



SUMMER FIELD SCHOOL [ONLINE]
MOUNTAIN ECOSYSTEMS AND
RESOURCE MANAGEMENT

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Sustainable Agriculture; Organic Farming; Agro-Biodiversity.

**FOOD AND FRUIT PRODUCTION WITHOUT
CHEMICALS.**

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The challenges.

The challenges of our time are increasing food production in a sustainable manner using plant biotechnology research. However, we need to know whether sustainable agriculture can produce as much food as industrialized agriculture, or not.

The reasons are identification of the agricultural practices problems and the solutions given by the farmers applying organic farming.

In essence is about how can human society continue to feed itself without destroying the environment, contaminating the food that comes from the natural landscape, and rendering the surrounding communities uninhabitable?

Remember!

We still must eat every day, and make sure that there is enough food for the additional 6 billion people that are expected to fill this planet in the next century.

What is organic agriculture?

FAO/WHO Codex Alimentarius Commission, 1999 :

"Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, considering that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system."

So, sustainable/organic agriculture helps the environment, but it's time to discuss about its efficiency.

It takes many forms: organic, free-range, low-input, holistic, and biodynamic. Therefore, sustainable agriculture tries to find a good balance between the need for food production and the preservation of the ecological system within the environment.

One of the main concerns is that sustainable agriculture does not produce as much food as industrialized agriculture. Our long-term ability to meet growing demands for food often seems uncertain.

What's better: local farms or large agribusiness?

Regardless of size, all farms need to manage resources wisely. This includes using water as efficiently as possible, improving soil health through strategies such as cover crops and minimizing the loss of nutrients and soil to air and water through nutrient optimization strategies such as conservation tillage.

But, small farms may meet the non-economic criteria for sustainability (they have not been able to remain economically viable in the modern context). With substantial and increasing divergence between the different sizes of farms, there needs to be differentiated treatment of the two principle types of agricultural operations.

Integrating smallholders into food value chains and improving food systems.

Improving the sustainability of food value chains can benefit hundreds of millions of poor households in developing countries.

Farmers, agribusinesses, governments, and civil society must collaborate to promote inclusive and efficient food systems that better integrate small farmers into value chains and agribusiness and improve their access to markets.

Efficiency!?

Farms now operate like small businesses that must borrow capital and use the latest technologies and farming practices to maximize efficiencies and offset stagnant commodity prices. But being an efficient small business mean is a “corporate farm.”?

In addition, most farms have been getting smaller over time due to factors such as population pressure and lack of access to land.

Food security.

“Food security is not only a question of the ability to produce food, but also of the ability to access food. Global food production is more than enough to feed the global population, the problem is getting it to the people who need it. In market-marginalized areas, organic farmers can increase food production by managing local resources without having to rely on external inputs or food distribution systems over which they have little control and/or access.”

(<http://www.fao.org/organicag/oa-faq/oa-faq7/en/>).

Growing fruit without chemicals.

Equally, consumers and producers of organic products understand the importance of the production of food and fruits without the use of synthetic chemicals. It is necessary to make more for organic farming than just doing away with artificial inputs.

The aim of organic farming is to minimise inputs and to create an agricultural system that is as near as possible to a self-perpetuating or closed system of production

But, it is important to understand that some nutrients are removed when the crop is harvested, so some inputs in the form of composts and green manure crops are added to replace these nutrients. Also, other natural substances may also be added to stimulate biological activity in the soil.

Of course, a high level of understanding is needed of the life cycles and interactions of crops, livestock, weeds, pests, and diseases. It is a requirement for a high level of management, achieved through a variety of techniques: creating environments that encourage beneficial species to keep pest populations in check, selecting crop varieties that discourage or are resistant to pests and diseases, using management tools such as crop rotations and companion planting to inhibit or repel pests and diseases.

Something about sustainable technology.

(1) Crop diversity practices include intercropping (growing a mix of crops in the same area) and complex multi-year crop rotations.

(2) Planting cover crops.

(3) Reducing or eliminating tillage.

(4) Integrated pest management.

(5) Integrating livestock and crops.

(6) Adopting agroforestry practices.

