# Climate change reshapes Europe's iconic wine regions and opens new northern frontiers



Europe is renowned for its rich tapestry of wine, producing iconic varieties such as Pinot Noir from Burgundy and Rosado from Rioja. However, this beloved oenological heritage faces an uncertain future, largely owing to the pressures of climate change. Experts are sounding the alarm about the significant increases in temperatures affecting grape cultivation in key regions of France, Spain, and Italy, which could fundamentally alter the character of some of the world's most celebrated wines.

Research from the University of British Columbia indicates that the phenological development, or the timing of the growth stages of grapevines, is profoundly influenced by climate conditions. The study examined more than 500 grapevine varieties across various world regions, highlighting the troubling trend of rising temperatures. It noted that Europe's wine regions have experienced the most pronounced increases in heat since the 1970s, with notably more days exceeding 35°C (95°F) during the crucial growing season. This rise in temperature changes the fundamental profiles of iconic wines, leading to varieties that are potentially sweeter, more concentrated, and ultimately more alcoholic.

The economic and environmental implications of climate change extend beyond merely altering flavours. An EU-backed report highlights that extreme weather events cost the agriculture sector an average of €28.3 billion annually, with southern European countries particularly hard-hit. With drought conditions accounting for over half of the losses, the report warned that without meaningful climate action, average crop losses in the EU could surge by up to 66% by 2050. This precarious situation places additional strain on farmers who often lack adequate insurance, with only 20-30% of losses currently covered, exacerbating their financial vulnerability.

Interestingly, while traditional wine-growing regions grapple with these challenges, climate change is benefitting new areas. Warmer conditions have opened doors for viticulture in formerly cooler climates, such as Denmark and Norway. These regions are now emerging as wine producers, utilising unique grape varieties and enjoying lengths in growing seasons previously unattainable. Yet, this shift raises questions about the essence of terroir—the geographic specificity that informs a wine's identity. In established regions like Bordeaux and Rioja, winemakers are not only adapting by reintroducing varied grape types but also employing innovative vineyard practices such as irrigation and adjusted harvest timings to mitigate the effects of heat.

Specific concerns arise around rapidly ripening grapes, which challenge the balance of sweetness, acidity, and tannin crucial for high-quality wines. The acidity levels, vital for a wine's freshness, tend to decline in warmer climates. Coupled with the breakdown of anthocyanins—responsible for red and purple hues in wine—these changes could diminish the overall quality of wines historically revered for their finesse and complexity. As noted by Elizabeth Wolkovich, the lead author of the study, the severity of warming observed came as a surprise, highlighting both the scope of changes facing growers and the need for adaptive strategies.

For producers in regions like Burgundy, these climate shifts are becoming apparent, with grape harvests occurring as much as two and a half weeks earlier than in the mid-1980s. The need to adapt to evolving conditions is evident, but as vineyards respond by relocating to cooler northern areas or selecting different grape varieties, they risk losing the distinctive qualities that define their wines.

In the face of such transformative challenges, the European wine industry stands at a crossroads. It must navigate the complexities of climate change while striving to maintain the heritage and quality that have long defined European wines, even as familiar landscapes shift dramatically.

As these adjustments unfold, one thing remains clear: the interplay between climate change and viticulture will continue to shape the future of wine in unprecedented ways, potentially rewriting the narrative of wine production across the continent.

### Reference Map

1. Paragraphs 1, 2, 3, 4, 5, 6, 7, 8
2. Paragraphs 3, 4
3. Paragraphs 2, 5, 6
4. Paragraphs 2, 8
5. Paragraphs 4, 6
6. Paragraphs 2, 8

