



# BESTMEDGRAPE

## Technological Analysis

Points 4 - 5 - 6



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CENTRO  
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## BESTMEDGRAPE

New Business opportunities &  
Environmental Sustainability  
using MED GRAPE nano  
technological products



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# Introduction

The first part of this analysis (Technological Analysis) focused on a pre-competitive study of the three main sectors of interest (Wine, Cosmetics and Nutraceuticals). The main KPIs (Key Performance Indicators) of the market, development and contraction trends were analyzed and exposed, with a particular focus on products and channels, especially as regards the Cosmetics and Nutraceuticals sectors. The main trends regarding consumers and the reference legislation were also identified and exposed. Finally, the main stakeholders involved in the three sectors were identified and classified on the basis of their potential sphere of influence. It seems useful to point out that a particular focus was also directed to the Distillery sector, conventionally included within the Wine sector, but to which it seems important to pay attention by itself, as a fundamental component of the entire supply chain in consideration of their crucial role in guaranteeing the economic-environmental circularity which is also one of the main objectives of the project.

This second part of the analysis will integrate the previous work and will focus on potential technological changes according to the risks and threats of the sector, on investment and marketing opportunities to be exploited by potential entrepreneurs wishing to undertake initiatives in the market of by-products from winemaking, as well as on the types of potential partners for the development of the aforementioned entrepreneurial activities and which can facilitate the introduction of new technologies useful for the exploitation of these secondary raw materials.

Before addressing the three topics just highlighted, a further study was carried out on the three main sectors which highlights the specificities of the different partner countries, in order to give a rough picture of the differences in terms of volumes, dynamics, trends and opportunities in the geographic area concerned (Mediterranean Basin). This in-depth analysis was carried out thanks to the single contribution of each partner, who replicated the analysis scheme used for points 1, 2 and 3, contextualizing it on their own territory.

## Industry differences among countries and geographical areas

### France<sup>1</sup>

The French context is the one that most closely resembles the Italian one. This applies to all the three sectors analyzed in this work, namely: wine, cosmetics and nutraceuticals. In-depth analysis will be proposed below containing the main information for each sector.

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<sup>1</sup> Redacted by INSERM - For the integral contribution please refer to Annex 1.

## Wine-Industry by numbers

As for the wine industry, it is a sector which, despite the contraction of some indicators (for example the cultivated area and per capita consumption) remains one of the pillars of the country's economy, both in terms of value produced, exports and employees, as well as regulation. Another common feature is the fragmentation of production realities: The wine industry remains fragmented: 69% of companies weigh less than € 10 million. Viticulture in France represents 3% of the *Useful Agricultural Area - SAU* (but 18% of farmers) and 10% of global surfaces and 17% of production. Between 2000 and 2011, the wine grape vineyard lost 13% of its area. This erosion of surfaces affected most of the basins: Languedoc-Roussillon (-19%), Corsica (-14%), Loire-Center (-11%), Rhône Valley and Provence (-11%), Bordeaux-Bergerac (-9%), Bourgogne-Beaujolais-Savoie-Jura (-9%) and South-West (-8%). Conversely, some basins have gained space: Champagne (+10%), Alsace (+4%) and Charentes-Cognac (+4%). These are the wines that have the best valuation.

In addition to the indisputable role in landscape planning and in the preservation of rural dynamics, viticulture plays a key role for France's leading activity, tourism with 10.000 tourist wineries frequented by more than 10 million visitors per year; the 39% of wine tourists are foreigners and thirty-six destinations are labeled "Vineyards & Discoveries" which allow you to offer complete stays around the vine and wine.

The wine sector is therefore crucial for the French economy. It represents the second net trade surplus (behind aeronautic and ahead of the perfume/cosmetics sector, and the first contributors to the trade balance for the food industry) and allows for creating numerous jobs in rural regions. France remains essential in the portfolio of importers. In 2019, it has produced 4.2 billion liters of wine, as much as the 17% of world production. It is the world's 2nd largest wine producer behind Italy in volume.

Nevertheless, France remains the world's leading exporter in terms of value, but brands still need to be built to match this influence and its ambitions, apart from great wines. France is also the second wine-consuming country in the world behind the United States and ahead of Italy. More than 3.5 billion bottles were consumed there in 2019. However, per capita consumption, which has been declining for 30 years, has fallen from 100 liters per inhabitant per year in 1975 to 40 liters today. When it comes to positioning internationally, 70% of the French wine production covers 83% of the wine consumption in France and the imported wines the rest. The national market is definitely the main one for French wines for years as only 30% in volumes are exported.

Wine trade is largely dominated by Spain, Italy and France, which account for 55% of world market volume in 2017. In value, France and Italy continue to dominate the market with respectively 30% and 19% of wine exports in the world (OIV, 2018).

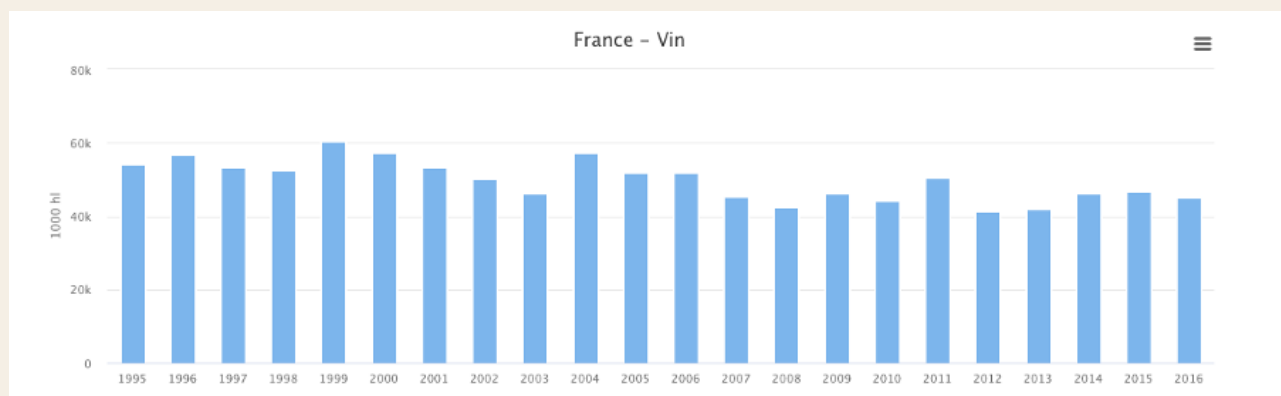


Figure 1. Source: OIV (<http://www.oiv.int/fr/statistiques/?year=2016&countryCode=FRA>)

## Actor typologies, professional profiles and trends

In France nearly 500.000 direct and indirect jobs are generated by viticulture and the wine trade employs more than two million people with more than 250.000 people employed directly.

While the wine distribution market is traditionally divided between 5 major players, digital innovation continues to change the situation by inventing new distribution methods, more targeted on the different expectations of consumers, and more direct also in their sales method.

As mentioned, the sale of wine is traditionally divided between 5 major distribution channels; large-scale distribution being the market leader in terms of value and volume: mass distribution, specialty stores, direct sales to the estate, on-line sales, gourmet stores/delicatessens. With wine e-commerce, new distribution methods have also emerged such as pure player wine merchants (only available on the internet), boxes (which play on surprises), private sales (grands crus and wines at reduced prices) or cross-channel wine merchants (who provide advice). These new offers respond, in a more targeted way than the traditional channel, to the wishes of consumers.

The wine sector is living a time of transformation between export, digital, innovation, financing, marketing, consumption, valorization of by-products. Furthermore, many new professional figures appear in the vineyard and wine sector. For example, the “Sustainable Development Manager” is becoming a key figure in this new panorama as the environmental matters are becoming an increasing preoccupation: legislation has evolved as well as cultural practices and mentalities, and even employers needs have changed. The area of intervention is very wide and all issues need specific abilities such as technical or legal skills.

Professions related to wine tourism are emerging as well (as the Wine Tourism Manager) in order to give an answer to the need to structure and intensify demand. In the vineyards, this job often comes together with the commercial function in order to foster direct sales. Sales animation in the cellar and warm welcomes for the wide variety of visiting guests are some of the most important tasks of such professional profiles. Nonetheless, more and more specific wine tourism jobs have been create; their goal is to put into place different tourism and cultural projects that need important investments in terms of people and finance.

The sector is marked by a series of changes that concern both winegrowers and consumers. While, on the one hand, a large majority of winegrowers today use customer relations management softwares, they are on the other hand much less likely to know digital tools for the purpose of soil maintenance, treatment or winemaking and a minority of them use internet to increase their sales.

As a counterpart, consumers still buy wine predominantly from supermarkets, wine merchants or even directly from producers, but the share represented by e-commerce in purchasing channels is steadily increasing every year. Based on this dual observation, new entrepreneurs are addressing these trends to offer innovative digital services to consumers and to further develop the link between digital technology and winegrowers. Around 200 startups dedicated to wines, beers and spirits currently exist in France. Some of them came together in “La Wine Tech”, a global movement for innovations in the wine sector. The valorization of wine by-products also represents an economic and environmental issue: the treatment and valorization of vineyard and wine by-products constitute a leverage for growth for various sectors of activity (energy, food, chemical or pharmaceutical industries, cosmetics), as well as a response to sustainable development issues. The by-products generated by viticulture and winemaking (vine shoots, strains, grape marc, wine lees, lees and vinasses) represent an irreducible part of biomass which can be exploited from an environmental, agronomic and economic point of view.

## “Wine by-products” and their areas of use

Co-products are generated by viticulture and winemaking: branches and strains are produced in the vineyard, grape marc and wine lees are produced in the cellar. It is estimated that their volume represents 1 million tonnes of dry matter from the branches and stumps, 1 million tonnes of grape marc and 14 million hectoliters of wine lees. The stake is therefore that of the implementation of a circular economy making it possible to reduce the environmental impacts of the sector by recovering its “waste” which has become a raw material for other sectors (cosmetics, agri-food, energy, agriculture, etc.).

Regulation (EU) 1308/2013 (Annex VIII, part II, D) of the European Parliament and of the Council establishing the OCM in wine and the implementing regulation (EC) 555/2008 of 27 June 2008 of the Commission provides norms for the obligation to eliminate by-products or residues from winemaking (grape marc from pressing of the harvest and wine lees). Articles D665-31 to D665-36 of the rural and maritime fishing code and the decree relating to the methods of declaration and control of the recovery of wine-making residues set the conditions for the elimination or valorization of wine-making residues, applicable for French producers.

Thus, grape marc and wine lees which must, under EU regulations, be disposed in compliance with environmental standards, they can be delivered to a distiller, or to a methanization center or to a composting.

To verify that the grapes are not over-pressed, producers must have the grape marc and wine lees analyzed by laboratories accredited according to program 78 of the French Accreditation Committee (COFRAC), or by a laboratory having a certification of its quality management system. They must first register with FranceAgriMer. Over-pressing of grapes is prohibited, by EU regulations (Annex VIII of R (CE) n ° 1308/2013 of 12/17/2013), for qualitative reasons. This ban is supplemented by the obligation to add value to grape marc and wine lees and, through them, to eliminate a minimum quantity of alcohol. The grape marc and the wine lees must therefore have a minimum degree when they are removed. Since August 2014, the different ways of recovering by-products:

- distillation
- methanization
- composting
- spreading
- cosmetics manufacturing

## Focus on distilleries

Listed as a protected cultural, gastronomic and landscape heritage of France since July 2014, spirits are a source of both economic and cultural excellence. The spirits market represents more than 9 billion euros of turnover in France, nearly half of which is generated by an export which exceeded 4 billion in 2017. An export driven by cognac, a historic flagship that seduces the United States and more and more Chinese, and vodka, a newer powerhouse.

Although the market remains stable in France, new consumer trends have emerged in recent years with cocktails. Beyond the practices, this culture develops the consumption of spirits such as rum and gin. According to the forecasts of the recent IWSR study, these spirits could observe respective annual growth rates of 5.7% and 5.3% by 2022. In their wake, bitters and other liquors are also showing significant growth.

