

Organic viticulture and wine making standards in Spain: state of the art

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I. INTRODUCTION

Spain is the country with the highest surface area of vineyard in the world (14.86% of total area), with more than 1.1 million ha (OIV, 2006), followed by France, with 890,000 (11.21%); then Italy, Turkey, China and the United States of America (USA). In terms of production volumes, Spain is the 3rd country worldwide with 35.3 million hectolitres, after Italy and France (50.5 million each). Spain is also the second largest wine exporting country with 14.4 million hectolitres (18.34%), after Italy with 15.1 million. Yet in terms of wine consumption, Spain comes only 5th, after France, Italy, USA and Germany. These figures show a high potential for organic viticulture in Spain.

Organic farming, organic viticulture and wine making was regulated in Spain in 1988, before the EU regulation for organic farming (2092/91) was in force. But this experience is not well known and is badly documented. Currently, Spain has a surface area of organic viticulture of 15,990.58 ha (MAPA, 2005), being the 3rd country globally after Italy and France (Geier, 2005). The surface rate of organic vineyard is 5 % of arable organic crops. It means over 2 % of the total surface of vineyards (including conventional) in Spain.

II. Aims and methodology

This article presents background information, the current situation and latest developments in the organic viticulture and wine-making sector in Spain, in terms of relevance, support level, available information materials for dissemination, marketing and research issues and especially the latest standards development process and results, in order to contribute to a better regulatory framework at European level.

This work done is based on a literature review of research papers presented in the SEAE National Congress being organised since 1994; as this events are widely considered as the most relevant forum in organic research in Spain. For some aspects, opinions from different experts throughout Spain were gathered, including from the organic wine making sector. The authors were also actively organising and participating in the National consultation Seminar on organic wine standards celebrated in Jerez de la Frontera, Spain, in April 2006, supported by the Directorate General of Organic Farming (DGAE) of the

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Andalusia Agricultural and Fisheries Ministry, the National Organic Processors Federation (FEPECO) and the Spanish Society of Organic Farming (SEAE), with the presence of the Ministry of Agriculture, Fisheries and Food (MAPA) Experts and authorities.

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III MAIN FINDINGS

Relevance and support for organic viticulture in Spain

Organic viticulture is practised in 15 of the 17 Autonomous Communities (CCAA) in Spain. The main organic wine producing regions in Spain are: Castilla La Mancha (4,095ha), Murcia (3,722ha) Valencia (2,086ha) y Cataluña (1,127ha). In addition, Navarra (934ha) and Extremadura (806ha) have relevant organic vineyard production areas. Other, traditional and world-renowned wine producing regions have smaller production areas, such as Castilla y León (423ha) and La Rioja (325ha), though these are increasing on an annual basis.

Support for organic viticulture is different in Spain to other countries. On average, in 2001 it was around 228.38 € per ha (MAPA, 2005), more of what is paid in Portugal but only one third of what organic farmers are receiving in Italy (780 € per ha). Other countries tend toward the 650 €, such as Germany (654 €/ha), France (in conversion 665 €/ha) and Greece (667 €/ha) This could partly explain the different development of organic viticulture in each country.

On the other hand, 12.2 % of organic processing industries units in Spain, are wine cellars (over 180), producing old (reserve) organic wine as well as young wines. Some wine makers are also producing wines under biodynamic standards. The majority of these wine producers are organised in cooperatives.

Farmer training and technical information for knowledge diffusion

In general, there is little technical information on organic viticulture available in Spain. One public organic certification body in Navarra has published a handbook on organic viticulture and wine making for their operators (CPAEN, 2002). This entity has set its own standards for both organic wine making and organic viticulture. Some other short, general articles related to organic vineyard management and written by different authors (e.g. Gallego, 1997; Arriezu, 2003; Casanova, 2003; GAL, 2001), can be found in various journals. In one SEAE publication is a brief article on organic production (Alcázar, 2002). Information relating to organic markets is also rarely found in Spain. Some specific articles offer brief information on the organic wine market (e.g. Albert, 2003), and another article deals with wine processing (Leglise, 1993). There is also an interesting publication on how to make traditional handmade wine (Pérez and Gervás 1998).

