

Ongoing changing varietal suitability and wine style projected for the UK:

Findings from the CREWS-UK project

New research from the CREWS-UK project finds climate change is likely to further impact the viability, variety suitability and wine style potential of viticulture in the UK.

Assessing the impact of climate change on future UK wine production potential

Warming growing season temperatures, brought about by climate change, has underpinned rapid expansion of viticulture in the UK.

Over the last 20 years, sparkling wines produced from the classic champagne grapes of Pinot Noir and Chardonnay have dominated production. These wines have won international acclaim and attracted significant investment into the sector.

As the sector continues to expand, researchers from the CREWS-UK project have used the latest high-resolution UK climate change projections to assess how future projected climatic trends and variability may impact the sector to 2040.

Opportunities and challenges for the sector

Our study, [published in the journal *OENO One*](#),¹ suggests there is additional opportunity for those involved with or considering investing in UK viticulture.

Further warming of growing seasons over the next 20 years is likely to promote potential for still red wine production and the success of popular white wine varieties such as Sauvignon Blanc, Semillon and Riesling that are not yet commonly grown in the UK.

But amidst a rapidly changing climate, results also highlight that the sector will need to remain climate-agile. Maximising future opportunities will require, for example, overcoming current industry barriers to achieving still wine market penetration and reorienting the sector's branding and investment strategies, which are presently focused on sparkling wines.



Photo: Vinescapes

"If you'd talked to a UK vigneron 20 years ago about making red wine, they would have laughed at you. We just didn't have the climate or conditions to do this. But some of the nicest Pinot Noirs recently have come out of the UK"

| UK wine sector
supplier interviewed
in the CREWS-UK
project



Climate change projections for UK viticulture to 2040

1. Significant areas within England and Wales are projected to become warmer during the growing season

In the dominant grape-growing regions of Southeast and South Central England, this may present greater opportunity to grow a wider range of grape varieties, such as Sauvignon Blanc, Riesling and Semillon or more disease-resistant varieties, that are not yet commonly grown in the UK. Warming may also open up suitability in large new areas that are so far relatively 'untapped' for their viticulture potential: for example, within Cambridgeshire, Oxfordshire, Berkshire, the East Midlands, the Severn Valley, Southwest England and South Wales.

2. Wine style suitability is shifting, with some areas becoming too hot for reliable high-quality sparkling Pinot Noir

Large parts of Southeast England, where Pinot Noir is currently grown for sparkling wine production, are projected to have average growing season temperatures above those experienced during the highest quality sparkling wine-producing years in Champagne and shift closer to averages seen in Burgundy. This means these areas may become reliable for still red wine production, but too warm for producers to reliably use Pinot Noir to produce high-quality sparkling wine.

3. Rainfall is unlikely to be limiting for grape quality or quantity in areas where temperatures indicate reliable viticultural potential

Growing season precipitation is projected to decline in some UK viticulture areas but models do not suggest it will be a limiting factor. Warmer and drier growing seasons in these areas may also reduce chronic risks, such as poor flowering due to high rainfall and/or mildew-based disease pressure.

4. Inter-annual variability and frost risk is set to continue

Considerable inter-annual weather variability looks set to remain a consistent feature of the UK viticulture climate. Early season frost events are projected to decrease within most existing viticulture areas over the next 20 years. However, warming spring temperatures will likely advance budburst, potentially expanding the risk period for air frosts.

References

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2. Nesbitt A, Kemp B, Steele C, Lovett A, Dorling S (2016) Impact of recent climate change and weather variability on the viability of UK viticulture – combining weather and climate records with producers' perspectives. *Australian Journal of Grape and Wine Research* 22: 324-335.
3. Nesbitt A, Dorling S, Lovett A (2018) A suitability model for viticulture in England and Wales: opportunities for investment, sector growth and increased climate resilience. *Journal of Land Use Science* 13: 414-438.



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Climate Resilience in the UK Wine Sector – the CREWS-UK Project

- The CREWS-UK project is a collaboration between weather and climate scientists at the University of East Anglia and Weatherquest, social scientists from the Grantham Research Institute and vineyard and winery consultants at Vinescapes.
- The project focuses on mapping and analysing climate trends and impacts on UK grape-growing and assessing ways to support sustainable climate change adaptation in UK wine production.
- Building on our earlier published research on development of the sector to date,^{2,3} we are focusing on how projected climate trends and variability to 2040 may impact on the sector.
- We are exploring how different parts of the sector may be affected and respond to climate stresses and opportunities using a 'value-chain' approach, from production to consumption.
- By integrating new bespoke climate scenarios with increased understanding of adaptive behaviour in the UK wine sector, the project translates model results into more user-relevant information, supporting investment in the sector through actionable information based on sound science and collaboration.



Learn more about CREWS-UK and keep up to date with project reports and outputs at: www.lse.ac.uk/GranthamInstitute/resilient-wine