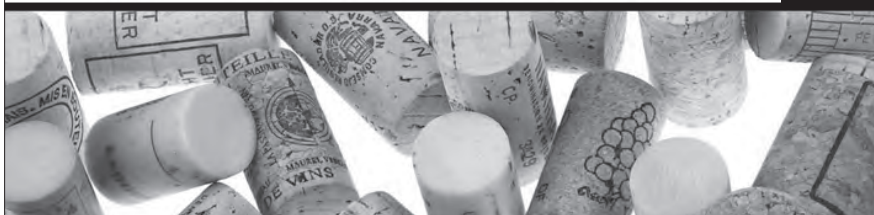
Most of the year was moderate to slightly cool, except for a scorching six-week stretch be-

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Machine harvesting in Santa Barbara County. California's Central Coast enjoyed good growing conditions and recorded average to slightly higher than normal yields.

tween the second week of July and the middle of August. July was our hottest month ever, and August

warmer than normal thanks to a hot first two weeks, but the rest of the year was not. So, while the

overall picture suggests a warm year, with about 7% more degree days than average, it's important to remember when and how the heat came, and just as importantly, when it didn't. We had a cooler spring (1% fewer degree days than normal) and harvest (1.5% fewer degree days than normal) surrounding the hot midsummer (20% more degree days than average).

Disease and pest pressure was less this year than last. Leaf hoppers, which were a big issue last year, were much less severe this year. There was a little mildew pressure early (before the July warmup) but nothing particularly troubling.

**Lynn R. Wunderlich**  
Farm advisor  
University of California  
Cooperative Extension,  
Central Sierra Region

Average to slightly above average yields and high quality due to a slower ripening period characterize the 2018 season. Cooler temperatures at higher elevations in late summer allowed for slower ripening and good accumulation of both acids and flavors. The slower harvest calendar reminiscent of "how it used to be" gave most wineries time to process.

Rainfall was more normal and much lighter than in 2017. We received 27-33 inches during the "hydro-year," about half of the previous year. A frost event hit lower-slope areas in mid-April, causing severe losses for some and reducing yields in those blocks; growers reported looser clusters in those blocks. Plymouth's maximum monthly average air temperatures were the coolest

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they've been in June for the past five years, and the monthly minimum temperatures were the lowest they've been in September for the past five years, allowing for perfect harvest conditions.

This was a year to pay attention to your own site considerations. Cooler temperatures at higher elevations brought nearly constant powdery mildew pressure there, while lower elevations had enough heat to keep the model at zero for most of July and August. Mites appeared with heat stress in many blocks in late summer, especially in Zinfandel. Red-blotch virus continues to spread and be a major concern for the industry.

Demand for Zinfandel varied across the region. Many Zinfandel growers were left with beautiful fruit unharvested, and some are considering replanting with alternative varieties. Others reported renewed interest in Zin, especially from local winemakers

and for organically grown. Some old-vine Zinfandel blocks are finally giving way to phylloxera, providing an opportunity to replant with appropriate rootstocks or explore other varieties such as the heat-loving Italian grapes. Rhônes still reign, and El Dorado is considered "ground zero" for Gamay.

Mechanical harvesting is growing in the foothills for the larger and less-steep blocks. Growers reported the usefulness of the powdery mildew index; we now have seven stations across the foothills, all publicly available on the University of California Statewide IPM Program. This was a year you could save a spray, or spray every 10 days, depending on your location.

A drier water year meant paying close attention to the soil water profile. Labor shortages continue to be a major concern, though fruit held on better in blocks where harvest was delayed. The



A crew picking Bordeaux varieties on Sept. 21 for Jordan Vineyard & Winery in Sonoma County.

Mendocino Complex fires sent smoke over midsummer that was rough on crews working out-

doors. Many were sent home midday in August when air quality was unhealthy.

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Winemaker Steven Urberg oversees pressing during the first day of harvest at Gloria Ferrer Wines in Sonoma County.

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## SONOMA COUNTY

**Rhonda J. Smith**  
Viticulture farm advisor  
University of California  
Cooperative Extension

For many Sonoma County growers, the 2018 crop was big but not huge, with those vineyards producing higher yields than early-season estimates. Some growers bumped up against the contracted maximum they could deliver to buyers; thus fruit was either left on the vine or picked for the bulk market. Small overages were often able to be sold to other buyers, yet sometimes at a reduced price. Smoke-taint concerns returned with this vintage due to the wildfires in neighboring Lake and Mendocino counties, although grapes were not impacted in Sonoma County.

Maximum daily temperatures in July and August were at or slightly lower than in recent years, resulting in a longer ripening period. In August, warmer regions rarely saw temperatures in the 90s, and due to a deep marine layer, highs in the 70s were common during the last three weeks of the month. The ab-

sence of heat spikes for several days of maximum temperatures near 100° F allowed for consistent fruit maturation. As a result, fruit hit sugar- and acid-maturity targets later in the season than in the recent past. Harvest dates for some sites were delayed until the acid levels dropped.