(7) Managing whole systems and landscapes.

It is important:

- To understand the importance of sustainable agriculture.
- To understand ways in which different agricultural practices can alter the environment either positively or negatively.
- To use farming practices that are economically viable, environmentally sound, and socially responsible; and
- To promote sustainable agriculture in the school curriculum.

Certification for Organic Products.

Certification means having your farm and farming methods adapted at the certifier's standards for organic farming. The certifier's standards cover all the requirements of the National Standard for Organic and Bio-dynamic Produce.

Since January 1993, exports of organic produce have been required to meet this standard. It is important to know the certification process and the requirements of certifying organisations before the fruits are marketed.

An orchard can be classified 'in conversion' until the farming system satisfies the standards of organic production. Currently, there are no legal requirements to become certified.

Marketing requirements.

- It is illegal to sell non-organic produce as organic. It is also a legal requirement to have organic produce destined for the export market certified. In present, locally marketed organic produce does not require certification, but this is expected to change soon.

Marketing strategies.

- The first rule of successful marketing is to produce what consumers want. Marketing is about identifying products that the consumer wants, and supplying at the right price, and in the right form. Market research provides this type of information. At the same time, we need to promote this product and inform the consumer about the benefits of it.

Food without chemicals – Sustainable wines

SUSTAINABLE
GROWTH IN WINE



How many people chose to eat ~clean~ food?

How can we increase the consumption of nonchemical food?

How can we promote the sustainable wine as an aliment with health benefits?

The integrity of wine is guaranteed by international regulation.

In organic wine production synthetic fertilizers, pesticides or weed killers are not used.

In organic viticulture, the soil fertility is maintained by using organic, natural fertilizers, cover crops and 100% mechanical tillage. Organic viticulture pays particular attention to protecting the natural balance of the vineyard and the surrounding environment while producing grapes.

Nevertheless, balancing biodiversity with the demands of intensive monoculture is very pressing among the world's vineyards.

The goal is to maintain vine balance that optimizes quality fruit production and wine health.

For that, is crucial the collaboration between wine industries collaborates, conservation partners and funders, and farmers, to conserve natural areas of outstanding biodiversity value and to promote sustainable agricultural practices in the wine industry.

Wine terms:

The term of “**natural wine**” is often used. However, a ‘true’ natural wine is considered one produced using organic (or biodynamic) principles with a minimum of technological intervention.

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 fertilizers and establish the necessary control mechanisms.

Mechanism:

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.



Matching the grape variety to its environment forms one of the pillars of the concept of *terroir*

A lot of wine producer had begun to recognize that high organoleptic quality can be achieved by using organic grape-growing methods and have begun to convert their operations.

The solution is implementing the best management practices: monitoring soil characteristics and water quality, erosion potential, spacing, proper rootstock, potential pest problems, irrigation and frost protection.

Wines organoleptic quality can be increase by using organic grape-growing methods and have begun to convert their operations.

~Terroir~

The French term ~terroir~, defined as “the total natural environment of any viticulture site,” it is the *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 flavor, both essential properties of a finished wine.

European Legislation

In June 2004, the commission launched the European Action Plan for organic Food and Farming that included an action to consider the need for an organic winemaking regulation.



In 2009 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.