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.dailymail.co.uk/sciencetech/article-14735393/popular-wines-risk-climate-change.html?ns_mchannel=rss&ns_campaign=1490&ito=1490> - Please view link - unable to able to access data
2. <https://www.reuters.com/sustainability/cop/extreme-weather-costs-eu-farmers-28-billion-euros-year-eu-says-2025-05-20/> - An EU-backed report reveals that extreme weather events, driven by climate change, cost the European Union's agriculture sector an average of €28.3 billion annually, accounting for 6% of total crop and livestock production. The report highlights that only 20-30% of these losses are insured, leaving most farmers without adequate financial protection. It warns that without stronger climate action, average crop losses could rise by up to 66% by 2050, with droughts currently responsible for over half of the damages. Southern European countries like Spain and Italy are particularly vulnerable, with potential annual losses reaching €20 billion during catastrophic years. The European Commission has proposed easing some environmental conditions tied to subsidies and accelerating emergency support for disaster-hit farmers. ([reuters.com](https://www.reuters.com/sustainability/cop/extreme-weather-costs-eu-farmers-28-billion-euros-year-eu-says-2025-05-20/?utm_source=openai))
3. <https://www.ft.com/content/1c94c23a-90f1-465f-99c0-0c83f9b20b49> - Rising temperatures due to climate change are enabling wine production in traditionally cooler regions in Europe, such as Denmark and Norway, while complicating conditions in established wine-growing areas like Bordeaux and Rioja. Warmer climates are causing grapes to ripen faster, leading to harvesting challenges and impacting wine quality by creating higher-alcohol content wines with less finesse. Vineyards in northern Europe, including England, Poland, and the Scandinavian countries, are expanding, taking advantage of their changing climates. Traditional winemaking regions are adapting by introducing new grape varieties, employing irrigation, and modifying vineyard practices, but these strategies raise concerns about preserving the terroir, the geographic specificity that defines a wine's identity. The wine industry is faced with significant challenges, balancing the need to adapt to climate change while maintaining the distinctiveness and quality of their wines. ([ft.com](https://www.ft.com/content/1c94c23a-90f1-465f-99c0-0c83f9b20b49?utm_source=openai))
4. <https://www.apnews.com/article/0a82a77a9fc91e0eaaea3870cda8b3b4> - As global temperatures rise, Sweden finds opportunities to grow its young wine industry. Warmer and longer growing seasons, coupled with new grape varieties well-suited to the local climate, have bolstered Swedish winemaking. Kullabergs Vingård, a prominent vineyard, exemplifies this progress, producing over 30,000 bottles annually and gaining international recognition. Despite facing fewer climate extremes compared to traditional wine regions, Swedish vineyards must adapt to cooler, damper conditions. Attracting skilled winemakers remains a challenge, with talent often coming from abroad. Although Swedish wineries are subject to strict regulations and lack direct government support, the increasing demand for unique wines drives the industry's growth. ([apnews.com](https://apnews.com/article/0a82a77a9fc91e0eaaea3870cda8b3b4?utm_source=openai))
5. <https://www.lemonde.fr/en/climate-change/article/2024/09/18/how-burgundy-s-grape-harvest-helps-us-understand-climate-change_6726531_152.html> - Climate change is leading to earlier grape harvests in Burgundy, France, with harvests now occurring around two and a half weeks earlier than they did in the mid-1980s. A study published in 2019, and updated with 2024 data, compiled grape harvest dates from records dating back to 1354. The research, led by Thomas Labbé, indicates that temperatures, which affect grape ripening, are rising. Historically, grape harvest data serve as valuable climate indicators. Increases in summer temperatures are the predominant factor driving earlier harvest dates, although evolving viticultural practices and consumer preferences also play roles. The climate-related shifts further impact wine characteristics, leading to higher alcohol and lower acidity. Consequently, some wine producers are adapting by selecting different grape varieties or relocating to cooler northern regions like Brittany and Normandy. The study underscores the broader implications of climate change on agriculture and the wine industry. ([lemonde.fr](https://www.lemonde.fr/en/climate-change/article/2024/09/18/how-burgundy-s-grape-harvest-helps-us-understand-climate-change_6726531_152.html?utm_source=openai))
6. <https://time.com/5777459/france-wine-climate-change/> - Climate change and the COVID-19 pandemic are threatening the iconic Merlot grape in Bordeaux, France. Warmer temperatures and erratic weather patterns result in grapes ripening faster, altering sugar content, alcohol levels, acidity, and wine color. The Merlot grape, which constitutes 60% of Bordeaux vineyards, may be the first victim of these changes. French winemakers are now experimenting with other grape varieties from different parts of the world, such as Italian Sangiovese and Greek Assyrtiko, in hopes of finding alternatives that can endure the changing climate. Efforts are led by organizations like l'INRA, Laccave, and ISVV with government support. Regulatory authorities have also permitted the addition of seven new grape varieties. Nonetheless, changing climate patterns present numerous challenges, including frost, droughts, and volatile weather, which have already affected 5% of Bordeaux vines and reduced French wine outputs by 12% in 2019. The COVID-19 pandemic has further exacerbated the situation, causing significant revenue losses and hampering experimentation financially. The ongoing crises threaten not only the economic viability but also the cultural heritage of French wine, compelling winemakers and researchers to adapt to maintain the high-quality production Bordeaux is known for. ([time.com](https://time.com/5777459/france-wine-climate-change/?utm_source=openai))