

How sustainable is your wine?

As the human population increases, changes in land use are destroying the world's natural habitats. Widespread spraying of pesticides has been blamed for collapsing insect and bird numbers, while intensive use of herbicides and fungicides contaminates groundwater and degrades the soil, making it dependent on fertilisers.

Research shows that beneficial insects such as bees and spiders, and birds and bats that feed on insects, are more numerous and diverse on untreated land than on land sprayed with chemicals, and that soils managed sustainably have more organic matter rich in microbiology.

Most vineyards are monocultures that rely heavily on preventive spraying of herbicides, fungicides and pesticides to keep disease and pests at bay.

Going green

Awareness of the damage that overuse of chemical treatments in viticulture can do has spread since French soil biologist Claude Bourguignon famously declared in 1988 that the soil of Burgundy's vineyards was 'dead'. Growing numbers of wine producers now claim to follow organic or biodynamic practices.

Much of this is of course about promoting a green image. Quite apart from the moral and health arguments for a sustainable approach, there are marketing incentives for producers to portray their wines as pure products of the soil, unsullied by chemicals.

Wine producers tend to describe their philosophy as 'non-interventionist'. But it is an open secret that, given the sensitivity of *Vitis vinifera* to disease, growing healthy grapes requires intervention.

France is one of Europe's biggest pesticide users. Thousands of tons of pesticides and fungicides are used in Californian vineyards every year, more than in any other agricultural sector.

Whether you believe in conventional, organic or biodynamic methods – and it is often argued that 'organic' treatments such as copper or sulphur damage the environment more than synthetic sprays – there is a growing pressure around the world to make wine-growing more sustainable.

Faced with concerns about the impact of chemical sprays, the French government is pushing for urgent action and has introduced a new stringent level of environmental certification: Haute Valeur Environnementale (HVE). The target is for 50% of wine-growers to be certified HVE by 2025, with a 50% reduction in chemical sprays.

Sustainable initiatives

Change is afoot elsewhere too. Richard Leask from South Australia, who has been awarded a Nuffield Scholarship to research regenerative wine production, says: 'Increasingly, we are

seeing a shift towards more sustainable and less chemically reliant systems in Australia and internationally.’

Ecosystems

Around the world, producers are increasingly taking a more holistic approach that considers the whole environment in which their vineyards exist. The objective is to re-establish natural equilibrium by supporting biodiversity and limiting chemical intervention. Measures include setting aside special areas as natural habitats and creating ‘wildlife corridors’, sowing ‘cover crops’ to reduce need for herbicides, using organic mulches to limit fungicide use; introducing ‘biocontrol’ plants that attract beneficial predatory insects to eat vine pests; or replacing pesticides with natural pheromone traps that sexually confuse, but do not kill, certain pests such as moths whose larvae attack vines.

Collaborative viticulture

In reality, a more sustainable approach means reducing chemical sprays rather than eradicating them altogether. As Dr Jamie Goode, co-author of the book *Authentic Wine: Toward Natural and Sustainable Winemaking*, puts it: ‘You need to spray grapes with chemicals whatever your approach, even organics and biodynamics.’ But precision viticulture helps reduce fungicides, while ‘field scouting’, biocontrols and pheromone traps limit the need for pesticides.

‘The systems we are dealing with in vineyards are much more intricate than we tend to realise,’ says Goode. ‘If we make chemical interventions, they may have knock-on effects that are unpredictable. We must focus on collaborative viticulture – surrounding the vine with an ecosystem that keeps it healthy. That doesn’t mean you won’t use sprays from time to time, but if your vineyard is sustainably managed you might not use them at all in a good year.’

Making the transition to more sustainable methods is hard. There are no ‘one size fits all’ solutions: biocontrols that attract beneficial insects in one place may attract pests in another; vineyards in humid regions depend more on fungicides than dry regions. Moreno says sustainable methods tend to be more labour-intensive and yields lower than for conventional viticulture, so wine prices are higher. ‘Economic sustainability is a crucial aspect of sustainable viticulture. Every sustainable grower who goes out of business is one less environmental protector,’ he notes.

Some argue that it is more cost-effective to produce wine sustainably. ‘We are swiftly moving towards a situation where being environmentally friendly isn’t just sound practice, it’s also better financially,’ says Paul Donaldson of Pegasus Bay in New Zealand.