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Vinetur report details dramatic changes in global viticulture

Traditional wine regions falter as cooler climates rise

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The wine industry is facing unprecedented challenges due to climate change, according to a report released by Vinetur on May 22. The report, titled "Impact of Climate Change on World Viticulture and the Future of Wine", presents a comprehensive analysis of how shifting weather patterns are altering the landscape of global wine production. The study compiles data from various scientific and industry sources, highlighting the immediate and long-term effects of rising temperatures, prolonged droughts, and

increased weather volatility on viticulture.

According to data from the International Organisation of Vine and Wine (OIV), global wine production in 2024 fell to 225.8 million hectoliters, its lowest level in over six decades. This decline follows extreme weather events that have increasingly affected traditional wine-growing regions. Southern Europe, particularly Spain, France, and Italy, has seen severe heatwaves, prolonged droughts, and irregular rainfall patterns. Production in Spain, for example, dropped nearly 47% compared to 2018, highlighting how vulnerable even the most established wine regions have become.

In addition to quantity, wine quality is under pressure. The report outlines how rising temperatures accelerate the ripening cycle, leading to higher sugar content and lower acidity in grapes. This shift affects the balance and typicity of wines, often resulting in heavier, more alcoholic profiles and diminished aging potential. Data from France's Languedoc region show a clear trend toward increased potential alcohol in grapes, while Bordeaux and Burgundy have documented harvests occurring up to two weeks earlier than just a few decades ago.

Simultaneously, viticulture is expanding into previously unsuitable territories. Cooler regions such as the UK, Denmark, and parts of Canada are now considered viable for high-quality grape cultivation. Some areas in northern France and Germany, once marginal due to cold, are experiencing more consistent ripening conditions. However, the establishment of vineyards in these emerging regions faces regulatory, economic, and cultural challenges. Moving wine production into new areas requires major investments and years before vines reach commercial maturity. Denominations of Origin (DOs), especially in Europe, place strict limits on varietals and geography, complicating adaptation.

In California, flexibility in the American Viticultural Areas (AVAs) system allows producers to include up to 15% of grapes from outside a designated region and up to 25% of other varieties, providing a degree of adaptability that strict European regulations lack. This regulatory elasticity may give New World producers an advantage in responding to climate pressures.

The physiological impact on the grapevine extends to disease management. Warmer and more variable climates are changing the range and intensity of pests and fungal diseases. Traditional threats like downy mildew and powdery mildew are becoming more difficult to control due to altered infection cycles, while new pests are appearing in regions that were previously unaffected. Trunk diseases, increasingly severe in drought-stricken areas, are reducing vine longevity and productivity.

To mitigate these issues, the wine industry is turning to a combination of traditional practices and technological innovation. Precision viticulture, using drones, sensors, and AI-driven models, enables better management of irrigation and disease risk. Gene-editing technologies such as CRISPR/Cas9 are being tested to develop grapevines more resistant to heat and pathogens. Although promising, the use of gene editing remains contentious in many markets, especially in the European Union, where regulation is stringent.

Another growing trend is regenerative viticulture, which emphasizes soil health, biodiversity, and carbon sequestration. Practices include cover cropping, reduced tillage, compost application, and even livestock integration. These methods aim not only to make vineyards more resilient but also to contribute positively to the environment. However, the approach lacks standardized certification and still needs broader recognition among consumers and regulators.

Market trends are shifting accordingly. Global wine consumption declined by 3.3% in 2024, dropping to 214.2 million hectoliters, the lowest level since 1961. The decline is attributed to inflation, lifestyle changes among younger consumers, and competition from alternative beverages. Yet the value of wine exports held steady at €35.9 billion, with a record average price of €3.60 per liter, indicating a premiumization trend in response to shrinking supply.

Sustainability certifications are becoming more relevant. Labels such as USDA Organic, Demeter (for biodynamic wines), and various regional sustainability programs are increasingly sought after by consumers, especially those aged 20 to 40. According to the Wine Market Council, 60% of younger wine drinkers prefer organic or sustainable wines. Brands like Bonterra in California have reported double-digit sales growth

despite overall market contraction.

There is also rising demand for wines with lower alcohol content. As natural alcohol levels increase due to warmer temperatures, consumers are increasingly drawn to NoLo (no- and low-alcohol) wine options. While quality in this segment is still developing, innovation is moving quickly as producers try to meet demand for lighter and more health-conscious alternatives.

The report highlights how climate change is driving the emergence of new grape varieties better adapted to hotter and drier conditions. Native varietals, long overlooked in favor of international grapes like Cabernet Sauvignon or Chardonnay, are gaining renewed attention for their resilience. Still, the market acceptance of lesser-known varietals remains a hurdle, especially in regions where tradition defines wine identity.

In terms of logistics and packaging, more producers are adopting bulk shipping and lighter or alternative containers to reduce carbon emissions. While glass bottles still dominate, the use of cans, bag-in-box formats, and even recycled PET is growing, particularly for wines consumed casually or by younger audiences. These changes also reflect broader concerns about sustainability and environmental impact.

The Vinetur report underscores that the wine industry must embrace a model of "proactive resilience" to survive the growing threats posed by climate change. This involves not only adaptation in the vineyard and winery but also shifts in marketing, regulation, consumer education, and global cooperation. The path ahead may be uncertain, but the urgency of climate adaptation is now central to the future of wine.