

Protected Designation of Origin, Sustainable Development and International Trade: a Survey of DOC Wines from Emilia-Romagna

1. Sustainable development

Today, the concept of sustainability significantly affects our life and economic activities.

In 1987, the Brundtland Commission stated: “Humanity has the possibility of making development sustainable, i.e. ensuring that the needs of the present are met without compromising the ability of future generations to meet their own needs” (World Commission for environment and development, 1987).

Environmental sustainability was adopted as a “tracer” for all the policies of the European Union.

Environmental sustainability goes into agriculture to all intents and purposes through the cross-compliance of Medium Term PAC Reform and the compliance with the Good Farming Practice (GFP).

Furthermore, as far as agriculture is concerned, Kyoto Protocol especially detects 2 gases responsible for the green-house effect which are especially originated by agricultural activities:

- CH₄ Methane gas - The emissions of this gas originates from agriculture (animal faeces) and waste dumps.
- N₂O Nitrogen protoxide – agriculture, energy sector and transports are also responsible for this gas.

2. The international safeguard of the Protected Designations of Origin

In the framework of WTO it is not encouraging that the definition of protection tools against the counterfeit of the most typical agricultural-food products of the EU has not been included in the negotiation concerning the modes of access to the European market as originally suggested by Brussels (Lunati, 2004).

This study was originated by the perception that in such a crucial stage of both international negotiations and EU politics, the safeguard of one of the most relevant assets of the regional agriculture must be reinforced, by connecting the links of the designation of origin to the characteristics of the ecosystem and the economical and social tissue.

In his book depicting the path of implementation of the Italian Act No. 164 on designations of origin (Fregoni, 1994), Professor Fregoni states that “in order to understand the essence and definition of a designation of origin it is necessary to recall that wine’s organoleptic characteristics are correlated to the

vine's ecosystem: this is made of vines and primer pouches, climate, soil and human techniques, biological-ecological- and anthropic- supports of the designations of origin” (Fregoni, 1994, page 100). In this perspective, the relationship between wine making and vine production with Protected Designations of Origin, Denominazioni d’Origine Controllata (DOC) for Italy, in Emilia-Romagna and the actions aiming at a Sustainable Development was investigated.

The initially defined investigation areas were those of Colli Piacentini DOC wines, Colli Bolognesi DOC wines as well as Sangiovese di Romagna DOC wine and Albana di Romagna DOCG wine. The remarkable presence of productions characterized by DOC in some flatland areas, the connection between the policy of sustainability and the biggest cooperative enterprises induced us to extend our study also to the areas of Modena and Reggio Emilia.

This work studied the actions carried out in the vine-growing and wine-producing sector of Emilia-Romagna for environmental sustainability. For this purpose the study used the available data on voluntary certification, variety and extent of autochthonous vines -all considered to be positive actions by the operators in both this sector and the domain of designations of origin - in order to recover an almost forgotten biodiversity treasure, as well as the data concerning farming- and organic transformation- enterprises.

3. Environmental damages caused by the vine-growing and wine-producing sector in Emilia-Romagna

The study carried out for Sangiovese wine by Paolo Neri (2005) from ENEA on the determination of environmental damage attributable to the production of a 0.75-litre bottle of wine made of conventional grapes evidences that, according to the Ecoindicator 99 E and EPS 2000 evaluation methods, the most affecting stages are the implementation of the wine-yard, pressing and fermentation, stabilization, cultivation and transportation. In particular, the EPS 2000 evaluation method evidences a damage equal to 2.57 ELU (Pt) which for 36.5% is due to cultivation stages, for 30.6% to pressing and fermentation, and 26.1% to stabilization. Damages affect Human health (7.3%), Ecosystem production capacity (43.6%), Abiotic Stock Resources (49%) and Biodiversity (0.14%).

In the light of these results, the environmental damage caused by wine making seems to be rather equally subdivided between agricultural stages and industrial stages in the process. According to the Ecoindicator 99 method the loss of bio-diversity due to the occupation of the land by the wine-yards is especially relevant.

