

EU RULES FOR ORGANIC WINE PRODUCTION

► BACKGROUND, EVALUATION AND FURTHER SECTOR DEVELOPMENT

Editor and publisher



Supporters



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List of abbreviations:

AGOF - Advisory Group on Organic Farming

the Commission - The European Commission

CMO - Common Market Organisation

DG - Directorate-General

DG AGRI - DG Agriculture and Rural Development

DG ENVI - DG Environment

DG MARE - DG Maritime Affairs and Fisheries

DG SANCO - DG Health and Consumers

EOWC - European Organic Winemaking Carta

the EP - The European Parliament

the EU - The European Union

GMO - Genetically Modified Organisms

IFOAM - International Federation of Organic Agriculture Movements

IFOAM EU Group - International Federation of Organic Agriculture Movements European Group

the Parliament - The European Parliament

SCOF - Standing Committee on Organic Farming

QWpsr - Quality Wine Produced in Specific Regions

The opinions expressed by the authors are their own and do not necessarily reflect the opinion of IFOAM EU.





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FOREWORD

As of August 2012, almost one year ago, organic wines can be labelled "organic", with the EU organic logo. This means wine can now be properly recognised as an organic product. Now that organic wine is fully integrated into EU legislation and therefore part of CAP (as well as being a subject for additional private standards), organic wine production - both in the vineyard and in winemaking - can be fully recognised as ecologically, economically and socially sound. We now have a solid basis for further development of the sector, and already we can see a positive response, with increasing production and new initiatives all over Europe.

In the past, wines could only be labelled as "made from organic grapes". The new legislative framework, established by Regulation (EC) No 834/2007, has been complemented by Regulation (EU) No 203/2012 that lays down detailed rules on organic winemaking and thus opened the door for organic wine in Europe.

Achieving this has involved intensive work over the past four years, based on detailed negotiation with the Commission and the results of the ORWINE project, which was an essential starting point. IFOAM EU is proud that the voice of the organic sector was heard in the process. Perhaps the biggest success involved the compromise on limiting the amount of sulphites allowed in organic wine, reached through the work of experts within both IFOAM EU Group and the European Organic Winemaking Carta (EOWC). Their recommendations have been adopted by the Commission and thus are now part of the regulation.

We greatly appreciated the involvement of Commissioner Dacian Cioloş and his determination to maintain the integrity of organic wine within the context of the EU organic regulation and the CAP – I believe that we now have an acceptable and workable compromise.

The launch of EU rules for organic winemaking is not the end of the process. Member states are now introducing and implementing the new legislation at national level and the European Commission is working on the inclusion of organic wines in equivalency agreements with third countries. It is obviously essential that the certification scope of control bodies operating in third countries and certifying for import to the EU includes organic wine.

The new legislation will support progressive improvement since it provides the option for review in 2015 of the use of some substances and techniques in organic wine production. This means that organic wine producers have time to test the new rules in practice and gain experience so that they can provide well informed input to this review process. Research and development projects will also be essential.

We need to co-operate to ensure harmonised interpretation and implementation of EU organic wine production rules, so IFOAM EU Group will continue to work with organic wine producers and experts, making sure that the voice of the sector is heard by the EU institutions and is included as part of the ongoing revision of the EU organic regulatory framework and the preparation of a new EU Organic Action Plan.

This dossier provides an explanation of the regulation and the legal framework and gives inspiration for existing and future producers of organic wine. I am sure that it will help us all to promote organic wine production and consumption.

I would like to thank all the expert contributors to this dossier, the authors and the editors who have together supported the work of the IFOAM EU office during preparation. I would also like to sincerely thank the sponsors who have helped make it possible.

I hope that the future will bring more organic wine to our tables.

May I wish you an enjoyable and informative read – in vino veritas.



Christopher Stopes, IFOAM EU Group President



1. ORGANIC WINE AS SYMBOL FOR SUSTAINABLE QUALITY PRODUCTS

1.1. ORGANIC WINE: A DEFINITION AND HISTORY

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There is evidence of viticulture and winemaking going back at least 7,000 years. The cradle of winemaking seems to lie in the Caucasus region, but it was also practiced in the Near East for millennia.

It is notable – as in agriculture in general – that with the introduction of modern developments accompanying the so-called Green Revolution starting in the 1960s (high-yield varieties, increased fertilisation with synthetic fertilisers as well as chemical-synthetic plant protection), certain winegrowers developed a more ecologically oriented approach as they did not want to follow the trend. This point in time marks the origin of modern ecological viticulture.

Organic viticulture pays particular attention to protecting the natural balance of the vineyard and the surrounding environment while producing grapes. This means that maintaining the fertility of the soil is an essential prerequisite. Natural biological processes and predominantly closed systems are promoted. In other words, the goal is to develop the monoculture of the vineyard into a polyculture by promoting biodiversity.

Along with organic there is also biodynamic viticulture. Biodynamic viticulture is founded on anthroposophic principles, in which agricultural sites are seen as organisms in themselves with their own individual nature. For such winegrowers it is essential to use biodynamic substances as amendments.

The term “natural wine” is often used. But there are no legal standards for this designation, and it is even forbidden in some EU member states. A ‘true’ natural wine could be considered one produced using organic (or biodynamic) principles with a minimum of technological intervention.

Following the initial efforts of the pioneers of organic agriculture in the 1960s and 1970s, the need was recognised

for a certain degree of official organisation, and organic farming associations were founded. Starting in the 1980s, organic viticulture was subjected to various rules for cultivation by the different associations.

The German Organic Winemaking Association, Ecovin, was founded in 1985. It agreed to unify national guidelines for Germany. At that time, these already embraced the entire production cycle from grape growing to cellar management.

Since 1991 there have been uniform Europe-wide regulations for organically grown grapes (Regulation (EEC) No 2092/91), which regulate matters including the use of plant protection substances as well as fertilisers and establish the necessary control mechanisms. Since the introduction of these regulations, quality controls which used to be conducted internally by the various associations have become government-regulated. Government-accredited control authorities (certification bodies) conduct independent quality audits and can certify the growers. Additionally, the associations also certify their own members: in effect a “controlled quality control” which results in very high standards.

After 1991, organic farming associations continued to develop their guidelines, often in close contact with other organisations in Europe. National authorities were happy to rely on this expertise to help amend and improve domestic and European provisions and implementing regulations.

Since 2012 there have been Europe-wide regulations for cellar management and winemaking. The current association guidelines are (as of 2013) based on (EC) No. 834/2007, (EC) No. 889/2008 and Regulation (EU) No. 203/2012.

While German and Austrian wineries used to play a principal role in developing quality-oriented organic winemaking techniques, a large number of winemaking operations from other countries are now also meeting the required standards. A lot of winemakers have begun to recognise that high organoleptic quality can only be achieved by using organic grape-growing methods and have begun to convert their operations. This trend is substantiated by the growth –



PROFESSIONALISATION HAS LED TO
NUMEROUS ORGANIC WINES TAKING
THEIR PLACES AMONG THE WORLD'S
PREMIER QUALITY WINES.

sometimes double-digit in percentage terms – of the area of organic vines across all of Europe's winemaking regions.

A lot has happened in the field of organic viticulture and winemaking in recent decades. Lessons have been learned from some of the bitter experiences of the initial phase. Exchange of knowledge at a professional level has helped raise quality criteria which are reflected in today's international standards. This professionalisation has led to numerous organic wines taking their places among the world's premier quality wines.

1.2. DEVELOPMENT OF EU RULES FOR WINE - EXPLAINING THE PROCESS

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Vines are a crop which characterise the European landscape and which feature prominently in the continent's tradition and history. They are of major economic and commercial importance. And, of course, wine is a fundamental element of the European lifestyle. While wine was one of the earliest traded and regulated food products in Europe (the common market organisation for wine was the first to be completed), the writing of legislation for production of organic wine has been a lengthy and halting process.

A HISTORY IN SEVEN STEPS

1. In **1991**, the first European regulation on organic food production was introduced (Regulation (EEC) No 2092/91). It concerned plants and their processed products, and therefore covered grape production. Nonetheless, the understanding about wine as the processed product of grapes was that the Commission would go on to produce a specific regulation on organic wine-making within a few years. Until that time, it would be permitted to sell "wine from organic grapes", but not "organic wine".
2. Over the following decade, organic viticulture and wine-making steadily expanded. It was regulated by private standards, but producers' demands for a common regulation became increasingly strong and were joined, from 2000, by those of non-EU countries importing European wines. In **June 2004**, the Commission launched

its European Action Plan for Organic Food and Farming which included an action to consider the need for an organic wine-making regulation.

3. In 2005, the Commission launched a call in the VI Research Framework Programme for a project to deliver the scientific basis of an organic wine-making regulation. This represented the first explicit commissioning by the EU of scientific work to support legislation. The work was carried out under the ORWINE project that ran from **2006 to 2009** and delivered a large number of scientific outcomes covering wine-making techniques, market dynamics, consumer attitudes, producer circumstances and environmental impacts. Based upon these, the project delivered a set of regulatory recommendations.
4. The 1991 EU organic regulation was then overhauled and replaced by Regulation (EC) No 834/2007 (applicable from **1st January 2009**), which introduced organic wine in the scope but gave no details about it in the implementing rules.
5. The Commission and member states began work on the implementing rules for wine in **early 2009**, but debate was so intense that the Commissioner decided to suspend it in **June 2010**. The deepest conflicts concerned the use of sulphites.
6. The organic sector continued to push the Commission and member states to restart the discussion and finalise the regulation. At this time a group of associations from France, Spain, Italy and Switzerland set up the European Organic Wine Carta initiative (EOWC), harmonising private standards as a proposed basis for a common regulation.
7. The Commission restarted discussions in **July 2011**. Experts from the EOWC and IFOAM EU developed a position. In these discussions, a strategy was found for solving the sulphites issue: the creation of new categories of wines based on residual sugar content with their own individual sulphite limitations. This breakthrough led to the approval of the new rules (by SCOF) on **8th February**, the publication of [Regulation \(EU\) No 203/2012](#) on **8th March**, and the introduction of the new regime on **1st August 2012**.

The compromise over sulphites which finally permitted the creation of a common regulation was accepted but not



universally satisfactory: the Italians and Spanish complained it was insufficiently ambitious while the Germans and Austrians asserted that it hampered the development of their organic wine sectors. In reality, it was the **best political compromise possible** in that moment. The only alternative was to give up on the idea of continent-wide organic wine rules for another 10 years at least, with European producers unable to label their organic wines and facing growing competition from non-EU producers. Despite the inevitable limitations of any compromise, this one can be credited for opening the door to credible organic rules applicable across all of the EU's geographically and climatically diverse winemaking areas, without causing major market distortions.

Going forward, the regulations must evolve together with the sector they regulate. For organic wine in particular, this means that the regulation must be reviewed and upgraded as soon as the sector is ready.

1.3. PRIVATE STANDARDS FOR ORGANIC WINES

» **Marc Chovelon, ITAB, www.itab.asso.fr, marc.chovelon@itab.asso.fr**

Because wine made from grapes (but not from other fruits) was excluded from the scope of Reg. (EEC) No 2092/91, organic wine-growers have developed specific approaches for processing their wines in ways they consider to be consistent with organic farming principles. These private initiatives in the producing countries have taken the form of standards more restrictive than the legal requirements for conventional wine, with limits on the use of additives and technical processes at all steps of winemaking from the grape picking to the wine bottling and storage. They were developed by producer groups (for example in Germany, France and Austria), organic farming associations connected with certifiers (in Austria, Germany, Greece, Italy and Switzerland), certifiers (in Spain) and representative national platforms for the organic wine sector (in Spain and Switzerland). In this last case, the participation of local and national public authorities gives an official status to the standards.

These national and private standards were the basis for the second-generation organic regulation, (EC) No 834/2007, and the organic wine regulation which followed it, (EU) No 203/2013. All the private standards function parallel to new legal framework. (A list of organisations offering private

standards can be found in annex on page 47). The main reason for this is that the private standards are more restrictive than the EU regulation. We can expect that the new regulation will influence private standards, since they will be revised to fit in with the new EU legal framework. Moreover, the debate around the EU rules has prompted deep reflection on organic winemaking standards.

On the basis of the organic certification and standards defined in the EU regulation, it is possible to define private standards with additional detailed production rules. Private standards will aim to strengthen the following aspects of viticulture and oenology:

- Biodiversity in grape production
- Attention to soil fertility and soil life
- Alternative approaches to pests and diseases
- Sustainability of grape production and wine processing and storage
- Quality and source of wine ingredients, including further limitations on enrichment and requirements for ingredients to be fully organic
- Quality of yeasts, including wild yeasts and spontaneous fermentation
- Further limitations on additives and further reduction or total ban of sulphites
- Further limitations on processing techniques
- Requirements or limitations on tools and equipment

Private standards are appreciated by many winemakers and are recognised by many consumers as indications of quality wine which authentically express *terroir*.

Private standards should be seen as a tool for further development of production rules in the organic sector. They were basis for the current EU regulations and they will continue to develop, allowing organic producers to take up innovations and technological developments as well as to respond to consumer expectations for organic quality, integrity and sustainability. As they develop, they will continue to be a forerunner of EU legislation and pave the way for the future.

A prominent example is the EOWC, which brought together private certifiers in different EU countries and regions to establish common rules for organic winemaking, based on ORWINE results, in the absence of an EU-wide regulation. Organic logos in the EOWC share the same minimum requirements, defined in the Carta.

PRIVATE STANDARDS ARE APPRECIATED BY MANY WINEMAKERS AND ARE RECOGNISED BY MANY CONSUMERS AS INDICATIONS OF QUALITY WINE WHICH AUTHENTICALLY EXPRESS *TERROIR*.

1.4. WINE CERTIFICATION – SUSTAINABILITY AND QUALITY LABELS

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To protect consumers and ensure the transparency of information and labelling, European agri-food products must meet a wide range of standards including food safety, sustainability and quality standards. This article will define and discuss some of the standards applicable to European wines, focussing on those most relevant to the organic sector: quality, sustainability and food safety.

QUALITY AND GEOGRAPHICAL INDICATIONS

The EU's geographical indications schemes are designed to protect the reputation of regional foods and preserve local traditions by helping producers earn a premium price for authentic products, as well as protecting consumers from misleading marketing (Council Regulation (EC) No 510/2006). While geographical indication schemes can apply to specific wines, Europe has also established a special regime to deal with wine quality labelling more broadly.

Europe's Quality Wines Produced in Specified Regions (QWpsr) legislation requires member states (MSs) to establish categories of quality wine and standards associated with those categories. Wines meeting these standards are then labelled as such. Some MSs have more than one level of QWpsr. In France, for example, the higher category is Appellation d'Origine Contrôlée (AOC) and a lower one is Appellation d'Origine Vin Délimité de Qualité Supérieure (AOVDQS or VDQS). The standards by which MSs judge wines for accession to their various QWpsr classes must include stipulations about grape-growing and winemaking methods in addition to quality-related assurances such as maximum yield per hectare and circumstances under which quality wines would be downgraded to table wines.

For some MSs, geographical indications outside the QWpsr scheme, especially Protected Designation of Origin (see below), are considered more stringent and therefore more important as a quality indicator, and wines meeting those requirements automatically qualify for QWpsr status. This type of approach is regulated under the common market organisation for wine (Regulation (EC) No 479/2008), which came into force on 1st July 2009.

ORGANIC COGNAC

Cognac is the protected designation of origin (Appellation d'Origine Contrôlée) given to a type of brandy made in the French regions of Charente and Charente-Maritime. Cognac is produced from the double distillation of a white wine made using specified varieties of white grape varieties, of which Ugni Blanc is the most widely used. No sugar or sulphites are permitted in making Cognac; the wine is distilled twice by 31st March of the year following harvest and its concentration increases seven-fold. After distillation, Cognac must be aged for a minimum of two years before preparation for sale. Most producers age it for longer than this legal minimum.

Cognac is bought very cheaply from around 5,000 producers and distributed all over the world by just four multinational companies, which between them control 95 per cent of the market. These multinationals are not interested in organic Cognac, so producers have no great incentive for organic production, especially if the costs are higher.