The key figures in 2014 were: 100,000 direct and indirect jobs; 2,000 micro-distilleries (less than 10,000 hl volume per year); 600 million liters produced in France; 420 million liters exported; 3rd surplus item of trade balance (wines and spirits); more than 1 million annual visitors (spirit tourism) to more than a hundred spirits production sites open to general public, in metropolitan France and overseas.

France is particularly renowned and respected for its wine and Champagne. However, France has different spirits strongly linked to the regions they come from. Whether brandy or liqueur, each is linked to its region, representing part of its identity and the local tradition. Among the 10 most renowned spirits in France, which characterize 10 different regions, we can mention the following (non-exhaustive list):

- *Armagnac*: A French brandy that's distilled from white wine, Armagnac was consumed as far back as the Middle Ages. Located in southwest France, the Armagnac wine region is in the heart of Gascony comprising the Gers, Landes and Lot-en-Garonne administrative divisions;
- *Cognac*: a neighbor of Armagnac, is another kind of brandy made from white grapes that is distilled and aged in oak barrels but produced in Charente;
- Floc de Gascogne: produced in Gascogne;
- Calvados: an apple brandy produced in Normandy;
- Génépi: a traditional alpine liqueur that dates back to the Middle Ages. Its name comes from the aromatic plant used to produce it;
- Cointreau: from the Pays de la Loire;
- Kirsch de Fougerolles: produced in Franche-Comté. It is the fourth brandy to have obtained the AOC designation and the first brandy made from stone fruits to receive this status;
- Martinique rum: made from sugar canne;
- Breton cider: made from apples;
- Pastis: the classic Provencal aperitif drink. Made from star anise, aniseed and licorice.

Moreover, France had 33 fully operational whiskey distilleries in 2018, according to the Whiskey Federation of France. But their number could double. France has obtained two protected geographical indications (IGP) for its whiskeys from Brittany and Alsace. Either two of the four European IGP with scotch and Irish whiskey. However, nothing compares to vodka, of which France has discreetly become a global giant: for several years, France has demonstrated its know-how with high-end cuvées is appreciated everywhere. Since 2009, it has exported as much vodka as cognac, i.e. 160 million bottles per year. A windfall of 400 million euros for the French trade balance.

## French cosmetic sector

France, the world leader in cosmetics, holds 23% of the world market share. The cosmetics sector is made up of a fabric of historic companies, anchored in their territory. For several years, France has recorded a trade surplus in the field of cosmetic products.

Today, the poles of Grasse, Occitane and Île-de-France regroup the majority of companies. Other territories such as Overseas France have specialized in raw materials, whilst the innovation lung of the



sector is located in the “Cosmetic Valley”, the competitiveness cluster located between Chartres, Orléans and Tours. Cosmetics (raw materials, manufacturing, distribution) brings together 3,200 companies, 67% of which are in the regions and 33% in Île-de-France. These robust companies are 82% single family shareholder; they also create skilled jobs, well distributed throughout the country. The 164,000 direct jobs in the sector are 80% concentrated in these regions. Cosmetics employ 33% engineers and executives and 39% supervisors or technicians, against 17% and 26% respectively for the national average. This ecosystem of excellence, unique in the world, is supported by companies, large groups, micro-businesses and SMEs, suppliers of raw materials, manufacturers, as well as specialized educational establishments.

In 2017, France imported chemicals, perfumes and cosmetic items worth 44 billion euros and exported more than 56 billion euros. According to a study conducted in 2012, the monthly budget devoted to cosmetics was between 30 and 60 euros per month for nearly one in two French people. As for men, they more and more are using men's facials. The value of French exports of beauty products worldwide in 2017 corresponded to an amount of 6.3 billion euros exported to other European countries (excluding Turkey and Russia) and increased its performance in 2019: the sector exported nearly € 16 billion of products, an increase of over 9% compared to 2018. This increase, which has continued for more than 10 years, makes cosmetics the second largest exporting sector in France.

The cosmetics market has been marked, over the past fifteen years, by the rise of large-scale distribution, to the detriment of perfumeries and specialized stores. Large-scale distribution through large and medium-sized stores concerns 30% of sales, mainly hair and toiletry products. Make-up products are bought less in supermarkets than in specialty stores or perfume shops. The following table illustrates the distribution of the offer of organic cosmetic products in France in 2016, by distribution channel. In 2016, mail order sales represented around 20% of the organic cosmetic product offering in France.

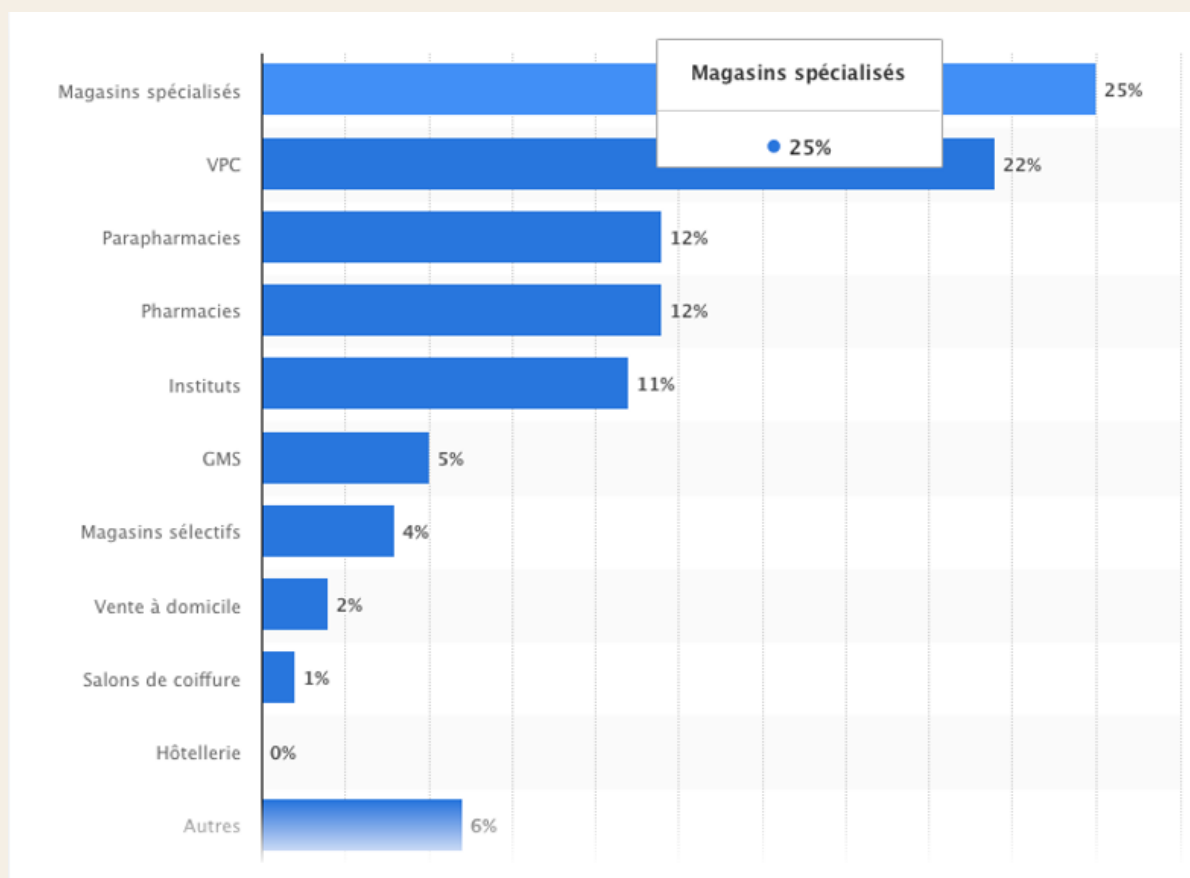


Figure 2. Source: Statista.fr (<https://fr.statista.com/statistiques/506696/produits-beaute-bio-repartition-offre-circuit-distribution-france/>)

While it hardly existed twenty years ago, the organic and natural, cosmetics sector in 2018 accounted for some 757 million euros in turnover in France, up 19% and representing 6, 4% of total cosmetics. The sector is very dynamic thanks to the SMEs that make it up. The Cosmebio trade association has 580 brands belonging to 420 companies: half are very small businesses generating a turnover of less than 500,000 euros. For manufacturing and formulation, they also work with subcontractors who develop their own means of production. The Slow Cosmetics Association brings together 219 brands in ten countries, the majority of which are craft companies. None makes more than 5 million euros in turnover, with the exception of the De Saint-Hilaire distillery, which produces and sells essential and vegetable oils. Slow cosmetics brands are part of a short circuits and are still little represented in mass distribution. They market their products mainly through the network of pharmacies, organic stores and on the Internet. The label does not only defend organic products: its goal is above all to promote more reasoned consumption, with ecological, healthy and natural products.

In the first half of 2019, the labeled brands recorded a 31% growth in their sales compared to the same period of the previous year. They meet a need for traceability, requested by consumers who want to be reassured after the debates on parabens and endocrine disruptors. Another trend in the cosmetics, which could be very important, especially if we take into consideration for instance marketing collaboration opportunities with the winemakers, is the personalization of products, which is developing more and more.

The younger generations show a real conviction in the defense of the environment. These changes in mentality could also lead to changes in behavior and therefore changes in products. Transparency and traceability have become requirements of Millennials, which favors “homemade” cosmetics which are making a breakthrough. A challenge that brands will have to respond to through a stronger commitment in terms of sustainable development.

Here below the following table illustrates the main criteria that guide the choice in purchasing bio-cosmetics products in France in 2017. Although the first criteria taken into consideration are related to price, ingredients and its composition, and efficacy, new criteria emerge regarding bio-cosmetics: the reputation of the mark, the label and certification, the opinions of other consumers and the attractiveness of the packaging.

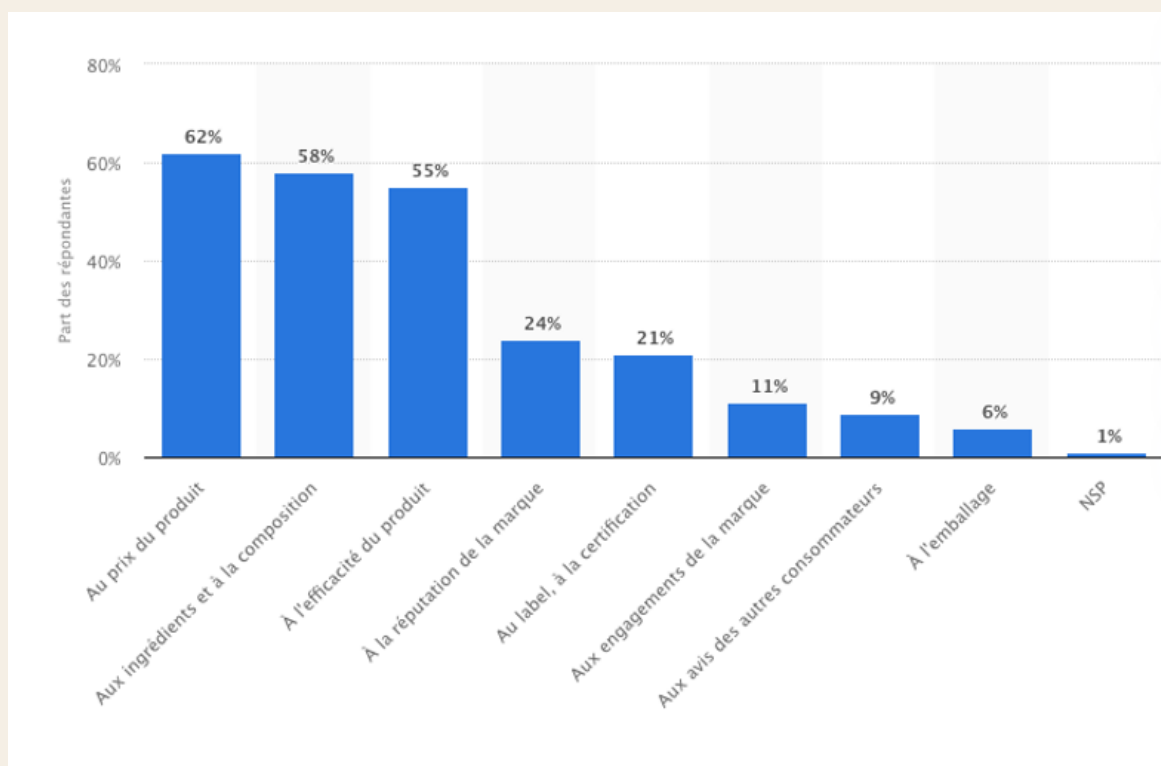


Figure 3. Source: Statista 2020 (<https://fr.statista.com/statistiques/797254/criteres-achat-produits-cosmetiques-femmes-france/>)

Each year, 170 new cosmetic companies are created, fueled by the abundant innovation of the sector: its R&D is the most efficient in France with 3.6 patents filed per million euros spent. This creativity is increasingly directed towards finding better solutions for the environment, thanks to more natural formulas, less polluting ingredients, and eco-designed waste. The real challenges for the French cosmetic industry are currently represented by companies and brands of K beauty (South Korea) or J beauty (Japan), growing competition from China or now from Italy, where the authorities public are investing massively to develop dynamic cosmetic ecosystems.