Wine sector

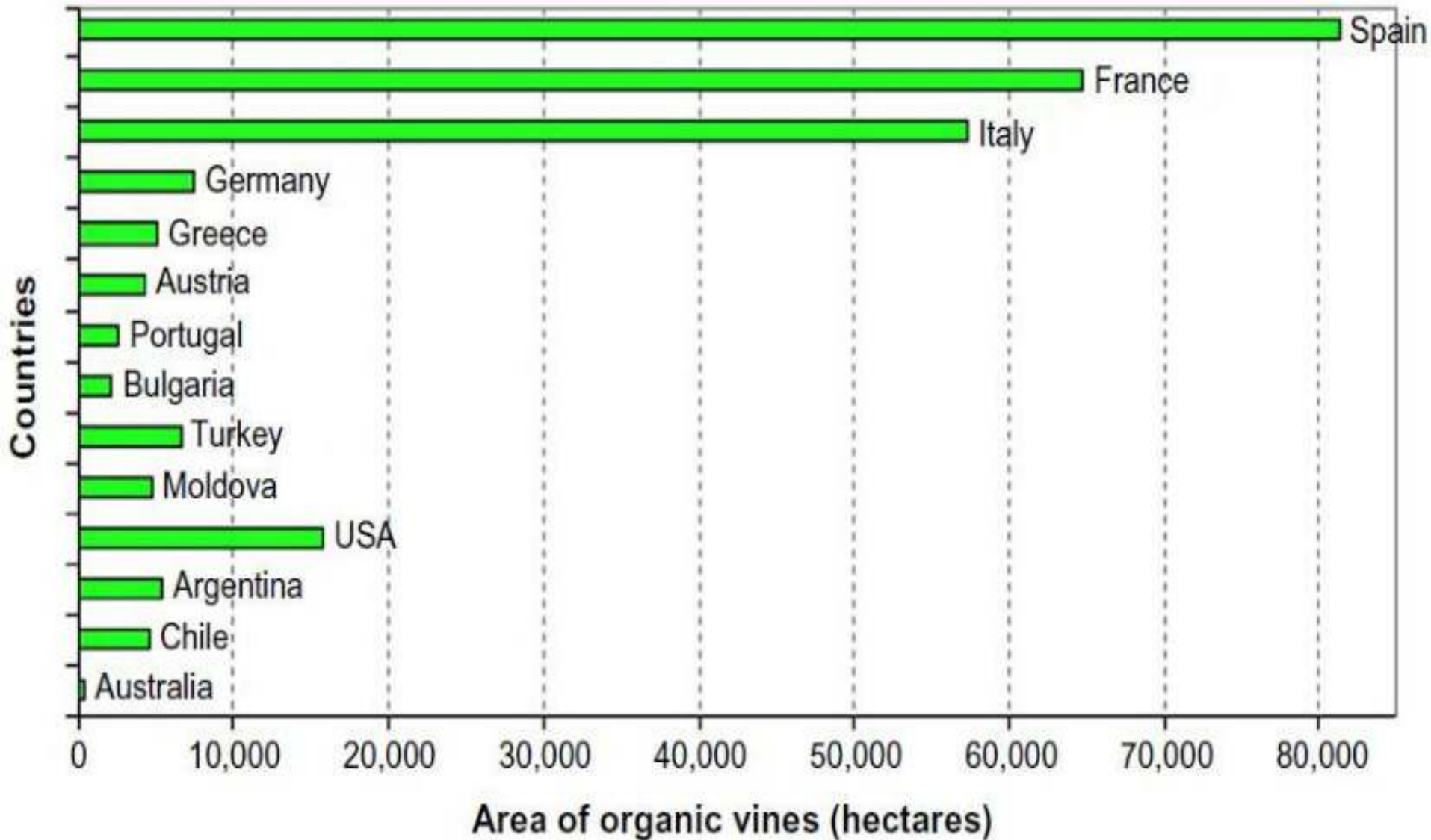
Wine is dynamic and rapidly evolving areas of European agriculture and food.

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. Wine is a prosperous sector and organic offers interesting market opportunities by virtue of its identity.

