



Climate resilience in the UK wine sector — CREWS-UK

As cool climate viticulture expands rapidly in the UK, this new research project will improve information on how climate change will affect the wine production sector, to inform better decision-making and investment.

Climate change and UK wine production

The UK's burgeoning wine production sector – located in England and Wales – is winning international acclaim and awards, particularly for its sparkling wines, and is attracting significant investment interest. Supported by warming climate trends during the growing season, wine producers are opening new vineyards planted with grape varieties that are popular with consumers.

Grape-friendly weather conditions in 2018 led to a record harvest and may be a sign of good things to come as the overall warming trend seems likely to benefit some

aspects of grape-growing in the UK. However, weather and growing season conditions fluctuate from year to year, meaning that yields and grape quality vary significantly. Climate change is likely to cause more extremes, further threatening the stability of production. Current uncertainty over future climatic conditions during the growing season and their potential effects on viticulture in the UK exposes both existing producers and potential investors to an unquantified risk.

A research collaboration to improve information to the sector

There is an urgent need for more and better information about climate change that wine producers and investors can use for decision-making. Climatologists, wine sector specialists and social scientists from the Grantham Research Institute on Climate Change and the Environment and the University of East Anglia are collaborating in the CREWS-UK project to fill this gap.

“By integrating new bespoke climate scenarios with increased understanding of adaptive behaviour in the UK wine sector, the CREWS-UK project aims to translate model results into more user-relevant information, contextualised to suit the detailed needs of different stakeholders”

Denbies vineyard, Dorking, Surrey



Project activities and aims

1. Mapping and analysing climate trends and impacts on UK grape-growing

The project will capitalise on the Met Office's launch of new UKCP18 climate projections to explore how critical growing season characteristics – including frost risk – may change over the coming decades (recognising that the typical lifetime of a cool-climate vine is around 35 years). Building on our earlier published research¹ on the development of the sector to date, we will show how projected climatic trends and variability to 2050 may impact on the sector. The guidance we produce will enhance resilience to climate change over the coming decades.

2. Assessing ways to support climate change adaptation in UK wine production

We will explore how different parts of the sector may be affected by and respond to climate stresses and opportunities, using a 'value-chain approach' from production to consumption. We will also explore how decisions are made within the sector over the development and application of strategies for adapting to climate change. Understanding these processes will help us to assess ways to support this rapidly expanding agriculture sector to be more economically sustainable.

The UK wine production sector is an 'early adopter' of climate change adaptation – a climate-sensitive sector already making climate-change-related decisions. We can use the sector as an example and study how actors within it take these decisions. In particular, the hot, dry summer and bumper harvest of 2018 can illustrate how a one-off event influences decision-making, set within the context of the sector's perceptions of long-term climate change trends.

Project outcomes: user-friendly information for a resilient future

By integrating new bespoke climate scenarios with increased understanding of adaptive behaviour in the UK wine production sector, the project aims to translate model results into more user-relevant information, contextualised to suit the detailed needs of different stakeholders. It will support the significant current interest in investing in the wine production sector by providing actionable information based on sound science and collaboration between experts. ●

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www.lse.ac.uk/GranthamInstitute/resilient-wine



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Producing wine in the UK

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- Viticulture, the cultivation and harvesting of grapes for wine-making, is the fastest growing agricultural sector in the UK.
 - The land area dedicated to vineyards is estimated to have increased by 246% between 2004 and 2017, from 722 to 2,500 hectares.^{2,3} Three-quarters of this area is located in southeast England.⁴ Sparkling wine has dominated production since 2004.¹
 - The growing season lasts from April to October, a span of months that has seen warmer average temperatures since 1954.¹ Warming has been one factor in the sector's expansion and recent research highlighted that if the land best suited to viticulture were developed to its full potential, it could produce an industry comparable in scale to grape-growing in France's Champagne region.⁵
 - Weather variations can affect viticulture productivity at annual or longer time-scales. During the 2004–2013 period, UK-wide wine yield varied considerably, from 6 to 34 hectolitres per hectare (hl/ha; 1 hl = 100l). The average produced was 20.7hl/ha, less than one-third of the Champagne region's harvest base yield.⁶
 - Investments in UK viticulture therefore remain exposed to low and highly variable yields. This exposure is also partly due to poor choice of vineyard location, including land with ongoing vulnerability to air frosts during the critical bud burst period.⁵

References

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