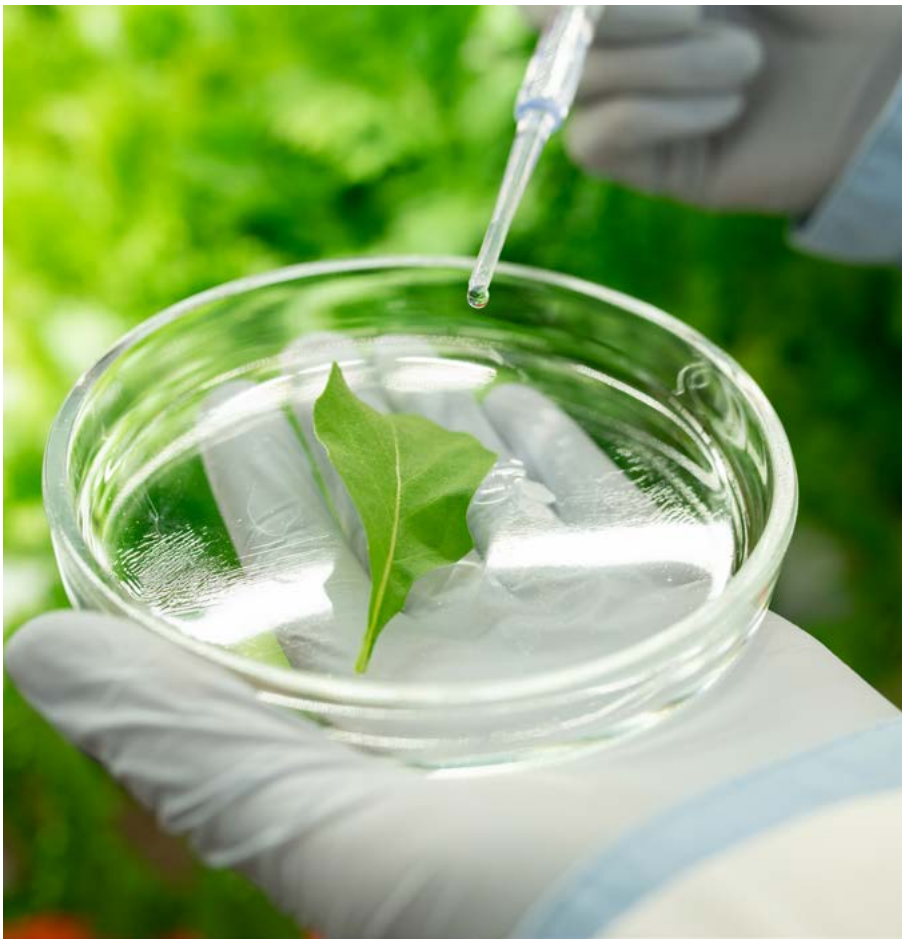
Innovation

Reviewing the relationship between biotech and wine

Are regulatory frameworks up to the task of addressing the pros and cons of synthetic biology?



A number of benefits from biotechnology were identified in an EU study, including plant resilience, response to climate change and reduced agricultural inputs.

Writer **Simone Madden-Grey** explores the complexities of legislation governing the rapidly evolving technology of synthetic biology and how the wine industry may respond.

Recent years in Australia have seen all mainland states revise their position regarding the use of GMOs with respect to agriculture, from eschewing application to regulating its application through the Office of the Gene Technology Regulator (OGTR). The change in position has impacted a number of wine producers, despite no change to the wine industry position that Synthetic Biology techniques, which includes GMOs, may not be used in the production of wine. The situation in Australia reflects a global trend of legislative and regulatory review with respect to biotechnology and food production.

European Union legislative review

The EU is currently undertaking a review of legislation regarding GMO application. The legislation was first implemented in 2001 and based on genomic techniques as they existed then. In 2018 the Courts of Justice of the European Union handed down a judgement (Case C-528/16) that expanded existing legislation to include new technologies developed since 2001. Feedback from within the European Union and from trading partners regarding this judgement were catalysts in the ongoing analysis of EU legislation.

In 2019, a review of existing Novel Genomic Techniques (NGTs) and the capacity of current EU legislation to keep pace with scientific developments took place under the title *The European Commission Study on the Status of New Genomic Techniques in the European Union*. The results were published by the European Commission in April 2021 and concluded among other things, that there were strong indications the current legislation is not fit for purpose for some NGTs and their products. The Executive Summary stated, "The study makes it clear that organisms obtained through new genomic techniques are subject to the GMO legislation. However, developments

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in biotechnology, combined with a lack of definitions (or clarity as to the meaning) of key terms, are still giving rise to ambiguity in the interpretation of some concepts, potentially leading to regulatory uncertainty."

An initiative is now underway in the European Union to put forward a legal framework based on the findings of the European Commission study. The Roadmap and Public Consultation phases have concluded, and the Commission Adoption, which is the adoption of the proposed legal framework by the European Parliament and Council, is planned for the second quarter of 2023. The importance of the European market for Australian wine cannot be understated, which suggests that learnings from the EU have a formative role to play in the strategy for Australian legislation as it relates to wine production.