French legislation authorises a maximum copper application to Cognac vines of 6kg per hectare per year. Yearly application figures can be calculated by averaging applications made over five years, which is a crucial provision for organic producers since conditions in certain years (such as the very rainy 2012) absolutely require applications exceeding this limit while conditions in other years (such as dry 2011) permit the reductions. In general, the oceanic climate of the Charente produces a lot of rain, necessitating frequent copper applications.

One of very few organic Cognac producers, Domaine Beruis de Segonzac has managed 57 hectares of vines for Cognac organically since 2006. For the economic viability of the estate, the production of white wine for distillation has to be at least 100 hectolitres per hectare but can reach 130 to 140 during the best years. As for other vineyards, high yields require strong vitality in the grapes, stimulated by proper organic fertilization and meticulous protection against the main diseases such as mildew and powdery mildew.

PATRICK BRILLET, www.domaine-breuil-segonzacc.



PRODUCTION OF ORGANIC SPARKLING WINE D.O. Penedès

Sparkling wines can be defined as wines that have undergone a second natural fermentation in the bottle by the traditional method, with a pressure due to dissolved CO₂ of over 3,5 bar.

The main appellation for sparkling wine in Spain is Cava, with about 240 million bottles produced per year, though there are other appellations which also allow sparkling wine production.

In April 2013, the appellation Penedès became the first in the world to make all its sparkling wine production organic.

The preparation of quality sparkling wines under the D.O. Penedès will be made exclusively from grapes and wines from organic farming in accordance with Regulations (EC) No 834/2007, (EC) No 889/2008 and (EU) No 203/2012. For the adaptation of all producers a transitional period of five years from 1 November 2013 until 31 October 2018 has been established. As of the vintage 2017 all production has to be organic.

The entire process of sparkling wine from the filling to the disgorging will be in the bottle and in registered warehouses and must last a minimum of fifteen months.. The rural variant of the traditional method for sparkling wine is also allowed where during all the process only the sugars from the grape itself are fermented and no sugar is added.

12 producers are already registered for the production of Penedès sparkling wine.

Enric Bartra Sebastian

For wine as for other EU food products, compliance with PDO and PGI production rules must be verified by an independent third-party inspection body (as nominated by the agricultural ministry of the member state in which the geographical area is found), and manufacturers are required to present documentation showing, for example, evidence of regular production and traceability.

PDO AND PGI WINES

Protected Designations of Origin and Protected Geographical Indications exist across a range of foodstuffs and beverages, and particular rules apply to winemakers seeking one of these designations. A **Protected Designation of Origin** is where the name of a region, a specific place or, in exceptional cases, a country, may be used to market a wine product that complies with the following:

- Its quality and characteristics can be essentially or exclusively due to the particular geographical environment with its inherent natural and human factors
- The grapes come from and wine production takes place in this geographical area
- It is obtained from grape varieties belonging to the species *Vitis vinifera*.

To use a **Protected Geographical Indication** (PGI), a wine must comply with the following:

- It has qualities, reputation or other specific characteristics attributable to this geographical origin
- At least 85 per cent of the grapes from which it is produced come from this geographical area
- Its production takes place in this geographical area
- It is obtained from grape varieties belonging to *Vitis vinifera* or a cross between the species *Vitis vinifera* and other species of the genus *Vitis*.

Wines qualifying for PDO or PGI can be identified by the same Community logos regulated by the indications of origin for agricultural products and foodstuffs. Consumers should be aware that wine labelled according to both QWpsr and PDO or PGI will be present on the market, as EU regulations provide flexibility on the labelling system used by each member state.



IN APRIL 2013, THE APPELLATION PENEDEÈS BECAME THE FIRST IN THE WORLD TO MAKE ALL ITS SPARKLING WINE PRODUCTION ORGANIC.

FOOD SAFETY

The issue of food safety is a prerequisite for the consumer and as such it is a tool of competitive advantage for companies.

There are several voluntary standards relating to Food Safety that companies can apply: ISO 22000, FS 22000, BRC (FSGS) Food, IFS Food and ISO 22005.

HISTORY OF BIODYNAMIC WINES IN FRANCE

France is an important wine growing country in Europe. In the 1970s, when biodynamic farming was in the early stages of its development, a French pioneer called René Bosse Plattière started applying biodynamic preparations to his vineyard. Some years later, in the 1980s, other vine growers such as Eugene Meyer and Jean-Pierre Frick in Alsace and François Bouchet in Anjou also converted their vineyards to biodynamic farming. At that time, the focus lay more on the cultivation of the vine plant than on winemaking.

Since the 1990s, François Bouchet and Jacques Mell, who were very much connected to the research of Maria Thun, participated in the development of biodynamic vine growing in France by advising vine growers. Several winemakers with good reputation due to the high quality of their wines converted to biodynamic vine growing. This had the effect of awakening the interest of other winemakers in biodynamic practices.

In the decade from 2000 onwards, the interest of viticulturists and winemakers in biodynamic methods grew exponentially. Nowadays more than half of the 450 certified biodynamic farms in France belong to wine growers. The use of biodynamic methods by well respected grape growers and winemakers significantly raised the profile of biodynamic methods in France. Numerous articles, publications and films spoke about biodynamic wine. In France, the famous publisher Féret from Bordeaux edited a book entirely devoted to biodynamic viticulture. In Switzerland, Italy and Spain, the development of biodynamic wine has been supported mainly by the French advisors Pierre Masson and Nicolas Joly, the latter well known for his famous vineyard Coulée de Serrant.

VEGAN WINES

Some consumers consider the inclusion of animal products in the human food chain to be inherently unsustainable, and there is thus a thriving market for vegan products stimulated by the public interest in sustainability. Vegan products exclude any animal by-products whether as ingredients or processing aids.

It may be surprising for some to learn that most wines are not in fact vegan; animal ingredients or processing aids for wines may include albumin, animal gelatine, isinglass and bone meal. Producers are moving to supply the vegan wine market; for example, the Italian Vegetarian Association has recently launched the trademark "Vegetarian Quality[®]", which as a true third-party certification is a step forward for those who want to "drink vegan".



Biodynamic viticulture starts with the meticulous application of the biodynamic sprays and compost preparations in the vineyards. The application of the 500 P created by Alex Podolonski is also used widely, especially in the fields under conversion, as a result of its ability to rapidly improve soil structure. New treatments have been introduced, such as the use of willow bark to fight cryptogamic diseases. Biodynamic wine growers aim at reducing the use of sulphur and copper in the preventive care of the vines, and use herbal teas, such as nettle tea, intensively. Whereas vine growers used to perform regular soil cultivations, now the tendency is to maintain a mixture of annual plants as perennial green cover.

Jean-Michel Florin



SUSTAINABILITY

The issue of sustainability is gaining more and more attention in environmental, social and economic debates. As sustainability initiatives multiply, corporate standards and retailers' supply specifications increasingly include sustainability components. Professional associations and certification bodies are involved in designing meaningful voluntary standards for sustainable production, with an important role being played by the European Environmental Citizens Organisation for Standardisation. Nonetheless, the term "sustainability" remains elusive and controversial with no universal definition.

Given the strength of consumer feeling, communication about sustainability and social responsibility initiatives can be a powerful marketing tool. Companies have recognised this, and environmental claims in particular have been rapidly increasing. Unfortunately, and thanks in part to the difficulty of defining and 'proving' sustainability, a good proportion of these claims are so-called "greenwash", written to invoke a positive response from environmentally-minded consumers but unsubstantiated by genuine action on the part of the organisation.

In this context, the role of internationally-recognised technical standards such as the ISO series is very important as a consensual, transparent and voluntary tool, intended to define the characteristics of a product or a process according to the state of art. There are no certifiable voluntary standards which deal with sustainability as a whole, but some voluntary standards address particular elements of sustainability in a useful way.

LCA

Life Cycle Assessment (LCA) is an objective method for the assessment and quantification of energy and environmental costs and impacts associated with a product, process or activity over the entire life cycle, from production of raw materials through manufacturing and distribution to use, recycling and final disposal. LCA has gained credence at the international level and is extensively researched and written about. It has been incorporated into standards including the widely-used ISO environmental series (ISO 14040 and 14011). LCA is also part of the European Commission's Integrated Products Policy, through which it is trying to improve the sustainability of European products and their supply chains through policy actions.

SUSTAINABILITY INITIATIVES BY WINEMAKERS IN SPAIN

Vineyards and wineries across Spain are taking action to improve sustainability.

To limit pollution, there have been actions to reduce effluent from the winemaking process and to improve its treatment.

Wineries have been making more careful use of water. In some cases it is possible to recycle water for landscaping; in others, to use dry-landscape designs. Better equipment and management practices can deliver significant water savings, too.

Vineyards and wineries have reduced their energy needs by improving insulation or even generating their own power with sun or wind. Some use ground source heating and cooling. The use of electric cars and electric vehicle charging points is increasing.

In vineyard management, temporary cover crops, hedges, replacement of pesticides with non-chemical controls, provision of nesting places for bats and birds are all actions taken to maintain and increase biodiversity in the vineyard environment, reducing both ecological impact and vulnerability to grape pests.

Keen to demonstrate their efforts substantively, some businesses measure and report their carbon footprints, and commit to reduce it. Many winery tours now include discussion of environmental actions.

Enric Bartra Sebastian

GHG MANAGEMENT

Greenhouse Gases (GHGs) have become a topic of major public concern as the threat of climate change has become better understood through the last ten years. GHG reduction targets have been set, some under the Kyoto Protocol (the EU has committed to cutting its emissions to 20 per cent below 1990 levels by 2020, and each member state has its own reductions target as part of this programme). It follows that the reliability of data by which these reductions are measured is absolutely crucial. Terms such as "carbon footprint" and "carbon neutral" have entered common parlance with the consequent risk of inflation. This is the reason why the market for GHG verification and validation is expanding.

THE OVERALL GOAL OF ENVIRONMENTAL LABELS AND DECLARATIONS IS TO STIMULATE THE DEMAND AND SUPPLY OF PRODUCTS WITH A LOWER ENVIRONMENT IMPACT.

Companies seeking to monitor their GHG emissions can turn to the Greenhouse Gas Protocol, which has developed sophisticated calculation tools which are freely available, or to the ISO 14000 series. These can both be applied at the level of the whole company level or that of the individual product. Soon to be released is ISO 14067, which will deal with GHG emissions as part of a carbon footprinting approach.

ENVIRONMENTAL PRODUCT DECLARATION - EPD

The overall goal of environmental labels and declarations is to stimulate the demand and supply of products with a lower environmental impact, encouraging better environmental performance through the use of market-based mechanisms. The EPD is an independently verified document primarily used in business-to-business communications which private or public sector organisations can commission to communicate environmental information about their products and services in an objective, comparable and credible way. An EPD is for informational purposes only (as opposed to being a certifiable standard with associated requirements) and is closely related to the ISO environmental declaration (ISO 14025), but can be very helpful for improving clarity and verifiability within supply chains.



BALSAMIC VINEGAR OF MODENA

Traditional Balsamic Vinegar with a Protected Denomination of Origin (PDO) is obtained through lengthy ageing in barrels containing only boiled must. Balsamic Vinegar of Modena with a Geographical Indication (GI) is generally produced industrially by mixing wine vinegar with concentrated must. Both have had difficulties in redefining themselves under the new organic regime, which deals also with other grape products in addition to wine.

The main problem is the need for heat treatments well above 70°C and the use of sulphite-treated must processed with ion exchange resins; these practices are now not permitted under organic wine rules.

After an intense dialogue between producers, government authorities and certifying bodies, the Italian authorities decided that balsamic vinegar does not fall within the scope of (EC) No 203/2012, even if organic must is used. Under these circumstances, it can be regulated by the organic regulation (EC) No 234/2007, allowing for organic Balsamic Vinegar of Modena to be produced using heat treatments over 70°C.

The Italian authorities decided, though, that concentrated musts and rectified concentrated musts normally used for the enrichment of wines can now be used in the production of Balsamic Vinegar of Modena. This means that Modena Balsamic Vinegar producers who have not been able to use the EU organic logo in the past, due to the absence of organic wine regulations, may now use it as it is regarded as outside the scope of Regulation (EU) No 203/2012. This is a market opportunity but presents some problems for existing label stocks.



1.5. SUSTAINABILITY IN ORGANIC WINE PRODUCTION

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In discussions of wine, a recurring term is the French *terroir*, defined in the Oxford Companion to Wine as “the total natural environment of any viticultural site,” the unique interaction between geography, geology and climate of a site and the genetics of the plants which grow there. *Terroir* is particularly important in wine production because it affects taste and flavour, both essential properties of a finished wine.

Farming methods may arguably be considered an aspect of *terroir*, affecting agro-ecosystem components which influence the quality of a wine. Cover crops, for example, can enhance soil structure, easing compaction and facilitating the movement of water and air; they can add fertility; and they can improve soil biodiversity. These things can provide a better environment for vine roots and directly benefit the flavour of the wine.

Thus, measuring the effects of farming techniques with respect to biodiversity, ecosystem preservation, soil characteristics and greenhouse gas emissions becomes increasingly relevant for the development of an integrated product certification system for wine.

Italian sustainability auditor Environmental and Ethical Certification Institute (ICEA) has launched a programme for evaluating the environmental performance of vineyards and wineries. It employs Life Cycle Analysis (LCA) to evaluate the impacts of organic wine at each phase of the product life cycle according to the requirements of the ISO 14040 series.

The programme aims at providing wine growers with a reliable tool to evaluate alternative measures for improving the product, to identify technological and management opportunities, to compare the environmental performance of different and similar products and to generate reliable data for communication with the market. It will apply across fresh grapes, grape must and packaged or unpackaged wine.

GRAPE SUGAR

Organic grape sugar (rectified concentrated must) is used in wine enrichment to increase alcohol content. This sugar type is preferred as it does not modify the sensory or chemical properties of the must it is added to. In past years, “traditional” concentrated musts were used, but these retain the chemical characteristics of the musts from which they come and therefore can alter the profile of the wines they enrich by adding substances other than sugar. This is the main reason why grape sugar has become such a valued ingredient in the wine industry. Meanwhile, it has also become very popular as a sweetener for baby foods and other food products.

Currently, grape sugar is predominantly produced by passing clarified grape juice over ion exchange resins to remove salts, organic acids and nitrogenous materials (i.e. colour and flavour constituents). In this process, however, the resins must be regenerated using sodium hydroxide and hydrochloric and sulphuric acids, producing environmentally-damaging effluent. The current organic wine regulation permits the use of ion exchange resins until 2015, but producers wonder what will happen after that date.

An alternative technology is chromatographic separation. This has been used for sugar production since the 1960s, but its application in grape juice purification is more complex. Chromatographic separation uses charged resins to adsorb sugars while the impurities are washed away; no chemical regenerants are needed and the energy consumption is also lower than for the traditional method. However, the low pH of grape juice (lower than that of cane or beet sugar juices) can affect its interaction with the charged resins and weaken its adsorption.

Advances are now being made in adapting chromatographic separation for grape sugar production and some companies are moving to commercialise the technology. Italy's Naturalia Ingredients, for example, has invested in chromatographic separation in anticipation of a change in the rules after 2015, and claims it can deliver the same results as ion exchange resins, recovering almost 100 per cent of sugars and eliminating almost 100 per cent of impurities, with a much lower environmental impact.

MEASURING THE EFFECTS OF FARMING TECHNIQUES WITH RESPECT TO BIODIVERSITY, ECOSYSTEM PRESERVATION, SOIL CHARACTERISTICS AND GREENHOUSE GAS EMISSIONS IS INCREASINGLY RELEVANT.

A broad range of impact indicators will be inspected within evaluations. Soil organic matter levels will be inspected as an indicator of soil quality, and biodiversity as an indicator of ecosystem health. Other indicators will include the following: energy used on farm in electricity and fuels; Global Warming Potential (GWP), related to the emission of greenhouse gasses; eutrophication, as a reflection of nitrogen and phosphorous management; Acidification Potential (AP), caused by emissions of acidifying pollutants that can severely damage terrestrial and aquatic ecosystems, manmade resources and even human health; and water footprint, defined as the volume of fresh water used to produce the product, measured over the full supply chain.