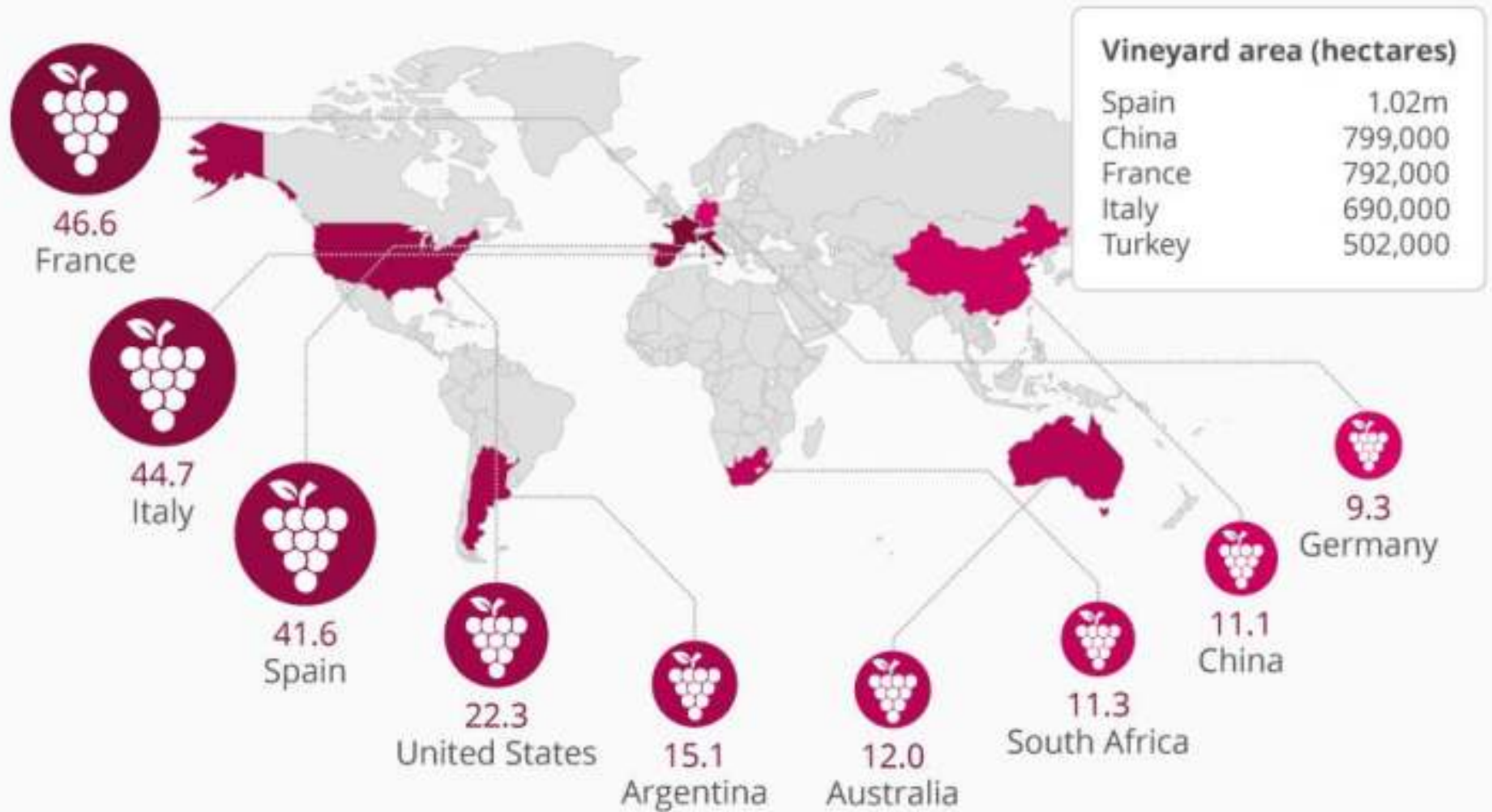


Area of organic vines



The World's Biggest Wine Producers

Global wine production (million hectoliters) and vineyard area (hectares) in 2014



@StatistaCharts Source: IOVW

statista

Sustainability in organic Wine production

For the development of an integrated product **certification system in wine**, it is increasingly relevant measuring the effects of farming techniques with respect to biodiversity, ecosystem preservation, soil characteristics and greenhouse gas emissions.

Soil organic matter levels it is an indicator of soil quality, and biodiversity as an indicator of ecosystem health. Other indicators as: energy used on farm in electricity and fuels; global warming potential (gWp), related to the emission of greenhouse gasses; water footprint, defined as the volume of fresh water used to produce the product, measured over the full supply chain.

Rules for European Organic Wine

Organic wine has to be made of organic ingredients.

Organic grapes need to be obtained according the crop production rules as set out in organic regulations (Ec. no 834/2007 and no 889/2008).

What's in non-organic wine?



Additional rules

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.