## French nutraceutical sector

French nutraceutical industry is a growing industry. Similar to the other major economies in the world, France has also witnessed growing concerns of health and wellness. Consumption of food supplements, which provide a concentration of nutrients or other substances, has become increasingly common in France. The increasing consumer awareness about the consequences of not eating healthy has significantly supported the purchase of the functional food and beverages over recent years. The growth of nutraceuticals in France is majorly led by the rapidly aging population along with rising penetration of lifestyle diseases such as obesity and diabetes. The growing demand will be provided impetus by various consumer concerns regarding conventional food such as artificial additives, genetically-modified organisms and allergy risk. According to the INCA3 study, over the 2014-2015 period, the percentage of people consuming food supplements, in the regulatory sense, was 22% for adults (18 to 79 years) and 14% for children (3 to 17 years). Regarding adults, the number of food supplement users is higher among women, individuals aged 18 to 44 years and those with a high level of education. A seasonal pattern of consumption is also observed, with higher consumption in winter. It should be noted that food supplements are mainly purchased in pharmacies (78% for children and 45% for adults) but sales via the Internet have increased sharply among adults (from 1% to 11%) since the INCA2 study (2006-2007).

Several regulatory provisions at the EU and French levels establish the list of ingredients authorized in food supplements. However, the marketing of food supplements does not require an individual marketing authorization based on prior assessment by an expert body of the dossier submitted by the manufacturer. The manufacturer is responsible for ensuring that food supplements placed on the market comply with the regulatory provisions in force, both in terms of safety and consumer information (no fraudulent claims). ANSES's missions with regard to food supplements is to assess the safety of the substances in food supplements. The Agency ANSES is regularly called upon to assess the risks associated with the presence of certain ingredients in food supplements and when necessary, this work can enable content limit values for food supplements to be set. The agency also carries out studies on food supplement consumption, and finally among its missions there is the establishment of the nutria-vigilance system. In 2009, ANSES set up the above mentioned nutravigilance scheme as part of the *French Act on Regional Health Governance (Loi Hôpital, Patients, Santé et Territoires)* in order to monitor adverse reactions related to the consumption of food supplements as well as other food products.

## Lebanon<sup>2</sup>

Lebanon numbers shows different digits from Italy and France in all the three main industries taken in consideration, as it was easily imaginable. Nevertheless, data provided from USJ and Berytech show that it's probably the most developed country in the region, especially for what it concerns cosmetics and nutraceuticals. The reason is Lebanese culture and attention for beauty and personal care. For instance, Beirut is home to many middle and high-income consumers who are very conscious of their appearance and are interested in the latest global grooming trends. However, Lebanon suffer from some structural inefficiencies that are in common also with the other countries involved in the project (Tunisia and Jordan), as for instance a quite high concentration of the market, the lack of detailed regulatory frameworks and geopolitical instability.

## Wine-Industry by numbers

Lebanon is one of the oldest sites of wine production, falling as within a rough triangle, taking in the Caucasus to the north, Mesopotamia (modern Iraq) to the east and Southern Palestine to the west, a geographical zone generally acknowledged to be the area in which the earliest wines were made. 7000 BC: Modern scholarship is cautiously confident that early Lebanese create a vine and wine culture (UVL). Lebanon cultivates 9.122 ha of vineyards (Figure 4) for the production of 100.000 hl of wine (Figure 5) (2016 - OIV).

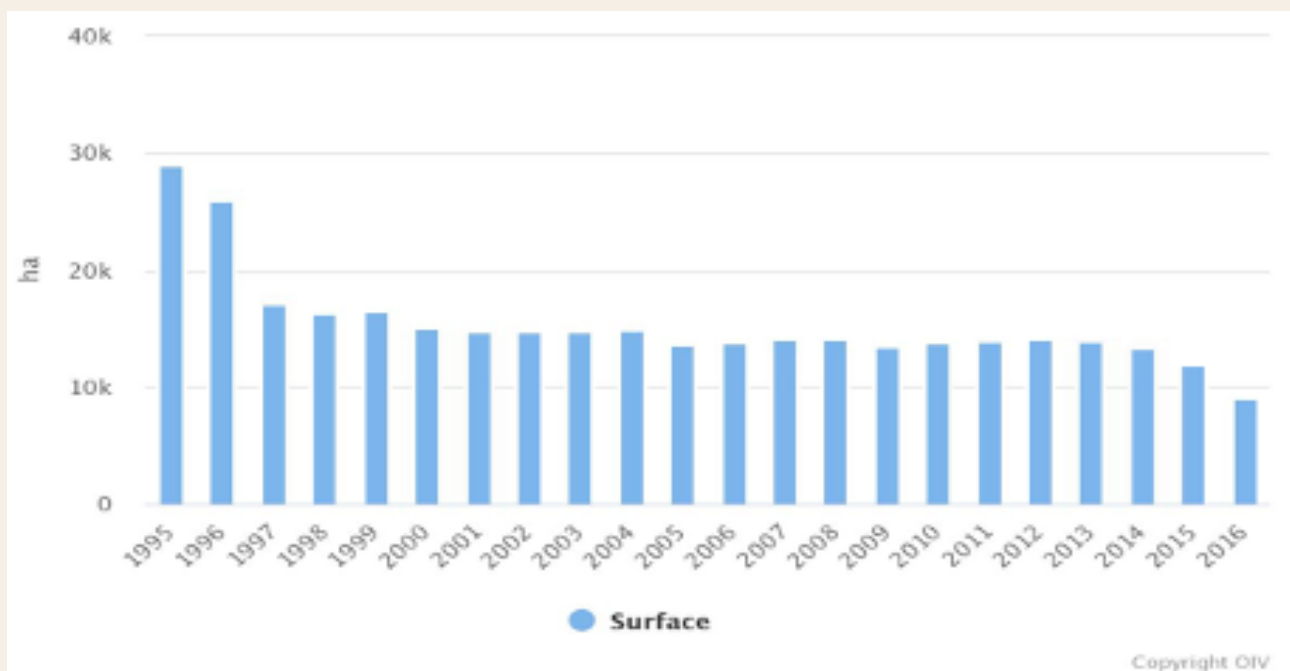


Figure 4. Surface of Lebanese vineyards throughout the years (OIV data).

Lebanon possesses around 54 wineries, including big, medium, and small-scale producers. 24 wineries are members of the “Union Vinicole du Liban” (UVL), the country’s official association of wine producers (BLOMInvest Bank Survey with UVL).

<sup>2</sup> Redacted by USJ and Berytech (September, 2020) - For the integral contribution please refer to Annex 2.

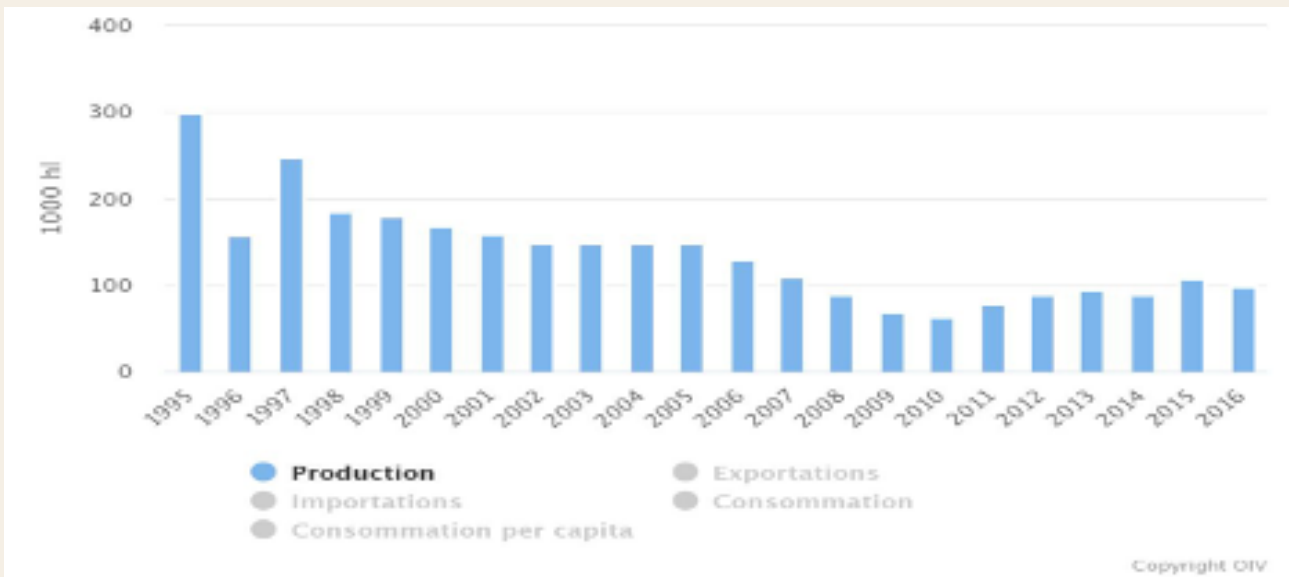


Figure 5. Lebanese wine production as a function of the years (OIV data).

Overall, Lebanon produces 9 M bottles (75cL each) of wine per year. Around 21 000 hl of the produced wines are exported. The major wine production (up to 70% of the market) is ensured by four major wineries “Chateau Ksara” (3M bottles), “Chateau Kefraya” (1.5M bottles), “Chateau Musar” (600K), and “Chateau St. Thomas” (350K). Domestic consumption has increased to 5 million bottles per year, out of which 2 million bottles are imported.

