Report

ORWINE

SIXTH FRAMEWORK PROGRAMME

Area 1.2 - Task 1: Organic viticulture and wine processing

Project number: **022769**

Project acronym: **ORWINE**

Full project title: **Organic viticulture and wine-making: development of environment and consumer friendly technologies for organic wine quality improvement and scientifically based legislative framework**

FP 6 Instrument: **Specific Targeted Research or Innovation Project (STRIP)**

Thematic priority: **Priority 8.1: Policy-oriented Research (SSP)**

Publishable final activity report

Part of Workpackage: **1.1 management**

Due date of deliverable: **July 2009** Actual submission date: **July 2009**

Start date of project: **February 2006** Project duration: **May 2009**

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Dissemination restricted to project partners and Commission Officers

SIXTH FRAMEWORK PROGRAMME

Funded by the European Commisson under the Sixth Framework Programme for European Research & Technological Development (2002-2006) - Thematic area Food quality and safety

1. Project aim and activity plan

The project aimed at developing the scientific basis for legislative framework for wine from organic viticulture, taking into account environmental, health, market and product quality issues. As wine production is an important economic and cultural fact in many EU countries and applied techniques as well as wine type vary to a great extent from Region to Region, high attention is dedicated to stakeholders' involvement and participatory approach in order to grant final legislative proposal to be largely accepted and possibly, to be implemented in any EU condition.

The project activity included:

- detailed definition of actual legislative status;
- description of actual producers equipments, technology and knowledge;
- qualitative study of market needs and consumers demand;
- implementation of tools for evaluation of organic viticulture and wine-making environmental impact;
- test series with suitable and innovative technologies to improve the quality of wines from organic viticulture, allowing using a low level of sulphites and other additives and processing aids;
- on-farm evaluation of most promising techniques;
- direct and indirect stakeholders involvement opportunities.

2. Activities over the project time-frame

In the first project year the description of the actual situation have been carried on with: a) analysis of the legislative situation that gathered existing private standards on organic winemaking from all EU countries and analyzed it in the context of International winemaking legislation (EU, OIV, Codex Alimentarius) and considering as well NOP and JAS requirements as USA and Japan are important export markets for European wines; b) a survey on producers equipment, practices, used additives, wine type produced and knowledge was conducted on 467 organic wine-makers that represent about 20% of EU organic wine producers and results were cross checked and further explained through 78 in-depth interviews and analysis of about 200 wines from international organic wine awards; c) preparation of environmental assessment tool (to be implement in following years) and the checklist for applying HACCP methodology to organic viticulture; d) market and consumers studies were conducted in order to identify consumers requests in terms of wine quality and regulation through interviews to major organic wine traders and 16 Focus Group Interviews held in Italy, France, Germany and Switzerland.

Oenological innovative techniques have been implemented, following experimental protocols aimed to decrease additives use (particularly sulphites) but enhancing wine quality. Protocols included oxigen management, yeast strains selection and comparison, flash-pasteurization, Cross-flow microfiltration, bipolar membranes, yeast spaying on grapes, glutathione production monitoring and activity and resistant variety testing. All obtained samples were analyzed with routine analysis, sensorial evaluation (triangular test) and analysis of health related metabolites (ochratoxin A, biogenic amine and resverathrol).
A network of 26 pilot farms in 6 EU countries have been established and first year winemaking protocol have been implemented in 2006 vintage and samples of must and wines were (will be) analyzed and evaluated.

In the second project year the description of the actual situation has been completed with structured comparison on existing wine standards and the completion of the market study.
Besides the environmental assessment tool for organic viticulture and the HACCP approach study for organic cellars have been completed and was made ready for use on-farm on the third project year.
Oenological innovative techniques have been implemented for the second year, following experimental protocols aimed to decrease additives use (particularly sulphites) but enhancing wine quality. Protocols (as for the first year) included oxigen management, yeast strains selection and comparison, flash-pasteurization, Cross-flow microfiltration, bipolar membranes, yeast spaying on grapes, glutathione production monitoring and activity and resistant variety testing. All obtained samples were analyzed with routine analysis, sensorial evaluation (triangular test) and analysis of health related metabolites (ochratoxin A, biogenic amine and resverathrol).
The network of pilot farms have been enlarged to 36 in 7 EU countries, including Spain, and have been consolidated with all pilot farms applying at least one of the proposed protocols in 2007 vintage.

In the third project year the main activities were focused on the completing the evaluation of oenological techniques, and their combined use with processing aids potentially acceptable in the organic concept, in order to complete and improve the regulatory recommendations for regulating at Community level organic wine-making and the code of good practices for organic viticulture and wine-making.