The Friendly Association of the Agricultural School of Manresa (Barcelona), has organised several courses on organic viticulture and has published the written

course material (Escola Agraria de Manresa 2000; Espinás, 1999; Lucas, 1993; Rousseau, 1993; Vilarroya, 1993)

Market issues and organic wine consumption

There are no specific figures for the internal organic wine market in Spain. Some data has been provided through surveys in 2001 and 2002 (Bernabeu *et al.*, 2004) which have been published. In the framework of the Organic Marketing Initiatives and Rural Development (OMIaRED) Project (Ham & Gronefeld, 2004). In 2001, organic wine production in Spain was estimate at 228,000 hectolitres, ca. 9 % of total EU production, below Italy (60 %) and France (19 %). Around 40 % of organically produced wines were sold as conventional in Spain in 2001. An average prices for organic wines in 2001 was 68 €/100 l. The farmer price premiums for organic wine in 2001 were, below the average EU price (32 %). The relevance of organic vineyard production (in volume) is still low and supposedly only 0.5 % of the total organic crop production (Hamm *and Gronefeld*, 2004). The various experts consulted predicted a slow growth in sales of organic wine over the next few years, as a consequence of the promotional campaign on organic foods launched by the Ministry of Agriculture, Fisheries and Food (MAPA) and regional governments.

The quality of Spanish organic wines is improving, and some wines are winning international awards (such as BioCaseus, BiodiVino, Biofach). Most known-origin denomination quality areas – such as La Rioja, Ribera de Duero (Castilla y León), and Penedés (Cataluña) - have already started to convert and promote organic viticulture and wine making. In contrast, however, there are still some organic producers' initiatives in the south-east of the country, such as in Alicante, selling organic wine in conventional markets.

Finally we have to highlight here, that the Spanish organic viticulture and wine making sector is not well coordinated at national level. There is no specific organisation for these operators. This is reducing the political influence both at national and at European level, for the ascribed reasons.

Research in organic viticulture and organic wine making in Spain

The Spanish research community has conducted only very few project on organic viticulture and wine making. Reviewing all the papers presented in the 7th biannual Scientific Congresses of SEAE since 1994, only 14 on the topic (from over 700). Most of these papers related to organic viticulture and production issues, such as the use of composted vineshoots as organic fertilisers (Lacasta *et al.*, 1995 and 1998; Lobo, 1985; Royo *et al.*, 2004), or the use of cover crops in organic vineyards (Lacasta *et al.*, 1998; Hernández *et al.*, 2000 and 2002). Others studies took the issue of pest and diseases in vineyards and their transmission by viruses (Arias *et al.*, 1995 and 2002; Diánez, 2002). One paper compared the quality of organic and conventional grapes (Raigón *et al.*, 2004), a few dealt with wine making (Molina *et al.*, 2004), one looked at evaluation methodology for organic wine (Molina *et al.*, 2004), and one dealt with vineyard varieties and their influence on the final wine quality (Miklay *et al.*, 1996).