The Australian wine industry position on the use of GMOs in a commercial setting is clearly stated on the Australian Grape and Wine Inc. (AGW) website, which directs viewers to the definition of genetically modified foods as per the Australia and New Zealand Food Standards Code (Standard 1.5.2: *Food Produced Using Gene Technology*). AGW Chief Executive Lee McLean also provided the following statement, "It is important to note that underpinning Australia's grape and wine sector is a culture of innovation and a willingness to improve the way grapes are grown and wine is made. We are keen to better understand what opportunities might arise from Synthetic Biology in the future so we can make informed decisions, and we are keeping a watching brief on what is happening in legislation and in terms of consumer sentiment across all our markets globally. But this is unlikely to drive any change in the industry's policy in the near term."

An EU study noted that the organic and GM-free premium market reported that any change to the current EU GMO regulatory framework would undermine their value chain and risk damaging consumer trust in their sector.

Key findings from the EU study regarding regulation

Several benefits from biotechnology were identified in the EU study, such as plant resilience, response to climate change, improved agronomic and nutritional traits, and reduced agricultural inputs. It was also noted that the organic and GM-free premium market reported that any change to the current EU GMO regulatory framework would undermine their value chain and risk damaging consumer trust in their sector.

This specific concern has also been raised in Australia as a result of the latest changes to legislation regarding GMO application in agriculture. McLaren Vale wine producer and Australian Organic Limited (AOL) chairperson Mike Brown, was part of a cohort to present a submission to the South Australian Government requesting the creation of boundaries for GMO agricultural production. Although the OGTR in Australia is clear in its process of regulation, wine trade partners are requesting greater transparency and regulation specifically with respect to wine and the protection of non-GMO producers. Mr Brown cites feedback from Sweden about the ability of South Australian wine producers to prove customers are not at risk of

GMO exposure. He goes on to say that a regulation similar to the exemption granted to Kangaroo Island would help address these potential trade barriers.

Lessons from organic wine production regulation

In the absence of legislation regarding wine production and Synthetic Biology, the experience of organic wine producers in Australia is insightful. Currently in the Australian domestic market there is no legislation to regulate the declaration of organic food production, which includes wine production. Producers wishing to export wine that is labelled *Organic* must go through an extensive and costly process that begins with being certified to the Commonwealth's National Standard for Organic and Biodynamic Produce, followed by recertification in each market they wish to trade with. Furthermore, not all markets have an equivalency agreement recognising the Commonwealth standard, and for those particular markets extensive recertification costs and technical trade barriers are incurred for the wine to be labelled *Organic*. By extension, organic and biodynamic wine producers are now also bound by the GMO management requirements of trade partners in order to achieve market access. If Australia were to have an internationally recognised legislative framework in place to regulate and protect organic production, which includes non-GMO production, the process and cost of exporting wine labelled *Organic* would be significantly reduced.

Currently Mr Brown is working with AOL chief executive officer Niki Ford to raise awareness at federal level about the need for legislative protection and transparency with respect to organic production. Although AOL efforts are focussed on organics, GMO production is prohibited under organic standards globally, making GMO management an integral part of any legislation related to organic food production.

Legislation and regulation are an opportunity, according to Mr Brown, to provide clarity as to what constitutes an organic product. Additionally, the defining and regulating of what is organic and by extension what is non-GMO, would also help address concerns raised by countries such as Sweden and other European trade partners.

Inherent in the use of GMOs in agriculture are challenges relating to biosecurity in the wine industry and individual choice, says Mr Brown. At Gemtree Wines in McLaren Vale, Mr Brown with his wife Melissa, farm the land as naturally as possible, "that is our choice and therefore we must have no risk for contamination to the natural plant that we are choosing to grow." With no interest in imposing their farming choices on other producers, Mr Brown says the absence of transparent regulatory processes that protect non-GMO production is a biosecurity issue. Failure to develop such a regulatory framework misses the opportunity of addressing concerns raised by international trading partners, whilst also failing to protect the point of difference on which non-GMO businesses are built.

As with any new technology the wine industry must proactively meet the challenge of balancing benefits, in this case from Synthetic Biology, with the concerns of producers and trade partners. In a rapidly evolving area of science an equally agile regulatory framework is required to successfully achieve this. The absence of which will fail to fully realise the potential benefits biotechnology could offer wine production, whilst jeopardising businesses that have cultivated success and reputation on the fact they are GMO-free.

Simone Madden-Grey is a writer based in Melbourne, Australia writing about the people, places and stories she has discovered on her travels. Her portfolio can be found at happywinewoman.com including articles on climate and sustainability, new tech and the latest in scientific research supporting the wine industry in Australia and her home country, New Zealand.

Further information

Australian Grape & Wine: www.agw.org.au/policy-and-issues/biosecurity-environment-and-sustainability/genetically-modified-organisms

European Commission: https://food.ec.europa.eu/plants/genetically-modified-organisms_en

Office of the Gene Technology Regulator: www.ogtr.gov.au

Interviews

Brown, Mike. Gemtree Wines; Chairperson, Australian Organic Limited (AOL)

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Sources

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