Grape powdery mildew was held in check with very few exceptions. Following a bad mildew year in 2017, in 2018 more sulfur applications were made up until the grape contract required growers to switch to a different fungicide. Botrytis bunch rot presented some challenges due to light to moderate rainfall over a six-day period that ended in the first week of October. One to 2 inches of rain fell on unripe fruit. Most growers were able to prevent fruit loss by immediately opening up the canopies to take advantage of dry, breezy conditions that followed.

Labor continues to be a concern in the area. An increasing number of growers utilized the federal H-2A visa program to ensure that labor was available over the growing season.



# NORTHWEST

## BRITISH COLUMBIA

Peter Mitham  
Northwest correspondent  
*Wines & Vines*

British Columbia experienced largely favorable conditions throughout a growing season that saw pest and disease pressure kept in check and supporting hopes of above-average yields that could push this year's harvest toward 35,000 tons. Wildfire smoke was a concern, and several wineries tested fruit for signs of taint. There are minimal concerns for the 2018 vintage, however, given the lack of taint from wildfire events in previous years. A crisp end to the season allowed good flavor development combined with a crisp acidity that promises stellar wines.

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Reported quality is very high across the region, and many think it will be one of the best vintages in recent history.

*Patty Skinkis  
Associate professor and viticulture extension specialist  
Oregon State University*

A warm spring delivered a blast of heat in late April that culminated in localized flooding in early May. However, the moisture disappeared as hot weather continued through May and accelerated budbreak. The season seemed set to deliver another early harvest until wildfire smoke settled over the southern half of

B.C. in late July and into August, reducing sunlight and contributing to moderation in temperatures. The first grapes for sparkling wine came off in late August, with harvest beginning in earnest after Labor Day. Harvest continued into November.

Good yields will help address growing demand for red grapes, for which prices are approaching \$3,000 (all figures in Canadian dollars) a ton. Cabernet Sauvignon averages \$2,800 a ton versus \$2,300 a ton for Chardonnay, based on the industry's 2017 crop report. Many varieties have posted double-digit increases. Several wineries have met demand by expanding plantings, sometimes into new, high-elevation sites. An established vineyard can fetch \$200,000 an acre.

While wildfire and water management are on the minds of many growers, labor is an ongoing concern. Many wineries source workers through Canada's temporary foreign worker programs, which continue to see changes. Several applications faced delays in 2018, adding to concerns regarding the shortage of domestic workers.

## IDAHO

**Snake River AVA, Lewis-Clark Valley AVA and Central Idaho**

Moya Dolsby  
Executive director  
Idaho Grape Growers & Wine Producers Commission

Yields for 2018 were up, primarily for two reasons: bounce-back year from the freeze in 2016 and 2017, and the Pacific Northwest in general had a higher-yielding growing season. Higher-end fruit was higher-yielding, but also kept up the quality. This is primarily due to a Goldilocks season (not too hot, not too cold), as well as vineyard practices to keep quality high.

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VINTAGE 2018



Brandon Moss, assistant winemaker at Gramercy Cellars in Walla, Walla, Wash.

The growing season started off warm and early, but then cooled off a bit and slowed down. We had a warm summer that wasn't too hot, and the nice weather extended into the fall for some good hang time. Vineyards with low spots were challenged with some frost in late September and mid-October. With good spray programs, mildew shouldn't have been an issue. A mild winter and ideal conditions during the growing season led to high pressure for both bud mites in the early season and spider mites during the summer. Birds during harvest were extremely bad. The level of starlings eating grapes in our vineyards was mind-blowing.

Higher yields created tank space issues for wineries, which is a good thing compared to last year. As always, labor availability is an issue and will continue to be an issue for all agriculture in the United States.

## OREGON

**Patty Skinkis**  
Associate professor and  
viticulture extension specialist  
Oregon State University

Yields were higher than average across all of western Oregon, including the Willamette Valley and valleys of southern Oregon. Reported quality is very high across the region, and many think it will be one of the best vintages in recent history. The majority of the spring, summer and fall were warmer than the long-term average but on par with the past few years. We did not have major heat spikes near *veraison* this year as in 2015 or 2017. The harvest window was long, as we had ideal September and October weather (warm and dry), and due to the dry summer and fall, disease pressure (specifically powdery mildew) was low.



Grape yields have been increasing gradually each year, leading to extra fruit on the market. Grape prices have remained steady or increased slightly, depending on cultivar. Wineries have been at max capacity. Labor availability is always a concern, but larger companies are mechanizing more to accommodate. In fact, there was more use of mechanical harvesting in 2018 than in prior years, and many are reporting excellent fruit quality from mechanically harvested fruit.

## WASHINGTON

**Vicky Scharlau**  
Executive director  
Washington Winegrowers  
Association

The 2018 harvest was good and big and plenty — big berries, big clusters and super high quality

across all tiers. Overall, the growing season was warm and frost-free. We had a late, wet spring, followed by a warm summer. The days were routinely warmer than normal, but nights were refreshingly cool, with 45° F to 55° F temperature swings.