Designed initially for organic viticulture, the ICEA will extend this programme to other sectors such as organic olive oil, and other sustainable farming methodologies. The certification system will provide much-needed objective evidence of the effects of farming methodologies on the main dimensions of sustainability.



IN RESPECT OF
PEOPLE & NATURE



ICEA, Environmental and Ethical Certification Institute, is a Non Profit Consortium that controls and certifies companies that carry out their activities in respect of people and nature, defending workers dignity and rights of consumers.

With around 13 thousand controlled companies with strong ethical, environmental and social value, 300 technicians and 28 Territorial Operative Structures in Italy and abroad, ICEA is among the most important bodies of the sector in Italy and in Europe. ICEA operates to support a fair and socially sustainable development, ranging from organic farming to other sustainability related sectors.

www.icea.info/en

FECD (Ecuadorian Fund for Cooperation and Development) is a foundation which has been working for fifteen years to improve the living conditions of small producers in Ecuador.

FECD has developed an innovative and participatory methodology -derived by the Focusing technique -that allowed reaching significant results in working with Ecuadorian smallholders.

www.fecd.org.ec

ICEA and FECD are partners in various initiatives in the area of international cooperation and certification and together they built an Ecuadorian Certification Body - ICEA Ecuador - operating at the national and Regional level.

www.icea.com.ec



2. EXPLANATION AND INTERPRETATION OF EU RULES FOR ORGANIC WINE WITHIN THE CAP

2.1. EU ORGANIC WINE MAKING RULES

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Regulation (EU) No 203/2012 provides rules for production of organic wines. It applies from 1st August 2012 and from that time wine produced according to its rules can be labelled as organic wine using the new EU organic logo. Wines produced before that date can also be labelled organic, as long as the producer can provide evidence that the wine was produced according to these new rules (see discussion on page 26).

Organic wine has to be made of organic ingredients. Organic grapes should be produced according to the crop production rules as set out in organic regulations (EC) No 834/2007 and No 889/2008. The new organic wine regulation provides additional rules for oenological practices, processes, treatments and substances such as additives and processing aids. Many practices and substances used in conventional production as set out in Regulations (EC) No 1234/2007, No 606/2009 and No 607/2009 are seen as unsuitable for organic wine production, and there are specific restrictions and limitations given by the new organic wine regulation, which additionally requires that organic products and substances be used if they are available.

OENOLOGICAL PRACTICES NOT SUITABLE FOR ORGANIC PRODUCTION

The new implementing rules prohibit the following practices for organic wines (Article 29d(2) of Reg. (EC) No 889/2008):

- Partial concentration through cooling
- Elimination of sulphur dioxide by physical processes
- Electrodialysis treatment to ensure the tartaric stabilisation of the wine
- Partial dealcoholisation of wine
- Treatment with cation exchangers to ensure the tartaric stabilisation of the wine
- All new physical methods allowed in regulation (EC) No 144/2013 like nano- or ultrafiltration as well as coupled membrane procedures.

Additionally, in heat treatments the temperature shall not exceed 70°C and the size of the pores for centrifuging and filtration shall not be smaller than 0.2 micrometers (Article 29d(3)).

There are still some questions left open about use of heat treatments, use of ion exchange resins for rectification of concentrated must and reverse osmosis. These are currently allowed in organic wine production but shall be re-examined by the European Commission before 1st August 2015 with the aim of verifying if they can be phased out or further restricted (Article 29d(4)).



EXPERTS CONDUCTED LENGTHY DISCUSSIONS AND TOUGH NEGOTIATIONS TO AGREE ON A REGIME OF SULPHITE LIMITATIONS FOR ORGANIC WINE PRODUCTION.

Table: Non-exhaustive list of substances forbidden in production of organic wines

Substance	Application
Sorbic acid and sorbates	Microbiological stabilisation
Lysozyme	
Chitosan	
L-malic acid, D, L-malic acid	Acidification
Ammonium bisulphite	Protection of harvesting
Ammonium sulphate	Management of alcoholic fermentation
Chitin-glucan	Thinning
Chitosan	
Calcium alginate	
Co-polymer PVI / PVP	
Carboxymethylcellulose (CMC)	Tartrate / colour stabilisation
Yeast mannoproteins	
Polyvinylpyrrolidone	Correction of colour
Beta-glucanase enzymes	Glucan elimination
Chitin-glucan	Clarification elimination of heavy metals (iron, copper)
Chitosan	
Calcium phytate	
Potassium ferrocyanide	
Urease	Treatment, elimination of ochratoxin A and urea
Caramel	Various

Table: Permitted ingredients including concentrated must, concentrated rectified must, sucrose and yeast cells must all be organic

Product	Application
Concentrated must	Enrichment
Concentrated rectified must	Enrichment
Sucrose	Enrichment
Yeast cells	Fermentation management, yeast nutrition
Active dry yeast, fresh yeast suspension	Yeast addition
Edible gelatine	Thinning
Plant proteins from wheat or peas	
Isinglass	
Egg white albumin	
Tannins	Tartaric and colour stabilisation
Acacia gum (gum arabic)	
Tannins	Addition of tannins



BIODYNAMIC WINES

Closing nutrient cycles and promoting on-farm self-sufficiency is a key part of organic and biodynamic principles. In Austria, the Meinklang farm's vineyards are part of a biodynamic "farmunity" with cereals and cattle, which are essential for a closed cycle so that the farm can be fed and fertilised from its own resources.

Some biodynamic vineyards, of which Meinklang is one, are experimenting with a special non-pruning system for their vineyards whereby no pruning at all is carried out either in winter or summer. Such vineyards are described in Austrian dialect as "Graupert": wild, uncombed and enjoying absolute freedom. The system is based on the theory that the vines find their own balance. Vines produce a main branch, and if a side-shoot is trimmed back, the vine directs its energy into producing a new one. If the vine lives in natural harmony, its strength will go into the fruit: the consequence is many very small berries with thick skins, less juice but more extract.

This holistic thinking can also continue in the winemaking, where biodynamic producers tend to carry out a minimum of manipulation. Wines seem nonetheless seem to ferment well. The malolactic fermentation is done by the grapes' own bacterial community.

Biodynamic winemakers are always looking for ways to enhance the expression of varietal character. The Meinklang winery stores its wines in large concrete eggs for ageing. Concrete, which the Romans referred to as "liquid rock", has many positive properties including numerous fine pores through which the wine can breathe exactly the amount of oxygen it needs for its maturation. The oval shape of the storage eggs has the proportions of the "golden mean", facilitating unobstructed circulation. Meinklang vintners have had good results from this storage method and feel it could be successful in other operations too.

Werner Michlits jun., www.meinklang.at

It is important to note that any of the new oenological practises for conventional wines added to EU horizontal CMO wine legislation after 1st August 2010 cannot be used in organic production unless they are specifically allowed (Article 29d(5)).

ADDITIVES

New annex VIIIa of regulation 889/2008 provides a list of permitted additive products and substances. All those of natural origin (plant, provided they are non-GM; mineral; microbiological) are allowed. Potentially dangerous, non-essential and synthetic additives are forbidden or, if no alternative exists, restricted. As mentioned above there are many substances allowed in conventional wine which are not allowed for organic (see table above for a non-exhaustive list).

Additionally, preference should be given to the use of additives and processing aids derived from organic raw materials. This should encourage the development of market demand for them. The following substances should be used in organic quality if they are available: gelatine; protein from wheat or peas; isinglass; egg white albumin (for clarification); tannins; acacia gum (gum arabic); and yeast strains as enumerated in annex VIIIa, Article 29c(3).

SULPHITE LIMITATIONS

Experts conducted lengthy discussions and tough negotiations to agree on a regime of sulphite limitations for organic wine production. It was not possible to eliminate the use of sulphites but it was recognised that limits for conventional wines are too high.

The outcome of negotiations is a rule stipulating reduction of the maximum limit on sulphite content by 50mg/L in dry wine with less than 2 g/L of sugar (both glucose and fructose) and reduction of 30 mg/L for the other wines relative to limits set in the CMO general regulations for wine (see the table below for more details). This innovative approach, employing categorisation based on residual sugar levels, presented a solution that enabled an acceptable compromise to be reached.

Additionally, if exceptional climatic conditions in a given harvest year lower the sanitary status of organic grapes in a specific geographical area because of severe bacterial or fungal attacks, flexibility to increase the amount of sulphites in wines is given. In these cases the competent authority of

SOME BIODYNAMIC VINEYARDS, OF WHICH MEINKLANG IS ONE, ARE EXPERIMENTING WITH A SPECIAL NON-PRUNING SYSTEM.

Wine type – Categories as in Regulation (EC) No 606/2009	SO ₂ limits for conventional wine as in Regulation (EC) No 606/2009	SO ₂ limits for organic wine as in Regulation (EU) No 203/2012	SO ₂ reduction in organic wine	
			Absolute	Relative (%)
Red wines [Annex I B - A] paragraph 1a – residual sugar* < 5g/L	150 mg/L	100 mg/L residual sugar* <2g/L 120 mg/L residual sugar* >2g/L and < 5g/L	-50 mg/L	-33%
			-30 mg/L	-20%
Red wines [Annex I B - A] paragraph 2a – residual sugar* ≥ 5g/L	200 mg/L	170 mg/L	-30 mg/L	-15%
White & rosé wines [Annex I B - A] paragraph 1b – residual sugar* < 5g/L	200 mg/L	150 mg/L residual sugar* <2g/L 170 mg/L residual sugar* >2g/L and < 5g/L	-50 mg/L	-25%
			-30 mg/L	-15%
White & rosé wines [Annex I B - A] paragraph 2b – residual sugar* ≥ 5g/L	250 mg/L	220 mg/L	-30 mg/L	-12%
Special wines [Annex I B - A] (List by country**) paragraph 2 c paragraph 2 d paragraph 2 e paragraph 4 – weather conditions***	300 mg/L	270 mg/L	-30 mg/L	-10%
	350 mg/L	320 mg/L	-30 mg/L	-8.5%
	400 mg/L	370 mg/L	-30 mg/L	-7.5%
	+ 50 mg/L	(the same as CMO + 50 mg/L)		
Liqueur wines [Annex I B - B] residual sugar < 5g/L	150 mg/L	120 mg/L	-30 mg/L	-20%
Liqueur wines [Annex I B - B] residual sugar ≥ 5g/L	200 mg/L	170 mg/L	-30 mg/L	-15%
sparkling wines [Annex I B - C] paragraph 1a – quality sparkling wines paragraph 1b – other sparkling wines paragraph 2 – weather conditions***	185 mg/L	155mg/L	-30 mg/L	-16%
	235 mg/L	205mg/L	-30 mg/L	-13%
	+40 mg/L	(the same as CMO + 40 mg/L)		

* Residual sugar = sum of glucose & fructose; ** Provided by member states; *** Referred to in art. 113(2) of EC No 479/2008

the member state may authorise on a temporary basis the use of higher limits of sulphur dioxide. Maximum sulphite content can be increased by 50 mg/L for all wines for which general limits are set in common market organisation rules at 300mg/L (for particular wines listed in Annex IB 2d and 2e, raising sulphite limits is not permitted).

By and large, the new regulation has been accepted and implemented by the industry. Some wine growers and organisations are asking for a stricter regulation, and further work is needed to help it develop in the right direction without precipitating a standoff amongst Europe's winemakers.



2.2. ORGANIC VITICULTURE

› **Dr Uwe Hofmann, Viticulture Unit, German Ministry for Environment, Agriculture, Food, Viticulture and Forestry, www.mulewf.rlp.de, Uwe.Hofmann@mulewf.rlp.de**

Organic viticulture is defined as the application of organic agriculture practices to produce grapes and wine of best possible quality.

Organic viticulture focuses on the use of natural processes wherever possible for nutrient production and cycling as well as pest, disease and weed management. The organic vineyard is seen as an integrated system, with the end product reflecting the local terroir: the environmental conditions like hydrology, soil and micro-climate as well as traditional processing practices.

All aspects of organic viticulture such as canopy, soil, and pest and disease control are managed to maximise the quality and the health of the grapes.

Organic viticulture in the European Union is based on the Council Regulation (EC) 834/2007 laid down in the objectives and principles for organic production and the general production rules.

SOIL MANAGEMENT

The soil, by its physical structure and chemical composition, directly affects root system development and therewith the supply of water and minerals. The soil fertility is supported by a positive and stable combination of soil organisms' activity, soil condition, organic matter or humus supply, soil structure, well-balanced nutrient content and water conservation. Organic viticulture is based on the "living soil" and the preservation of this resource. The main aims of good soil fertility management are:

- To maintain or improve an adequate content of organic matter humus in the soil
- To encourage soil micro-organism activity with a rich and well-balanced soil fauna and flora
- To preserve a stable aggregate soil structure to guarantee necessary balance between water and air
- To keep the soil covered (temporarily or permanently) minimising the effects of soil erosion

- To avoid excessive soil compaction in carrying out mechanical operations
- To enrich the soil with nutritive elements (macro and micro nutrients)

Soil cultivation has a strong influence on soil fertility and preservation. Especially in arid or sub-arid (Mediterranean) climates and in areas where erosion and desertification are a real threat, the choice of the most suitable cultivation system with regard to machines, methods and timing is fundamental to preserving the soil. Soil cultivation should be minimised to allow the organic vineyard to gain most benefit from a structurally stable and biologically active soil, as well as encouraging microbiological and earthworm activity. This is achieved by the use of cover crops (legumes/herbs and grass crops), mowing, mulching and green manures. The choice of seed mixture depends on the duration of green cover (annual, perennial), soil conditions, texture, pH, and humus supply. In organic viticulture, weed problems in the vine understorey are resolved by means of agricultural practices such as:

- Mechanical cultivation between the rows and/or mechanical and manual inter-vine cultivation
- Seeding of low vigorous plants and subsequent mowing interventions to control the vegetation

Controlling the vegetation in the vineyard reduces the negative effects caused by competition with the vine for water and other nutrients.

"Feed the soil and not the plant" is the main organic principle regarding plant nutrition. The intent is to imitate natural nutrient cycles. Extraneous nitrogen additions are kept as low as possible. Green manures are traditionally seeded post harvest or in the early autumn as a winter cover crop, especially where fertilisation is problematic due to environmental conditions. In regions with more spring-summer rain, a summer cover crop is also common.

Permitted inputs:

- Animal manures and by-products such as fish meal, blood and bone meal
- Farmyard compost; composted or fermented household waste or mixed of vegetable matter
- Minerals from natural sources including gypsum, lime, clays, rock phosphate & potash, crude potassium salts, potassium sulphate containing magnesium salt



• ONE PRINCIPLE OF ORGANIC VITICULTURE IS THE USE OF VARIETIES, SPECIES AND ROOTSTOCKS WHICH ARE APPROPRIATE AND SUITABLE TO THE CLIMATE AND GENERAL AGRICULTURAL CONDITIONS.

- Biological preparations, organisms and their by-products
- Plant by-products such as wood chips, composted bark, wood ash and straw
- Seaweed and algal preparations
- Trace elements (only natural chelating agents allowed)

VINEYARD MANAGEMENT

One principle of organic viticulture is the use of varieties, species and rootstocks which are appropriate and suitable to the climate and general agricultural conditions. It is evidently best to choose local, autochthonous (indigenous) varieties, which usually have a greater inherited resistance to the main pathogens and pests of the regions.

All *Vitis vinifera* varieties are susceptible to a wide range of diseases and pests like Powdery Mildew (*Erysiphe necator* -Oidium), Downy Mildew (*Plasmopara viticola*), Grey mould (*Botrytis cinerea*), Eutypa dieback, Esca and grape berry moth infection, and need specific organic plant protection measures. In the recent years, a new generation of disease-resistant vine varieties has been developed by cross-breeding different *Vitis* species with *Vitis vinifera* varieties. These so called "interspecific hybrids" or PIWI (from the German expression "pilzwiderstandsfähig", meaning fungus-resistant) are more and more accepted for quality wine production in most of the European wine regions.