Table 1.- Papers presented at SEAE Congresses

Year	Authors/Publication year/Title
1994	Lacasta, C., Meco, R., Dorado, J. (1995) Compostaje de sarmientos de vid como fuente de materia orgánica en AE. En Actas I Congreso, Toledo. 288-301, DL TO-1067-95 Arias, M.; Fresno, J.; Pérez-R., A.B.; Rey, M.; Escuer, M. (1995) Características ambientales y nemátodos del suelo en viñedos de La Mancha. En Actas I Congreso, Toledo. 381-389. DL TO-1067-1995.
1996	Miklay, E (1996) "La elaboración de variedades resistentes de uva utilizándolas en vitivinicultura ecológica". Actas I Congreso, Pamplona, 549-556, RL B-22940-1998
1998	Molina, M. J.; Soriano, M. D.; Llenares, J. V. (2000). La degradación de las propiedades del suelo en relación a su uso en dos sistemas agroforestales de la C. Valenciana: implicaciones ecológicas ante un hipotético cambio climático. En Actas III Congreso, Valencia, 191-201. DL V-2097-2000
2000	Hernández; A. J.; Lacasta, C.; Pastor J. (2000). Cubiertas vegetales para un viñedo ecológico en zonas semiáridas. En Actas IV Congreso, Córdoba http://www.uib.es/catedra_iberoamericana/publicaciones/seae/mesa7/vinyedo.html
2002	Arias, M.; Fresno, J.; López-P., J. A.; Guinea, C. (2002). Nemátodos transmisores de virus en La Rioja y Navarra. Su repercusión en viñedos y cultivos hortícolas. En <i>Actas V Congreso, Gijón, Tomo II. 1049-1058. DL: AS-3632/02</i> Diánez, F.; Santos, M., Blanco, R.; Villaescusa, J.; Cheebani, M.; Castillo, P.; Yelamos, J.; Gea, F. J.; Trillas, I.; Avilés, M.; Sinobas, J., Tello, J. C. (2002). Supresividad de la microbiota bacteriana presente en el compost de orujo de vid frente a hongos fitopatógenos. En Actas V Congreso, Gijón, T I. 973-982, DL AS-3632/02 Hernández, A. J.; Pastor, J.; Prieto, N.; Lacasta, C. (2002). Evaluación de cubiertas de tréboles subterráneos y de vegetación residente encaminada hacia estrategias de manejo para establecer un viñedo ecológico. En <i>Actas V Congreso, Gijón, Tomo I. 645-658, DL: AS-3632/02</i>
2004	Hernández; A. J.; Lacasta C.; Pastor, J. (2004). Cubiertas vegetales para un viñedo ecológico en zonas semiáridas. En: <i>Actas IV Congreso, Córdoba: http://www.uib.es/catedra_iberoamericana/publicaciones/seae.</i> Royo Díaz, J. Bernardo (2004) Repercusión de la pérdida de variabilidad en el material vegetal utilizado en viticultura sobre la adaptación del cultivo y sobre la personalidad de los vinos producidos en las zonas amparadas con D. O. <i>En Actas VI Congreso, Almería</i> , DL M 38168-2004 ISBN 84-609-2296-9 Raigón, M. D.; Domínguez-G., A.; García M., M. D.; Berenguer, A.; Rico, J. A. (2004). Efecto de cubiertas vegetales del suelo sobre la calidad de uva de mesa Moscatel en la zona de Novelda bajo cultivo ecológico. En <i>Actas VI Congreso, Almería (España)</i> . DL M 38168-2004 ISBN 84-609-2296-0 Molina C., M. A.; Pérez S., J.; Nieto R., P. (2004). Metodología para determinar la calidad holística de los alimentos. Aplicación en vinos. En. <i>Actas VI Congreso, Almería</i> , DL M 38168-2004 ISBN 84-609-2296-0 Bernabeu, R.; Ureña, F.; Fabeiro, C.; Castillo, s.; Sánchez, Y. (2004). Conocimiento y consumo de alimentos ecológicos en Castilla-la Mancha. En Actas VI Congreso, Almería. 199p, DL M 38168-2004 ISBN 84-609-2296-
2006	Campo M., A.; Martin C., C.; Rico A., L.; Pitarch M., I.; Torres S., C. (2006). Agroecología en espacios naturales protegidos y conservación de la biodiversidad: el caso del viñedo tradicional en La Mata (Alicante). En C.Actas VII Congreso, Zaragoza, 80p, DL V-3309-06 Glez V., J. M.; González, V.; Uranga, J. (2006). La inclusión de normativas de elaboración de vino ecológico en el Reg. CEE 2092/91 y situación en España. <i>Avances Orwine</i> . En C. Actas VII Congreso, 141p.; Zaragoza, 80, DL V-3309-06

Source: SEAE

Finally, there are no papers made in Spain, presented in the 8 International editions of the Organic wine Congresses organised in conjunction with the IFOAM World Congresses, showing the low research production in this organic branch.

Given the relatively large land area put to vineyards, the Spanish experience in organic wine making has not been taken into account at European level, by the organic research Community and/or project evaluators of the research Frameworks Programme (FP). Both, Consortium initiative's and Spanish research Community, made very low efforts to find an appropriated partner to integrate this relevant Mediterranean wine production reality for standards setting in the EU.

For example, the policy-oriented support project (SSP). *“Organic viticulture and wine-making: development of environment and consumer friendly technologies for organic wine quality improvement and scientifically based legislative framework”* (Acronym Orwine), founded by the European Commission (EC) and approved under the FP6 in 2006, will give recommendations for setting organic wine standards, and is promoted by institutions from four countries (Italy, France, Germany and Switzerland). Spain is only indirectly involved, through the IFOAM EU Group as one of 11 project partners, at the same level as other countries such as Bulgaria, Greece, Hungary, Moldavian, Portugal or Czech Republic. It must be remarked that the IFOAM EU Group is willing to be involved in some EU policy support research projects (Orgap⁴, Organic Revision⁵, EISfOM⁶, etc.), including a participatory approach, to allow a more stakeholder involvement in research, helping to consider their opinions and to ensure a high acceptance of the project outcome

Involvement of stakeholders in research and dissemination of results is also not a central element in organic viticulture. In the Orwine Project (Orwine, 2006), some planned activities consider the participation of Spanish stakeholders through the IFOAM EU Group, as this umbrella organisation of the organic sector (at European level) has developed some tools to integrate organic producers in research activities for other policy-oriented research projects such as the ORGAP and Organic Revision Project.

