Q&A: British champagne production overtaking French? How the shifting seasons are playing havoc with our crops

March 20 2024

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Spring equinox is fast approaching, on 20 March, but the changing seasons are playing havoc with UK wildlife and crops. This comes after

England and Wales had their warmest Februarys on record, according to the Met Office.

Scientists at the University of Warwick are explaining how months of unseasonably wet and warm weather are impacting animal and wildlife hibernation patterns, buds flowering, food prices, and more.

The unusual climate has even had a surprising impact on the UK's grape production—meaning British champagne, already in production, could soon be a fierce rival for the French production market. French Champagne growers have also been hard hit by climate change, which is causing many problems with crop production; some experts think the British climate will be more suitable than the climate in areas where Champagne is typically produced in France.

When does Spring begin, and what weather can we expect this season?

Professor Rosemary Collier, crop expert at the University of Warwick, said, "According to the Met Office, Spring in the meteorological calendar is the season beginning in March and ending in May. Astronomically, Spring typically starts on the day of the vernal (or Spring) equinox, which falls around the 20th of March in the Northern Hemisphere."

This year, the UK enters the first day of astronomical Spring following an unprecedentedly warm winter. According to provisional Met Office statistics, England and Wales had their warmest Februarys on record, and it was also a wetter than average month, with the south of England experiencing its wettest February since 1836 when accurate records began.

"While we don't have an exact idea of the weather this Spring will bring, many of the natural events that occur this season are influenced by weather conditions in the preceding months," explained Professor Collier. "This includes the first flowering of plants such as daffodils and when particular tree species produce new leaves."

Observations show a clear warming trend for average UK winter temperature, and this trend is expected to continue in the future due to human-induced climate change. Professor Collier said, "According to the Met Office, the top-ten warmest winters on record for the UK include 2024, 2022, 2020, 2016 and 2014. This doesn't mean the UK will no longer see cold spells, but cold spells are projected to become less frequent and less severe.

"Although rainfall observations show large variability, it has generally become wetter, particularly during winter. Met Office climate projections indicate that, on average, winters will continue to become wetter and summers drier, though natural variability will mean we will continue to see individual years that don't follow this trend."

What does the changing seasons mean for wildlife?

Animals that have been hibernating through the Winter may have been affected by the earlier warm Spring. This includes animals such as hedgehogs, dormice, and some amphibians, which may become active earlier in a warm Spring. This may become difficult for them if conditions deteriorate subsequently or they are short of food.

"When January and February are warmer than average, a range of species will develop more rapidly than they would in an average year," said Professor Collier.

"This has led the JNCC to calculate a Spring Index from the annual

average observation date of four biological events: first flowering of hawthorn (Crataegus monogyna), first flowering of horse chestnut (Aesculus hippocastanum), first recorded flight of an orange-tip butterfly (Anthocharis cardamines), and first sighting of a swallow (Hirundo rustica).

"The Spring Index for the UK has high year-to-year variability, but since 1998, biological events in the Spring have occurred around 8.7 days in advance of the average dates in the period 1891 to 1947."

How will the warm, wet conditions impact farmers and gardeners?

Farmers will need to adapt to climate change, affecting both what they grow and how they manage their land. Efforts to breed crops that are more resilient to future conditions also need to increase.

Professor Collier said, "Crops that have been sown in the autumn are likely to develop faster as a result of warm winter conditions. However, warm winters aren't a good thing for crop yield in some cases; for example, certain fruit trees and bushes require a period of cold to maximize fruit set."

"The big problem at the moment is that the ground is very wet and in some cases flooded, so that new crops cannot be sown. Additionally, some crops that were sown in 2023 have been killed by the wet conditions, and new crops will need to be sown, increasing costs."

"East Anglia, where many of the UK's crops are grown, has had both its warmest and wettest February on record."

Professor David Chandler, School of Life Sciences, University of

Warwick, added, "It's not just the UK that is affected. Crop production in Spain—which is responsible for a lot of the supply of vegetable crops for northern Europe from Autumn, Winter, and Spring—is being badly affected by a long-running drought combined with extreme weather events."

Gardeners also need to adapt to the changing conditions, which may mean altering the plant species that they grow. They should also be encouraged to alter their gardening practices to support the wildlife that are being challenged by climate change, in addition to all the other adverse factors affecting their survival.

What about bees and other insects?

Like plants, insect development is mainly determined by temperatures, and warmer seasons may lead to the earlier emergence of, for example, some butterflies and bees. If they do emerge early, there may be insufficient sources of food to maintain them, which is why wildlife organizations recommend planting trees, shrubs, and other plants that flower early to ensure that there is a supply of nectar.

Professor Chandler said, "Nearly all honeybees in the UK are kept by beekeepers—there are very few wild bees left in the UK now. Warmer winters are not necessarily a good thing for honeybees—higher temperatures mean that they are more active in the hive over winter, and therefore, they may reduce their food stores earlier, and they can then starve if there are insufficient flowering plants for them in early Spring."

"Wet weather is also very bad for bees, as they don't fly in the rain—so bees that need to venture out early in Spring to look for food for the colony and are faced with lots of rainy days could struggle."

Professor Collier added, "Warmer springs may also lead to the earlier

emergence of pest insects. This is a topic that we work on at the Crop Centre based at Warwick's Innovation Campus, Stratford-upon-Avon, and we produce weather-based forecasts for growers to predict when a number of important pests of vegetable crops will be active."

Provided by University of Warwick

Citation: Q&A: British champagne production overtaking French? How the shifting seasons are playing havoc with our crops (2024, March 20) retrieved 27 April 2024 from https://phys.org/news/2024-03-qa-british-champagne-production-french.html