

# **Prospects of biodynamic wines in the Swiss Romande**

**Bachelor Project submitted for the degree of  
Bachelor of Science HES in International Business Management**

by

**Joëlle BOVET**

Bachelor Project Advisor:

**Nicolas DEPETRIS-CHAUVIN, Professor of the Haute École de Gestion de  
Genève**

**Geneva, 2<sup>nd</sup> of June 2019**

**Haute école de gestion de Genève (HEG-GE)  
International Business Management**



## Declaration

This Bachelor Project is submitted as part of the final examination requirements of the Haute école de gestion de Genève, for the Bachelor of Science HES-SO in International Business Management.

The student accepts the terms of the confidentiality agreement if one has been signed. The use of any conclusions or recommendations made in the Bachelor Project, with no prejudice to their value, engages neither the responsibility of the author, nor the adviser to the Bachelor Project, nor the jury members nor the HEG.

“I attest that I have personally authored this work without using any sources other than those cited in the bibliography. Furthermore, I have sent the final version of this document for analysis by the plagiarism detection software stipulated by the school and by my adviser”.

Geneva, 2<sup>nd</sup> of June

Joëlle BOVET

## **Acknowledgements**

I wish to express my thanks to Dr Nicolas Depetris Chauvin, my advisor, for the support and guidance.

I take this opportunity to express my gratitude to the organizers of the Divinum institution in Morges that enable me to collect my data at its event as well as the Lavaux Vin Bio thanks to which I have met wonderful people and I have been able to collect more data.

I am also grateful to all people from near and far who gave me their time to answer my questions and allowed me to know the subject through a lot of different views.

Finally, I place on record my sincere thank you to Sarah for the continuous encouragement and for sharing her creative perception on the development of the subject.

# Executive Summary

The aim of the report is to determine the prospects of the biodynamic wine industry in Swiss Romande. Biodynamic is a sustainable and holistic approach of viticulture, still not well known nowadays. Moreover, the awareness for ethical concerns is increasing. Yet, in an area where wines are part of the culture, do people approve the stable state of tradition in being reluctant to change? Or are they inclined to adapt to more sustainable production methods?

To answer these questions, different aspects of the biodynamic wine industry are developed in this report. First the macro environment is analysed to determine in which environment the biodynamic wine industry is evolving. Second, the stakeholders' perception on biodynamic wines are analysed as well as their interaction with each other. This is to understand the current state of the industry and the obstacles for further development.

The main findings show at first a global lack of knowledge from the customers. However, once we go beyond this lack of knowledge, there is a good overall perception. As for the supply sides, the principal motives for winegrowers to follow biodynamic principles are personal convictions and the respect for environment. The industry is attractive for other winegrowers to come in and shows potential for development.

Then, based on the results of the analysis, the current state and obstacles analysed, hypotheses are developed and rated in terms of probability to happen. The hypotheses with the highest probability are the ones showing increases in both demand and supply sides. Indeed, although many consumers do not know biodynamic concepts yet, a majority of people are willing to consume organic and biodynamic products for various reasons. For the consumers who know biodynamics, they have good perception of it. Furthermore, more and more organic winegrowers are converting to biodynamics as a search for more sustainable practice.

For the industry to move forward, a communication strategy could be beneficial to raise the consumers' curiosity and to increase their knowledge on the subject.

# Contents

Prospects of biodynamic wines in the Swiss Romande.....	1
Declaration.....	i
Acknowledgements.....	ii
Executive Summary .....	iii
Contents.....	iv
List of Tables .....	vi
List of Figures .....	vi
<b>1. Introduction .....</b>	<b>1</b>
<b>1.1 Research question and context.....</b>	<b>1</b>
<b>1.2 Theoretical aspect .....</b>	<b>3</b>
1.2.1 Overview of the biodynamic wine sector .....	3
1.2.2 Types of viticulture .....	5
1.2.3 Central Core Theory - Qualitative research.....	7
1.2.4 Hedonic regression method .....	8
<b>2. Analysis .....</b>	<b>9</b>
<b>2.1 PESTEL.....</b>	<b>9</b>
2.1.1 Political .....	9
2.1.2 Economical .....	10
2.1.3 Social.....	11
2.1.4 Technological.....	12
2.1.5 Environmental.....	12
2.1.6 Legal.....	13
<b>2.2 Stakeholders' perception .....</b>	<b>13</b>
2.2.1 Research methodology.....	14
2.2.2 Supply side analysis .....	15
2.2.3 Demand side analysis.....	19
2.2.4 Perception on Label.....	31
<b>2.3 Hedonic regression .....</b>	<b>34</b>