Know the Facts
ORGANIC WINE LABELING

If Wine is Labeled as "Organic Wine"

- Wine contains all organic grapes.
- Grapes have been grown in accordance with the organic standards established by the USDA National Organic Program (NOP).
- Wine has been produced to organic standards in a certified organic facility.
- Wine contains no added sulfites. These wines **MAY** display the USDA organic logo and/or the certifier's logo.

If Wine is Labeled as "Made with Organic Grapes"

- Grapes have been grown in accordance with the organic standards established by the USDA NOP.
- Wine contains all organic grapes.
- Wine has been produced to organic standards in a certified organic facility.
- May contain up to 100ppm total sulfites.
- These wines **DO NOT** display the USDA organic logo but **MAY** display the certifier's logo.

If Wine is Labeled with an Organic Ingredient Statement Only

- Wine contains at least some certified organic grapes.
- The wine is not required to be made at a certified winery or be certified.
- These wines **DO NOT** display the USDA organic logo nor the certifier's logo.

LOOK FOR THE LABELS!

www.foed.org | foedbest.org | 0811426-0000

Labelling of Organic Wines

In 2012, European organic wine is labelled for the first time. 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.

The label features three certification logos at the top: a circular logo with a leaf for 'CERTIFIED ORGANIC', a circular logo with a crossed-out 'GMO' for 'NON GMO INGREDIENTS', and a circular logo with a leaf for 'NO PRESERVATIVES'. Below these is a black box with 'Nutrition Information' in white text. Underneath is a table with columns for 'Average Quantity', 'Per Serve', and 'Per 100g'. At the bottom, it lists 'Ingredients: Organic wine*' and '* Certified Organic' and 'Made in Italy from local ingredients'.

Average Quantity:	Per Serve	Per 100g
Energy	13kJ	87kJ
Protein	< 0.1g	0.1g
Fat, Total	0.0g	0.0g
– Saturated	0.0g	0.0g
Carbohydrates, Total	< 0.1g	0.2g
– Sugars	< 0.1g	0.2g
Dietary Fibre	0.0g	0.0g
Sodium	< 5mg	5mg

Ingredients: Organic wine*. * Certified Organic
Made in Italy from local ingredients

“Wine made from organic grapes”:

Wine is the first arena in which the Europe 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”

And the paradox...

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.

Country	Chile	Argentina	USA	Europe	Australia	NZ	SA
Maximum use of SO2 during vinification	Red: 75mg/l White: 100mg/L	Red: 70mg/L White: 80 mg/L <i>Until 100mg/L for wine to keep for ageing</i>	The use of SO2 is forbidden	Red: 100mg/L White: 150mg/L	Red: 100mg/L White: 100mg/L	Red: 100 mg/L White: 150mg/L	Red: 90mg/L White: 100mg/L
% of organic vineyard (data from 2015-2016)	3% of Chilean vineyard	2% of Argentinian vineyard	4.1% of American vineyard	8,5% of European vineyard	No data to show	7% of New Zealand vineyard	2% of South African vineyard
Local organic or sustainable label	No specific label for organic wine Sustainable label: 	 			 		No specific label for organic wine Sustainable label: 

When Can the organic Wine logo be used?

The Eu organic logo can be used only 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 grapes~*.

Importers of organic wines are not allowed to use the EU logo, but are permitted to do if the wines are produced according the EU production rules or rules (recognised as equivalent based on bi- or multilateral agreements).



The organic logo and other quality denominations

Mandatory information IGT, DOC, DOCG wines	Discretionary information IGT, DOC, DOCG wines
Batch of production	Commercial brand
Name of IGT, DOC or DOCG	Indication of a smaller geographical area
Indication of IGT, DOC or DOCG in extended form	Indication about the production method (only for DOCG and DOC wine)
Vintage year (only for DOCG and DOC wines)	Indication of the biodynamic production method (if used)
Bottling company	Organic product certification logo (if present)
Place of production	
Alcoholic strength	
Indication of allergens	
Volume of the wine	

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Quality wines with an appellation of origin such as DOCG., AOC, DOC, OPAP and EU schemes like QWpsr, PDO 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.

Private Logos

The new rules permit the use of **private logos** supported by specific standards in addition to the EU organic logo.