In all European wine regions, traditional training and trellis systems are adapted to the local climatic conditions. There are two basic characteristics. The first is adequate functional leaf area - a characteristic of a good vine training system is the ability to display a large amount of leaf area so that all leaves are well exposed to the sun. Second is the exposure of fruit to the sun. This is most important in a cool to moderate climate because the temperature of the fruit during its period of ripening directly influences the reduction of acid levels and increases the specific aroma profile in the fruit.

Well-structured canopies are easier to monitor than crowded "free-form" canopies. It is also easier to achieve thorough spray penetration and distribution throughout open, well structured canopies as opposed to dense, crowded canopies.

The management regime for an open, well structured canopy is adapted according to soil fertility and climate but will include the following:

- Careful winter pruning depending on trellis system, yield and quality
- Disbudding of suckers and side shoot removal before blossoming
- Shoot positioning, thinning, topping, trimming, leaf and bunch removal
- Increasing of loose-clusters (colouring) by spraying a sulphur / sodium silicate mixture at blooming time
- Cluster splitting and bunch thinning between the fruit setting and the beginning of the grapes' closure

PLANT PROTECTION

In organic viticulture, there are five main principles of plant protection:

- Fertility and health of the soil
- Viticultural practices, appropriate varieties and training systems
- Timing of the protection measures and application methods
- Encouragement of plant vigour to enhance natural defence mechanisms
- Biological pest control and habitat management.

Knowledge of the fields and of the soil characteristics and weather conditions also influences plant protection measures. One of the primary interests in organic viticulture is to grow healthy and disease resistant plants. With the help of organic-approved plant health enhancing products like strengtheners and natural fungicides, and with the correct soil and plant management, the plant should be able to mobilise its own defences against fungal diseases. This does not involve the application of toxic compounds to plants. Organic fungicides like copper, sulphur or potassium bicarbonate or plant extracts / oils should be used to manage fungal problems only as a last resort. Intensive use of copper can be problematic and has been seen to have toxic effects on soil flora and fauna, very rarely in limey or clayey soils but more often in light sandy soils. Formerly, doses of 30kg/ha/year were common. Recently, though, the use of copper has been limited to 6 kg/ha/year of metal copper (30 kg per year averaged over five years) while some national plant protection laws are even more restrictive.

However, it should be remembered that copper is an oligo-element which is necessary for essential life-processes not only in mammals but also in plants.



Downy mildew is one of the most harmful diseases in all European wine growing zones. The pathogen can infect all of the vine's vegetative organs. There can be numerous infections during the season. The most critical phases for downy mildew infection and yield loss are from beginning of blooming to fruit set. The greatest damage is the infection of the cluster of young berries and the stalks with an extremely high fruit loss. The infected and damaged berries dry out and drop.

The principal antifungal agent used in organic viticulture is copper, in various chemical formulations (oxychloride, hydroxide, tribasic sulphate, oxide, and oxalate). The use of plant strengtheners such as sulphuric acid clay or lime stone products is possible and successful. A debate has been taking place for many years concerning the acceptability in organic farming of potassium-phosphonate as its use would contribute to reductions in copper use. Before a decision is taken, though, assessments must be made of its sources, mechanism of action and residue risks.

Grapevine powdery mildew or *Oidium* is a widespread fungal disease which attacks the shoots, leaves, flowers and grapes. The infection can cause crop loss and reduce vine growth, fruit quality and wine quality. It is the most economically important grapevine disease worldwide. As the fungus grows, and especially when it produces spores, it gives infected tissue an ash grey powdery appearance. The fungus grows during the whole spring-summer period and can penetrate the cuticle of the grape-berries or the leaves.

Direct control measures must be initiated early, immediately after sprouting, to lower the number of spores present in the vegetation and prevent attacks. This is true especially in vineyards in which this pathogen has caused serious damage in the previous year. In organic viticulture, *Oidium* control is essentially based on the use of sulphur in powder form (raw, ventilated, activated and copper) or in solution (micronised, colloidal, liquid). Other effective methods to control powdery mildew are the use of an antagonist fungus (*Ampelomyces quisqualis* aQ10), of potassium-bicarbonate, of plant extracts (orange oil, equisetum extract, soya lecithin) or of sodium silicate.

One of the principal causes of crop quality degradation is grape bunch rot, **Botrytis**. This fungus can grow on any plant material that is succulent, stressed or dead on an extremely wide host range. It is especially problematic where relatively high humidity and frequent rainfall create a suitable

environment. Disease pressure can occur from bunch closure right through to harvesting time. Currently there are no really efficient control measures against *Botrytis* in organic viticulture. The applications of sodium silicate, equisetum extract or potassium bicarbonate can harden the cuticle and protect the berries from bunch rot infection. Copper application has the same thickening effect.

In all European vine growing areas, ***Lobesia botrana*** and/or ***Eupoecillia ambiguella*** grape moths are present. These generations of these insects can cause damage to flower organs (first generation) and to grape bunches during the larval stages (second and third generation). Damage to the berries can subsequently promote the development of *Botrytis* and decrease the quality of the vine.

The refinement of monitoring techniques for these pests with the help of pheromone traps has allowed the establishment of precise and efficient direct control methods using permitted organic insecticides like *Bacillus thuringiensis* preparations, Spinosad (microbe-based insecticide) and natural pyrethrum authorised by EEC Reg. 889/2008. Other control techniques such as mating disruption or sexual confusion with pheromones are very common and successful.

Mite infestation is a result of environmentally unbalanced vineyard systems, which is often associated with cultural intensification and excessive use of pesticides in vineyards, including also natural insecticides such as rotenone or pyrethrum. Infestation of *Calepitrimerus vitis* (vine mite) is often observed in young vines where no natural enemies are established. The leaves become deformed, necrotic and turn red, grey or yellow-brown depending on the mite. In vineyards with a long history of organic management, natural control of mite infestation occurs by different species of natural enemy such as predatory mites (phytoseiidae), pirate bugs, lacewings and ladybird beetles.

Leafhoppers are vine pests native to the Mediterranean which have spread to northern European wine regions in the last five to ten years. Both adults and nymphs of *Empoasca vitis* – grape leafhopper – feed on leaves by puncturing leaf cells and sucking out the contents. As injury increases to the vine, photosynthetic activity declines, heavily damaged leaves lose their green colour, dry up, and fall off the vine. The damage is normally minimal: Most of the vines can tolerate up to 20% leaf loss, provided leaves are not removed until about a month after fruit set. ***Scaphoideus titanus*** (American grape leafhopper)



ORGANIC VITICULTURE IS BASED ON THE
"LIVING SOIL" AND THE PRESERVATION OF
THIS RESOURCE.

feeds on leaves and damages the vine by transmitting the pathogenic agent responsible for flavesence dorée (FD), a xylem-clogging micro-organism (phytoplasma). The FD phytoplasma is acquired by the vector insect when feeding on infected vines and subsequently, after about one month, can be transmitted to other vine plants. Symptoms manifest from the following year onwards. Serious infections of this disease have been observed in different Mediterranean vine growing areas.

All leafhoppers can be controlled by natural enemies such as parasitic wasps. Several generalist insect predators like *Chrysopa* spp. (green lacewing), *Orius* spp. (minute pirate bug), *Anystis agilis* (predaceous mite), different ladybird beetles and spiders prey on leafhopper adults and nymphs of all stages during all seasons. Control can also be done using broad-spectrum natural insecticides such as pyrethrum. The use of potassium bicarbonate against powdery mildew deters leafhoppers as a useful side-effect.

2.3. ORGANIC WINEMAKING

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The organic ideal in winemaking is to minimise interventions and aim for the highest quality of wine, which is only possible if the grape quality is good. Organic grape production depends first and foremost on the soil: balanced nutrition influences the fruit composition, which in turn influences the winemaking process. Environmental and climate conditions during the growing season can reduce grape quality; organic-approved plant protection used where necessary can help to safeguard the quality of grapes and the wine.

Prevention is the keyword of organic wine production. Once microbial contamination or oxidation has started, it is impossible to recover the original quality potential of the wine. Some of the oxidative reactions are extremely quick and require only small amounts of oxygen to get started. A very limited microbial population can multiply to problematic levels within days or even hours in uncontrolled conditions, and produce readily detectable off-flavours in the wine.

The characteristics of the grape determine what winemaking strategies should be used. Some varieties are high in phenols sensitive to oxidation and require "safer" strategies. Moulds, especially *Botrytis*, introduce oxidative enzymes, unstable proteins, microbial contamination and an unbalanced starting composition. Where picking is done by hand and mouldiness is limited, the preliminary sorting of the grapes is an expensive but very useful practice. Where grapes are mechanically harvested or bought from a third party, careful selection of grape lots can be very valuable. The winemaker must promote selective extraction of positive elements from the grapes (varietal aroma, macromolecules and so on) while avoiding the solubilisation of potentially dangerous compounds (oxidative enzymes, excessive polyphenols, micro-organisms or negative aromas).

A grape at perfect ripeness will allow routine extraction whereas an unhealthy or unripe grape will require careful and rapid processing.

At the beginning of the process, two particularly important parameters must be kept at the right level, which may necessitate the use of inputs. The first parameter is alcoholic potential, which has a big impact, especially on the quality of red wines (with respect to fixation of tannins and colours, for example). Here, the new regulation permits the addition of organic sugar, organic concentrated grape must, organic rectified concentrated must and self-enrichment through reverse osmosis. The second parameter is nutrient availability in the grape, particularly nitrogen availability. Low nitrogen can obstruct and disturb fermentation. Here, the regulation permits adjustments using di-ammonium phosphate or thiamine hydrochloride as well as yeast cell walls.

FERMENTATIONS

Alcoholic fermentation

A majority of the red wines are made with indigenous or spontaneous fermentation or "pied de cuve" technique which brings more security in the fermentation process. The use of commercial yeast, principally in organic red wine production, generally applies in more difficult conditions like high alcoholic potential, low available nitrogen or diseased grapes. For white, rosé and some sweet wines, commercial yeasts have a more dramatic impact on the final product, especially the aroma. This is why some producers prefer to use selected yeasts adapted to the grape variety. Good nutrition



and healthy development of the yeast are also important for the avoidance of off-flavours or risks associated with stuck or sluggish fermentations.

The appropriate use of selected yeasts and nutrients for fermentation management will reduce the need for additives and adjuvants in the later phases of wine-making. The addition of ammonium salt (di-ammonium phosphate) and thiamine contribute to SO_2 -reduction for organic wine, and also help to facilitate fermentation.

Malolactic fermentation

Malolactic fermentation occurs mainly in red wine production, but sometimes also in white wines where indigenous fermentation (using 'native' or 'natural' bacterial strains) is used. If an attempt at indigenous fermentation fails to get started in winter, producers may prefer to wait until spring, but then face the problem of how to protect and preserve the wine. Commercial bacteria therefore tend to be used in preference over indigenous strains, if overwintering carries too many risks for the wine. A yeast-bacteria co-inoculation guarantees good and timely malolactic fermentation.

In organic winemaking, the control of malolactic fermentation is especially critical. The reduced use of additives, sulphite in particular, creates conditions for the development of bacteria in wines of weaker acidity. Temperature control and filtration are the key tools to avoid unwanted malolactic fermentation.

TEMPERATURE REGULATION

Temperature regulation is a fundamental device in winemaking and a cornerstone of good alcoholic fermentation. Malolactic fermentation cannot take place below 20°C and is a key determinant of the wine's oxidation state and development of unwanted organisms after fermentation; without good temperature control, additional processes and inputs would be required to control these factors.

THINNING

Thinning is used for two purposes: cleaning the must or wine, and shaping the wine. Winemakers generally prefer natural thinning that occurs spontaneously in the winemaking process, but they use products when the conditions are not ideal:

- In the early stages of making white, rosé and sweet wines (and, less frequently, red), to purify the juice of diseased grapes;
- Later, during ageing, to balance tannins or to remove undesirable aromas, particularly those arising from poor quality grapes.

WINE STABILISATION AND PROTECTION

SO_2

The main tool for wine stabilisation is sulphite (SO_2), an antioxidant and an antiseptic/antimicrobial that also binds acetaldehyde. Some viticulturists apply it at harvest, but alternatives exist for protecting fresh grapes such as blasting them with dry ice (CO_2). Sulphite is generally used in cases of poor grape quality, especially if botrytis is present. It can also be used after malolactic fermentation to prevent development of unwanted organisms. Then it is used during ageing to protect against oxidation and organisms. The level of sulphites used during ageing depends on conditions such as temperature and sanitary state of the cellar or the type of storage equipment used.

Organic winemakers aim to reduce their use of sulphite to a minimum. EU organic wine rules reflect this attitude, imposing lower sulphite concentration limits for organic than for non-organic wines.

Colour and tartaric stabilisation

The majority of winegrowers use natural frost during winter for tartaric stabilisation. In some situations, however, this is not sufficient: for example when the winter is too warm or to speed up supply. In such cases, the use of meta-tartaric acid or gum arabic for tartaric stabilisation is authorized by Annex VIIIa of Reg. (EC) No 203/2012. Nonetheless, the regulation stipulates that mechanical cold stabilisation techniques are to be used in preference. Tartaric or colour precipitation does not modify the quality of the wine, but the deposit it creates causes consumers in some markets such as the USA and China to reject wines.

Gas

Winemakers usually use carbon dioxide (naturally arising in fermenting tanks or commercially bottled) or nitrogen for the protection of harvested grapes and must at the beginning

CONDITIONS ARE NOT ALWAYS IDEAL, AND WE NEED TOOLS THAT ALLOW WINEMAKERS TO UPHOLD THE ORGANIC PHILOSOPHY WHILE MAKING THE BEST WINE POSSIBLE.

of the winemaking process. For the protection of the wine during ageing against oxidation and microbial contamination (Brettanomyces yeast, acetic bacteria), winemakers prefer to fill the tanks and barrels with wine such that all gases are excluded, but where this is not possible they are authorised in Annex VIIIa to use nitrogen, carbon dioxide or argon gases. Protection with these gases (particularly nitrogen or a mix of nitrogen and argon) is used frequently by cooperatives and wine merchants.

WOOD

The main use of wood barrels by organic producers is for ageing, but some use wood tanks for fermentation. The use of barrels is mainly a question of cost and the type of wine the producer wants to achieve. The original purpose was stabilisation during ageing, but some producers like the special flavours which wood can generate.

Wood chips can substitute wood containers for certain functions. The use of wood chips is less common in organic winemaking but is increasing over time due to its reduced cost and environmental impact in comparison with barrels or barriques. Of course, wood chips cannot achieve exactly the same effects as barrels; they are mainly used in the fermentation to stabilise colour or during ageing to add roundness or wood aromas. Only wood aromas can combat the bad aromas generated by Brettanomyces yeast contaminants.

HEAT TREATMENT

There are two permitted forms of heat treatment. The first is the heating of the grape harvest or must. This could be questioned on the grounds of organic principles or ecology, as it has a significant energy cost and leads to standardisation of the wine. Nonetheless, it can also contribute to sulphite reduction, useful in years with high botrytis levels. Also, there are certain

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types of wine which have a major place in the global market and represent the main output of some production areas that cannot be produced without such treatment.

The second type of heat treatment is flash pasteurisation. This process is meant to be for stabilisation, but stabilisation is incomplete if temperatures have not exceeded 70°C, the maximum specified by the regulation. An alternative is sterile and tangential filtration, but these remove macro elements from the wine that the flash does not, and such elements are necessary for good ageing and to maintain a low sulphite level.

In general, flash pasteurisation is only used against *Brettanomyces* and acetic bacteria during ageing and to prevent sweet wine from re-fermenting.

In conclusion: the better vineyards are maintained and the better the quality of the grape harvest, the less intervention is needed during vinification. But conditions are not always ideal, and we need tools that allow winemakers to uphold the organic philosophy while making the best wine possible.