2.3.1	<i>Model</i> .....	36
2.3.2	<i>Analysis</i> .....	36
2.3.3	<i>Conclusion</i> .....	38
<b>2.4</b>	<b>Porter five forces</b> .....	<b>39</b>
2.4.1	<i>Industry rivalry</i> .....	39
2.4.2	<i>Substitutes</i> .....	39
2.4.3	<i>New entrants</i> .....	40
2.4.4	<i>Power of suppliers</i> .....	40
2.4.5	<i>Power of buyers</i> .....	40
2.4.6	<i>Conclusion</i> .....	41
<b>3.</b>	<b>Discussion</b> .....	<b>42</b>
3.1	<b>SWOT analysis</b> .....	<b>43</b>
3.2	<b>Hypothesis matrice</b> .....	<b>45</b>
3.3	<b>Solution for moving forward</b> .....	<b>49</b>
<b>4.</b>	<b>Conclusion</b> .....	<b>51</b>
	<b>Bibliography</b> .....	<b>52</b>

## **List of Tables**

- Table 1 - Quantity of respondents by age categories 20
- Table 2 - Consumers' perception of organic wine 26
- Table 3 - Consumers' perception of biodynamic wine 29
- Table 4 - Number of observations by types of vineyard 35
- Table 5 - Price range of bottle 35
- Table 6 - SWOT biodynamic wine industry 44
- Table 7 – Review shift in demand and supply, by hypothesis 49

## **List of Figures**

- Figure 1 - Worldwide trend of Demeter certified farms 4
- Figure 2 - Central Core Theory Analysis frequency importance 7
- Figure 3 - Reason for organic / biodynamic consumption, by frequency of answer 21
- Figure 4 - Reason for non-organic / biodynamic consumption, by frequency of answer 23
- Figure 5 - Categories' frequency organic wine 25
- Figure 6 - Categories' frequency biodynamic wine 28
- Figure 7 – Result hedonic regression on STATA 37
- Figure 8 - Regression remaining significant variables 38



# 1. Introduction

The purpose of this paper is to study the prospects of the biodynamic wine industry in Swiss Romande based on the stakeholders' current perception on biodynamic wines, as well as their motivation and the attractiveness of the industry.

To some extents, the prospect of the biodynamic wine industry could encourage some winegrowers to change and could also drive some people to adapt themselves and get a better understanding of the future.

This report is divided into three parts. Firstly, the general topic of wine in Switzerland, the different types of grapes, as well as the history of biodynamics agriculture and its worldwide presence will be observed. This part puts the bases on what is already known on the subject.

The analysis will be addressed within the second part, which investigates at what point the industry of biodynamic wine currently is. It includes the research methodology, the analysis of the environment and the perception of both the supply side and demand side stakeholders. A quantitative analysis consisting of a hedonic regression of the wines bottle is also part of this second part in order to determine what characteristic component of the wine make up for its price.

The last part of the paper will analyse whether the industry is reaching its full potential, based on the results of the analysis of its current state. Moreover, obstacles for further development and potential solutions for moving forward will be covered within this part.

## **1.1 Research question and context**

The society is always evolving and it still denounces ethical issues: global warming, end of biodiversity, gender inequality, modern slavery, capitalism abuse, etc. This society keeps on fighting these issues in order to make of the world a more sustainable place. However, to make a more sustainable world, deep changes are inevitable; people and schemes have to adapt. Production and consumption must seek improvement and solutions must be considered in a long-term scope. As it is well known: moral lessons are however easier said than are actions done.

Although this report doesn't directly address these ethical issues, it is related to adaptation of people. More particularly adaptation of people regarding wine industry.