Some producers also wish to use the *Fair trade logo*, emphasising their social and 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!

Labelled as ~sustainable~

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.

Organic in the vineyard and in the cellar but not on the label

In Europe, many wine producers are certified for organic by 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 DOC 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.

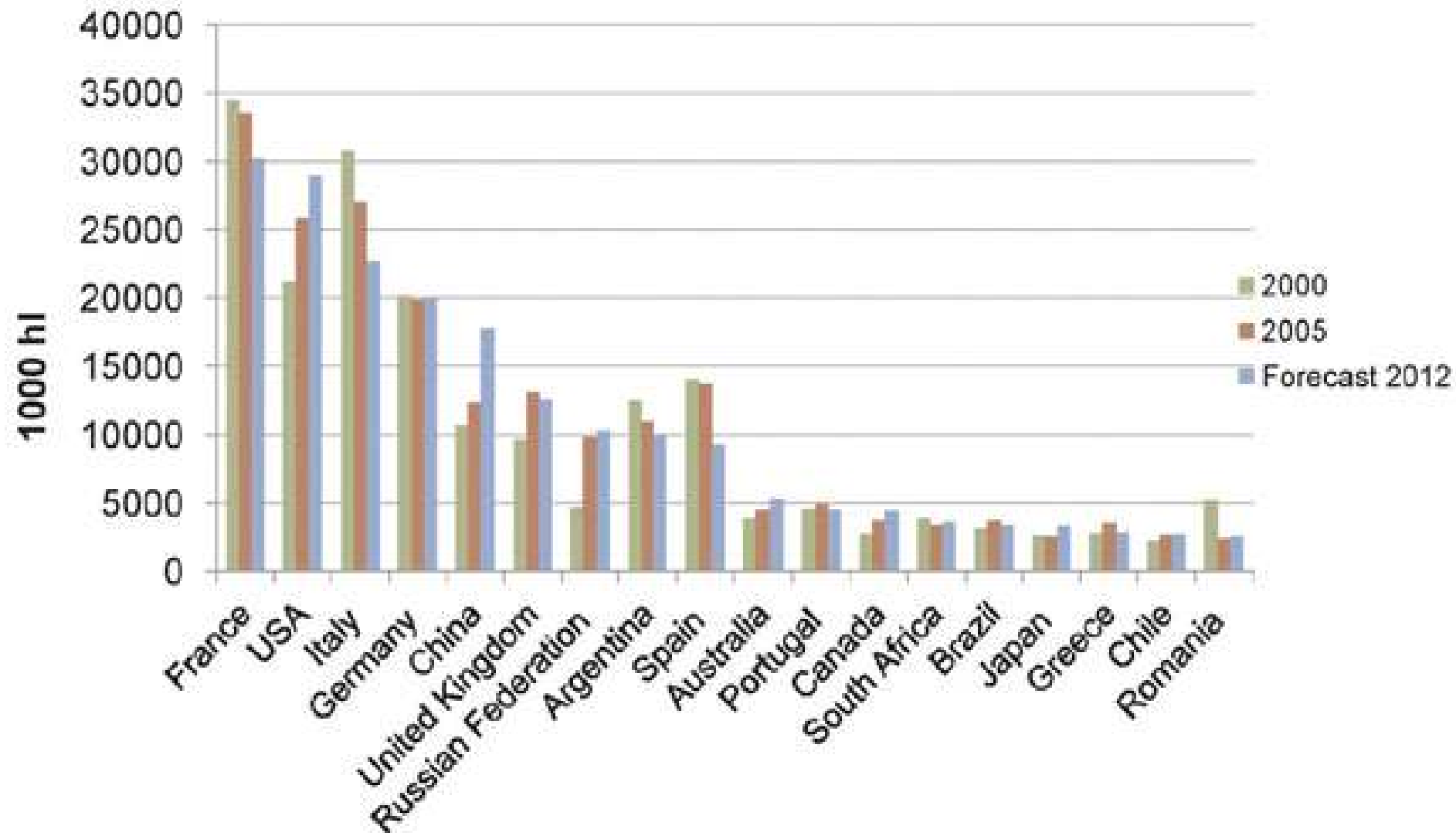
Build the consumer faith....