Growers who were on top of early-season sprays were successful, while those who skipped or extended spray windows paid the price — as always. There were not a lot of changes in grape prices, but demand is significantly lower, so prices will most likely follow. Yields were above average, with unsold fruit remaining after harvest.

Because yields were higher than average, and labor is still tight, it was another big year of additional mechanization efforts and a lot more selective harvest, destemming and mechanical harvesting.



Deer in a vineyard in Okanagan Valley, British Columbia, where growers had to contend with spring floods and summer wildfires.

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# CENTRAL

## COLORADO

### Grand Valley (Mesa County) and West Elks (Delta County) AVAs

**Horst Caspari**  
Professor and state viticulturist  
Colorado State University

The 2018 harvest saw the biggest crop ever produced in Colorado and excellent grape qualities due to outstanding growing conditions. So far, we have received information from about one third of the industry. A comparison to the 2017 survey shows that the yield per acre is up about 11%. Taking into account non-respondents, we estimated the 2017 crop production to be around 2,300 to 2,500 tons and (actual reported tonnage was 2,016 ton). 2017 may have been the biggest crop ever, or maybe not. There was

only a 20-ton difference to the 2015 harvest, too close to call. Either way, it looks like 2018 will come in at around 2,500 to 2,800 tons and will set a new record.

The growing conditions were very dry and hot. There were drought conditions throughout the state, reaching exceptional level for the south-western part of the state, and extreme for much of Western Colorado. Harvest started very early. Most grapes were already harvested by the end of September. Rain and much cooler temperatures finally arrived in the first week of October, but with few exceptions did not cause any disease problems.

The hot and dry growing season resulted in minimal disease pressure. From a disease perspective, this was about as ideal a season as one can imagine, with some



The Blanc du Bois harvest was particularly bountiful in Texas causing tank space issues at some wineries.

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*San Francisco Chronicle*

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growers reporting zero fungicide applications even for highly susceptible varieties.

The 2018 vintage will most likely turn out to be the biggest harvest ever in Colorado. Winery demand for grapes was strong but supply much higher. A very significant amount of grapes were left hanging on the vines, especially Riesling. Overall grape prices appear to be unchanged from 2017. Very good yields meant large surplus for certain varieties, especially Riesling and many cold-hardy (aka hybrid) varieties. Other varieties with surplus production include Cabernet Franc, Chardonnay, Gewürztraminer, Syrah, Viognier, and many others.

Extreme, even exceptional, drought conditions led to early water restrictions in parts of the main grape growing areas. Some growers lost irrigation water as early as June. Nevertheless, impact on vine growth, yield, and fruit quality appears to have been mini-

mal. Labor availability continues to be a major issue.

## INDIANA

### Ohio River Valley, Indiana Uplands AVA

**Bruce Bordelon**  
Professor of viticulture  
Purdue University

Overall, the harvest was good across the state and region. Yields were up, and quality overall was excellent. It was a warm growing season in the Midwest, and that led to a full crop of high-quality fruit. The winter was relatively cold in the northern part of the region, with temperatures as low as -20° F. That caused some bud damage to tender varieties, so growers had to adjust pruning to compensate for losses. The spring started slow with a cool April, but May brought record heat and vines grew rapidly. Fruit set was excellent due to warm temperatures.

Summer was hotter and drier than normal. But beginning the last week of August, measurable rain fell statewide for six weeks. That created issues with diluted flavors and fruit rots on thin-skinned varieties. A very warm September and October allowed late-ripening reds to fully ripen by harvest.

A very warm spring and drier-than-normal summer resulted in very low disease pressure, but Japanese beetles were extremely bad this year, similar to 2017. There was more late-season downy and powdery mildew this year than normal due to late-season rainfall. Sour rot and ripe rot were not uncommon due to harvest season rains. We are seeing more occurrences of trunk diseases across the region, which is a concern for growers.

Widespread planting of herbicide-tolerant row crops, especially dicamba-tolerant soybeans, is leading to widespread herbicide drift. This a major concern for spe-

cialty-crop growers, as they anxiously await EPA's decision on registration for 2019. Labor also continues to be a major concern for all specialty-crop growers. Many are turning to mechanization out of necessity.

Demand for locally grown fruit far outpaces supply in the Midwest. More acres are needed of all varieties.

## IOWA

**Michael L. White**  
Viticulture specialist  
Iowa State University

The Iowa grape harvest was normal, but with some poor quality due to heavy rainfall in the eastern and northern parts of the state. Eastern and northern parts of Iowa had very high rainfall during the summer, causing disease and pest problems, specifically Japanese beetles and spotted-wing drosophila (fruit flies) during harvest.



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Grape prices remained unchanged from the past couple of years, primarily hybrids ranging in the \$1,000-\$1,600 per ton range, with most sales in the \$1,200-\$1,400 per ton range. There is somewhat lower demand from wineries this season because of carryover inventory.

Labor is very, very tight. EPA vineyard worker protection rules increased, and it's now much easier and cheaper to invest in mechanization. Iowa had eight mechanical grape harvesters in 2017; we now have 11, and four of them are doing custom work. Hedgers and leaf pullers are also starting to be used.