Biodynamics is an ethical and holistic type of agriculture and viticulture. "Each biodynamic farm or garden is an integrated, whole, living organism. This organism is made up of many interdependent elements: fields, forests, plants, animals, soils, compost, people, and the spirit of the place".<sup>1</sup> The task of the farmers is then to put in harmony all the elements mentioned above, taking into account their health and vitality. This type of agriculture attaches great importance to the rhythms of nature and to the influence of the stars, particularly lunar cycles.

Biodynamics is frequently associated to organic and is definitely a step ahead of it, in terms of sustainability. As a result, biodynamics could be considered a viable solution for future years. Indeed, it represents a way to work the soil ethically. But my question here is: are consumers and producers ready for this change?

This type of viticulture is not new as it was created in 1924, by the Austrian philosopher Rudolf Steiner. It is a philosophy that considers the respect of all the forces of the living. This type of agriculture is well known in the agriculture sector. However, for the regular wine consumer, the term might sound new and strange. For instance, considering myself as a consumer who is far from a wine-expert, I have only recently heard about biodynamics wines.

So, there are several points to raise:

- Do consumers know about biodynamics?
- Does knowing more about biodynamics could change the wine consumption?
- At what current state of mind are the winegrowers in Switzerland?
- How do winegrowers choose a type of viticulture rather than another?
- What do other winegrowers think of biodynamics?

There is a rather high competitiveness for wines within Switzerland, as well as with neighbour countries. For instance, France is well-known for its wines and so is Spain. Therefore, the market of wine in our country isn't mainly represented by local wines. However, Switzerland is a small country with quite a lot of vineyard for its size and wine is widely consumed in all the country.

My report is limited to two cantons, Vaud and Geneva. The main reason being the access to data, as the field work was more achievable when focusing on these areas.

---

<sup>1</sup> Biodynamic Association Website

Furthermore, Vaud specially offers beautiful surfaces for the grapes. Between La Côte and the Lavaux, there is a multitude of vineyards. As a matter of fact, UNESCO has put Lavaux winery surface on the UNESCO World Heritage List<sup>2</sup>. Because there are so many vineyards, wine is definitely part of the culture. It is interesting to analyse the prospects within a place in which the culture of the wine and the wine in itself are well developed.

As a result, in an area where wine is well fixed in the culture, do people wish to maintain the whole tradition from conception to production and thus are reluctant to change? Or are they inclined to adapt to more sustainable production methods?

Having the stakeholders' perception on the current state of biodynamics can help anticipate what could eventually happen next. Thus, putting together all of the questions raised previously in order to reach the final question: What could be the future for biodynamics?

## **1.2 Theoretical aspect**

### **1.2.1 Overview of the biodynamic wine sector**

The review "An overview of the biodynamic wine sector" (Castellini, Mauracher, Troiano, 2017) published in the International Journal of Wine Research, mentions the studies done on the subject of biodynamic wine. This indeed covers, between other points, the consumers' preferences and the environmental aspects. Due to the fact that this review of the Journal of Wine Research represents the compendium of sources compiled, the literature review here is strongly inspired by it and based on it.

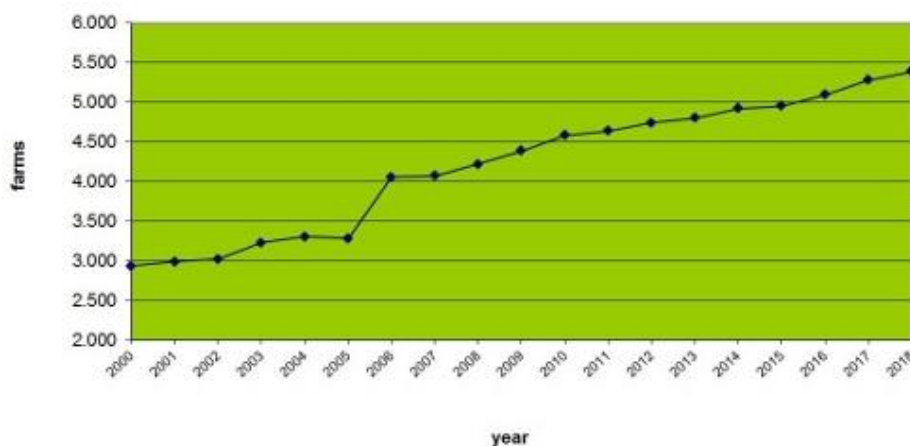
A relationship exists between organic and biodynamic growing. As a matter of fact, most of biodynamic winegrowers own as well an organic certification. As a result, it is interesting to see the organic market, which has continued to grow over the past decades. Vineyards represented 4.5% of the total surface used for organic agriculture in 2016 (FiBL, 2017). Countries with largest organic lands, at that time, were: Australia (22.7 million of hectares), Argentina (3.1 million) and USA (2.0 million).