A comparison of the analysis carried out at the same time for Prosciutto di Parma [Parma Ham] (damage equal to 11.5 Pt) and Parmigiano Reggiano (damage equal to 16.7 Pt) evidences that wine making (in this case Sangiovese) causes a reduced environmental damage if compared to the life cycle of these other relevant quality agricultural products and food-stuff. Even more striking is the difference with industrial productions such as sugar beet (damage equal to 26.4 Pt).

4. Participation in ISO 14001 and EMAS certification systems for the vine-growing and wine-producing sector in Emilia-Romagna

In order to assess the approach to the management of environmental problems by the vine-growing and wine-producing sector in Emilia-Romagna, the number of ISO 14001 and EMAS certifications was determined.

As of October 31st 2004, Emilia-Romagna was the 4th region by number of UNI EN ISO 14001¹ certifications, after Lombardy, Campania and Piedmont. As for EMAS, our Region was first in terms of certification numbers, largely exceeding the numbers registered in Lombardy, Venetian Region and Piedmont.

At a national level for the “food- drink- and tobacco- industries” sector, 328 ISO 14001 certified sites are registered (mainly in the Venetian Region), 43 of which in the wine making sector. Conversely, for the “agriculture and fishing” sector, 29 certifications can be found at a domestic level, 4 of which in the vine sector (data collected as of March 6 2004) (Asti Province, 2004).

Emilia-Romagna features 10 out of the 45 ISO 14001 certified sites in Italy for the wine making sector and 4 out of the 4 certified sites for the vine-growing sector (tab. 1).

¹ UNI EN ISO 14000 regulations date back to September 1996; they have the purpose of defining the requisites of a Environmental Management System (EMS SGA) while taking into account both legal requirements and information concerning significant impacts. This is a voluntary system.

The EMAS (Environmental Management and Audit Scheme) regulations originally issued in 1993, addressed solely the industrial sector. Only at a second stage, in 2001, its application scope was extended also to the service sector and, in general, to every kind of organization. Unlike UNI EN ISO 14001, EMAS is recognized at European level: it solicits a voluntary engagement towards environmental safeguard, by reorganizing and rationalizing the environmental management of the member organization, which shall be based not only on the respect of the legal limitations, but rather on a new relationship involving the organization itself, Institutions, industrial world, and general public.

The 10 ISO 14001 certified wine growers' associations include 4 enterprises, of which only 1 is private: Azienda Agricola Venturini Baldini (certified mainly for the musts for balsamic vinegar). The remaining associations are all cooperatives: Cantina Vicobarone, Cantine Sociale Cooperativa Formigine, Cantine Cooperative Riunite and CAVIRO (certified for alcohol).

ISO 14001 certifications (combined to EMAS certifications) took advantage of the professionalism achieved through the first experiences of the large cooperatives. These professionals certified Parmigiano Reggiano dairies and are presently working for the certification of wine growers' associations outside this region.

Another important ISO 14001 certified cooperative, CIV & CIV, does not appear in this list. In spite of the fact that their certification was granted before the date of the latest up-bringing of the data bank, it has not been included yet.

Out of the 4 agricultural sites, "Il Laghetto del Sole" provides essentially farmhouse accommodation while the "Azienda Agricola Virginia Senzani" seems to produce mainly vegetables and fruit.

There are 4 EMAS certified enterprises in the vine-growing and wine-producing sector in Emilia-Romagna (tab. 3), even though, in reality those certainly certified for wine making (NACE code 15.93) are only 2: the "Cantine Cooperative Riunite" and the "Cantina Sociale Cooperativa" of Formigine. At the time of the survey, the enterprises in the list were the only EMAS certified wine making enterprises in Italy. Overall, the EMAS certified agricultural- food- industries were 55 as of October 31 2004.

4.1 Certification costs

The expenses for the implementation and maintenance of an Environmental Management System can be identified in: a. Expenses for the introduction of the system, b. Expenses for the certification of the system, c. Expenses for maintaining the system.