## MICHIGAN

**Leelanau Peninsula AVA, Old Mission Peninsula AVA and Tip of the Mitt AVA**

Thomas Todaro  
Viticulture extension specialist  
Michigan State University

Generally, the quality and quantity of the overall 2018 harvest crop for the Leelanau Peninsula and Old Mission Peninsula AVAs in north-west Michigan were within the normal range. Growers reported slightly lower yield (tons per acre) and quality in Pinot Gris and Pinot Noir, normal-to-high yields and quality in Riesling, Merlot and Cabernet Franc, and high yields and quality in cold-climate hybrid cultivars such as La Crescent, Marquette and Frontenac. For southwest Michigan AVAs, yields were average this year, similar to the northwestern region.

The growing season started seven to 10 days later than normal, with bud break occurring around May 17. The summer months were characterized as warm and dry; however, the post-*veraison* period (late August through October) was characterized as wet and cool, which led to slowed ripening and increased fungal disease pressure (fruit rot). Southwest Michigan had a late, cool spring with a late bud



Oliver Winery in Bloomington, Ind., uses a Pellenc harvester to pick Catawba grapes in an estate vineyard.

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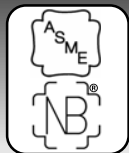
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## VINTAGE 2018

burst (about 10 days later than historical average) and no spring frost. Summer was really hot but humid, and after *veraison* there was a lot of rain.

The disease pressure was high. This was likely due to large and powerful storms (rain and wind) in late August through mid-September, which likely damaged the berries and provided excellent conditions for fungal disease (powdery mildew, downy mildew, botrytis and sour rot).

Chardonnay, Riesling and Pinot suffered the most; Merlot and Cabernet did better.

### MINNESOTA

Annie Klodd  
Extension educator  
University of Minnesota  
Extension

Growers and winemakers I surveyed were generally satisfied with Brix, pH and TA for most of their varieties this year. Quantity was below average and variable throughout the state. The saying I heard repeatedly was: "Quantity was low, but quality was high."

Bud break started two weeks late due to an April 15 blizzard and 9 to 22 inches of snow across southern Minnesota. Temperatures quickly rose and remained high through July, so we had high growing degree day accumulation going into *veraison*, which started July 29 in central Minnesota. We had two major rain events during harvest, with a period of hot temperatures sandwiched between. In the southwest, we had precipitation 50% to 75% above average overall, including several heavy rain and hail events in June, July and September (during peak of harvest). South-central and southeast regions had average precipitation until *veraison*. Then heavy rain in September, one to two weeks before ripening for critical varieties like Marquette and Frontenac, caused substantial splitting, berry shatter, bunch rot and berry shrivel. This led to substantial yield losses for some growers and resulted in overall precipitation to rise to 25% above average for the southeast.

Bunch rots (botrytis and sour rot) and downy and powdery mildew appeared to have the largest impact this season. I also observed a significant amount of phomopsis and anthracnose lesions, but they did not have a notable impact on yield. Flea beetles were heavy during bud break, and Japanese beetles were severe in some parts of the state. Spotted-wing drosophila is widespread throughout the state, but it is not believed that they have a large impact on intact clusters. We cautioned growers to spray for drosophila after rain events to reduce their impact on split berries, since they can contribute to sour rot and other off flavors. Starting in 2016, we have been dealing with reports of bunch stem necrosis in Marquette, but I have also observed it less frequently in other varieties including Prairie Star and Frontenac Gris. We are starting to study grapevine trunk diseases, and one of our major goals is to determine the extent to which trunk disease is contributing to cordon decline, which is a common cause of lost yield in Minnesota.

### MISSOURI

Dean S. Volenberg  
Viticulture and winery  
operations extension specialist  
University of Missouri Grape  
and Wine Institute

In Missouri, grape quality was excellent for all cultivars, including Vignoles, Norton, Chambourcin and others. Depending on location in the state, yield was average or below. Lower yields in some areas are attributed to extended drought periods. This year, Missouri experienced one of the coldest Aprils on record. This resulted in delayed bud break, 10 to 14 days on average later than normal. Record-high temperatures occurred at the beginning of May. Bud break for most cultivars occurred near May 1, and bloom occurred three weeks later. Degree day accumulation was similar to 2017, which is greater than the 30-year average.

Fungal diseases were depressed when high heat (temperatures greater than 90° F) occurred and



dry weather prevailed. Almost all areas of the state experienced periods of drought. Japanese beetles were an eight-week management problem but were controlled.

Many areas in Missouri have been experiencing intermittent drought the past three years.

Dean S. Volenberg  
Viticulture and winery operations extension specialist  
University of Missouri Grape and Wine Institute

A follow-up vineyard virus survey in 2018 showed that some Norton, Chambourcin and Crimson Cabernet vineyards have a high percentage of vines infected with grapevine red-blotch virus (GRBV). In some vineyards, more than 75% of the vines have GRBV. However, at this time it is difficult to say what impact GRBV is having on these cultivars. Norton and Chambourcin vineyards infected with GRBV show none of the classical GRBV symptoms. Only Crimson Cabernet, which is approximately 62.5% *Vitis vinifera*, shows classic GRBV symptoms.