2.4. LABELLING OF ORGANIC WINES

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In 2012, European organic wine could for the first time be labelled as such. It took more than 20 years to attain this goal, but now it offers organic winemakers an important opportunity to demonstrate their value-added and communicate their efforts. Producers can use the organic logo to win consumers' trust, and consumers can be assured that they are buying a completely organic product. Wine is the first arena in which the EU was later than the USA and other jurisdictions in writing organic rules; for all other products, it has been the pioneer.

Between the introduction of the EU's first generation of organic legislation in 1991 and the introduction of organic wine production rules in 2012, the only labelling option open to producers using organic techniques was, "Wine made from organic grapes", whereby grape-growing was regulated by European organic legislation but the actual winemaking process was not. As a consequence, the shared label did not preclude significant differences across winemakers in terms of techniques or the identity and quantity of additives used. It should be mentioned that several private standards were developed to overcome the lack of a common regulation; they shared a common core (see *Private Standards for Organic Wines*, p. 8) but were nonetheless different, and not all organic winemakers followed them.

The situation became a paradox. "Organic wines" produced according to local rules in the USA or other third countries could be sold in Europe with this labelling, while European producers could sell their wines only as "Wine made from organic grapes". Meanwhile, these European wines could be sold as "Organic wine" in countries with organic wine production rules, as long as they could be certified according to those rules.

WHEN CAN THE ORGANIC WINE LOGO BE USED?

Now, the EU organic logo can only be used for organic wines produced according EU rules for grape production and winemaking.

For wines produced organically before 1st August 2012, the producer can generally only use the label "Wine from organic



THE DISTRICT OF PANZANO IN THE HEART OF CHIANTI CLASSICO HAS OVER 600 HECTARES OF VINEYARDS, 80% OF WHICH ARE NOW ORGANIC.

grapes” and not the logo. If, however, he or she can provide clear documentary evidence that the wine was produced in accordance with the new rules (verified and confirmed by the certification body), then it can be labelled as organic and use the organic logo.

Importers of organic wines are not compelled to use the EU logo, but are permitted to do so if the wines are produced according to the EU production rules or rules recognised as equivalent based on bi- or multilateral agreements. Such wines must be imported within the system established by Regulation (EC) No 1235/2008 (see *Import and Export of Organic Wines in the EU*, p. 36). If the EU organic logo is used, labelling with place of production (EU / Non-EU Agriculture) and the code of certifying body become obligatory¹. Cases may arise wherein organic wine produced in the EU is labelled “EU/non-EU”; this is due to the use of organic sugar imported from non-EU countries for the liqueur de tirage or liqueur d’expédition.

“WINE MADE FROM ORGANIC GRAPES”

This label became obsolete as of 1st August 2012. Nonetheless, wine produced and bottled before this date, whether already on the market or ageing in cellars, can still use this labelling. Although the label cannot be used henceforth, consumers can expect to see it for many more years given that quality wines have a shelf life of decades.

THE ORGANIC LOGO AND OTHER QUALITY DENOMINATIONS

Quality wines with an appellation of origin such as D.O.C.G., AOC, DOC, D.O.C., D.O.K., OPAP and EU schemes like QWpsr, PDO and PGI can also add the organic logo to their label as a vehicle for valuable product information. As with quality cheese or oil, an appellation of origin says where the product comes from, while the organic logo says how it is obtained. The organic method applied in the vineyard and in the cellar enhance the product’s linkage to the territories where it was produced and their specific characteristics of climate, soil, traditions and expertise. As the organic method works “with nature,” it is considered by more and more wine experts as a perfect way to maximise the expressions of the land’s characteristics, the winemaker’s style and the specific climatic pattern of the production year. This is in contrast to conventional methods which aim to standardise wine quality over years, areas and producers.

BIO - DISTRICT OF GREVE AND PANZANO The first European bio-district with strong viticultural characterisation.

The district of Panzano in the heart of Chianti Classico has over 600 hectares of vineyards, 80% of which are now organic. The wines of Panzano are internationally renowned and are a testament to organic quality.

In 2005, the producers of Panzano decided to take action against the *Flavescence dorée* bacterium with preventive monitoring rather than insecticides in a scheme devised by Ruggero Mazzilli.

Pathogens do not respect boundaries, so co-operation of other local vinegrowers was essential. The approach developed through this experiment led to some important advances for organic viticulture.

The vineyards’ natural vegetation is seen as a resource, not a problem. Synthetic substances are no longer used and copper and sulphur use has been reduced. Instead, preventive measures strengthen the vines so they can defend themselves. Between rows wireless sensors collect data and provide valuable information for deciding on possible actions. Innovative mechanical equipment was also developed to improve soil management.

Last year, the Experimental Station for Sustainable Viticulture and the Union of Panzano Viticulturists, learning from experience and using guidelines developed by AIAB, have been promoting the Greve and Panzano as the first European bio-district with strong viticultural and wine excellence. Many producers of cheese, olive oil, honey and vegetables, and the city administration, are excited to support this initiative.

All information and technical manuals published are available on www.spevis.it

1. For more details refer to the IFOAM EU Group publication “The new organic production logo of the European Union”



PRIVATE LOGOS

The new rules permit the use of private logos supported by specific standards in addition to the EU organic logo (see annex for a list of private standards for organic wines in Europe). Some producers also wish to use the Fair Trade logo, emphasising their social as well as environmental sustainability, and this is equally possible in the wine market. Nevertheless: the more logos on the label, the higher the potential for consumer confusion!

Some non-organic wines are now labelled as “sustainable,” based on one or more environmental claims. This can be confusing for consumers seeking to make a sustainable choice. Do they choose an organic wine? A low-CO₂ wine? A water-friendly wine?... Consumer confusion is very negative for the development of a serious sustainable alternative.

In all European countries, we see the development of wines defined with terms such as “true”, “natural” or “terroir”. Some of these include certified organic producers who want to go further, working more closely with nature and expressing this to their consumers. For example, they may reject factory-bred yeast in favour of wild yeasts, or even reject any additives and processing aids (often with the exception of SO₂). Such steps by organic producers can only be considered positive, but sometimes similar or identical claims and wordings are used by non-organic producers using herbicides and other chemical inputs in the vineyard and in the cellar. In these

How to label organic wine?

	Produced before 1st August 2012	Produced after 1st August 2012
Production methods meet requirements of new legislation		<p>“Organic wine”</p> <p>For wines produced before 1st August 2012, producers must provide documentary evidence of compliance with new rules.</p>
Production methods do not meet requirements of new legislation	<p>“Wine made from organic grapes” [no logo permitted]</p> <p>Wine produced before 1st August 2012 that have not been produced according to the new rules or for which there is not sufficient evidence to prove it.</p>	<p>Conventional wines</p> <p>No reference to organic possible</p>

cases the effect is quite misleading and dangerous for the development of the “alternative wine” sector.

ORGANIC IN THE VINEYARD AND IN THE CELLAR BUT NOT ON THE LABEL

Many European wine producers have been certified organic for years, but choose not to declare it on their labels. This is mainly due to prejudice against organic wine quality which persists in strongly affecting consumer opinion in some market sectors, and some producers prefer not to take the risk of encountering it. Meanwhile, producers whose name is strong enough to carry its own reputation regardless of any qualifiers such as organic or D.O.C. may also prefer to omit additional logos, instead providing the information via publicity material to interested consumers. Nobody should be surprised to see organic producers with wines not labelled as organic. Such cases reflect the need for communication and promotion campaigns to build consumer faith in the quality of organic wines, and to inform them about the meaning and values embodied in the organic method. Organic wine competitions and awards have been helping, in recent years, to slowly dissolve prejudices and promote competition amongst organic producers. A significantly bigger boost for the organic market is coming from the success of organic wines in general competitions which include non-organic candidates .



THE EU'S NEW REGULATION CAME INTO FORCE ON 1ST AUGUST 2012, AND ALLOWED WINEMAKERS TO USE THE TERM "ORGANIC WINE" TOGETHER WITH THE EU ORGANIC LOGO.

2.5. CERTIFICATION OF ORGANIC WINE

› **Alessandro Pulga, ICEA, www.icea.info, dir@icea.info**

EXPERIENCE OF THE PAST

For the many years during which Europe had organic wine production but no organic wine regulation, tests undertaken by certification bodies in organic wine cellars were limited to traceability tests and mass balances, with the single goal of verifying that organic grapes had been used for the wine production. The regulation of organic wine was very deficient, allowing only the label, "Wine made from organic grapes," and not providing any definitions or limitations for the actual winemaking process. It was therefore not necessary for certifying bodies to evaluate the preservatives, additives, techniques and so forth employed in winemaking.

Even before the introduction of the EU's first organic regulations, Reg. (EEC) No 2092/91, voluntary certifications for organic wine existed within private standards. These were designed to ensure a more natural production process, coherent with the organic principles. Such certifications compelled inspectors and other actors in the sector to think about the substances and the techniques used in the industry and whether they were consistent with the organic method.

The United States introduced its National Organic Program (NOP) in 2002. Right from the beginning, it included a positive list of permitted substances for organic winemaking, which were all to be of natural origin, and it also included limitations on the employment of enzymes (which had to be derived from edible and nontoxic plants rather than pathogenic fungi or bacteria), tartaric acid (to be derived from grapes only) and yeasts (which could not be synthetic or grown on substrates of chemical origin). Sulphur dioxide was the only synthetic chemical permitted, and strict conditions were placed on its use: it could only be used in gaseous form and generate a maximum sulphite concentration of 100 milligrams per litre. Even then, the use of sulphites was not permitted at all for wines bearing the label "100 per cent organic".

European control bodies were thus faced with the challenge of checking NOP-conformity of thousands of wines destined for a very promising market but extremely rigid in its rules; this situation continues today (See *Import and Export of Organic Wines in the EU*, p. 36).

One way in which the European organic wine regulation takes after its American counterpart is in post-production certification. Many wines have very long periods of ageing in wine cellars, and to improve continuity of supply, American producers sought procedures which would allow them to verify organic quality of uncertified wines obtained from previous vintages. Under the NOP system, this could be achieved based on documentary verification and some analytical tests. An analogous approach has been adopted in Regulation (EU) no 203/2012 for wines produced before 1st August 2012.

CERTIFICATION ACCORDING TO EU RULES

The EU's new regulation came into force on 1st August 2012, and allowed winemakers to use the term "organic wine" together with the EU organic logo. Wines produced in previous years may also be labelled in this way provided that the winery is checked by a certifying body and can demonstrate that the wine in question has been produced in conformity with the new regulation. Needless to say, the consignments in question must be clearly identified and traceable. Wine from vintages predating the new regulation which were produced organically but which cannot for some reason demonstrate compliance with the requisites of the new regulation can continue to be sold as "wine from organic grapes".

There are more stages in organic wine production than in other types of product where the possible use of unauthorised substances may occur. In addition to the difficulty of preventing the misuse of prohibited additives, inspectors will face the difficulty of verifying the acceptability of processes used and the conformity of permitted substances with specified limits.

PROBLEMS WITH ADDITIVES AND TECHNOLOGIES NOT ALLOWED IN ORGANIC

Following publication of the new regulation in 2012, some wineries which had been producing natural and organic wines for many years discovered that some of their practices did not meet with the new organic standards. For example, it has been problematic for some wineries that yeasts may be fed with phosphates but not sulphates. In other cases, the new regulation has been criticised for forbidding substances such as lysozyme and sorbic acid which many consider to be natural and which can help reduce the wine's sulphite content (particularly important for organic wine).



ORGANIC WINES IN BULGARIA

Bulgaria's first organic vineyards were certified between 2007 and 2008, with the country's first organic wines appearing in 2010. In 2012 there were 500 hectares of organic vineyards belonging to five wineries producing 489,000 litres of wine. There are now an additional 1,404 hectares in conversion, and it is expected that next two years will see organic wine production increase four-fold.

Bulgarian winemakers generally favour the popular French and Italian grape varieties such as Cabernet Sauvignon. However, locally-bred Bulgarian varieties also exist and are grown in some organic vineyards, including that owned by me. Here, Bulgarian grape varieties such as Storgozia (a very resistant and high yielding variety selected by Institute of Viticulture in Pleven), Pamid (for rosé wine) and further varieties for white wine can be found.

The grape-growing and winemaking practices used at Bulgarian organic wineries largely meet with the requirements of the new EU organic wine regulation, reflecting both the suitability of Bulgarian soils and climate for winemaking, and the modern industry's close contact with its traditional roots. At my vineyard, for example, the pest control regime involves spraying copper and sulphur between three and four times per year to control mildew, bacteriosis and the powdery mildew fungus *Uncinula necator*, and this can continue unchanged under the new regulation. Ensuring that sulphite levels are well within the limits set by the regulation generally represents no great difficulty.

In many respects, Bulgarian winemaking is naturally oriented towards organic methods, and the stage is set for expansion.

Albena Simeonova

Within the brief period during which the new organic wine regulation has been in force, the most frequent problems arising have involved the use of prohibited additives lysozyme, carboxymethylcellulose, and sorbic acid. Primarily, this concerns either non-specialist wineries producing both non-organic and organic wines (and therefore less 'in tune' with organic principles), or small organic wineries where these substances may be compensate for the lack of high-tech equipment. Also, medium and small organic wineries floating paraffin pills activated with allyl isothiocyanate on

the wine surface to prevent oxidation have suddenly found themselves falling foul of regulations. This is a traditional practice, fairly widespread and useful for the preservation of wine in demijohns, casks and oak barrels, but not permitted under Regulation (EC) No 203/2012.

Winemakers will need to be aware of the new oenological practices, processes or treatments introduced in revisions to the CMO wine regulation after 1st August 2012. Many of these practices are explicitly banned from organic production. An example is chitosan or chitin-glucan of fungal origin. Any practices or substances forbidden by the CMO will by extension also be forbidden in organic production.

ANALYTICAL TESTS

More so for wine than for other types of organic products, technical and chemical analyses are crucial to guarantee organic integrity, and the inspector must, if possible, be an oenologist or at least a person with extensive experience in winemaking. Perhaps it is surprising to some consumers that technology and chemistry are so intimately involved in the production of wine, and there are a large number of substances required in addition to grapes as additives, processing aids and preservatives. The oenologist is a sort of alchemist who adapts production techniques to the development of the wine, the behaviour of the yeasts and the sanitary state (i.e. disease levels) of the grapes coming in from the field. Many decisions are taken inevitably at the last moment. The organic wine inspector, therefore, must be likewise an expert, and an intuitive one. In contrast to other manufacturing processes, the inspector cannot count on a predefined recipe for winemaking, pre-approved by the certification body and applied systematically in production.

Finished wines ready for ageing or bottled and ready for sale must be documented and declared under Regulation (EC) No 436/2009 on vineyard registrations and declarations. This process is not observed and enforced with equal strictness in all EU countries, potentially causing problems for traceability and fair competition.

CONTROL OF ADDITIVE USE

Analytic tests are an important tool for organic wine inspectors. In Italy, some specialist laboratories in the wine sector offer analytical services to support verification of conformity with the new rules. There are not many substances that can be identified with the analysis, since forbidden additives and preservatives

IN MANY RESPECTS, BULGARIAN WINEMAKING IS NATURALLY ORIENTED TOWARDS ORGANIC METHODS, AND THE STAGE IS SET FOR EXPANSION.

are mostly metabolised or otherwise diminished during the production process. Those substances which can be identified are those frequently employed to resolve the problems and to correct the defects of wines and musts such as lysozyme, D-malic acid, sorbic acid and carboxymethylcellulose. For the intermediate phases of the production process, it can be useful (though not failsafe) to use a microscopic analysis of sediments and lees to detect the use of synthetic clarifying agents such as Polyvinylpyrrolidone (PVPP). Such analyses represent an additional cost to producers, but may prove useful in particular cases such as those of wineries undertaking both organic and non-organic production where substances not permitted in organic production may be (legitimately) stored and used, and contamination must be prevented. Chemical analyses are already carried out on grapes to verify the employment of organic practices in viticulture.