According to a study by CESQA of Padua University carried out in cooperation with SINCERT on organizations active in Italy and ISO 14001 certified in 2001, these costs are slightly lower than 25,000 Euro for SMEs, whereas for large enterprises they slightly exceed 45,000 Euro (plus the expenses for external advisors) (Asti Province, 2004).

It must be underlined that large enterprises which disregarded the strategy of environmental certification invested in traceability systems. CAVIRO, which has no environmental certification systems for the wine sector, has an articulated traceability system for its leading product, Tavernello wine.

The procedures for the management of environmental problems by wine making enterprises which have not adopted environmental certification systems are governed by the relevant regulations in force.

4.2 Competition in certification

Environmental certification allows the enterprises to be in the market with their papers in order from the environmental point of view and, thus, to increase the operators' confidence.

The survey on ISO 14001 or EMAS certified enterprises underlined the strong connection between the choice of environmental certification and the need to meet the standards set out for the access to public funds.

The same enterprises stressed that they decided to have their compliance with other standards required by European large distribution certified at their own costs. In particular the Austrian, Swiss, French and German chains require IFS (International Food Standard) while British chains require BRC² standard. Furthermore, presently, Coop Consumo requires SA 8000 ethical standard concerning the respect of human rights, the respect of workers' rights, the prevention of the exploitation of minor work, the safeguard of occupational health and safety.

4.3 Ecolabel

For foodstuff the possibility of ecolabel has not been set out. Conversely, there is the QC mark linked to integrated production: this represents a corporate policy, for instance, for the CIV & CIV cooperative and the

² Developed by distribution chains, they have the purpose of enhancing the effective selection of own brand food suppliers for large distribution on the ground of their capability of providing safe products which meet both contract specifications and legal requirements. This standard indicates the specific factors of a management system focused on quality and hygiene health and safety of the processes; this system uses the HACCP method as a reference for planning and implementation.

entire system of associated wine cooperative associations and vine producers (90% of the associated producers join in the project of integrated production).

4.4 Environmental certification and quality productions

This survey underlines the close link between large enterprises in the vine-growing and wine-producing sector and environmental certification. The main reasons for certification seem to be: a) the need to tackle a wide and organized market and b) to get access to funding sources.

Another relevant factor is the mainly cooperative nature of the enterprises which follow this policy. In the environmental certification of Riunite it is underlined that the choice to adopt a policy of control over the environmental impact originates also from both the cooperative nature of the company and its strong link with its territory and population (Cantine Riunite, 2005).

Conversely, a strong link between the policy of DOC quality and environmental certification does not seem to exist.

The *Consorti di Tutela* (Protection Bodies) do not seem to provide incentives for specific behaviours in this domain. The top DOC wine producers surveyed are not among certified companies.

5. Preservation of biodiversity

In the last 30 years the populations of earthen species decreased in average by 15%, sea species by 35%, fresh waters species by 54% (WWF, 2004).

The work by Paolo Neri (2005) shows that the occupation of the soil for vine culture represents a remarkable loss of biodiversity. The uncultivated soil would have the possibility of hosting many more animal and vegetal species. However, vine culture in Emilia-Romagna has also the role of safeguarding and stressing the value of biodiversity through the recovery of autochthon vines of old standing cultivation. They were used as a marker of sensitivity for the more complex problem of biodiversity as well as a factor of growth for the policy of designations of origin.

5.1. Autochthon vines

International vines have an important role in Italian DOC wines and in those from Emilia-Romagna in particular, and the safeguard and valorization of autochthon vines are not explicitly mentioned in the Act No. 164/92 on wines' designations of origin nor in the regulations for DOC wines in Emilia-Romagna.

Conversely, the Rural Development Plan of the Emilia-Romagna Region includes the development of autochthon varieties of pear- apple- trees and vines among its provisions.

The agreement reached on February 10 2005 among Mipaf, autonomous Regions and Provinces, concerning the "Safeguard and valorization of productions obtained by either autochthonous vines or vines cultivated long times ago", sets out that the use of the designation of the vine and its synonyms on the label may be subject to "limitations" in consideration of the origin and the strong link of the vine itself with the territory, typicalness of the obtained productions and historical-cultural aspects, obviously keeping in mind the effective spreading of the vine.