Many areas in Missouri have been experiencing intermittent drought the past three years. This has resulted in surface water ponds used for irrigation becoming low or in some cases drying up completely. Missouri would benefit from fall rains or winter snowfall to replace much-needed subsoil moisture.

## NEBRASKA

Paul E. Read  
Professor of viticulture  
University of Nebraska  
Viticulture Program

Although there were some extremes, the overall harvest was good to slightly better than average. Grape quality was excellent overall, except where hail or disease impacted individual vineyards. Yields were down in a few instances, but mostly average or above average in

most parts of the state. Overall vintage rating would be characterized as very good to excellent — some outstanding wines were made.

Harvest in Nebraska begins in early August and continues into late September or early October. That said, part of the early harvest season was beset by unusually cool, wet weather that was replaced by seasonably warm and clear skies and only moderate rainfall later in the harvest season. One vineyard was hit by hail part way through the harvest period, with around 30 acres of production lost.

Overall there was less disease and herbicide-drift pressure than in the past two years. There was some downy mildew, along with sporadic black rot, in May. Most common diseases were managed well with appropriate spray programs. Isolated Japanese beetle infestations caused modest to severe damage and crop reduction.

The biggest challenges include labor shortages. There have been additional machine harvesters added in 2017 and 2018. There's also a high demand for red grapes, exceeding supply, but some overproduction of white wine grapes.

## NEW MEXICO

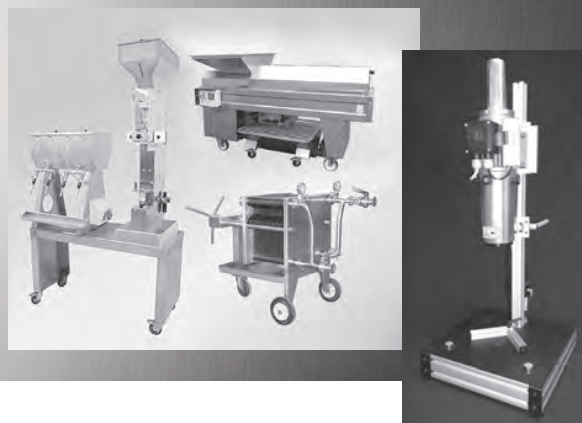
Gill Giese  
Extension viticulture specialist  
New Mexico State University

New Mexico's 2018 wine-grape harvest was slightly above average, and quality was above average to excellent. However, wide variation in quantity is typical, due to the state's range of mesoclimates and eight to 10 climatic zones. Some yield reductions were due to frost, difficulty with replants, and intermittent hail and untimely rains at harvest of red varieties.

The season was about two weeks early across all regions, following an unusually dry winter and hot, dry spring and early summer. However, there were reports of late April frosts, with varying degrees of damage. Excessive heat in May through July accelerated harvest timing with

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sporadic, spotty and heavy rains during the monsoon season at harvest with consequential rot issues. Atypical rainfall continued immediately post-harvest in many locations. The rain timing impacted bunch-rot incidence and severity at some sites, but overall most growers reported very low seasonal disease pressure and good to excellent conditions at harvest. Vertebrate pests such as deer, gophers and raccoons substantially hindered operations and reduced yields, especially in the case of smaller plantings. Leafhopper infestations were ubiquitous statewide, although growers have a workable action threshold in most cases.

Continued drought and lack of irrigation capacity and water quality may induce growers to reduce acreage. Labor shortages in the wineries, especially at harvest, continue to be a major challenge. Mechanical harvesting appears

Corners region and selected sites statewide, including Chambourcin, Baco Noir, Vignoles, Leon Millot, Cayuga and St. Vincent. A few growers have had success with *Vitis aestivalis*, Cynthiana/Norton.

## OHIO

**Todd Steiner**  
Enology program manager  
Ohio State University

**Maria Smith**  
Outreach specialist  
Ohio Agricultural Research and Development Center Library

The 2018 vintage proved to be both interesting and challenging. Due to hot and very humid summer conditions, disease pressure was high from June through harvest. This provided the need for up-to-date and timely spray programs in between rains. Overall, it was a

chilling of the grapes and sulfur dioxide use important. Higher levels of downy and black rot were observed during the growing season. Weed pressure and growth was also a concern during this time. The development of sour rot and berry shriveling was problematic during harvest. Many growers received slightly lower yields due to some winter damage in both 2017 and 2018, along with some berry shriveling and rot. However, demand was still high, especially for high-quality fruit from good producing vineyards. Adoption of intelligent sprayers was critical in targeting spray applications for disease control in those vineyards using this technology. Labor shortages in the vineyard have been an issue for keeping up with the high disease pressure and quick harvest decisions based on upcoming rains being predicted.