Organic viticulture and organic wine standards in Spain

In 1988, a national regulation for organic farming was approved in Spain. An official body was created, the Regulatory Council for Organic Farming (CRAE), as Advisory Committee of the Ministry for Agriculture, Fisheries and Food (MAPA), which has incorporated specific standards for wine processed from grown organic grapes, and which has been applied in all 17 Autonomous Communities (CCAA) over more than 12 years up to 2000. In 2001, these common standards continued being applied in 14 CCAAs, and had been improved or changed in 3 CCAA public standards-setting authorities (in Cataluña and Navarra, and by private certification bodies in Castilla-La Mancha). Furthermore organic wine processing operators in Spain work under the National Organic Program (NOP) standards set by the United States of America (USA). Other wine-cellars work with stricter standards (Delinat, Switzerland).

⁴ <http://www.orgap.org>

⁵ <http://www.organic-revision.org>

⁶ <http://www.eisfom.org>

In order to harmonise all organic viticulture and wine making standards at State level, the MAPA commenced a consultation process in 2004, in agreement with the competent authorities of the CCAAs, to establish an Expert Group. This Group has launched 5 different draft proposals. In the first stage of this process, no stakeholder involvement was planned. To harmonise the varying points of view of stakeholders, the Andalusia Organic Agricultural Authority (DGAE), in cooperation with SEAE and the National Federation of Organic Processors (FEPECO), organised a discussion Forum in Jerez de la Frontera (Andalusia). The main representatives and active organisations of the sector were invited. As result of this process a sixth draft was produced and circulated to all interested organic wine makers' organisations. A final proposal was presented to the Branch Agricultural Conference; the Spanish official coordination body composed of all 17 Agricultural Regional Ministers and the MAPA, and was being approved as of 23rd of October 2006.

The new national organic viticulture and wine making directive in Spain

The most relevant areas of the new national standards for organic viticulture and wine making in Spain are summarised as follows.

a) Definition of organic wine

Organic production of wine is one category of quality Oenology, based on the unique characteristics of the grapes and using the grapes' inherent ingredients as processing (technological) aids.

The main objective of organic viticulture is to obtain quality wine. Therefore these new standards are applicable only for quality wines produced in certain regions and for wines with acknowledged geographical provenance.

b) Clarifiers and others components

Authorised ingredients: Ovo- and lacto albumen, non hydrolyzed gelatine, milk origin Casein, Isinglass, Kaolin and Bentonite. Authorised methods: frozen techniques to processing sweet and doomed wines. Authorised stabilisers: gum Arabic and citric acids (máx.1 g/l). Grapes skin or grape seeds from natural tannins

c) Yeasts and bacteria

Allowed: Yeast (natural origin). Ammonium sulphite (only during fermentation process), with a max. of 100 mg/l of total nitrogen. Pectolic enzymes non-GMO (only in this process). Bark of yeast from wine yeast, to help finalising fermentation max. 40 g/hl.. Non GMO, Selected bacteria's

d) Sulphur content

Type of wines	total SO₂ (mg/l)
Red young wines	100 *
Red wine bottled with more than one year	120 *
White and Rose wines: dry (< 5 g/l sugar)	120 *
White, Rose sweet, semi-sweet and semi-dry (> 5g/l sugar)	160*
Sweet and liquor wines ()	120
Sparkling wine	120

(*) 2 years derogation from the approval date of this standard and with a previous acknowledged need and authorisation by the control body, these quantities could be increased up to an additional maximum of 30 mg/l.

IV. CONCLUSIONS AND RECOMMENDATIONS

Spain is an important country for the production and consumption of conventional wine. In terms of surface area of organic viticulture, Spain is the 3rd country in the world, although the support for farmers is half that of other countries. Spain is also a major exporter country of organic wine.

There is a lack of written information and training events to help farmers to convert vineyards to organic. Further, there is a lack of information on market issues. Internal organic wine consumption is not providing a price premium for producers as it does in other EU countries. Expert opinions suggest that the situation will change in the future, as there are an increasing number of quality organic wines and some are winning International Awards.

Research works on the topic are few. The available studies deal with organic viticulture and only one on wine making. At EU level, no relevant efforts were made by the organic research Community to include the Spain's long experience and opinions in organic wine making standards research.

Common standards for organic wine making, set at a national level for over than 15 years, have since been developed differently according to Spanish regions. As it was a problem to have 4 different organic wine standards, the MAPA has initiated a process to set new common standards. These were first developed by selected experts, but after recognizing the importance of input from the organic wine making sector, stronger stakeholder involvement and consultation has been made.

The Spanish organic sector is not actively participating in the European debate or in research on organic wine making and standards setting. This is a consequence of the low level of national organic sector integration, lack of resources and other related aspects. As the IFOAM EU Group has developed some criteria's and tools to be involved in research in some EU project, this could be further developed to consider what is relevant for an EU organic research project to support policies in the future.

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