In 2000, the 5th General Census in agriculture showed that 50.7% of the overall grapes surfaces of the main vines in the Emilia-Romagna Region was made of autochthon vines, whereas the incidence of the surfaces devoted to DOC and DOCG wine production was slightly greater, reaching 55.3% (tab.4).

For International vines, the presence of Chardonnay, Sauvignon and Cabernet is mainly concentrated inside the DOC and DOCG surfaces and reaches 4.9%, while Merlot vine (4.0% of overall surface) is largely present in the surfaces devoted to common and IGT (*Indicazione Geografica Tipica – Typical Geographic Indication*) wines.

Substantially, all the regulations of hilly region DOC include one or more wines with an International name vine. Lambrusco wines and Reno DOC wine are excluded. Also the latest regulation of “Colli di Romagna Centrale” of 2001 sets out vines with international name vines.

5.3 Wine making and vine growing activities and GMOs

Both the strong relevance of yeasts in the creation of our Region’s wines and the great appeal of genetic transformation for the solution of some problems of our vines raise many questions on the control of GMOs in wine making and vine growing³.

³ More information on the problems related to quality production and transgenic cultures can be obtained from the publications of the Emilia-Romagna Region – General Directorate for Agriculture - Programs, Monitoring and Evaluation Unit (2004).

6. Organic culture in the vine- growing wine making sector in the Emilia – Romagna Region (ERR)

6.1 Statistics

Out of the overall 4084 farming enterprises and 681 organic transformation enterprises in Emilia-Romagna, 723 include the production of grapes in their production range as of December 31st 2003, according to the Official List of Organic Operators of the ERR (it must be underlined, however, that part of these enterprises did not declare their production range). 48 are the organic enterprises certified for grape transformation (it must be underlined again that only the enterprises which stated their production activities and, specifically, grape transformation were taken into account).

In order to assess the weight of the organic producers in the domain of quality vine-growing wine-production it was investigated how many of them had also joined in *consorzi di tutela*. Then, the list of organic operators was compared to the lists of members of the *ConSORZI di Tutela* of the 3 DOC and DOCG wines examined. This was a difficult chore because, very often, the same enterprise appeared with different names in the two lists. Therefore, our results must be considered to be more indicative than absolute. While keeping this in mind, we can state that the organic enterprises which joined in:

- the “DOC Colli Piacentini” Consortium are 7 out of 80 members, all of which are vine- and wine-producers,
- the “DOC Colli Bolognesi” Consortium are 13 out of 170 members, of which 8 vine- and wine-producers and bottlers out of 62, and 5 grapes producers out of 85,
- the “Ente Tutela Vini Romagnoli” are 9 out of 83 members.

6.2 Regulations

Wine is explicitly excluded by Reg. No. 2092/91. Therefore one cannot refer to “organic wine” or “wine obtained with organic procedure” in the framework of the regimen defined by the European regulations which, conversely, permit the statement “wine obtained from organic grapes”. This is because the “farming”

stage is governed by the above mentioned regulations, whereas the transformation stage is not. Why this stage is not governed by European regulations is not clear. Cookies, juices, cheese, and other products are.

A consequence of this uncertainty is linked to the (voluntary) use of the European brand. In Germany, England and Austria “organic wine” or “Ökologisch wein” labels are used, while in the extra EU countries that are importing remarkable quantities of wine - such as the U.S. and Japan - an “organic” statement on the label is an essential prerequisite.

Since quite some time, the organic producers’ associations in different European countries self-imposed their own regulations for wine making: regulations which are voluntary and not binding for everyone (AIAB, 2002).

6.3 Disciplinary measures and acidic oxide

A criticism to the production of organic wine concerns the problem of the management of wine stabilization and, thus, the use of acidic oxide.