## TEXAS

**Mesilla Valley AVA,  
Escondido Valley AVA,  
Texas Davis Mountains AVA  
and Texas High Plains AVA**

**Frances Pontasch**  
Program specialist  
Texas A&M AgriLife Extension

Regarding quality, we estimate 12,000 tons of overall yield, varied by area of the state growing *vinifera* and those growing hybrids. The *vinifera* yields were low due to drought combined with hot temperatures. The hybrids produced a bumper crop due to plentiful rainfall when rainfall was needed, but also absent when needed — during cluster formation and fruit set. The Blanc du Bois was expected to be large — but not a bumper crop — which resulted in a shortage of tank space for the variety. The overall quality is excellent: berries reached optimum ripeness with good balance between sugar, acids, phenols and aromas.

The entire growing season in the *vinifera*-growing AVAs of West Texas and the High Plains was dry with short rainfall events. The regions of the state growing hybrids experienced a cold dormant season, perfect spring and very dry,

hot summer. Disease and pest pressure was overall very low.

Labor continues to be short, especially skilled labor. Mechanical harvesters have increased significantly. Water stress in drought areas was also a challenge. And injury due to phenoxy herbicide drift continues to be an issue. Despite these obstacles, overall grape quality has greatly improved.

## Hill Country AVA

**Brianna Hoge**  
Viticulture program specialist  
— Hill Country  
Texas A&M Viticulture and Fruit Lab

Despite the drought, yields in the area were fairly normal. Berries were smaller in many vineyards, but overall yield was good. Quality was also good despite the weather. Brix took longer to develop than usual in some varieties.

This year, the Hill Country started with a wet spring that quickly switched to high temperature, drought conditions. There were moderate issues with disease and pest pressure. While many foliar fungal diseases were less of an issue due to the lack of rainfall, black rot was severe in the Hill Country. Early spring rains caught many growers off guard, so treatment was delayed. Later in the season, symptoms of Pierce's disease and cotton root rot were more pronounced due to water stress.

Major issues continue to be drought and the labor shortage. There was more mechanical harvesting performed this year than previously.

## Texoma AVA

**Michael Cook**  
Viticulture program specialist  
— North Texas  
Texas A&M AgriLife Extension Service

Overall, the 2018 harvest occurred earlier than average and had slightly reduced yields. However, wet chemistry targets were in excellent range and overall quality parameters were very high. The

Labor shortages in the wineries, especially at harvest, continue to be a major challenge. Mechanical harvesting appears inevitable with adoption by some growers with as few as 10-15 acres.

*Gill Giese*  
Extension viticulture specialist  
New Mexico State University

inevitable, with adoption by some growers with as few as 10-15 acres. Most technology and innovation adoption occurred in the winery, with some new processing equipment and must additives/adjustments to enhance quality and increase juice yield.

Many New Mexico growers prefer own-rooted *vinifera* due to market demand and threat of winter cold, although growers south of Albuquerque utilize grafted vines. Malbec, the Cabernets, Tempranillo, Pinot Noir and Montepulciano remain popular reds. Various Muscats, Riesling, Vignoles, Chardonnay and Chenin Blanc are popular whites. Hybrid varieties dominate plantings in the Four

decent vintage in terms of both white and red wine quality, with good winemaking practices potentially producing some really nice wines from this vintage.

The 2018 harvest observed an overall warmer season with a higher amount of growing degree days. High late-season rains made it challenging to hang fruit longer to achieve proper maturity and to evaluate the potential for berry breakdown and sour rot with approaching rains. In all, we did not receive the higher amounts of torrid rain that some other states indicated, with adequate maturity being obtained. There were comments of sour rot being problematic throughout the state, which made cluster sorting,



2018 growing season was perhaps one of the most erratic ever recorded. Winter was deemed normal and was not mild. Spring advanced quickly with warm temperatures, and bud break occurred as expected. For northern growers, a spring frost near Easter reduced crop in some vineyards. For all growers, hot temperatures were found in early June, with temperatures rising to over 110° F. Wind and extremely high temperatures remained through August with no precipitation. This hastened ripening by up to two weeks for many cultivars. Following harvest, temperatures cooled, but up to 30 inches of rain fell in the months of September and October.

Due to the early heat that remained through harvest and lack of rainfall during the summer months, disease pressure was at an all-time low. Some incidences of black rot and late-season powdery mildew were reported. A few vineyards noted downy mildew. That being said, due to extreme environmental

stressors during summer, older vineyards known to have trunk disease were showing visible symptoms as early as June.

Though yields were slightly reduced overall due to spring frost in the northern areas near the Texoma AVA down to Stephenville, demand for high-quality, locally grown grapes in the region is extremely high. Prices remain stable. Growers in the region continue to adopt best current practices. Many are expanding their use of pre-emergent herbicides. One large vineyard has utilized aerial imaging.

Adapting to the quick changes in weather was the greatest challenge for growers. The heat, excessive wind and drought that plagued North Texas growers required fast thinking and adjusting common practices, such as closer monitoring of water status. Despite the erratic and extreme weather events, growers reported few vine losses, and yield was adequate with very high quality.