---

<sup>2</sup> Lavaux UNESCO website

Demeter, founded in 1937, is the label for biodynamic products. Not only wine is labelled biodynamic, as it is the agriculture itself that is biodynamic. Hence other products such as honey and bread can be biodynamic. Biodynamics are represented through 5595 farms certified Demeter worldwide, a total of 962 processors and 435 distributors, which is still an increasing trend (Demeter, 2019).

**Figure 1 - Worldwide trend of Demeter certified farms**



Source: Demeter website

The production costs for organic grapes is on average 10% to 15% higher than for conventional production. Once again, the production cost for biodynamic grapes raises by 10% to 15% compared to the cost of organic grapes (Delmas, Doctori-Blass, Shuster, 2008). Biodynamic management increases the winegrowers' workloads by 30% when changing from conventional to biodynamics. This workload increases is due to planning, organization and preparation of treatments. (Delmas, Grant, 2008).

Consumers have limited knowledge of sustainable agriculture production practices in general, thus it is difficult for them to make informed purchase decisions when facing a choice between sustainable and conventional food. The complexity of the purchase decision is also explained by the fact that the benefits of sustainable products are poorly communicated to the public (Pomarici, Amato, Vecchio, 2015).

Biodynamic wines suffer then of a lack of knowledge by the average people (Delmas, Doctori-Blass, Shuster, 2016). In her study, Delmas also describes that the consumers with higher knowledge on organic products lead to a more positive attitude towards

biodynamic products. Another study in California focused on the fact that millennials<sup>3</sup> are not a generation of informed consumers concerning wine labels, even less informed regarding biodynamic label. The results of this study show that the millennials uninformed on biodynamic wines and labels tend to have a negative perception on their quality (McCullough, Qenani, Macdougall, 2012). Furthermore, people having had tested both organic and biodynamic wines, prior to the analysis, tended to give positive feedback to both of them during the analysis. Thus, McCullough states that the differences between both types of wines cannot be clearly defined from a consumer standpoint. The perception of the quality tends to vary depending on the level of familiarity of respondents with wines. It thus join the conclusion of Delmas as when the respondents know the wines, they have positive perception, whereas when they do not know really the product, a lot of people express confusion.

On the environmental side, the use of biodynamic methods leads to a better environmental sustainability of the activity and also improve the relationship between the natural factors, the farmers and the life-cycle as a whole (Vastola, Tanyeri-Abur, 2009). The study also mentions that often organic “for most organic farmers biodynamic farming has been the normal evolution of their farming beliefs”.

To conclude, the existing sources mention the perception of winemakers on biodynamic wines. It, however, does not explain the incentives of these producers to start producing biodynamic products.

Moreover, the points on consumer perceptions are related to people of a specific place, California. Although California is known for wines, a country's culture can have an impact on perception. It is interesting to see the perception of consumers in a smaller frame, being the Cantons of Vaud and Geneva. As a result, the results of my analysis might be not similar to the ones already done.

### **1.2.2 Types of viticulture**

Although the report is on biodynamics, other types of viticulture are still mentioned in it. So, before the analysis part, a short descriptive on the main differences of the viticulture has to be made. The main types of viticulture are:

---

<sup>3</sup> Generation of people born between 1980 and 1999

- Biodynamic
- Organic
- Conventional type.
- Integrated production

Biodynamic is about the overall sanity of the plant and the soil. It emphasizes the importance of the rhythms of nature. Organic is about using only natural product to treat the soil. The conventional type is representative of a productive winegrowing. Conventional viticulture is the oldest type and highlights the profit maximisation. Finally, integrated production has some similarities with biodynamic as they are both holistic concepts. Integrated production is about using the most natural means possible and regulated mechanisms but added to chemical when nature cannot perform itself, in order to maintain a certain profitability.