The CCPB disciplinary measures (2003) evidence the possible use of a small quantity of acidic oxide:

Type of wine	Recommended SO2 values (mg/l)	Admitted SO2 values (mg/l)
Red wines	< 20	80
White and rosé wines	< 20	90
Sparkling wines	< 20	60
Sweet and sparkling wines	< 20	100

The AIAB disciplinary measures (2002) set out total recommended SO2 values equal to:

Type of wine	Recommended SO2 values	Admitted SO2 values
Red wines	< 20	60
White and rosé wines	< 20	80
Sparkling wines	< 20	60
Sweet wines	< 20	120

6.4 The sustainability of organic production

According to studies carried out by Della Giovampaola and Neri (2004) and Neri (2005), the comparison between conventional and organic wine shows that organic production has an impact 7.8% lower if compared to conventional production (procedure in Ecoindicator 99). In particular, it appears that when passing from conventional to organic production the harm to Human Health is reduced by 9% due to two

opposing phenomena: 1) reduced transportation from production to consumers which, in turn, induces a lower production of SO₂ and CO₂, 2) the use of the facilities for a smaller quantity of wine, thus inducing a greater production of NO_x and Ni. As for Ecosystem Quality, the negative impact increases by 3% in the consequence of Land Use. This occurs because, in spite of the fact that there is less intensive exploitation of the soil, in organic culture the prejudice registered is greater due to the smaller production of grapes on the same extension of land. As far as Resources are concerned, the damage is decreased by 24.4% mainly thanks to: 1) transport from producer to consumer in Italian territory only, for organic products, 2) 20.43% reduction in energy used, especially thanks to decreased transportation, 3) 19.3% decrease in expenses. The assessment according to the EPS 2000 procedure shows that organic production causes a 5.4% smaller prejudice than conventional production.

A relevant problem in organic vine- and wine- production concerns the use of copper for treatments. This causes very strong pollution of the soil thus inducing limitations in the use of copper.

6.5 Has an Organic-DOC production any sense?

One reason for scepticism on the idea of Organic-DOC products – that is the creation of a niche of organic DOC products to be recognised and organised by *Consorzi di tutela* of DOC products in cooperation with organic consortia - is that organic production is much more exacting than DOC production. According to a rather widespread opinion, in organic production the certification concerns both the plants – with the need, at present, of an independent transformation line - and productions. Therefore, the participation in the management of such a project by the *Consorzi di tutela* would not be easy to put into practice.

The *consorzi di tutela* associate very different types of enterprise and, therefore, do not deem advisable to pursue this aspect. Thus, organic DOC producers are organised in 2 consortia, the activities of which are not specifically coordinated.

The difficult integration of their two policies, sometimes caused the enterprises which decided to go organic to leave DOC and join in IGT.

Big enterprises such as CIV&CIV have Organic-DOC productions. For the time being, the organic Lambrusco Grasparossa DOC wine is produced in small quantities (20 thousand bottles) for the German

market. Its bottle has the same price as the Righi line in large distribution: 3.5 Euro. The organic project of CIV&CIV faces difficulties concerning the characteristics of organic enterprises: 30 enterprises produce organic wine, but only 5-6 of those are in the most interesting area for CIV&CIV: the hills area.

Another big cooperative enterprise in Emilia-Romagna, CEVICO, does organic production for Almaverde. The need to export all over the world requires, in addition to the “European” certification, also the US’ NOP (Natural Organic Programme).

In the opinion of one of the organic “pioneers”, today, in Romagna, organic wine making can survive only in an organisation where: a) organic wine can be sold directly to the consumer (his wine is sold at the price of 5 euro a bottle to tourists and people taking part in their themed dinners), and when b) organic production can contribute to the positive image of the entire corporate project and, especially of the accommodation activity.

7. Sustainability of DOC wine making

The Act No.164 of 1992 in section 1 states that “The designation of origin of a wine indicates the geographical name of an especially devoted vine area; it is used to indicate a well known quality product, the characteristics of which are connected to both natural environment and human factors”

Section 10 defines the contents of the disciplinary measures for production. Item f) states that “the conditions of production and, especially, the natural characteristics of the environment, such as: climate, soil, location, altitude, exposition, ampelographic composition of the wine-yards devoted to the production of grapes belonging to recommended and authorised vines, plantation density, breeding forms, pruning systems, forbidden forcing practices” shall be defined.