Oenological innovative techniques have been implemented for the third vintage, following experimental protocols aimed to decrease additives use (particularly sulphites) but

enhancing wine quality. Protocols (as for the previous years) included oxigen management, yeast strains selection and comparison, flash-pasteurization, glutathione production monitoring and activity and resistant variety testing. All obtained samples were analyzed with routine analysis, sensorial evaluation (triangular test) and analysis of health related metabolites (ochratoxin A, biogenic amine and resverathrol). Besides, at the end of the third period an evaluation of "aged wines" from first project vintage (2006) was conducted on Italian and German pilot farms wines. That allowed to verify, even if only on a small lot of wines, the effect of proposed protocols on longer stored wines.

The network of pilot farms, enlarged to 36 in 7 EU countries in the second year, have been maintained but in Germany and France bad climatic conditions did not allow to collect complete protocols samples. Nevertheless overall in 2008 vintage 22 protocols were correctly and completely applied and all samples obtained were analyzed.

In the third period stakeholders' involvement and dissemination had a high importance at National and International level. Besides EPAC (European Project Advisory Committee) second meeting and 20 national workshops in 7 countries several international meetings involving EU and International bodies (OIV, CEEV, EU Commission, COPA-COGECA) were held. The core subject of the stakeholders' involvement and of the dissemination was the regulatory proposal that promoted a lively discussion that lead to several amendments to the ORWINE proposal. The Code of best practices was discussed as well especially after the translation in National languages (4 languages besides English).

Over all three years stakeholders involvement was wide, continuous and intensive. That allowed to produce final results shared by large majority of them and well-known at national and International level, so to facilitate the political process that will take place in the coming months.

3.1 overall activity and results

The rationale of the project was based on the idea of testing experimental wine-making alternatives tuned to the organic concept, verify their applicability on-farm, transfer the experience into regulatory proposal. All done considering the state of the art (as organic wine-making is an existing and economical significative sector already) and the opinion of all stakeholders.

The final results allowed to provide EU Commission a useful and appreciated base for regulatory process, to offer producers and advisor a 5 language code of good organic viticulture and wine-making practices and an environmental assessment tool, and to propose researchers further topics for work.

4. expected impact

ORWINE was not supposed to produce “new” research results but more to evaluate the combination of existing knowledge. Nevertheless the outcomes are proposed in a form ready for use by professionals and are of high interest to wine-makers, advisors, policy makers.

The main goal of the project is fully reached as the final ORWINE report on regulatory issues is in use by DG Agri (Organic Farming Unit) and provides Member States good background for discussion.

5. Publishable results

The main project results are the following:

- **Recommendations for the development of EU regulatory framework on organic wine-making**. They are summarized in a report (D 5. 8), in a language for easy use by policy makers and all stakeholders. They are already in use by the EU Commission (DG Agri, Organic farming Unit) that started the discussion on the regulation of organic wine-making from their contents. They are freely available for the project web page.
- **Code of good organic viticulture and wine-making**, in 5 languages (English, German, French, Spanish and Italian), freely available from the project web page and in limited number of hard copies from project partners.
- **Environmental assessment tool**, EIOVI, to be used by producers, policy makers and advisors. It was specifically developed for organic viticulture and can be a good guidance tool for decision making. It is freely available for the project web page.
- **Use of yeast spraying on the vineyard in order to prevent OTA (Ocratoxin A) development**. The INRA group published promising results that cannot be implemented so far due to legal constraints (not allowed as treatments).

Project partners formulated a list of future research needs that will be useful in reducing the use of sulphite and other additives in wine making still safeguarding sensorial wine quality:

- improved knowledge of interaction between yeast strain and grape variety;
- maintenance of Glutathione naturally produced in wine;
- optimized yeast nutrition.

Contractors list

Participant number	Participant organization name	Participant short name	Country
P1	Associazione Italiana Agricoltura Biologica	AIAB	I
P2	Università degli Studi di Udine - Dipartimento di Scienze degli Alimenti	UNIUD	I
P3	Institut Technique de l'Agriculture Biologique	ITAB	F
P4	Federal Association of Organic Wine Producers	ECOVIN	D
P5	Forschungsinstitut für Biologischen Landbau	FiBL	CH
P6	Centre Technique Interprofessionnel de la Vigne et du Vin	ITV/ENTAV-IFV	F
P7	State Research Institute Geisenheim - Department of Microbiology and Biochemistry	SRIG	D
P8	Università Cattolica del Sacro Cuore - Istituto di Chimica Agraria ed Ambientale	UCSC	I
P9	VINIDEA s.r.l.	VIN	I
P10	International Federation of Organic Agriculture Movements- EU Group	IFOAM EU	B
P11	Institut National de la Recherche Agronomique	INRA	F

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