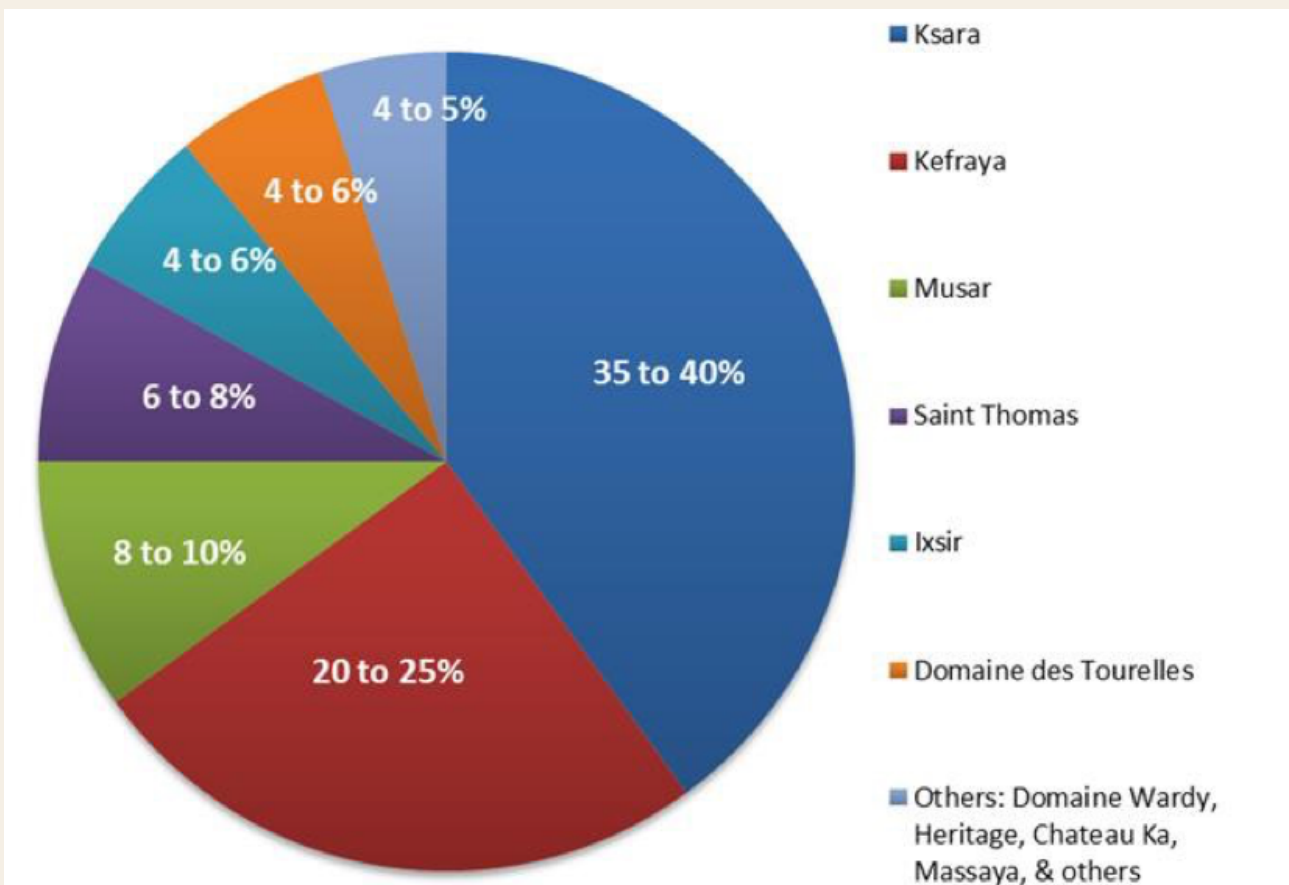


Figure 6. Market shares in terms of wine production in Lebanon.

## Lebanese cosmetic sector

Lebanon is one of the most westernized countries in the Middle East region. Lebanon has closely followed European and Western trends in fashion, design and beauty and personal care for many years. The use of beauty and personal care in Lebanon varies significantly between urban and rural areas. Beirut is home to many middle and high-income consumers who are very conscious of their appearance and are interested in the latest global grooming trends<sup>3</sup>.

With the increased awareness about environmentally and health-friendly products, the global cosmetics industry is welcoming natural, organic, and cruelty-free alternatives, and Lebanon is joining in on that cosmetic venture. According to a Grand View Research, Inc. report, the global natural cosmetics market size is expected to reach a value of USD 48.04 billion by 2025, at a Compound Annual Growth Rate of 5.01% from 2019 to 2025. Demand for natural and organic products is growing exponentially driven by increased awareness on health and wellness. Lebanon's cosmetics industry ranks amongst the top 5 Lebanese exports indicating its strong position and its potential to grow to address regional and global demand.

The active cosmetic industry of Lebanon encloses many of the country's most dynamic businesses, many of which are expanding their markets by including "green" and "clean" beauty products which are both healthy and eco-friendly. The avant-garde Lebanese mindset that holds personal grooming in high esteem has always kept the cosmetic industry of Lebanon stimulated, and according to a 2018 report by the Ministry of Economy and Trade, among the country's top exports list. Lebanon's personal care product market, estimated by local industry executives to be worth between US\$80m and \$ 100m a year, has been struggling over the past two years due to an economic downturn, political instability and a drop in tourists. The war in neighboring Syria has had a clear impact, while the conflict has resulted in Syria's personal care market grinding to a halt, except for essentials such as shampoo.

Joanne Chehab, General Manager of Lebanese cosmetics firm Ch. Sarraf & Co., part of the Malia Group, which has its own line of cosmetics, Cosmaline, and distributes for Shiseido and Wella, told SPC: "The fact that the situation is unstable in Lebanon and elsewhere in the region creates pressure on retailers." Manufacturers and traders are suffering "not just because the domestic market is suffering, but also because they export to Syria, Iraq and Egypt [all of which are suffering from a level of instability at present], so they've been hit locally and internationally". Following strong economic growth from 2008 to 2010, Lebanon's economy started to slow down in 2011, the same year the conflict in Syria started. Barclays forecasts economic growth at just 1.2% this year.

Nevertheless, the Lebanese penchant for being well groomed has ensured that the market is not stagnating. "We consider the beauty business to be not as luxurious as people might think. It is a necessity in Lebanon. Consumer behavior is towards beauty at all levels – lipstick, nails, hair styling, hair care, slimming and clinics. Many people save to have Botox and fillers, as well as surgery, such as breast implants," said Fadi Sawaya, CEO of Beirut based Sawaya Group, which distributes for brands such as Orly, Gelish, Nouveau Contour, Provoke Cosmetics and Dermatude throughout the Middle East. "Purchasing power is decreasing as inflation is growing faster than income adjustments [at 6.5% according to the IMF], but despite this beauty is still a necessity. We also haven't identified a shift from higher to lower brands – this is typically Lebanese. In fact, we have had growth of 5% every year for the past four years."

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<sup>3</sup> Euromonitor international, <https://www.euromonitor.com/beauty-and-personal-care-in-lebanon/report>.



## Lebanese nutraceutical sector

Lebanon's pharmaceutical sector is still facing several challenges despite its consistent growth over the past decade. The legal framework that governs the pharmaceutical market remains weak, thus hindering foreign investments in the sector. Despite these challenges, the pharmaceutical market achieved high growth rates over the past few years. During 2010, pharmaceutical sales in Lebanon increased by 9.5%, reaching USD 1.15 billion. Despite the economic challenges which Lebanon faced in 2011 and 2012, the Pharma market continued to grow yet at a moderated rate. During that period, pharmaceutical sales rose by an average rate of 6.3%, reaching USD 1.30 billion in 2012. The consistent expansion of the pharmaceuticals market continued in 2013, with sales reaching USD 1.37 billion.

Local pharmaceutical production in Lebanon remains limited as it faces several inefficiencies, including high production cost and limited production efficiency, relatively small local market, as well as uncertain authenticity. Since local pharmaceutical production is still weak, satisfying only 5% of local demand, imports constitute over 95% of the total pharmaceutical products sold in the Lebanese market. With domestic demand consuming most of the imported and locally produced pharmaceutical products, Lebanon has a modest pharmaceutical export activity.

Lebanon's healthcare spending is forecasted to grow from 4.1 billion US\$ in 2017 to 5.1 billion US\$ in 2022. Pharmaceutical spending was estimated at 1.8 billion US\$ in 2018 and is expected to reach 2.3 billion US\$ in 2022 or 395 US\$ per capita still one of the highest in the region - and accounting for 45% of total healthcare expenditure. The growth of the pharmaceutical market is driven by the rise of healthcare spending per capita, the growing purchasing power of the population and the general preference for imported patented drugs. Lebanon's pharmaceutical overall market size is considered to be small by regional – as well as global – standards, with a population of around 6M. Lebanon's pharmaceutical market is calculated to have been worth LBP 2.91trn (USD1.93B) in 2018, accounting for 3.3% of the country's GDP and 44% of total healthcare expenditure. This translates into per capita spending of USD281 – substantially higher than regional spending for Arab Gulf Levant countries. Most of the market is accounted for by prescription medicines, which represents 83% of the total value.

However, per capita consumption is one of the highest in the region. According to Fitch Solutions' estimates, pharmaceutical sales are forecast to rise by an annual 5.18% from \$ 1.93B in 2018 to \$ 2.03B in 2019. By 2023, Fitch forecast total medicines consumption to amount to \$ 2.57B which corresponds to a compound annual growth rate (CAGR) of 6%. Fitch projects per capita pharmaceutical spending to increase from \$ 281 in 2018 to \$ 438 by 2023, still one of the highest in the region. The market will grow significantly in the long run. However, the low purchasing power and regulatory environment will limit the growth in the short term. In fact, the extension is mainly due to the increase in healthcare expenditure, coupled with population and socioeconomic expansion and modernization of the healthcare industry. Moreover, the economic situation improvement in the long term will boost the public and government spending capacity.

Nevertheless, the government's attitude towards intellectual property rights is negatively affecting the market. In details, insufficient legislation and tax enforcement are having a negative impact on foreign direct investment, with many international operators content to negotiate licensing agreements with local drug makers, rather than invest in direct manufacturing. According to the Lebanese customs "Pharmaceutical products" (6.66% of total imported chemicals) grew by an annual 3.2% to \$ 1.33B in 2018 while their volume shred by 2.39% y-o-y.

Germany, France and USA were respectively the largest suppliers of chemical products to Lebanon, grasping shares of 14.28%, 11.09%, and 9.13%, respectively. FitchSolutions estimates a growth of 3.6% in 2019 to reach \$1.35B and a compound annual growth rate (CAGR) 5.3% in dollar terms through 2023. In details, import growth will be shaped by demand on the one hand for both modern, patented

medicines, and on the other hand for more generic products, in line with cost containment. However, the difficulty of receiving generic drugs from key players in Israel and Jordan as a result of the ongoing Syrian civil war, can limit the growth in imports.

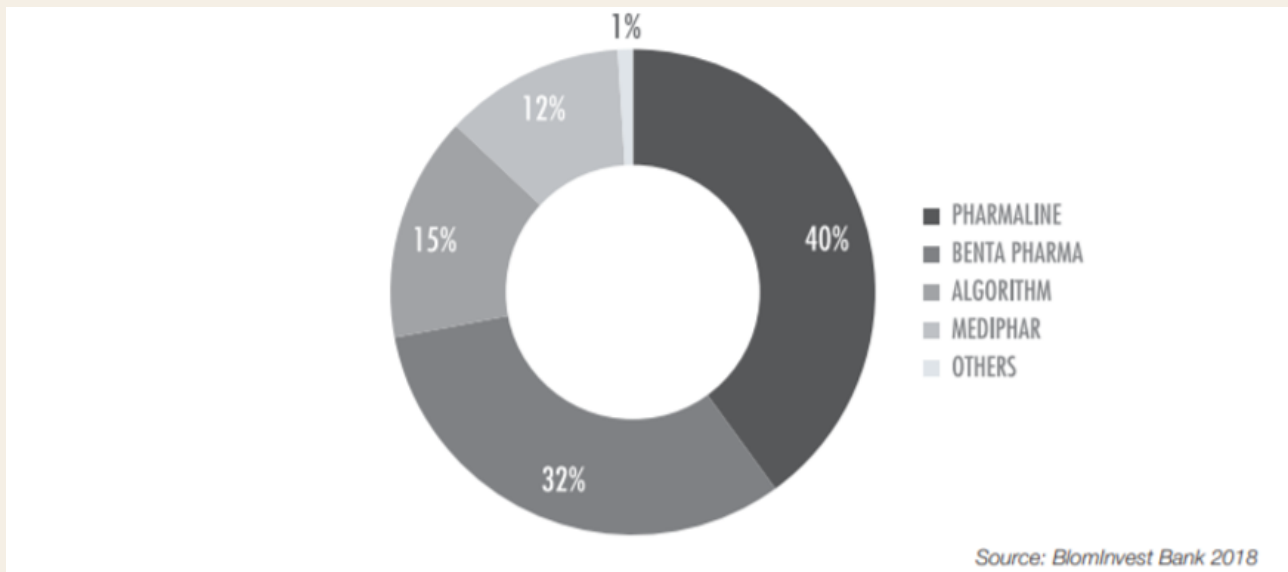


Figure 6. Distribution of Market Share by companies in Lebanon's Pharmaceutical Industry, %, 2018

The MENA pharmaceutical market was worth 36 billion USD in 2016 (or 2% of the global market) and is expected to reach a value of 50 billion USD by 2025. The largest pharmaceutical markets in the MENA region by volume are in Saudi Arabia (7.16 billion USD), Algeria (4.64 billion USD) and Egypt (4.17 billion USD). However, UAE, Lebanon and Kuwait top the MENA countries in terms of pharmaceuticals sales per capita (Figure 7) indicating strong potential for pharmaceutical production in these countries to address high demand. In Lebanon and the GCC countries, the pharma sector is dominated by imported patented drugs with much less preference to generics due to cultural preferences for branded patented drugs.