In the revision of the policy concerning the DOC wines, under this item f) some prescriptions on sustainability could be included. Thus an environmentally “virtuous” behaviour of DOC production could be defined.

As already mentioned, at the time of issue of Act No. 164, Professor Fregoni wrote: “In order to understand the essence and definition of a designation of origin, it is necessary to remember that the organoleptic differences of wines are correlated to the *vine ecosystem*, which is made of vine/s and primer pouches,

climate, soil, and human techniques, which are biological, ecological and anthropical supports to the designations of origin” (Fregoni, 1994, p. 100).

This concept of vine ecosystem, on which the idea of wines’ designation of origin rests, can be met and brought up-to-date by paying greater attention to the product quality, its bio-diversity characteristics and their safeguard as well as to the agronomical and transformation practices which mean that the tolerance capacity of this ecosystem is not exceeded, for instance, by controlling the contents of phyto-drugs used at different production stages.

In Emilia – Romagna, the relationship between DOC and sustainability can be found in the disciplinary measures for integrated production. In these, as well as in the Rural Development Plan, attention is paid to DOC productions.

8. Territory certification

The Act No. 164 clearly states that the Designation of Origin concerns the territory and not the product. The EMAS certification of the territory could be another sign of the effort for sustainability borne by single DOC producers and their Consortia.

A similar experience was done, partly, in the Bolognese Apennines. If, for Apennines, the target of this action were mainly tourists and tour operators, the message concerning the effort of territorial certification should especially be addressed to the consumers of Italian and international wines, wine distributors and wine tourists.

References

Bortolotti M., Nanni P.L., Santi R., Veronesi M. (2000), *Colli Bolognesi: Una gita fuori porta*, Consorzio Colli Bolognesi, Monteveglio, Bologna

Cantine Cooperative Riunite (2005), *Dichiarazione ambientale Cantine Riunite*, in <http://www.riunite.it/ita-home.htm>

CCPB (2003), *Controllo biologico, Norme di produzione biologica*, Edizione 02, gennaio

Commissione mondiale per l'ambiente e lo sviluppo (1987), *Il futuro di tutti noi*, Bompiani

FEDERDOC (2004), *VQPRD d'Italia*, Edit Faenza, Faenza

Fregoni M. (1994), *La piramide DOC. Storia, contenuti, interpretazioni della 164/92*, Edagricole, Bologna

Iacono F., Stefanini M., Venturi A., Virgili S. (a cura di) (1999), *Descrizione di alcuni vitigni autoctoni*, Conferenza nazionale permanente delle istituzioni che nelle regioni si occupano della ricerca e sperimentazione vitivinicola, Roma

Lunati F. (2004), L'agricoltura comunitaria tra WTO ed allargamento dell'UE, *Agricoltura*, dicembre

Margheriti R. (2004), Riforma della "164" nuove ipotesi di lavoro, *Il Corriere Vinicolo*, n.4

Micheloni C. (2002), *La viticoltura biologica italiana*, <http://www.aiab.it>

Della Giovampaola M., Neri P. (2004), Sangiovese "Bio", anche l'ambiente ci guadagna, *Agricoltura*, settembre

Neri P. (2005), *Analisi del ciclo di vita del vino Sangiovese, Confronto tra produzione convenzionale e biologica*, L'analisi del ciclo di vita (LCA) dei prodotti agro-alimentari, Bologna, 21 febbraio

Pantini D. (2004), La diffusione del biologico nelle filiere DOP e IGP, *Agricoltura*, dicembre

Provincia di Asti (2004), *Introduzione ai sistemi di gestione ambientale nelle aziende viticole*, Asti

Ricci Curbastro R. (2004), Controllo sulla produzione dei VQPRD, in FEDERDOC, *VQPRD d'Italia*, Edit Faenza, Faenza

Regione Emilia-Romagna, Direzione Generale Agricoltura, Servizio Programmi, Monitoraggio e Valutazione (2004), *Coesistenza fra colture transgeniche e OGM-free, Prime valutazioni*, documento interno

WWF (2004), *Living Planet Report*, Gland, Switzerland