ORGANIC ADDITIVES

For some of these substances, such as wheat or pea protein or gelatine, the legislation stipulates that the raw materials must be organic. Some EU member states consider it sufficient that this be self-declared, while others such as Italy require more elaborate controls to be established, and for organic substances to conform with the organic regulation (EC) No. 834/2007. Such a situation, similar to that in the market for organic seeds, will lead to different conditions for producers in different countries and unfair competition, and as such it is not acceptable and must be clarified.





3. MARKET AND INTERNATIONAL TRADE

3.1 ORGANIC VITICULTURE IN EUROPE AND THE EUROPEAN UNION

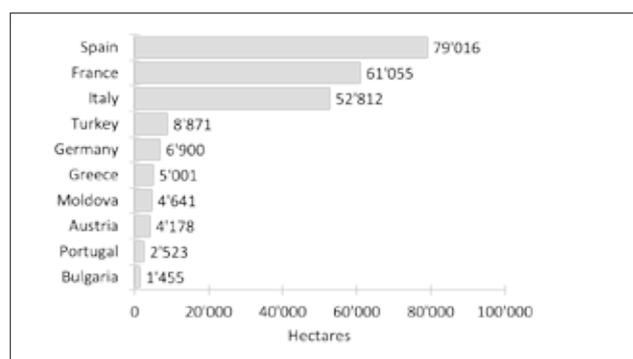
DEVELOPMENT AND CURRENT STATISTICS

► **Helga Willer**, Research Institute of Organic Agriculture FiBL, www.fibl.org, helga.willer@fibl.org.

AREA UNDER ORGANIC VINES

Organic vines were grown in Europe on more than 230,000 hectares at the end of 2011 (217,000 hectares within the European Union) according to a survey by the Research Institute of Organic Agriculture (FiBL). The largest areas are in Spain, France and Italy (Figure 1). One third of Europe's organic grape area is in Spain. Most of the organic grapes are grown for wine, even though in Turkey a large part of the production is used for raisins.

Figure 1: Organic grape area in Europe: the ten countries with the largest grape areas in 2011



Source: FiBL Survey 2013, based on information from Eurostat and national data sources

SHARE OF ALL VINEYARDS

In Europe, 5.6 per cent of the grape area is organic; in the European Union it is even 6.6 per cent. This is a higher share than for overall agricultural land in the European Union (5.4 per cent in 2011). Some countries which are smaller producers not in traditional grape-growing areas, like the UK or the Netherlands, have very high shares; but other key growers like Spain, France and Italy have a high percentage of their total

Table 1: Organic Viticulture in Europe 2011

Country	Area of organic vines [ha]	Organic share of total vine area [%]
Albania	35.0	0.4
Andorra	4.0	–
Austria	4,178.0	9.5
Belgium	1.0	10.0
Bosnia and Herzegovina	8.1	0.2
Bulgaria	1,454.7	1.9
Croatia	625.3	1.9
Cyprus	203.6	2.4
Czech Republic	978.3	6.1
Denmark	12.0	–
Finland	1.0	–
France	61,055.2	8.0
Germany	6,900.0	6.9
Greece	5,001.0	4.8
Hungary	1,207.0	1.6
Italy	52,811.9	7.3
Kosovo	1.0	–
Liechtenstein	2.0	–
Luxembourg	22.2	1.8
Malta	4.6	0.3
Moldova	4,641.4	3.6
Netherlands	29.0	14.6
Poland	22.0	–
Portugal	2,523.0	1.4
Romania	842.0	0.5
Serbia	7.0	0.0
Slovakia	68.0	0.7
Slovenia	287.0	1.8
Spain	79,016.4	7.9
Switzerland	368.5	2.5
The former Yugoslav Republic of Macedonia	40.7	0.2
Turkey	8,871.1	1.9
Ukraine	84.0	0.1
United Kingdom	107.0	16.7
Total Europe	231,413.1	5.6
Total European Union	216,724.9	6.6

Source: FiBL survey 2013, based on information from Eurostat and national data sources. Percentages calculated on the basis of data from FAOSTAT

IN RECENT YEARS, ORGANIC VITICULTURE HAS GAINED MORE AND MORE IMPORTANCE. DOUBLE-DIGIT GROWTH RATES HAVE BEEN ACHIEVED ANNUALLY SINCE 2008.

vine area under organic management (Table 1). In most cases the share of the organic area under vines is similar to or higher than the share of organic in the agricultural area as a whole. An exception is Switzerland where only 2.5 per cent of the grape area is organic whereas almost twelve per cent of the country's total farmland is organic.

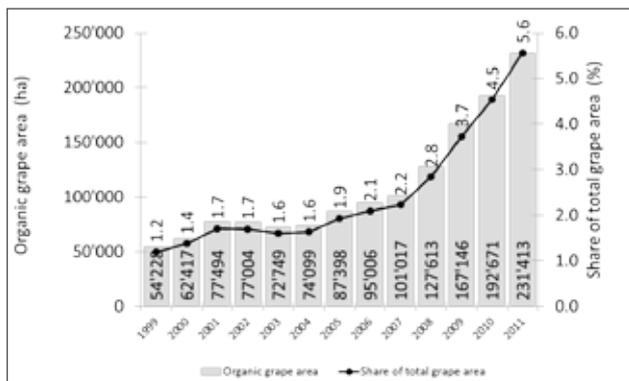
CONVERSION STATUS

Apart from Austria, Germany, Portugal and Switzerland, all other major grape producing countries have data on the conversion status of organic vineyards. According to these data, more than 100,000 of Europe's 230,000 organic hectares are currently under conversion. As it may be assumed that in most countries grapes under conversion cannot yet be used for the production of wine to be sold as organic, a major increase in the supply of organic wines may be expected in the next couple of years.

DEVELOPMENT

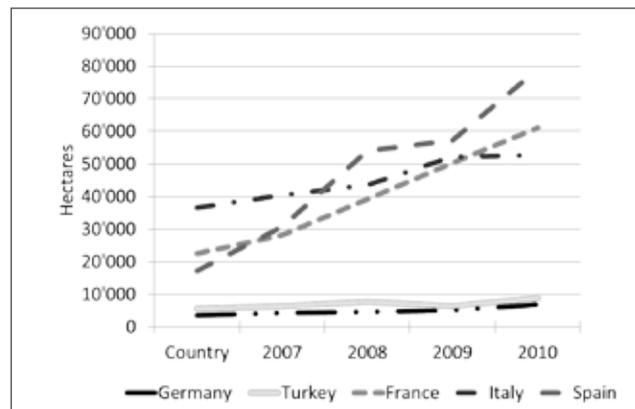
In recent years, organic viticulture has gained more and more importance. After a period of stagnation from 2001 to 2004, mainly due to a slow development in Italy and even decreases in organic vineyards there, the area under organic vines is currently growing fast. Double-digit growth rates have been achieved annually since 2008 (2008: +26 per cent; 2009: +30 per cent; 2010: +15 per cent; 2011: +20 per cent; Figure 2). It is notable that the organic vineyards have exhibited far higher growth rates than the overall organic farmland.

Figure 2: Development of organic viticulture in Europe 1999-2011



Source: FiBL survey 2013, based on information of Eurostat and national data sources

Figure 3: Development of organic viticulture in the five European countries with the largest organic vine area 2007-2011



Source: FiBL survey 2013, based on information of Eurostat and national data sources

While the rapid development of organic viticulture in the European Union and in Europe must partly be attributed to the agri-environment programmes, it is also due to growing market for organic food in Europe. This is not only the case in the northern parts of Europe; in Spain, too, demand for organic wines is increasing. Whereas the technical challenges for organic grape production are not so severe in Spain, growth in other countries can also be attributed to developments particularly in the area of crop protection or the increased use of fungus-resistant varieties.

EUROPEAN GRAPE AREA IN AN INTERNATIONAL CONTEXT

In a global context, Europe is by far the largest player when it comes to organic vineyards: Europe's 260,000 hectares of organic vineyards constitute 89 per cent of the total area under organic vines worldwide and represent 3.7 per cent of all vineyards. Major producers outside Europe are the United States (almost 12,000 hectares in 2008) and Chile (4,600 hectares).

THE MARKET

In Europe, the organic market reached 21.5 billion Euros in 2011 (19.7 billion Euros within the EU).



Unfortunately, almost no market statistics are available for organic wine. For France, market data for wine are provided by Agence Bio: in 2011, the revenue from organic wines was 360 million Euros and they constituted 4 per cent of all wine sold in the country. This was a higher share than for the total food market, where organic food sales constitute 2.3 per cent. In Switzerland, one of the most developed organic markets in Europe (6.3 per cent of the food market was organic in 2012), the share of organic wines sold was comparatively low: 2.1 per cent in 2012. The growth rate that year, however, was 9.2 per cent. One reason for the low share could be that direct marketing, which is not so easy to capture in the statistics, plays a major role in the marketing of organic wine. According to Bio Suisse, 3.6 per cent of all wines sold by the Coop supermarket chain were organic.

The fact that market shares for organic wine are not higher might partly be attributed to the circumstance that not all wine made from organic grapes is sold as organic. This is the case, for example, for wine made from grapes from areas under conversion. In some countries, direct payments play a bigger role than market prospects in incentivising grape growers to convert.

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3.2. IMPORT AND EXPORT OF ORGANIC WINES IN THE EU

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EUROPEAN RULES FOR IMPORT OF ORGANIC WINE

The regime for import of organic wines to Europe is set out in Council Regulation (EC) No 834/2007, which describes the arrangements for imports of organic products from third countries and entered into force at the start of 2009.

The old system of import authorisations is being replaced step by step with this new one, which is based on a list of third countries whose organic regulations are approved as being equivalent to those of the EU, and a list of certification bodies whose rules are approved as meeting or exceeding EU organic standards.

European importers may buy from any exporter that has been certified by an EU-approved certification body, which will also have been approved by the country in which it operates and for the product category in question. As a temporary measure, import authorisations by EU member states must still be issued.

The list of "equivalent" third countries includes, at the time of writing, Argentina, Australia, Canada, Costa-Rica, India, Israel, Japan, Switzerland, Tunisia, USA and New Zealand; eleven countries in total, listed in Annex III of Regulation (EC) No 1235/2008.

With regard to organic wine, however, not all of these countries are recognised as equivalent, and only a small number of certification bodies (please refer to Annex IV of the regulation). This means that most third-country organic wines have to be imported through import authorisations issued by EU member states.

EXPORT OF EUROPEAN WINES

USA. The European Union signed an equivalency agreement with the National Organic Program (NOP) of the US Department of Agriculture (USDA) to facilitate the trade of organic products. This agreement includes alcoholic beverages, for which they state that European organic wine certified under Regulation (EC) No 834/2007 can be exported to the USA without an official certification from the NOP, but it must conform to its rules as a minimum standard. This means that although



IN EUROPE, 5.6 PER CENT OF THE GRAPE AREA IS ORGANIC; IN THE EUROPEAN UNION IT IS EVEN 6.6 PER CENT.

European wines do not have to go through the official NOP certification process, they must be subjected to a check by an NOP-accredited 'certifying agent' (there are 84 such agents worldwide, of which 35 are outside the US) to ensure that the winemaking conforms with NOP rules. If the winemaker passes this check, the exporter will apply for an import certificate from the US authorities, containing information about the client, product destination, type of wine, final handler and certifying body. This must be done for each individual consignment.

Alternatively, European companies can export wine to USA using the NOP certification, outside of the EU-USDA agreement.

In both cases, labels must be approved by the certifying agent and be in conformity with the label regulation of destination market in the US. For the USA, alcoholic beverage labels also have to be approved by the Tobacco and Trade Bureau.

The non-equivalence between EU and USDA organic wine regulations mostly on the sulphite content and some additives is problematic for operators, forcing them to manage wine certified for the EU market separately and in a different way from wine for the US market. Although there is a good market for European organic wines in the USA, the rather burdensome nature of fulfilling these requirements may act to limit or prohibit the growth of trade volumes.

Canada. The EU reached an agreement with Canada in 2011 on equivalence of organic products, but its scope does not extend to alcoholic beverages. European wine exported to Canada must be certified under the Canada Organic Regime. However, due to an equivalence agreement between the Canadian Food Inspection Agency (CFIA) and the USDA, European organic wines certified under the NOP can be sold as organic in Canada. For each consignment of wine to Canada, the certifying agent must issue a transaction certificate specifying the type of wine, the quantity and the client.

OTHER COUNTRIES

Brazil has national-level organic regulations but no equivalency agreement with the EU; alcoholic beverages, like other beverages and food products, must be certified under the Brazilian regulations by a government-accredited agency.

Japan, although it also has national organic regulations, does

not yet have organic wine regulations. Thus, it is not possible to find a Japanese organic wine, as certified by Japan Agricultural Standards (JAS). European organic wine can be exported to Japan with Reg. (EC) No. 834/2007 certification but without JAS logo.

To facilitate international trade, there is a strong need to revise agreements between the EU and third countries to take account of new EU regulations for organic wine. Some countries such as Argentina are already negotiating with the EU on this topic. With respect to imports to the EU, there is also a need to add organic wines to the scope of EU-accredited third country certification bodies (listed in Regulation (EC) No 1235/2008).

ORGANIC WINE MARKET IN FINLAND

Alko is a state monopoly for selling alcohol in Finland and little by little it is including organic wines in its offer. Some restaurants import organic wines themselves, as Alko has not provided a sufficient choice. The attitude of Alko is now really changing and in their magazine to consumers they have even presented questions and answers, such as "what is biodynamic wine?" Improvement can be seen, but there is still plenty of room for further improvement.

WineExpo is the one and only fair of its kind in Finland. It is an event where the exhibitors get to meet the opinion leaders, decision makers, buyers and wine enthusiasts face to face. WineExpo is an ideal place to do business and is an important place to be if a producer wants to get his products into Alko.



SLOVENIAN ORGANIC WINEMAKERS MAKE THEIR MARK WITH NATURAL WINES

Slovenia is small but has a great diversity of wines, reflecting its varied geology and climate. Some wine makers have been developing natural methods in line with Slovenia's long tradition and produce world class natural wines including orange wines. The current domestic market is not large enough for these top quality wines which can also reach high prices. The main markets are therefore abroad.

As the producers are small it is a challenge to penetrate the global market, but they are succeeding. The key, besides the prerequisite of quality and distinctiveness, is active participation in wine fairs and good co-operation among wine makers who share the same philosophy and methods, both nationally and with colleagues in neighbouring countries. This cooperation has also given birth to the Orange Wine Festival in Izola, Slovenia. In April 2013 the festival was held for the second time in the beautiful small town in Istria bringing together orange wine makers from Slovenia, Italy, Austria and Croatia, the majority being certified organic.

The success of Slovenian natural wines supports the idea that organic winemaking can and should be different from conventional and should not try to follow the taste typical for conventional wine technologies. They show the value of being true to nature, *terroir* and tradition which is also something that an informed organic consumer appreciates.

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3.3. THE MARKET AND INTERNATIONAL TRADE OF ORGANIC WINE

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On average, the annual yield for organic vineyards lies between 4,000 and 8,000 litres per hectare, which corresponded to a total volume of up to 2 billion litres of European organic wine in 2011. Where does it all go?

The market for organic wine has developed at a rate matching the expansion of production (see *Organic Viticulture in Europe and the European Union*, p. 32), and demand has grown especially steeply in a number of consumer countries such as Great Britain, the Netherlands, Sweden and Japan. For a large number of export-oriented operations in Europe, converting to organic production is simply a necessity fuelled by customer demand. As a result of a number of renowned wineries converting to organic and especially biodynamic cultivation, including members of the Association of Prädikat Estates (VDP) in Germany, the traditional winemakers in Austria, Grand Cru estates in Bordeaux and Burgundy, organic wine has enjoyed an enormous boost to its image in the wine industry as well as with wine journalists and consumers.