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.



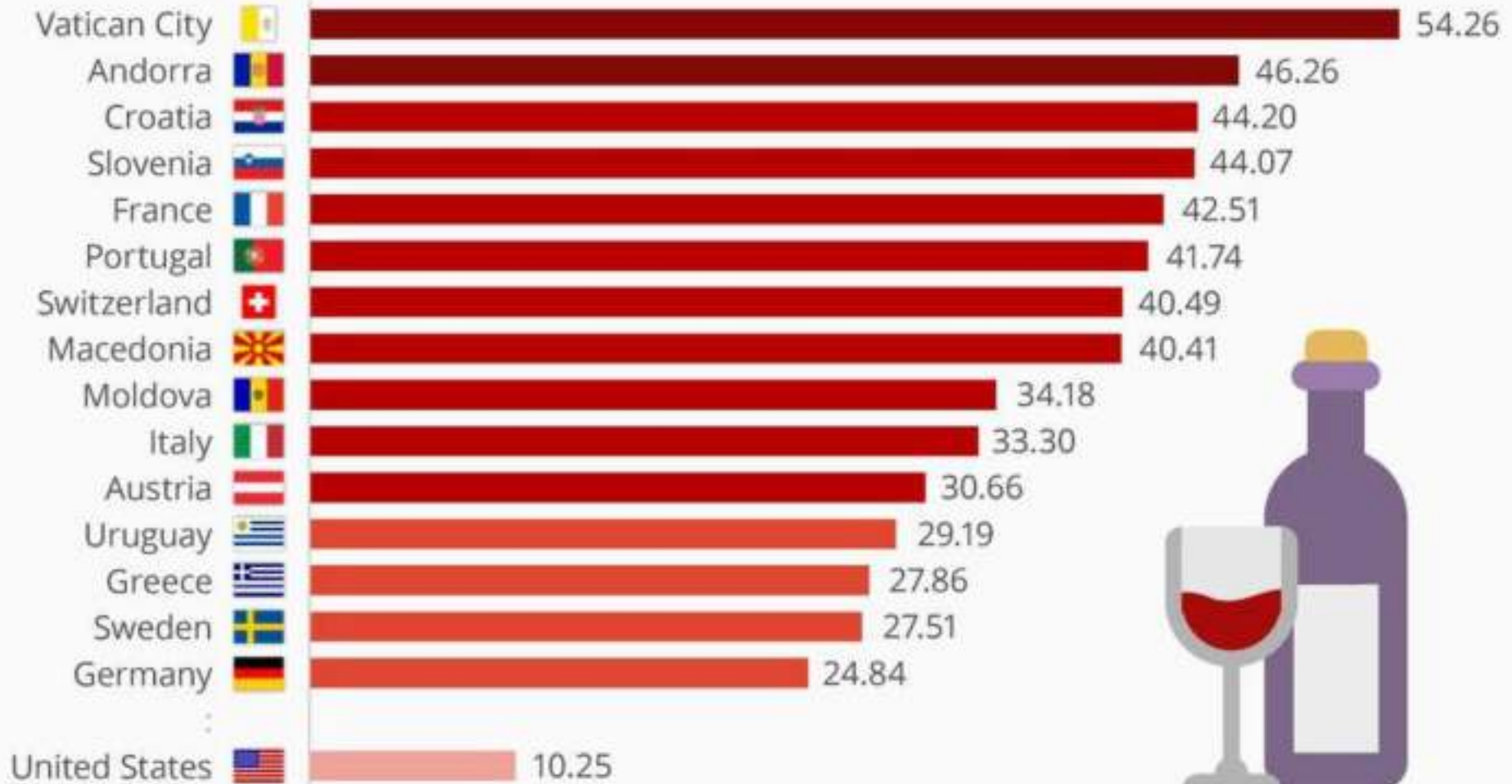
Major wine consumers

Trends 2000-2012



The World's Biggest Wine Drinkers

Annual per capita wine consumption worldwide (Nov 15)*



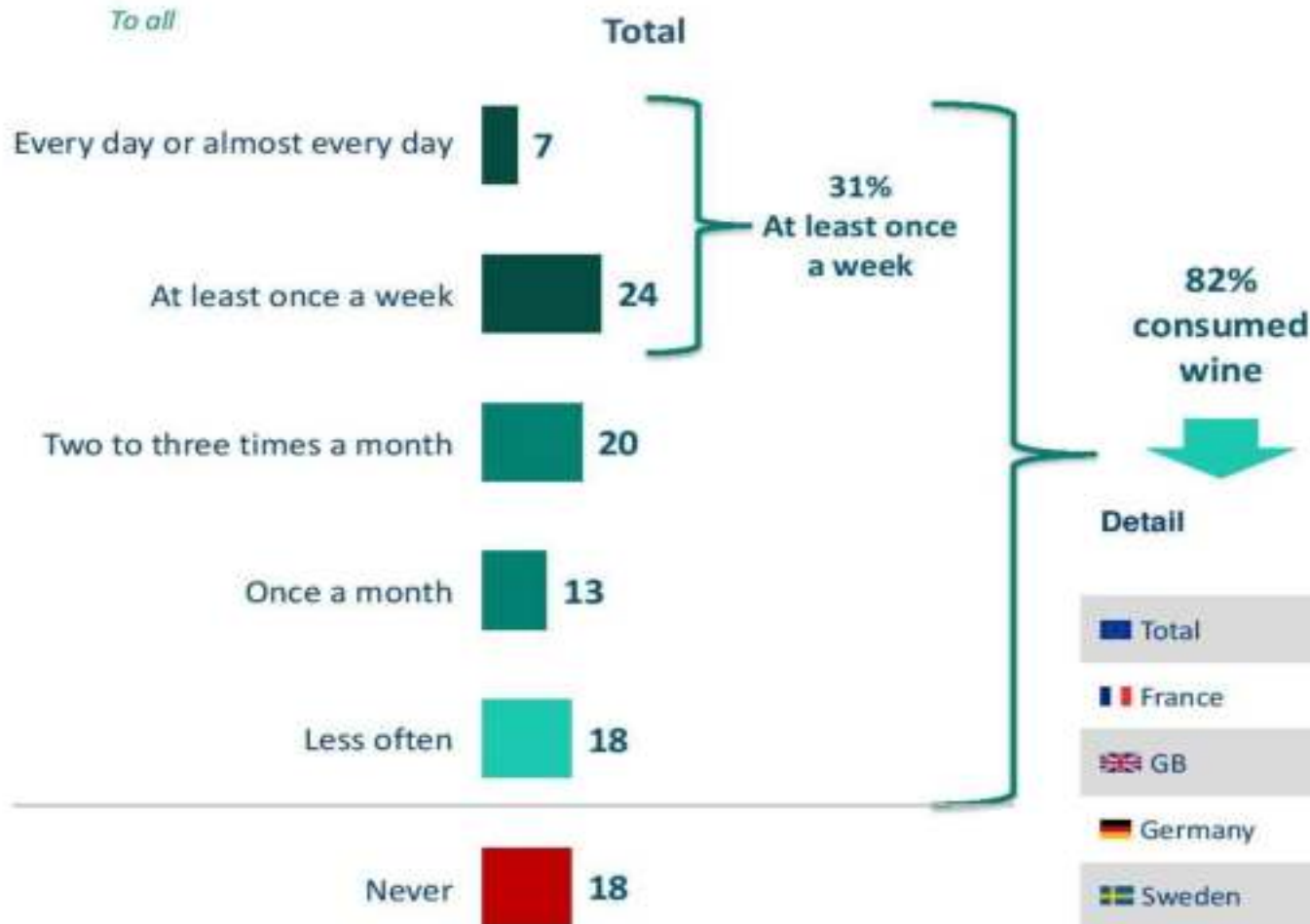
* Liters per capita, excluding overseas territories

Source: The Wine Institute



But French people remain the ones who drink wine most regularly

In the last six months, how often have you consumed wine?



Romanian Organic Wines



THANK YOU!

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