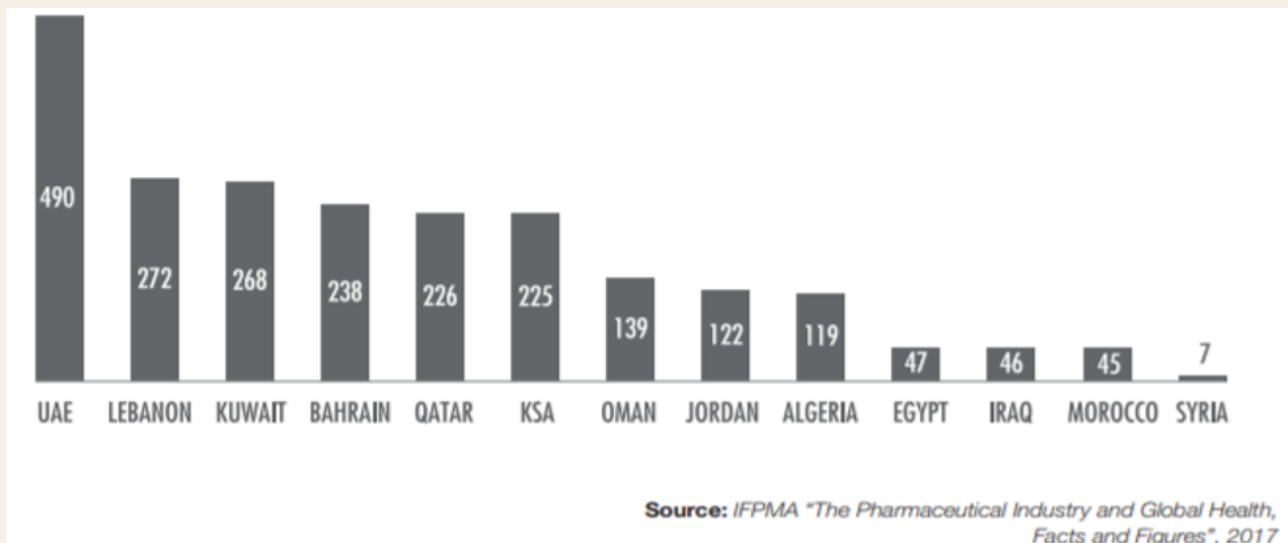


Figure 7. Total pharmaceutical sales per Capita in the Middle East, USD 2014



## Tunisia<sup>4</sup>

On one hand, tunisian wine-industry is the one with the best performances, if compared to Lebanon and Jordan. On the other hand, it is quite underdeveloped when it comes to the cosmetic and nutraceutical sector. We'll now see more in detail how these dynamics are translated in numbers.

### Wine-Industry by numbers

Tunisia traditionally has 3 wine-growing regions covering an area of around 9,000 ha (a slight contraction compared to the first decade of the 2000s):

- The Cap Bon region (6,500 ha), the largest region in terms of surface area (73% of the total) is the one where most of the Protected designation of origin (PDO) are found (NB: we consider as part of the PDOs wines called "Superieurs" produced by two entities over around 300 Ha in Béja - Jendouba zone). This zone is characterized by an almost homogeneous architecture at high density, a dominance of dry cultivation and short-cut goblet management with regard to traditional grape varieties; a virtual generalization of irrigated cultivation and long pruning for the improving grape varieties which are also abundantly fertilized.
- Bizerte region (1,500 ha),
- Béja-Jendouba region (1,000 ha),

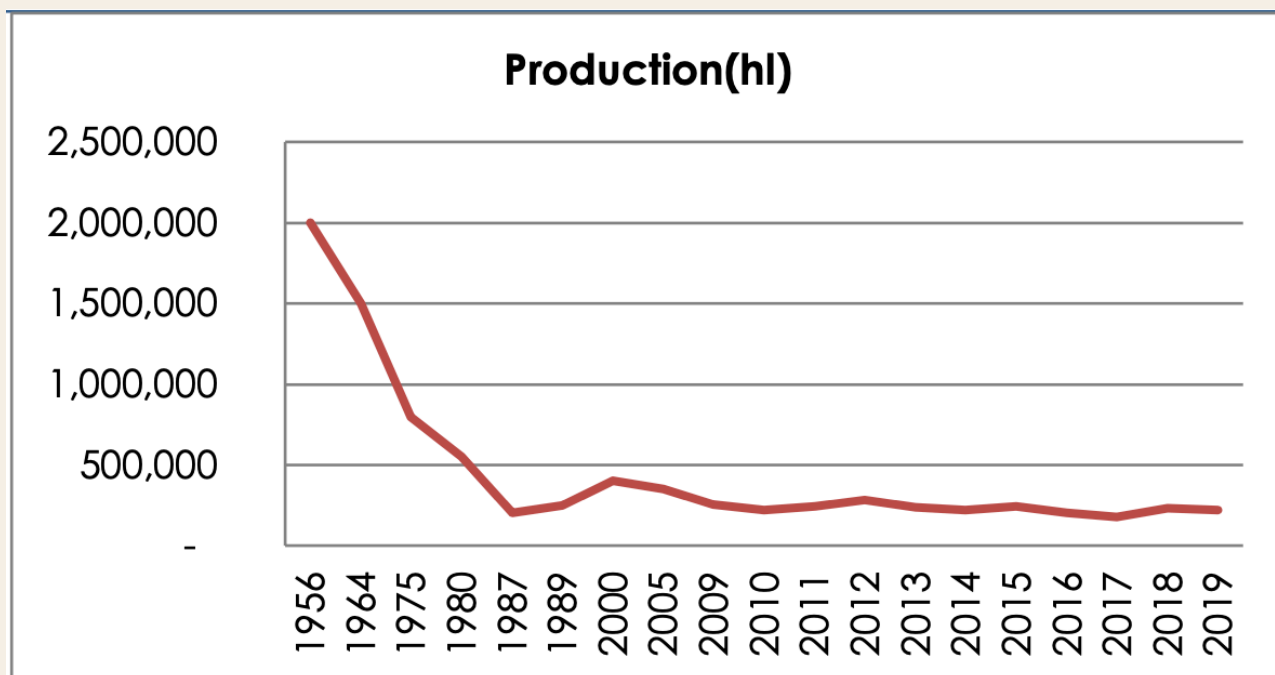


Figure 8. Tunisian wine production progression in hectoliters. Source: UTICA - Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat

Since the 1950s, the wine grape arable land is decreasing (from 45.000 ha in 1956 to only 9.300 ha in 2019). Consequently, wine production decreased from 2.000.000 hl in 1956 to round 220.000 hl in 2019.

<sup>4</sup> Redacted by CNSPBA - UTICA - Chambre Nationale Syndicale des Boissons Alcoolisées - For For the integral contribution please refer to Annex 3.

The main types of wine produced in Tunisia are Red, Rosé, White and Muscat. Some other types are also produced. Depending on grape harvest, the wine annual production average is round 220 000 hl. Rosé wine represents round 60% of the production.

The table below shows the annual evolution per wine type:

| Year        | Red    | Rosé    | White  | Muscat | Other | Total          |
|-------------|--------|---------|--------|--------|-------|----------------|
| <b>2014</b> | 57 990 | 125 279 | 30 537 | 5 100  | 895   | <b>219 801</b> |
| <b>2015</b> | 57 301 | 154 658 | 22 403 | 5 845  | 3 805 | <b>244 012</b> |
| <b>2016</b> | 53 052 | 117 289 | 21 390 | 5 980  | 1 190 | <b>198 901</b> |
| <b>2017</b> | 45 967 | 106 131 | 20 236 | 4 339  | 695   | <b>177 368</b> |
| <b>2018</b> | 44 848 | 149 008 | 30 556 | 4 419  | 358   | <b>229 669</b> |
| <b>2019</b> | 47 136 | 138 959 | 24 142 | 3 098  | 2 998 | <b>216 333</b> |

Table 1.. Tunisian wine annual-production per type. Source: UTICA - Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat

The wine sector generates in Tunisia an approximate turnover of € 76.000.000 €. The major part of the production is consumed locally, only a slight part is exported. Tunisian wine is exported mainly to France and Germany. The average of wine imports during the last 4 years has been 720 hl / year.

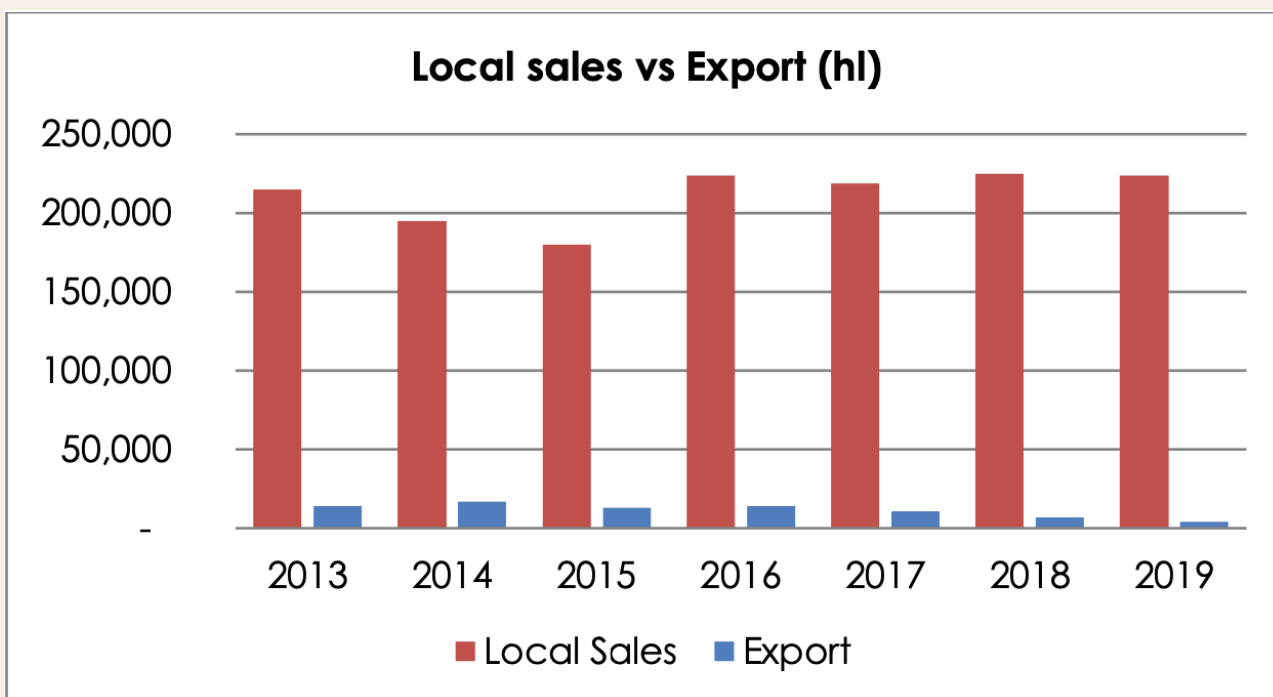


Figure 9. Local sales/export distribution in hectoliters. Source: UTICA - Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat

## Actors typologies

The wine sector totals approximately 2.000 owners. They can be classified into 3 categories:

- “SMVDA”: Agricultural Development Companies in long-term rental from the government
- Wine cooperatives (one of which covers 70% of total production),
- Small private companies (10% of the total).