Germany is the world's leading importer of organic wine with an annual volume of more than 30 million bottles. Of these, some 6 to 7 million bottles, primarily from Spain and Italy, are sold at discount supermarket chains. One of Germany's largest wineries alone imports 10 million litres of organic bulk wine from its European neighbours.

Surveying the overall market for organic wine in Europe, the largest sales volumes are achieved in Germany. With around 4 billion Euros in sales, France occupies second place and is followed by Italy (3 billion Euros) and Great Britain (2 billion Euros).

According to French market data from the Agence Bio, it is especially notable that wine makes up a solid 10 per cent of the whole market for organic products. This is an excellent example of how the topics of good nutrition, ecology and enjoyment of wine go hand in hand. However, this is not the case yet for countries like Germany. Fans of organic products

GERMANY IS THE WORLD'S LEADING IMPORTER OF ORGANIC WINE WITH AN ANNUAL VOLUME OF MORE THAN 30 MILLION BOTTLES.

in Germany are more reserved in their consumption of alcoholic beverages; there, organic wine has a broad appeal to even market sectors which do not typically buy a lot of organic products.

Two very different and interesting trends can be identified at this point: on the one hand the aforementioned wave of conversions to organic production by premium wineries aiming to enhance their quality by using an ecological approach, and on the other, the widespread employment of organic practices for manufacturing wines of ordinary quality, especially in certain regions of southern Italy and central Spain where the vineyards are almost exclusively organic. For this latter trend, government subsidies are partly to thank.



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4. FUTURE PERSPECTIVE AND DEVELOPMENTS

4.1. RESEARCH AND DEVELOPMENT PROJECTS IN ORGANIC WINE PRODUCTION

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With the expansion in the number of organic viticulturists and the hectareage of organic vines, research in organic grape and wine production has had to adapt and grow to satisfy demand. As well as fundamental research, other forms have developed.

Organic viticulturists like to experiment with new techniques and new products, changing and adapting their methods. At the individual level this experimentation is often empirical and subjective, but participatory research, which brings producers and scientists together, gives repeatable and more objective results.

Organic production is integrated and systemic, meaning that even a very specific research topic must be considered in the context of the whole production system and the locality. Methodologies must be adapted to soil, climatic and socio-economic conditions. Participatory research tends to be quite successful at doing this, and its relative benefits are perhaps even more pronounced in organic than in conventional wine production.

The analysis and sharing of existing knowledge is also important. This is an approach which seems to be particularly well-used and accepted within the organic sector; the experiential knowledge of producers is a rich resource which can be tapped by scientific analysis and communicated by researchers and advisors.

There is a great diversity of forms of experimentation and sources of knowledge in organic research. Thus we have to make a distinction between experimentation (assumptions not yet validated) and demonstrations. Advances have been

achieved using both methods. It would be useful to identify what has been done to date by compiling a summary of scientific knowledge gains (by either experimental or on-farm research) and actual work in progress.

Lastly, we have to coordinate and disseminate results of all the research done to prevent needless duplications, and to build programmes better oriented for the needs of the sector.

Enhancing the relevance and dissemination of research is a very important goal, and the funding programmes of the EU member states and the Commission are specifically oriented to achieve this. Some of the best international collaborative research projects demonstrate how different wine growing regions can come together to achieve significant research advances and deliver practical advances for producers. Some examples of current or recent research projects are summarised below.

SO2SAY¹: *Replacement of sulphur dioxide (SO₂) in food keeping the same quality and shelf-life of the products.* Developed a strategy to replace sulphur dioxide, which is traditionally used as antioxidant and preservative in fruit and vegetable products, dried fruits, snack products and wines.

CO-FREE²: *Innovative strategies for copper-free low input and organic farming systems.* Developing innovative methods, tools and concepts for the replacement of copper in European organic and low input production, including grapevine production.

INNOVINE³: *Combining innovation in vineyard management and genetic diversity for a sustainable European viticulture.* Focuses on meeting consumer demands for diversified high quality wines at the same time as addressing concerns over food safety and environmental damage from production systems.

Wildwines⁴: *Multi-strain indigenous Yeast and Bacterial starters for Wild-ferment Wine production.* Aims to exploit indigenous microbial diversity in the development of original starter cultures to be used in the production of 'wild-ferment' organic and conventional wines.

PARTICIPATORY RESEARCH TENDS TO BE QUITE SUCCESSFUL AT PUTTING SPECIFIC RESEARCH TOPICS INTO THE CONTEXT OF THE WHOLE PRODUCTION SYSTEM AND THE LOCALITY.

Vineman.org⁵: *Integration of plant resistance, cropping practices, and biocontrol agents for enhancing disease management, yield efficiency, and biodiversity in organic European vineyards.* Aims at designing, developing and testing innovative cropping systems for organic vineyards in Europe, with a particular focus on disease control.

The proliferation of research projects around organic grape production and winemaking reflects the optimism of the sector, and has of course contributed to its growth. The finalisation of the new EU regulation for organic wine makes it all the more important to sustain this research and its diversity, helping vine growers and winemakers progress further. We also have to keep in mind that research in organic can potentially help non-organic producers as well as organic, which is not always the case for non-organic research.

RESEARCH NEEDS

The research needs of the organic wine sector have not yet been well defined and there is still much work to do. The priority is to tackle established problems that are general to the wine production sector and find organic solutions. It will also be necessary to identify and start research on new problems that have emerged more recently. Initial ideas of research topics are briefly described below.

- Evolution of organic plant protection: plant support, application regimes, products, understanding of the mechanisms of systemic induced resistance of grapes against diseases and pests such as Flavescence Dorée or powdery mildew.
- Genetic material development: variety selection, development of "Selection massale" (a French method for selection and propagation), protection and selection of old wine plants and varieties, creation and organisation of conservation breeding and planting of new tolerant and resistant varieties.
- Spraying: techniques and farm machinery.
- Organic strategies for climate change mitigation: carbon and water footprint and evaluation tools, new packaging and transport strategies, integration of new forms of energy into the wine sector.
- Improvement of grape quality.
- Use and replacement of additives in organic wine making (including reduction of sulphites)
- Production of organic yeasts for wine as well as technology to produce wines based on spontaneous fermentation.

- Evaluation of processing techniques for organic wine making.
- Consumer expectations, labelling and the organisation of the international market.
- Sustainability of organic wine production.

Comparative research: integrated organic-biodynamic wine production

Vintners have shown strong interest in biodynamic methods for wine production. One of the biodynamic preparations in particular, horn silica, seems to have a very interesting effect on the vine plant. In 2006, Georg Meißner with Prof. Dr. Randolph Kauer and Prof. Dr. Hans R. Schultz began a comparative research project at Geisenheim University College. The study evaluates different wine growing systems, with special consideration of biodynamic viticulture and the use of biodynamic preparations. This long term experiment has produced several interesting results, some of which support the positive effect of the biodynamic compost and of spray preparations on different parameters (like soil activity, growth and plant health).

Another important area of biodynamic research into the vine plant is work which will yield a greater understanding of the current weaknesses of the plant. Interventions which can weaken the vine include vegetative multiplication, cutting or fertilizing. The first steps have been done, but there is still a lot to do to regenerate the vine plant from the bottom up.

1. Seventh Framework Program project finished in April 2012. www.so2say.eu
2. Project funded by the European Union's Seventh Framework Program running until June 2016 with 11 academic and 10 industry (all SMEs) partners from 11 European countries. www.co-free.eu
3. Project running until December 2016, funded by the European Union's Seventh Framework Program. The multidisciplinary consortium proposed for the project includes 26 members from BG, DE, ES, FR, HU, IT and PT.
4. Seventh Framework Programme (FP7) project running until July 2015 with 15 partners. www.wildwine.eu
5. FP7 ERA-Net project CORE Organic II with 9 partners from AT, DE, ES, IT and SI. www.vineman-org.eu



4.2. INNOVATIVE TECHNIQUES FOR REDUCING THE USE OF SULPHITES IN ORGANIC WINE

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THE CHALLENGE

When the EU regulation for organic wine was published on 9th March 2012, organic producers faced reductions in the legal limits on sulphite content of their wines (see detailed information in *EU Organic Winemaking Rules*, p. 16).

WHITE WINE

The microbicidal activity of sulphur dioxide (SO_2) depends upon the molecule in its unbound form, i.e. as dissolved gas. For best effectiveness, its concentration should reach at least 0.8 mg/L. SO_2 can also exist in a bound form. As the pH of the wine rises (it becomes less acidic), SO_2 comes out of solution and binds, decreasing its effectiveness.

Although microbicidal effectiveness of SO_2 decreases exponentially as pH rises, most winemakers do not take pH into account when determining their sulphite additions. Although only 10-20% of SO_2 added at the juice stage will find its way into the wine, further SO_2 is produced by yeast. In the ORWINE project, Doris Rauhut showed the potential of yeast strains to produce 10-20 mg/L SO_2 during fermentation and up to 50 mg/L under unfavourable conditions. This should be taken into account in yeast selection.

In general, unblemished grapes at moderate pH need no protection from added SO_2 , regardless of their colour. The most effective way to lower SO_2 concentration in finished wines is to add vitamin B1 (thiamine) at 0.65 mg/L prior to fermentation, as it will prevent accumulation of SO_2 -binding bi-products of yeast metabolism such as pyruvate. This costs around €0.015 per 1000L and will diminish the total SO_2 requirement by 10 mg/L for wines made from unblemished grapes and up to 50 mg/L in wines from botrytis-infected grapes.

Acetaldehyde, another undesirable compound in wine, can be reduced primarily by prolonged yeast fermentation, early addition of SO_2 to prevent oxidation and, especially, by malolactic fermentation (MLF). In order to limit production of the "buttery" diacetyl by lactic bacteria, MLF can be conducted

at the same time as alcoholic fermentation by early inoculation with malolactic bacteria.

RED WINE

During red wine production, oxygen is transformed via coupled oxidation of phenols to hydrogen peroxide, which will oxidise ethanol to acetaldehyde. Acetaldehyde will accelerate polymerisation of colourless flavanols into more stable red anthocyanins. The earlier oxygen is applied, the faster the acetaldehyde-driven polymerisation will progress and diminish the oxygen demand during barrel aging. Acetaldehyde levels should be kept high either by conducting MLF late in spring or very early by simultaneous inoculation, because acetaldehyde formation by the yeast will overcompensate for its degradation due to malolactic bacteria.

Hydrogen peroxide tends to oxidize SO_2 to SO_4 at higher rates than ethanol to acetaldehyde. Furthermore, in an oak barrel, SO_2 may bind to newly formed acetaldehyde, leading to the undesired increase of bound SO_2 .

In conclusion, early ingress of oxygen during alcoholic fermentation and late onset of MLF will lower the SO_2 demand in red wines without risking colour loss or even oxidation. If SO_2 is determined by iodine titration, ascorbic acid and many phenols will react as well, yielding erroneous high readings for free SO_2 . These reducing substances should be measured separately and deducted from the iodine titration reading.

BOTTLING

Optimised filling may save up to 10 mg/L free SO_2 and up to 20 mg/L total SO_2 . Even more important than pre-evacuation of the empty bottle prior to filling is a complete displacement of oxygen from the head space above the wine before closing. The most efficient way is to introduce a drop of liquid nitrogen, especially for large headspace volumes under screw caps. The choice of closure is much less critical than the bottling process itself.

REPLACEMENT OF SO_2

Enhanced uptake of polyphenols during skin maceration of white and red wines, prolonged yeast contact (surlie) combined with thorough juice clarification prior to fermentation, good nutritional status of the yeast and avoidance of any spare oxygen uptake will diminish the need for SO_2 . However,

WHEN THE EU REGULATION FOR ORGANIC WINE WAS PUBLISHED ON 9TH MARCH 2012, ORGANIC PRODUCERS FACED REDUCTIONS IN THE LEGAL LIMITS ON SULPHITE CONTENT OF THEIR WINES

there is no single compound able to completely replace SO₂. Furthermore, extreme weather before and during harvest will increase SO₂ demand significantly in difficult years.

Table: Measures to save SO₂ during white and red winemaking

	Vineyard	Grape picking	Grape processing	Fermentation	Winemaking	Bottling
Objective	Diminish binding partners for SO ₂	Protection against microorganisms Avoid using SO ₂	Protection against microorganisms Avoid using SO ₂	Diminish binding partners for SO ₂	Avoidance of oxidation Replacement of SO ₂	Avoidance of oxidation Replacement of SO ₂
Measures for white wine	Healthy grapes	Selective picking Negative selection Automatic grape selection systems Hygienic status of harvest machines	SO ₂ addition governed by <i>Botrytis</i> infection and pH Flash pasteurisation: thermal degradation of microorganisms	Yeast strains with low SO ₂ formation Vitamin B ₁ Malolactic fermentation if compatible with the wine style	Early fill of barrels, prolonged yeast contact Preliminary test to determine demand of SO ₂ in individual wines Termination of SO ₂ addition not too early and not too late One high dose of 50 mg/L SO ₂ is better than many small ones Minimise any ingress of oxygen Use of ascorbic acid	O ₂ removal by gas contactor membranes Addition of ascorbic acid Pre-evacuation of bottles Oxygen free headspace Tight closures
Measures for red wine	Healthy grapes	As for white wine	Early onset of fermentation, no cold maceration Thermovinification	Elevated extraction of phenols, length and intensity of skin maceration Early polymerisation induced by macro oxygenation during alcoholic fermentation Malolactic fermentation	Elongated yeast contact Maintain turbidity for a long time Late SO ₂ addition but no oxidation Preliminary test to determine demand of SO ₂ in individual wines Determination of reducing substances if iodine titration is used One high dose of 40 mg/L SO ₂ is better than many small ones One gross filtration to eliminate <i>Brettanomyces</i> yeast	Determination of reducing substances if iodine titration is used As for white wine



4.3. TAKING EU ORGANIC WINE RULES FORWARD: INTERPRETATION, EVALUATION AND THE NEED FOR REVIEW

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Wine is among the most dynamic and rapidly evolving areas of European agriculture and food. Within the wine sector, organic production arguably represents the greatest concentration of innovations and ideas. The investment rate in organic vineyards and wineries is high, as is competition on quality. Overall, wine is a relatively prosperous sector and organic offers interesting market opportunities by virtue of its distinctiveness.

PRODUCTION OF LOW SULPHITE WINES IN SPAIN

As many as 41 cellars in Spain are producing some wine with low or no added sulphites. Some follow a minimal-input strategy and accept some extent of oxidation. Others limit oxidation with low temperatures and the use of an inert gas (e.g. carbon dioxide); they then bottle with some carbon dioxide. Some even label with a “Best Before” date in order to avoid major changes in the bottled wine. Most wines are labelled “contains sulphite” due to the difficulty in assuring lower than 10mg/L content, since sulphites are produced by the yeasts.

The two most important aspects of producing low-sulphite wines are avoidance of microbial contamination and oxidation.

The most recent approach is to control oxidation from the start of grape processing with low temperature, dry ice, quick initiation of alcoholic and malic acid fermentation, cold stabilisation, filtering and bottling. Producers sometimes also take advantage of the natural carbon dioxide produced in still wines and sparkling wines, which allows the reduction or avoidance of added sulphites.

Microbial contamination can be avoided with appropriate sanitation methods, complete fermentations of sugars and malic acid, low temperature operations and filtrations.

Closure type and handling of bottled wines are also important for maintaining a wine’s quality attributes.

Enric Bartra Sebastian

As a consequence, the organic wine sector will need its regulatory framework to develop in tandem with it, able not only to follow but also to anticipate technical developments and consumer desires. Success in this objective will require multi-way communication between producers, consumers, regulatory agencies and policy makers.

THE NEW REGULATION IS INTRODUCED

Even if the issue of organic winemaking has been hotly debated for many years, the regulation governing it (Reg. (EU) No 203/2012) has only been in place for one year. In wine terms, that means only one vintage, and many wines from this vintage are still maturing and ageing in the cellar. Without a full winemaking cycle having been completed, the new regulation remains very much untested, and it is expected to require a comprehensive and thorough re-evaluation and probably some fine tuning on the basis of real-world findings by the industry.