First harvest at Silver Crest Cellars in Madison, Ohio. Left to right John Boninc, Eric Cotton, Patrick Linenan (founders/owners)



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# EAST

## NEW YORK — LONG ISLAND

Alice Wise  
Senior issue educator  
Cornell Cooperative  
Extension of Suffolk County

Yields were average to above average except where sorting of cluster rot was required, especially for susceptible white varieties. Summer was hot but often cloudy. Consequently, fruit was physiologically ripe with low to moderate Brix (18-20) and acids (5-7 g/l). Like many eastern regions, Long Island experienced an extended period of very warm, humid weather. Rainfall was not excessive during the summer, but the typical four- to six-week dry period did not take place. Temperatures remained above average through September. A nor'easter storm on Oct. 27 hastened the harvest of Bordeaux red varieties.

Due to vigorous shoot growth, periodic rainfall, dewy mornings and warm temperatures, downy mildew was the primary challenge through much of the season. Post-*veraison*, botrytis bunch rot and sour rot were problematic in susceptible varieties, though there was great variability in the degree of cluster rot from farm to farm. Despite the challenges of minimizing downy mildew and, in some cases, sorting out cluster rot, well-managed vineyards were still able to produce decent yields of ripe, flavorful fruit.

## NEW YORK — FINGER LAKES

Yates, Ontario, Wayne,  
Seneca, Schuyler and  
Steuben counties

Hans Walter-Peterson  
Viticulture extension specialist  
Cornell Cooperative Extension

After 2017's very large crop, the general expectation was that this year's yields would be lower than normal in many cases. This proved

to be true in some vineyards, but not in others. Overall crop this year ended up being close to average for most growers. Quality appears to be good overall. Varieties that were harvested earlier generally did better than later varieties due to ongoing pest pressure, especially sour rot in Riesling. Brix levels were generally lower than usual, but warm nights pushed acidity levels lower. Winemakers have generally been pleased with the quality of red varieties like Cabernet Franc, Pinot Noir and Lemberger.

2018 was a season with two distinct phases – one dry and one “not so dry.” The period from April through July was drier than normal, with some vineyards beginning to show some early signs of drought stress by the Fourth of July holiday. Conditions changed significantly at the end of July and lasted through most of October, with more consistent rains. Communities on the eastern side of Seneca Lake and western side of Cayuga Lake were hit with 7 to 12 inches of rain during the morning of Aug. 14, causing damage to roads, homes and businesses, but relatively little damage to vineyards. The Finger Lakes also had a historic number of days with high humidity (dew-points reaching over 70° F), which prevented fruit from drying out after rains and seemed to contribute to higher incidence of fruit splitting before harvest.

Pest pressure was relatively light in the first half of the season, thanks to the relatively dry conditions. That changed when rain and humidity entered the picture beginning in August. Downy mildew was a constant challenge. Sour rot was a significant problem in susceptible varieties, especially Riesling and Vignoles. Many growers spent significant effort to drop infected fruit before mechanical harvesters arrived, and others brought in crews to pick by hand. Later-season reds, including Cabernet Franc, were not impacted nearly as much.



The harvest crew at Boordy Vineyards in Maryland needed rain gear while picking Sauvignon Blanc in September during a rainy vintage for most of the Eastern U.S.

The first spotted lanternfly was found in the Finger Lakes this summer. Further surveys and scouting found no evidence of other individuals or egg masses, but we know now that it's probably just a matter of time before this pest shows up here.

Grape prices were generally flat or slightly lower than last year. Because of the very large crop that was harvested last year, a number of wineries cut back on their purchases from growers this year.

## NEW JERSEY

Gary C. Pavlis  
Associate professor  
Rutgers Cooperative Extension

2018 was a difficult year. The season lacked sun and heat and had an overabundance of rain. I haven't heard wineries complaining about diseased fruit, as most growers are quite adept at controlling the diseases encountered, but the expense of these controls truly hurts their bottom line. Additionally, it appears that in 2018 red wines will be light in color and structure, as many varieties did not reach optimum ripeness. By the end of September, New Jersey had already received a year's worth of rain. Storms in September dashed any dreams of salvaging an already-

difficult season. Fungal pressure was very intense: Botrytis and mildews required extreme diligence.

## ONTARIO

### Niagara Peninsula

Ryan Brewster, field service manager,  
KCMS Applied Research and Consulting Inc.

Jim Willwerth, senior scientist in viticulture,  
Brock University

Following a record-breaking year for Ontario, with more than 85,000 tons of grapes purchased by processors in 2017, the 2018 harvest was impacted by some early-winter injury during bud acclimation and increased disease pressure during ripening, resulting in a smaller harvest. Approximately 60,000 tons of grapes have been purchased by processors so far in 2018, not including ice wine and late harvest. Fruit quality was acceptable across all regions; however, certain thinner-skinned, early-ripening vinifera cultivars suffered greater levels of fruit breakdown late in the season, which slightly influenced overall yields and fruit quality.