The sector employs around 75,000 permanent employees (which double during the harvest). The main producers are:

- “Les Vignerons de Carthage” with 09 member cellars and 1500 wine growers and 7000 ha of vines and 20 million bottles (2/3 of national production) and 5 estates in foreign partnership;
- The wine cooperative of “Bou Argoub” (CVBA);
- SICOB company.

### WINE PRODUCTION IS PRODUCED UP TO:

- 65% by « Les Vignerons de Carthage » ;
- 15% by the wine cooperative of “Bou Argoub”;
- 10% by SICOB (société pour l’industrie et la commercialisation des boissons)
- 10% by small private companies.

Most of the owners operate in Mornay Protected Designation of Origin. They represent 80% of the owners. The main wine producers are “Les Vignerons de Carthage”, “S.M.B BOUARGOUB” and “Société pour l’industrie et la commercialisation des boissons (SICOB)”. In 2018, they produced 159 540 hl of wine representing 70% of the national production.

## Tunisian cosmetic sector

In Tunisia, cosmetics are classified in the parachemical branch, together with:

- Paints, Glues, Inks and Resins
- Soaps, Detergents and cleaning products
- Essential oils

The cosmetic sector in Tunisia remains rather unstructured and therefore suffers from an inadequate regulatory framework and a lack of support from the government. The sector is also facing problems and difficulties resulting in particular from tax pressure, commercial practices outside the regular circuits and a parallel market which continues to develop.

The cosmetic sector generates an annual turnover of about 500 million \$. The formal market for perfume and cosmetic products is estimated at 300 million \$ and the volume of the informal market is estimated at around 200 million \$ (58% of the formal sector and exceeds 70% for perfumes and beauty

products). The cosmetic sector directly employs in its various sectors (industry, distribution and retail) between 7,000 and 10,000 people. Local production is oriented towards mass market industrial products (deodorants, shower gels, etc.). High-end cosmetics are imported as finished products and distributed through distributors in specialized stores. The local production is estimated at only 100 million €. The Tunisian cosmetic sector shows a deficit trade balance. It decreased from 53 378 million € in 2015 to 41 979 million € in 2019. In Tunisia, the contribution of cosmetic sector in the economy is still low, at less than 2% of exports. This share is provided by 83 companies, only 10 of which are involved in exports. In 2015, Tunisia exported for 75 Million € and in 2019 103 million €, equivalent to an increase of 37%.

In 2019, the main products exported were:

- Perfumes and toilet waters (excluding aftershave lotions, personal deodorants and hair lotions): 29 million €,
- Essential oils: 19 million €,
- Shaving preparations: 18 million €,
- Preparations for use on the hair: 17 million €,
- Beauty or make-up preparations and preparations for the care of the skin: 16 million €.

The main countries to which Tunisia exports are (in million €):

| Country              | 2017   | 2018   | 2019   |
|----------------------|--------|--------|--------|
| Libya                | 7 800  | 15 363 | 16 588 |
| Singapour            | 1 289  | 11 604 | 16 480 |
| France               | 17 043 | 20 721 | 16 408 |
| United Arab Emirates | 4 420  | 5 462  | 8 612  |
| Italy                | 5 532  | 5 204  | 4 716  |
| Germany              | 1 376  | 1 252  | 2 622  |
| Spain                | 1 946  | 1 649  | 2 361  |

Table 2. Export destination of Tunisian wine market. Source: UTICA - Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat

In 2015, Tunisia imported for 129 million € and in 2019 145 million €, equivalent to an increase of 12%. Over the past 3 years, imports of raw materials and finished products only represent 0.4% of Tunisia's total imports. They imports registered a slight decline (-1.1% per year on average) testifying to the stagnation of the sector. In 2019, the main products imported were:

- Beauty or make-up preparations and preparations for the care of the skin (other than medicaments): 39 million €,
- Perfumes and toilet waters (excluding aftershave lotions, personal deodorants and hair lotions): 32 million €,
- Mixtures of odoriferous substances: 30 million €

There is no specific legislation for cosmetic products and only decree n° 94- 1744 of 24 August 1994 established a technical control mechanism for the importation of cosmetic products, personal hygiene products and dietetic ones. However, we should note that the UE regulation n° 1223-2009 is applicable. Also, no prior authorization or declaration is required by the authorities.

## **Tunisian nutraceutical sector**

Although medical culture has contributed to the increase in the consumption of food supplements, the use of these supplements in Tunisia is still below European averages. Consumers today are faced to an important number of food supplements (brands, compositions, cocktails) widely distributed by diverse points of sale.

These products are flourishing on the shelves of:

- pharmacies,
- drugstores,
- supermarkets and hypermarkets,
- health food stores,
- sports shops.

They are also sold:

- in gyms,
- on internet,
- in informal markets.

Imported food supplements are, after technical control, subject to an authorization for release for consumption by the DPM (Department of Pharmacy and Medicines). Local food supplements are manufactured by pharmaceutical laboratories whose production complies with good manufacturing practices (PBF) applicable to drugs and which is approved by the responsible authorities, which represents a real guarantee of quality for the consumer. Despite significant changes in texts relating to the regulation of food supplements, both in terms of regulations and standards, in particular at the European level, this sector still does not have a specific regulation in Tunisia.

From a production perspective as well, the manufacture of food supplements in Tunisia is subject to no prior authorization or declaration. The same applies to the commercialization of these products. The manufacturer is the sole responsible and the sole guarantor of the quality of its products Guarantee (law 92-117).

This situation represents some disadvantages, especially:

- The lack of specific text,
- No product approval before importation,
- No product approval before manufacture,
- Non-regulated point of sale,
- Rather documentary control.

However, the national agency for health and environmental control of products (ANCSEP) is actually preparing a draft of a decree regulating food supplements and application orders. This decree will include:

- The composition of food supplements,
- Labeling of food supplements,
- Production of food supplements,
- Distribution of food supplements,
- The import of food supplements,
- The control of food supplements,
- The vigilance.

This text will determine:

- The list of nutrients whose use is authorized.
- The identity and purity criteria to which they must reply.
- The maximum admissible levels and, where applicable, the minimum levels required.
- Additives and flavorings authorized in human food.
- Plants and plant preparations.
- Substances for nutritional or physiological purposes.

## **Jordan<sup>5</sup>**

As Lebanon, Jordan also can claim a long history in wine making dating as far back as Nabatean times, Archaeological digs near Petra have uncovered at least 82 wine presses of industrial scale dating back to Nabatean times. Several sources suggest that the wine served to Jesus during the Last Supper came from Umm Qais in Northern Jordan. Nowadays, the wine sector as well as the cosmetic and nutraceutical ones, shows relatively small numbers in terms of production and market value. Nevertheless, there are many signals of increasing interest and innovation opportunities in all three industries, which is also proved by the many innovation and research centers operating in the country.

### **Wine-Industry by numbers**

Jordanian wine is produced by two wineries, with an annual production of nearly a million bottles a year. The modern wine industry in Jordan was established in 1975 by the Haddad distilling company. Two wineries exist in Jordan today. Zumot and Haddad producing Saint George and Jordan River wines respectively. Both wineries have their vineyards in Mafraq in northern Jordan, where the high elevation, underground water and basalt-rich soil provide suitable conditions. The two companies have an estimated annual production of a million liters a year, most of which is for domestic consumption. In

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<sup>5</sup> Redacted by Khaled Khraisat - JSSREC - For the integral contribution please refer to Annex 4.

2018, it was reported that the Jordan River wines had won 96 awards, and the Saint George claimed 23 prizes

The Haddad winery and cellars produce a quality variety of wines from one of the most distinctive and unique lands in Jordan. These extraordinary wines, grown from the fertile grounds of the Holy Land, produce “The Real Taste of Jordan”.

With the challenges of growing vines in the Basalt Desert, controlling temperature and humidity of the First Desert Winery and Biggest Cellar in Jordan, Jordan River wine is born. The Haddad Family cares about what’s inside every single bottle and this is what makes seeking out and tasting Jordan River wines thoroughly rewarding. (<https://jr.jo/winery>). Bulos Zumot began work as wine producer Since 1996(the family's Saint-George brand has been based at a vineyard on the Oran Plains near the village of Sama. Over 30 different grape varieties are grown; hot days and cool nights produce strongly flavored fruit.

It takes about 1.17 kilograms of grapes to produce a standard 750 milliliter bottle of wine, and after the grapes are squeezed, about 20 percent of that weight remains in the form of grape skins, seeds and stems, Pomace (or grape marc), as grape waste is called, is something that the global wine industry produces a lot of (close to 12 million tons each year)

One way to get rid of all that pomace is to use it to make other types of alcoholic beverages, Pomace also traditionally has been recycled as fertilizer or animal feed, but scientists are increasingly interested in studying ways of extracting useful components of grape marc for applications such as fuel alcohol production and biofuel energy production, and for the production of bio surfactants, which are used in environmental cleanups, on the other hand Food scientists have also realized that pomace contains a lot of healthy stuff; antioxidants, fiber and chemicals, which was the reason to use Pomace as an ingredient in bread, cereal, pasta, cheese, ice cream and even has been added to meat and seafood. The Grape Waste from wine Industry in Jordan is estimated according to the annual production quality of 1 million bottles about 250 tons, while such quality is expected to increase yearly due to the growth of Wine industry in Jordan which means there will be an arising need to benefit from such increasing quantity of Grape Waste specially if we know that there should be an added cost to get rid of such waste in according to Ministry of Environment protocol

Industrial Sector is not benefiting yet from such waste as this will need special requirements to allow the use of such waste. Such requirements will include:

- Research and Development labs to characterize, identify beneficial ingredients, toxicity profile and Efficacy profile to identify the safe and effective concentrations that can be used by different industries
- Industrial Partner to treat such waste and convert it to an approved raw material with COA and MSDS that allows interested industries to depend and use such material in industry according to the local legislations and guidelines
- Technology transfer centers to develop finished products Formulas can be transferred to the interested industrial sector
- Taking into consideration the Legislations of the expected finish products and their requirements to comply JFDA and/or any other related associations.
- Innovation centers, Incubators and Accelerators to support Entrepreneurs to establish their Startups based on the outputs of such project



## Jordan cosmetic/nutraceutical sector

Jordan's chemicals sub-sector primarily concerns the production of fertilizers. The fertilizers industry developed remarkably during the last decade and thus has become part of the global fertilizers industry. Moreover, Jordan's close proximity to growing Asian markets, its efficient exports operations, and the increase in its chemicals production means the Kingdom is ready to capture an increased share of the global fertilizers and chemicals market.

For instance, Jordan provides an excellent platform to capture global opportunities in the fertilizers market due to the enormous local availability of critical inputs to fertilizers' production, including phosphate and potash, which are the main components for the strength of agricultural crops and the fertilizers' industry in general.

Investment opportunities also exist for Jordan's cosmetics sub-sector, mainly due to Jordan's medical tourism, which generated more than US\$ 2 billion 2019 and is expected to continue to grow over the next years due to global aging and the increasing expenditures on healthcare and tourism. On the other hand, the growth is driven by higher exports of the mining, chemical and cosmetics industries, which together accounted for about 46% of total exports in 2019. Furthermore, exports from the chemical and cosmetic industries sector reached about JD910 million in 2019, compared to JD774 million in 2018, up by 17.6%.

- Number of Factories 232
- Number of Employees 12,835
- Export 910 Million JOD

# Investment and marketing opportunities

## Premise

As already highlighted previously in the course of this analysis, the wine sector (in particular) presents, albeit with the respective peculiarities in each of the geographical areas of reference, some common characteristics, including the tendency to under-sizing. If on the one hand, this may in some way represent a partial criticality for producers, it could nevertheless represent an opportunity for potential business ventures in the winemaking waste market.

From the open interviews carried out with some actors belonging to the sector in question, a "*file-rouge*" has emerged that unites most of the wine producers, especially those of small size: the waste from winemaking is considered one more like a problem, than an opportunity.

This is mainly due to the fact that, although after the change of legislation (Decree n.7407 of August 4, 2010) the viable ways of disposal for wine-making waste have been considerably expanded, however,



there are still several cost items necessary for a correct disposal in compliance with current legislation. These cost items certainly include transportation and storage costs and storage.