Experience in recent years has already thrown up some questions:

- While additives and processing aids should preferably come from organic agriculture, how should processes be regarded? Taking “organic tannin” as an example, is it sufficient that the plant from which the tannin is derived is organic, or should a special organic extraction process be defined?
- How can we define “organic quality” for certain inputs so as to avoid excessive constraints for producers? The best yeast for a winemaker to use may depend upon many factors, and the limited availability of organic yeast strains may conceivably hamper the diversity of expression in organic winemaking. And why is casein (coming from organic milk) not acceptable for organic wine?
- The scope of the new regulation encompasses a range of wine-related grape products: plain and speciality vinegars, for example, and grape sugar (rectified concentrated grape must, used only in small quantities for wine enrichment but in large quantity as an ingredient of organic baby food, baked goods, jams and juices). Some points relating to these products are difficult to interpret and implement, and a shared understanding will need to be developed within the industry.
- Heat treatment of organic wines may not exceed 70°C, although grape juice and milk are both pasteurised at higher temperatures. Is this an inconsistency or is there an explanation based on the organic method?

WINE IS AMONG THE MOST DYNAMIC AND RAPIDLY EVOLVING AREAS OF EUROPEAN AGRICULTURE AND FOOD, AND ORGANIC PRODUCTION ARGUABLY REPRESENTS THE GREATEST CONCENTRATION OF INNOVATIONS AND IDEAS.

REVISIONS IN THE SHORT AND LONG TERM

The regulation itself has timetabled a review by 2015 of the use of certain additives and techniques including heat treatments, ion exchange resins, reverse osmosis and copper sulphate (to be phased out in 2015 under current plans).

By the time of this revision, several vintages will have been completed and it could be a good opportunity to begin a thorough assessment of the organic wine regulation. Such an assessment will need to address several points being raised with increasing frequency by producers from different countries, areas, making different types of wine types, and often with extremely different opinions. Producers are firstly concerned with heat treatment limitations, some desiring to decrease the maximum temperature and others lobbying to withdraw any limitation. Second on the agenda are SO₂ limits, which continue to be controversial; the great majority of Mediterranean producers are willing to decrease limits in

the short term, but producers from other regions are nervous of even current limitations. An intermediate position has also emerged, proposing to incrementally lower the limits in mainstream wines but to maintain the current limits for aged wines and special wines. A further concern is the introduction of some new additives and processing aids such as lysozyme or sorbate (only for Spanish special wines). Lastly, the phasing out of some additives and processing aids such as copper sulphate and potassium alginate (to be limited to certain wine categories) will need to be discussed.

Meanwhile, development of the regulation must take into account consumer opinion. The industry is witnessing growth of market demand in three categories: 1. Purer, “feel-good” wines, in the sense of chemical-free or residue-free; 2. Authentic wines, meaning wines able to express all the characters of the land they come from and the hands that cared for them; 3. High ecological value wines, so defined not on the basis of isolated factors such as “CO₂ emissions” or

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“energy consumption” but on the basis of the global impact taking into account effects on biodiversity, soil fertility, air and ground-water quality, landscape and so forth. Here, the organic method has much to offer though there remains room for improvement.

With respect to ecological performance in particular, the regulatory framework must be developed progressively over a longer time horizon, allowing for farmers to gain knowledge and tools for implementation of innovative production and processing systems. Regulatory development should take advantage of assessment tools able to give an integrated, clear and objective picture of the environmental performance of the organic method. The fact that nowadays many environmental claims are displayed on non-organic wines indicates that there is much interest from the market side but also reflects a worrying fragmentation of environmental assessments. To examine any one environmental indicator - water use, energy use, or CO₂ emissions – in isolation can make a product or production system look very good while concealing its negative effects in other areas. For example, no-

till systems perform very well in CO₂ emissions tests but often involve massive use of herbicides.

It is very important to actively involve the wider community of natural, authentic and ecological wine producers in the process of regulatory development, as their philosophies and methods overlap considerably with those of the organic sector and they have much to contribute. Among producers who refuse to be identified as “organic,” there are many who are even closer to the organic ideal than their certified counterparts, and they hold personal knowledge which could potentially be of great value to the sector.

Debate has not been peaceful over the last 20 years, and nor is there any reason to expect it will become so - not between organic and conventional producers, nor between organic and “natural” producers and even less within the organic sector! We can just hope that the long-awaited finalisation of a common regulation represents an advantage for all involved and will lead to a more pragmatic approach, while still sustaining enthusiasms.

We have been developing a food system based on **organic production**, the **protection of the environment, health** and **social responsibility**.

Looking towards the future



The CAAE Association has changed more than its name to meet the challenges of the future. Although a new organization has been created, it counts with 22 years of experience in the field of organic food production and consumption.

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Asociación Valor Ecológico



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CURRENT EUROPEAN LEGISLATION RELATING TO ORGANIC FOOD AND FARMING

THE NEW ORGANIC REGULATION:

COUNCIL REGULATION (EC) No 834/2007 of 28th June 2007 on organic production and labeling of organic products; Repealing Regulation (EEC) No 2092/91. The regulation came into force on 1st January 2009.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32007R0834:EN:NOT>

Consolidated version (10 October 2008)

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2007R0834:20081010:EN:PDF>

COUNCIL REGULATION (EC) No 967/2008 of 29th September 2008 amending Regulation (EC) No 834/2007 on organic production and labelling of organic products

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R0967:EN:NOT>

THE NEW IMPLEMENTING RULES:

COMMISSION REGULATION (EC) No 889/2008 of 5th September 2008 laying down detailed rules for implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with detailed rules on production, labelling and control

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R0889:EN:NOT>

Consolidated version (1 January 2013)

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2008R0889:20130101:EN:PDF>

Including amendments:

COMMISSION REGULATION (EC) No 1254/2008 of 15th December 2008 amending Regulation (EC) No 889/2008 laying down detailed rules for implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R1254:EN:NOT>

COMMISSION REGULATION (EC) No 710/2009 of 5th August 2009 amending Regulation (EC) No 889/2008 laying down detailed rules for implementation of Council Regulation

(EC) No 834/2007, as regards laying down detailed rules on organic aquaculture, animal and seaweed production

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009R0710:EN:NOT>

COMMISSION REGULATION (EU) No 271/2010 of 24th March 2010 Amending Regulation (EC) No 889/2008 laying down detailed rules for implementation of Council Regulation (EC) No 834/2007, as regards the organic production logo of the European Union

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010R0271:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 344/2011 of 8th April 2011 Amending Regulation (EC) No 889/2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32011R0344:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 426/2011 of 2nd May 2011 amending Regulation (EC) No 889/2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32011R0426:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 203/2012 of 8 March 2012 amending Regulation (EC) No 889/2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007, as regards detailed rules on organic wine

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32012R0203:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 505/2012 of 14 June 2012 amending and correcting Regulation (EC) No 889/2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32012R0505:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 392/2013 of 29 April 2013 amending Regulation (EC) No 889/2008 as regards the control system for organic production

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32013R0392:EN:NOT>

THE NEW IMPLEMENTING RULES FOR IMPORT:

COMMISSION REGULATION (EC) No 1235/2008 of 8th December 2008 with detailed rules for implementation of Council Regulation (EC) No 834/2007 as regards the arrangements for imports of organic products from third countries

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R1235:EN:NOT>

Consolidated version (1 July 2012)

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2008R1235:20120701:EN:PDF>

COMMISSION REGULATION (EC) No 537/2009 of 19th June 2009 Amending Regulation (EC) No 1235/2008, as regards the list of third countries from which certain agricultural products obtained by organic production must originate to be marketed within the Community

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009R0537:EN:NOT>

COMMISSION REGULATION (EU) No 471/2010 of 31st May 2010 amending Regulation (EC) No 1235/2008, as regards the list of third countries from which certain agricultural products obtained by organic production must originate to be marketed within the Union (Text with EEA relevance)

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010R0471:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 590/2011 of 20th June 2011 amending Regulation (EC) No 1235/2008, laying down detailed rules for implementation of Council Regulation (EC) No 834/2007 as regards the arrangements for imports of organic products from third countries Text with EEA relevance

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32011R0590:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 1084/2011 of 27th October 2011 amending and correcting Regulation (EC) No 1235/2008, laying down detailed rules for implementation of Council Regulation (EC) No 834/2007 as regards the arrangements for imports of organic products from third countries

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32011R1084:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 1267/2011 of 6th December 2011 amending Regulation (EC) No 1235/2008 laying down detailed rules for implementation of Council Regulation (EC) No 834/2007 as regards the arrangements for imports of organic products from third countries

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32011R1267:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 126/2012 of 14 February 2012 amending Regulation (EC) No 889/2008 as regards documentary evidence and amending Regulation (EC) No 1235/2008 as regards the arrangements for imports of organic products from the United States of America Text with EEA relevance

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32012R0126:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 508/2012 of 20 June 2012 amending Regulation (EC) No 1235/2008 laying down detailed rules for implementation of Council Regulation (EC) No 834/2007 as regards the arrangements for imports of organic products from third countries Text with EEA relevance

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32012R0508:EN:NOT>

COMMISSION IMPLEMENTING REGULATION (EU) No 751/2012 of 16 August 2012 correcting Regulation (EC) No 1235/2008 laying down detailed rules for implementation of Council Regulation (EC) No 834/2007 as regards the arrangements for imports of organic products from third countries

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32012R0751:EN:NOT>

THE OLD REGULATION:

COUNCIL REGULATION (EEC) No 2092/91 of 24th June 1991 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs

ANNEXES

FAIRS IN THE EU RELEVANT FOR ORGANIC WINE

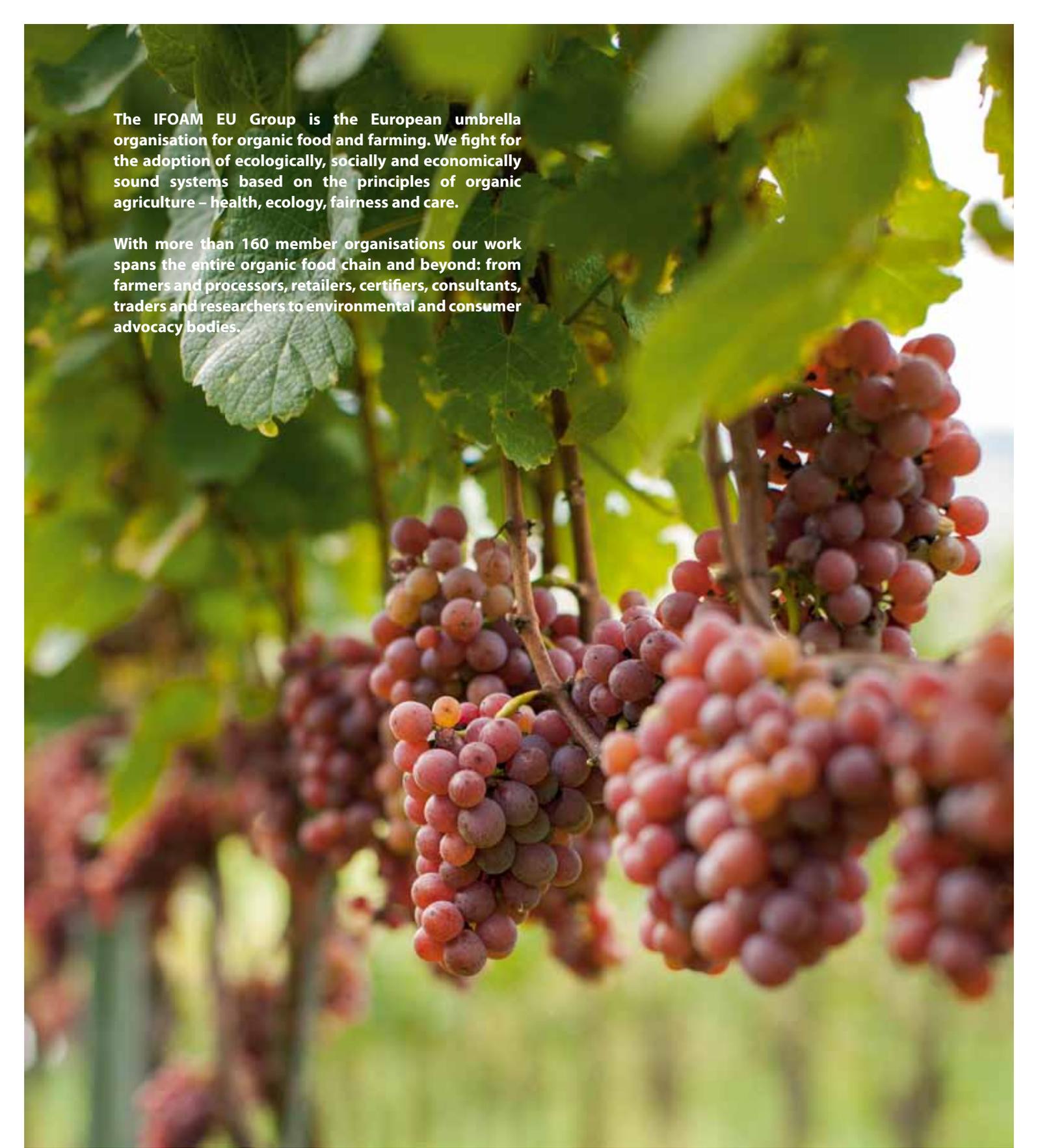
- BioFach, Germany: www.biofach.de
- Intervitis Interfructa, Germany - www.messe-stuttgart.de/intervitis-interfructa/
- Prowein, Germany: www.prowein.com
- Vinitaly, Italy: www.vinitaly.it
- Villa Favorita, Italy: www.vinnatur.org
- Vini veri, Italy: www.viniveri.net
- Millmésime Bio, France: www.millesime-bio.com
- Vinexpo, France : www.vinexpo.com
- AMPHORE, France: www.concoursamphore.fr
- Graines d'Estuaire, France: www.grainesdestuaire.fr
- The Artisan wine fair, UK: www.rawfair.com
- FIVE, Spain: www.five-bio.com
- FENAVIN, Spain: www.fenavin.com
- Vinum Nature, Spain: www.vnbcn.com
- Basler Bioweintage, Switzerland: www.bioweintage.ch
- Biomarché Zofingen, Switzerland: www.biomarche.ch
- Vinaria (at International Fair Plovdiv), Bulgaria: www.fair.bg
- Orange wine festival Izola, Slovenia: www.facebook.com/OrangeWineFestival
- WineExpo, Finland: www.finnexpo.fi/Sites2/ViiniExpo/en/Pages/default.aspx

PRIVATE STANDARDS FOR ORGANIC WINE IN THE EU

- Demeter International: www.demeter.net (and its national organisation in the EU)
- Naturland, Germany: www.naturland.de
- Bodyvin, France: www.bodyvin.com
- Nature & Progrès, France: www.natureetprogres.org
- AIAB, Italy: www.aiab.it
- BIO AUSTRIA, Austria: www.bio-austria.at
- Soil Association, UK: www.soilassociation.org
- Delinat, Switzerland: www.delinat.com
- BioSuisse, Switzerland: www.bio-suisse.ch
- BioCoherence, France: www.biocoherence.fr (being currently developed)

OTHER EUROPEAN ORGANISATIONS RELEVANT FOR THE ORGANIC WINE PRODUCERS

- IFOAM EU Group, EU: www.ifoam-eu.org
- Ecovin, Germany: www.ecovin.de
- Ekovin, Czech Republic: www.ekovin.cz
- AIAB, Italy: www.aiab.it
- FNAB, France: www.fnab.org
- Itab, France: www.itab.asso.fr
- FNIVAB, France: www.fnivab.org
- Bio-Vinature, Switzerland



The IFOAM EU Group is the European umbrella organisation for organic food and farming. We fight for the adoption of ecologically, socially and economically sound systems based on the principles of organic agriculture – health, ecology, fairness and care.

With more than 160 member organisations our work spans the entire organic food chain and beyond: from farmers and processors, retailers, certifiers, consultants, traders and researchers to environmental and consumer advocacy bodies.



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