The growing season in Ontario got off to a wet start, with greater-than-average precipitation re-



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Vidal Blanc grapes at the Cornell University teaching vineyard in Dresden, N.Y.

corded in April. This resulted in high soil moisture levels being maintained throughout bud break and early shoot development. Warm temperatures and relatively dry conditions were experienced throughout bloom and the early fruit-development phase, with growing degree day accumulations being above average for this period. Temperatures remained above historical averages through *veraison*, and many areas received significant levels of rainfall during the early stages of fruit ripening. Weather conditions during maturation and harvest were challenging.

While there were dry periods during the 2018 growing season, there were enough rain events to maintain high disease pressures. Highly sensitive cultivars, such as Chardonnay and Riesling, required routine fungicide treatments to maintain disease levels below economic thresholds. Powdery and downy mildew are the main types of fungal diseases in Ontario. Heavier pressure from grape berry moth and late-season leafhoppers was also observed. Low to moderate levels of botrytis were noted in susceptible cultivars. This was aggravated by heavy rains following *veraison*, along with elevated daytime and evening temperatures dur-

ing ripening. Due to the level of fruit rots and berry shatter experienced in select vineyard blocks late in the season, some growers elected to mechanically harvest using onboard optical-sorting systems or to deliver and sort fruit using other optical-sorting systems at local wineries. While this reduced yields, it assisted in optimizing fruit quality by keeping clean grapes and eliminating the diseased berries.

Weather conditions during fruit ripening proved to be challenging for thin-skinned, tight-clustered cultivars. Growers had to be diligent in making decisions to mitigate losses associated with fruit rots. The impact of red-blotch and leafroll virus continues to be apparent in select vineyard blocks. Cabernet Franc, Cabernet Sauvignon and Chardonnay are displaying the greatest levels of virus symptoms. Many growers have now integrated an insect vector management program at their vineyards, and a national initiative through the Canadian Grapevine Certification Network is underway to provide local nurseries "clean" propagation material.

On average, there was a 1.4% increase in price per ton over 2017 pricing. It should be noted that this average was not consistent across

all cultivars. Slightly reduced crop levels and minimum-wage increases drove this growth. Somewhat reduced yields were anticipated in most growing regions following regional bud survival analysis conducted in December 2017. An early cold event in late October 2017 resulted in some primary bud loss. However, at most locations, secondary buds compensated for this loss and produced a reasonable crop in 2018.

## PENNSYLVANIA

Linda Jones McKee  
Wine East editor  
*Wines & Vines*

Pennsylvania has three grapegrowing regions — Lake Erie, the mountains stretching from southwest to northeast, and the southeast — but this year all three regions had two common characteristics: later-than-usual bud break and too much rain for the entire growing season. Jamie Williams, president of the Winery at Wilcox in the northwest, reported that due to the rain "it's not an amazing vintage." Williams, who also has vineyards in the southeast, said they picked early, even though the grapes were not fully ripe. The yields were fairly good, but only three varieties were picked above 20° Brix.

Michela Centinari, assistant professor of viticulture at Pennsylvania State University, said growers across the state faced persistent rainfall. "Growers had to be on top of their fungicide spray schedule and canopy management plans to minimize the risk of disease," she said. Growers had difficulty getting tractors into the vineyards to spray, and people picking grapes sometimes had to pick in the rain. Hurricane Florence did not bring winds to the region but slowly moved across the state and added more rain to already waterlogged vineyards. The Lake Erie region had somewhat less rain but incurred some winter damage that affected yields.

Persistent rains raised the disease pressure across the state, but growers who applied sprays appropriately did not see an increase

in downy or powdery mildew. Many growers, however, did have to cope with sour rot and the accompanying fruit flies. Growers spent more money on sprays and more time applying them, but even minor errors in application resulted in lower-than-usual-quality fruit. Some wineries saw spotted-wing drosophila for the first time, and vineyards in the quarantine area for spotted lanternfly in southeastern Pennsylvania had increased numbers of that invasive pest.

## VIRGINIA

Tremain Hatch  
Extension associate  
Virginia Tech

Summer and fall were a challenging growing and harvest season for Virginia grapegrowers. Frequent and heavy rain fell during the growing season and continued through harvest. There was higher-than-average rainfall across the season. Hurricanes Florence and Michael affected portions of the state during harvest in the fall, which led to high downy mildew pressure throughout the growing season. Growers also reported high incidence of grape berry moth injury to fruit.

While the forecasts for rain were gloomy all season, they were accurate, for the most part. Growers utilized weather forecasts to help make decisions. Hurricane Florence was forecast to affect a majority of the state in mid-September; fortunately, the hurricane's course changed and the storm delivered less rainfall than initially called for across the state. With the high rainfall, many late-season varieties did have lower-than-normal soluble solids concentrations (Brix). Some winemakers chose to utilize more red fruit for rosé-type wines than in an average year. In some cases, grape yields were depressed due to hail and poor fruit set. High rainfall led to fruit rot in some cases, requiring some growers to field-sort a portion of their crop.

Diligent growers worked hard and brought in clean grapes, which are predicted to make nice wines. 🍷