It is necessary to keep in mind that whatever method of disposal is chosen, this must first of all be declared promptly and in advance to the competent authority or authorities. Subsequently, the waste must be transported to the place where it will physically be disposed, being it a composting plant, a distillery or simply the land where the grapes are produced in case of agricultural reuse.

Furthermore, it is important to remember that these wastes represent active biological matter, which is particularly rapid in deteriorating. According to what was illustrated by the distillers interviewed during the research, after a few days, the pomace that has not been specifically stored in airtight silos (therefore without the possibility of air entering them) begins to deteriorate following the natural fermentation process, thus losing many of the qualitative properties useful above all to distillers, which therefore translates into lower raw material quality and lower market value, which is already very low.

These last considerations become even more relevant if linked to the tendency to under-sizing mentioned above. In fact, if companies of certain structure and with medium-high volumes have the contractual strength to be able to "charge" certain costs (especially transportation) on subjects (for example distilleries) interested in the wine by-products and to demand a fee for their supply, this does not happen for the smaller producers.

Finally, considering that thanks to the technologies which this project is based on it is possible to take advantage of high percentages of yield compared to the quantity of pomace used, it is reasonable to hypothesize that a potential entrepreneurial initiative that wants to enter the market of cosmetic and/or nutraceutical products obtained from wine by-products, should not face any supply problems, at least in terms of volumes and costs. However, it is reasonable to think that, as production volumes increase, an optimization of this process, especially from a logistical point of view, could represent an important networking and differentiation opportunity for this (second) raw material.

Moreover, it has to be considered that cosmetics and nutraceutical containing resveratrol and other beneficial substances derived from grape and grape marc already exists. Nevertheless, in the vast majority of cases, they are part of one of the many products of a wider product lines, into product portfolios made by many product lines. This tell us two important thing:

- there's lack of cosmetics or nutraceutical businesses specifically focused on this segment.
- It would be difficult to compete in term of prices against well structured cosmetic/nutraceutical incumbent that can take advantage of strong commercial channels and economies of scale.

Thus, any business initiative in this direction, should carefully position itself in a premium segment, differentiating its products in terms of marketing and providing an exclusive value proposition in terms of product quality, customers experience, communication.

In the following we'll try to illustrate two potential business ideas on the basis of the previous premises; one of them will be focus more on a marketing perspective, whereas the second one will focus on a digital solution (platform) able to improve the logistic flow of wine by-products among the several stakeholders of the industry value chain.

## **Marketing opportunities**

Based on the aforementioned premises, the first suggestion on possible entrepreneurial initiatives that can be implemented in the wine by-product market focuses on partnerships and marketing opportunities with wine producers.

As mentioned, these wastes represent a material that must be disposed of according to the specific procedures imposed by law, in order to be then conferred to the parties responsible for their disposal (distilleries, composting plants, etc.). It should be remembered that we are talking about an organic matter with a very high speed of deterioration, especially if not properly stored and treated, which obviously imply management costs and capital investments for the acquisition of the appropriate treatment and storage facilities. It was also highlighted that the costs of transport to fields, distilleries or any other destination plant must almost always be added to the costs of treatment and storage. Finally, it should be pointed out once again that pomace and lees have a very low market value.

Furthermore, as previously mentioned, there is no evidence of entrepreneurial initiatives with a single focus on cosmetic and/or nutraceutical products derived from winemaking waste, just as there are no particular initiatives to be reported from wine producers who have (for example) undertaken diversification processes in their offer such as to aim to invest in the production and marketing of cosmetics or nutraceuticals deriving from the waste of their winemaking processes.

In response to this gap, there is the opportunity for entrepreneurial initiatives that propose themselves as producers of cosmetics and nutraceuticals on behalf of third parties (at least in an initial phase) for wine producers. Such entrepreneurs should be able to develop highly customized products that can guarantee the highest standards of quality, traceability, economic and environmental circularity. This would not only free wine producers from waste, thus enhancing a cost savings, but would also open new channels of income starting from a second raw material at practically no cost. The inclusion of these products would then benefit from a brand awareness and from the concepts of green, high quality and “be local”, albeit in a different sector, and could certainly benefit in part from already established and consolidated business relationships.

Again, these initiatives would complement the offer to customers (especially B2C) who, as we have seen in the first part of the Technological Analysis, are increasingly keen to choose natural, local, environmentally friendly and high quality products. The possibility of combining these proposals with tourism marketing activities should not be underestimated, a segment that, as we have seen, is rapidly growing in various countries, as well as a reality in France.

## **Digital exchange platform**

The second investment opportunity also arises from a reflection on the premises listed above. In particular, it is useful to take into consideration the vast panorama of stakeholders involved in the supply chain. As already specified above, wine producing companies have to face various costs linked to the many procedures imposed by current legislation for the disposal of waste from grape processing. With this in mind, the change in the relevant law (Decree n.7407 of August 4, 2010) offers new opportunities for the disposal of such waste, opening up a panorama made up of various actors potentially interested in its reuse as secondary raw materials.

With this in mind, the analysis carried out revealed the lack of a common touch-point that can involve all possible stakeholders in an efficient manner and in real time. Therefore, this creates a window in which to enter for potential entrepreneurial initiatives that act as a point of collection and subsequent distribution of these materials to operators of different nature who, however, have the same raw material in common.

An IT/digital platform capable of optimizing such logistical process, integrating in real time the flow between those who produce the waste and the various actors interested in their exploitation, as well as service providers such as transport companies, could offer a useful service of brokerage currently uncovered in exchange of a fee (maybe calculated on the volumes traded). This type of platform would be completely scalable and potentially applicable/exportable to any geographical context, even distant from the company's headquarters.

# Focus on Covid-19

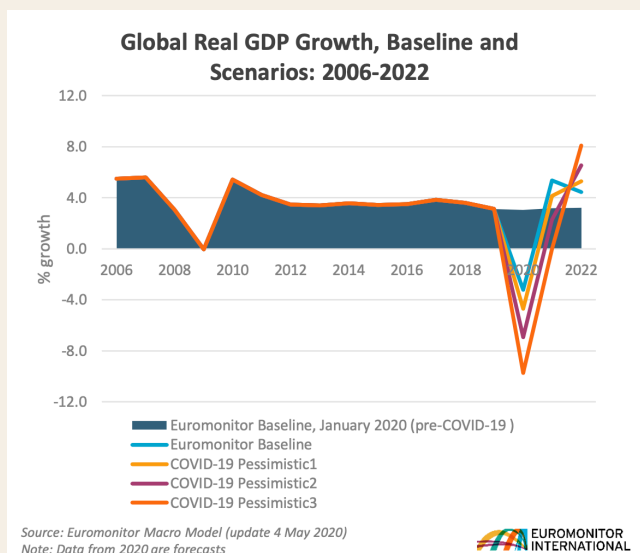
## How Will Consumer Markets Evolve After Coronavirus?

### Premise

2020 will forever remain etched in our memory due to the outbreak of the global pandemic from Sars-CoV2, better known as Coronavirus. Regardless of the geographical context, we all still have in our heads the terrible images of full hospitals, people in intensive care with the need for artificial respirators, the race for masks, tracking, lockdown and in general the (more or less democratic) measures of various governments to try to stem the tidal wave of the virus, the victims. When the first news of mysterious infections in China came out in January, no one expected that just two months later our lives would change radically.

In addition to the impact on health systems, the virus left behind the worst global economic crisis since the Great Depression of the 1930s. If one year ago we couldn't expect a story impacting our daily lives, our routines and our economies, now we can try to analyze in detail how these radical changes have impacted consumer habits, as well as try to predict which of these new behaviors are here "to stay" and which will pass when, hopefully, we return to a new normal.

This last part of the research will therefore try to highlight which are the main trends arising from the pandemic period, which of the existing ones have strengthened and which have instead lost strength due to the new priorities.



### New and old trends after Coronavirus<sup>6</sup>

The spread of the SARS-CoV2 virus generated the worst economic crisis since the Great Depression of the 1930s, with much worse effects even than the 2008 financial crisis.

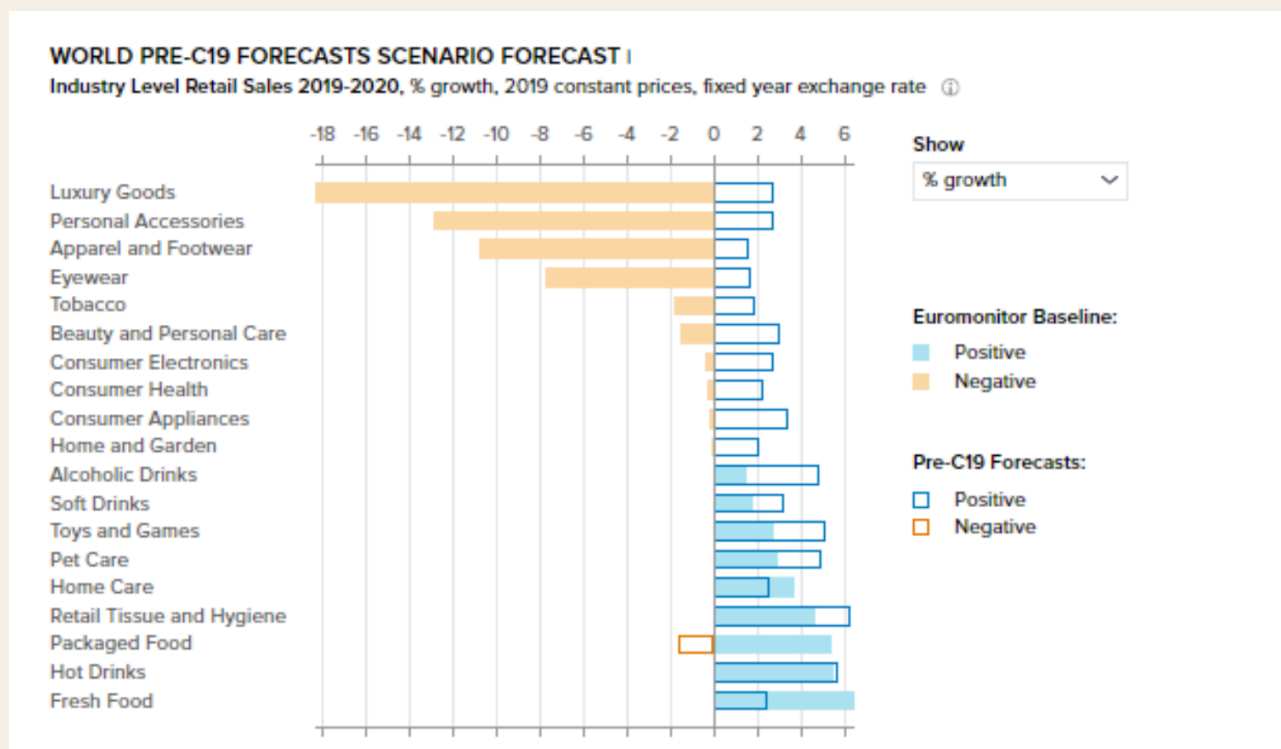
All sectors have been affected, some in a particularly serious way, such as tourism and hospitality in general, major events, education, with worrying implications in terms of employment and consequently the economic and financial capacity of people.

As consumers continue to struggle with the spread of the virus, personal liberty limitation and new daily regulations, they are also affected by rising unemployment and deteriorated incomes. More and more people are expected to fall into lower-income segments.

<sup>6</sup> Euromonitor International - How Will Consumer Markets Evolve After Coronavirus?  
Sarah Boumphrey - Global Research Director

Moreover, a growing anxiety about future is undermining the global consumer propulsion to buy products and services. Translated, the massive changes brought about by the pandemic also makes consumers re-evaluate their priorities, giving rise to new values and spending criteria.

Many of the behavior shifts, including a focus on family or community, health and digital solutions, are expected to last a long time, even in the aftermath of the crisis – particularly if the crisis itself endures. As depicted by the graphic below, with the exception of fresh food, packaged food, and home-care, Covid-19 will have a negative impact on consumer most of markets.



That's pretty logical due to the fact that, as the global economy enters in crisis-mode, anxieties relating to health will continue, with added stress relating to financial welfare and employment prospects. We are now in un-chartered waters as consumers of all ages, income levels and cultures deal with two major crises in one: health safety and recession.

Quarantine and lockdowns have enforced indoor living, accelerating the evolution of the home as the hub for everything, consumers have been forced to develop new habits regarding working, playing, shopping and exercising, all from their homes. Rising anxiety levels over health, income and general concerns over the future are turning more consumers towards goods that can help with mental wellbeing. With seniors particularly vulnerable to the impact of COVID-19, tele-health (remote healthcare at home) will be instrumental in healthcare.

Nevertheless, as when any disruptive event occurs, there are also many opportunities to be caught as new trends and habits appears, also for the matter of interest of this project. The main shifts might be catalogued in five areas that involve sustainability, the new dimension of consumers experience, the new places (physical but, more than ever, digital) where consumers buy and how they do it, a more holistic definition of wellness and parsimoniousness in the way companies innovate.

## Sustainability

The idea of sustainability has evolved beyond the inclusion of ethical credentials and environmental concerns, such as plastic pollution and climate change, to a more holistic approach that aims to create social, environmental and economic value. For businesses, this shift to pursuing purpose over profit was happening before the COVID-19 outbreak, but the global health pandemic has increased momentum. Consumers' attitudes towards sustainability topics are changing and corporations are responding to the pandemic by putting purpose first, while protecting the triple bottom line.

This acceleration towards an holistic sustainable development impacts also the health and beauty market, as well as food and nutrition:

- Health and Beauty: companies are moving production standards to the pursuit of a more shared good. Health, beauty and fashion brands will have to invest more in local production and concentrate on their brand heritage, transparency, safety and provenance.
- Food and Nutrition: In the short to mid-term, COVID-19 is expected to realign consumers' priorities. Issues, such as food waste, animal welfare and food security, will be front-lined whilst others, such as packaging sustainability and sustainable sourcing, will lose out. While sustainability is initially taking a back seat to health, normalization will follow.

## Consumer experience has changed

Lockdowns, smart working and further restrictions have dramatically changed people routines; as a consequence consumers spend more time at home, thus reinforcing trends of experience digitalization. The expanded cohort of experiential customers creates strategic opportunities across products and services, from personalized exclusive luxury to wellness routines and gourmet experiences. This domestic dimension is particularly true for the food and nutrition market as meal occasion have come into the home and they will probably stay. After 2-3 months of cooking almost every meal, some consumers could come out the other end with a new found love for cooking. This trend is facilitated by a multitude of new social forums and free online cooking classes, some run by famous chefs.

## Where and how consumers are buying and will buy

The arrival of COVID-19 accelerates trends, such as the rise of online, click & collect, frictionless retail and D2C. This will require companies and retail operations (and the consumer perspective) to change, now in the immediate and in the future, as many of these trends might be here to stay. Once again, this has impacted and will impact markets that are strategic for the purpose of this project:

- Health and Beauty: the distribution of beauty and fashion products is being heavily impacted by COVID-19 given its physical retail dependence, over-reliance on wholesale and underdeveloped e-commerce capabilities. COVID-19 has emerged as the ultimate retail disruptor, with the potential to accelerate e-commerce adoption, expand click & collect formats and catalyze frictionless retail and D2C operations worldwide.
- Food and Nutrition: A turning point for e-commerce and a boost for meal kits is tempered by an adverse impact on impulse channels, as consumers are less likely to 'pop in' to buy a single chocolate bar from their local convenience store. D2C opportunities could emerge. Moreover, the surge in e-commerce, made D2C brands come to the forefront, raising brand awareness and customer acquisition via a variety of platforms, from e-commerce presence on Amazon to sales

via their own shopping sites and subscription models. Click & collect also sees a significant boost across markets.

## Wellness redefined

On the cusp of a tipping point prior to the pandemic, the wellness movement is set to witness another paradigm shift causing leaders to rethink strategies through a renewed lens. The primary aspects of optimal health, health in its purest form and the adoption of a holistic approach are being reinforced across markets. Mental and emotional wellness takes centre stage, with the notion of happiness becoming a more tangible commercial prospect. Digital and tech-enabled self-care solutions gain further importance in preventative health, alongside immune-boosting, de-stressing and soothing product credentials. Nutritional habits turn to naturally healthy and functional alternatives endorsing the concept of a resilient body and mind. Home as health hub is re-emphasized; at-home therapy, home hygiene and healthy cooking practices take higher precedence.

- Health and Beauty: beauty and wellness convergence becomes even more prominent. Immunity and energy boosting health concepts, alongside those which support concerns related to sleep, stress and anxiety, are key beneficiaries. Digital health solutions are reinforced, and luxury wellness brands move into mental, emotional and spiritual health.
- Food and Nutrition: healthy eating will become an even more important topic to consider for consumers as the fundamental balance of exercise vs nutrition becomes disrupted by even more sedentary lifestyles. This will accelerate the shift towards more holistic wellness and eating, although the focus on calories consumed may become more important.

## Parsimonious innovation

The Coronavirus Era has disrupted 'business as usual' for companies producing consumer goods and providing consumer services. This has led to a rapidly changing environments in the consumer and operation dimensions, thus diminishing the will for experimentation.

Both retailers and consumers have become increasingly risk averse, which could translate in the need for a new core set of features and values brands will might have to refocus on when it comes to innovation pipeline and new product development.

- Health and Beauty: such shifts involve providing home-based services for customers, such as beauty consultations and DIY (Do It Yourself) content. Meanwhile, companies are reorienting around simpler, more cost effective product lines like private label and general health products, and by optimization of manufacturing processes.
- Food and Nutrition: value proposition is probable to become the single key factor for consumers. Not necessarily economic products, but rather well-positioned premium products that can replicate "old way" to enjoy experiences in the home. The D2C (Direct to Consumer) channel will develop from a low-base, but smaller brands are likely to get squeezed by retailers looking to simplify their ranges.



# Distilleries: potential partners or competitors?

During the execution of this analysis several interviews have been conducted with managing directors of some distilleries of the Sardinian territory. As previously stated, distilleries are a fundamental part of the wine industry landscape, and their core business intrinsically play a balancing role in the entire value chain, guaranteeing circularity both economically and environmentally.

What has emerged from the interviews confirmed some of the trends exposed in this analysis, such as the general steady decrease of alcohol consumption (despite local exceptions), as well as the many inefficiencies due to the undersizing of the vast majority of producers. If, in some cases, this aspect is overcome by association processes, in other cases it hints the development of opportunities for diversification and new product/services development, due to the impossibility to reach the minimum quantities in terms of volumes necessary for economic sustainability.

Such considerations could be relevant for the purpose of this work as distilleries, especially those able to welcome high quantities of wine making by-products and consequentially obtain high volumes of final products and further “waste”. Big-size distilleries are also the most likely to possess highly developed production systems and processes; considering that most of their raw material is composed by wine making residuals, they will also be the most likely to obtain (both during and at the end of the production process) semi-finished products like dried grape seeds, dried grape marc and stills which are likely to be used as second-raw materials by other companies, therefore likely to be sold and thus become new revenue streams.

This imply, for potential new entrepreneurs in the field, that distilleries should be seriously taken into account when considering the wider landscape of potential partner and competitors. Moreover, these consideration enforce the suggestion about the need of an innovative and smoother logistic/service based solution which could reunite, serve and leverage the network externalities of many small and medium producers reunited.

## Conclusions

This analysis has been conducted with the aim to provide potential future entrepreneurs an overview about the main dynamics that regulate the three main industries of interest for the BESTMEDGRAPE PROJECT in terms of performances, technological opportunities, trends and stakeholders involved. More specifically, the overall work can be described as an output of investigation about the following issues:

- Studying technologies, stakeholders, the market and general development trends for the commercial exploitation of vine derivatives in the Mediterranean area;
- Identify innovative trends and identify potentially interesting technologies in the vine derivatives supply chain in the Mediterranean area.
- Identify the main players and competitors of the target market

- Assess potential technological changes in consideration of the risks and threats of the sector
- Identify investment and marketing opportunities.
- Recognize the partners with whom to develop projects and facilitate the introduction of new technologies.

The first part of the present work focused on the Italian landscape due to both easiness in data access and data collection and strategical choices made to optimize data collection and integration from the other geographical context involved in the project. Such choice allowed project partners to follow the same framework in data collection and document structure, decision that appeared to be successful considering the high-value contribution each partner has been able to provide.

## Industries performances

What has emerged from the joint analysis is that the three strategical industries of interest shows good performances and mainly growing figures in all the most important indicators. Italy and France, as expected, are the strongest context in all the three industries wine, cosmetic and nutraceutical. All the considered industries are strictly regulated by specific laws and are hold up by well articulated supply chain which involve a conspicuous landscape of stakeholders. On the one hand, this results in easily accessible data and information, high-technological innovation standards and high networking opportunities. On the other hand, it also means to operate in high competitive context and incumbent able to rise high and sound entry barriers difficult to be climbed for new businesses.

In the southern shore of the Mediterranean the situation is quite the opposite. For example, despite a long tradition in wine making (some dated 7000 b.c like in Lebanon), the wine sector is quite under-developed, whilst the cosmetic and nutraceutical are also poorly regulated by law and suffer in some case of parallel markets. Moreover, the geopolitical instability of the all MENA area negatively contribute to investments in product and channel innovation and R&D. The only exception for what concerns this beauty industry is Lebanon, which shows promising signals due to people cultural predisposition to beauty, appearance and self-esteem, which in turn make possible a stable per capita level of spending dedicated to such products, despite geopolitical instability and difficult economic conditions.

## Consumer Trends

Beside the differences among geographical context e the respective characteristics in the industries analyzed, some global trends have been individuated that are therefore common despite each local dimension. Consumers are generally well informed and more conscious than ever about their consumption choice. Moreover, the interests about themes like environmental and social sustainability, sustainable development, circular economy, health and wellness are gaining momentum all over the world. This implies that incumbent as well as new business must change their business models and adapt their product line or invent new products with high value proposition. We voluntarily use the terminology “value proposition” in order to highlight the need for brands for a new holistic approach capable to communicate and intrinsically bring value not only in terms of product characteristics and performances; this is particularly true in the markets hereby considered, as their actors are usually closely related to the environmental and social dimensions previously mentioned due to the nature of their businesses. Consumers are and will increasingly be interested in bio-tech companies able to inform and convey virtuosity along their supply chain and, even more important, they will be willing to pay a premium price for products including these new set of values, with higher loyalty rates to the brands able to deliver them.



## Space for new entrepreneurship initiatives

The good news for aspirational entrepreneurs aiming to enter the world of cosmetic and nutraceutical derived from wine by-products is that the segment is still to be built. This research provide evidence of how there are very few (if any) business initiative (at least to the extent of the scope of this work) that focus exclusively on this narrow and specific niche. This is also due to the vast spectrum of opportunity for disposal and/or reuse of wine by-products; in fact, as we have seen, the range of re-utilization opportunity vary from the classic “distillation flow” to bio-fuel and food use, from the building sector to fashion. When it comes to reuse for cosmetics and nutraceuticals, the 90% of the products individuuated are part of more throughout products lines, which are, in turn, parto of wider product line portfolios of big and diversified companies.

What lacks, at the time of the drafting of this document, are business realities with a narrow and specific focus on the wine by-product utilization as second raw material for cosmetics and nutraceutical product development. Nevertheless, due to the physical and market characteristics of the raw material taken into consideration, we suggest that the key strategic point to be addressed will lie outside the mere utilization for developing beauty treatment or beneficial pills to be included in someone diet. Instead, opportunities can be found from a logistical, technological and marketing point of view, trying to work in partnership with the most strategical stakeholders positioned along the value chain in order to provide them with logistical solutions and marketing initiatives that could respectively solve problems in term of disposal of their production wastes and/or provide diversification opportunities in order to open new revenue streams.

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