There are other agriculture types, such as traditional or even mixes between the ones mentioned above. The analysis will focus on biodynamics, organic and conventional farming. Comparisons are indeed made between organic and biodynamic viticulture during the analysis, whereas conventional viticulture is used at the other extreme, as the “basic” of viticulture.

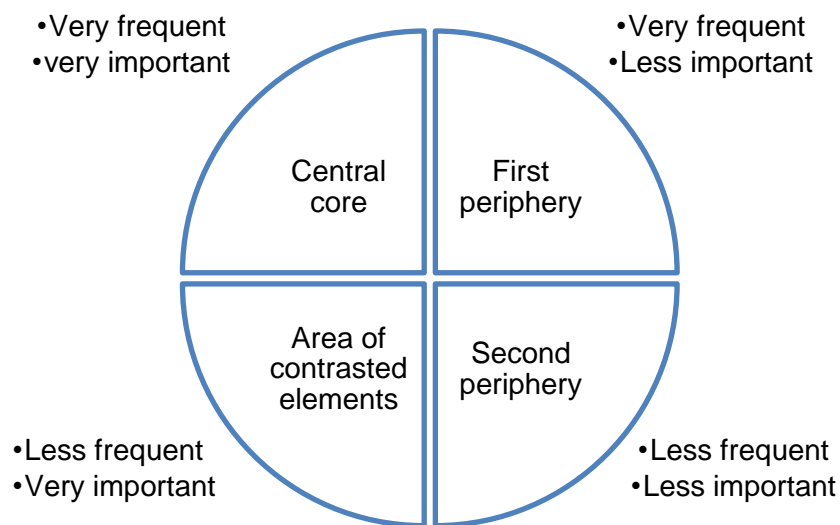
### 1.2.3 Central Core Theory - Qualitative research

The Central Core Theory is a theory of social representations of Abric, dating from 1976. This theory states that the structure of the social representation is similar to a nuclear element, with the central nucleus and surrounding levels of periphery.<sup>4</sup> This theory is the one used to perform the qualitative analysis of my report.

When thinking about a specific subject, people share at first the general same elements as a global image. These elements are part of the central core of the perception on this specific subject. The central core is really resistant to changes and its constituent elements have a generative and organisational function. They are indeed the elements that will give the general perception of the subject.

The elements are analysed in terms of frequency and importance given and then divided into the different categories. The ones that are not part of the central core are then spread into the different layers of the peripheries.

**Figure 2 - Central Core Theory Analysis frequency importance**



Source: Applied Economic course - Méthodes projectées et représentations des consommateurs

---

<sup>4</sup> Applied Economics course, HEG

The peripheral elements can change depending on the situations where the social representation takes place, however the central core does not. Moreover, the peripheral can be really personal to someone's feeling and not representative of the all population.

#### **1.2.4 Hedonic regression method**

The hedonic regression is a method in economics that consists of determining the final price of a good based on the value of its component characteristics.<sup>5</sup>

The model is useful to understand the estimation of demand of a specific good depending on its constituent characteristics. In the frame of this report, the hedonic regression is to investigate what characteristic of wine has an impact on the price.

The equation is the following:

$$\text{Price} = P(Z) + \varepsilon = \alpha + \beta_1 A + \beta_2 B + \beta_3 C + \dots + \varepsilon$$

Where A, B and C are the component characteristic constituting Z and  $\varepsilon$  is the error term.

The component characteristics are analysed in terms of dummy variables, as the component characteristics are not numerical values. Dummies indicate the absence (value 0) or presence (value 1) of some categorical effect that might affect the outcome. Because there are multiple categories for a component characteristic, the number of dummies for a characteristic is the number of categories minus one.

---

<sup>5</sup> Applied Economics course, HEG



## 2. Analysis

### 2.1 PESTEL

This analysis tool gives insights on the macro environment in which biodynamic wine is evolving. The wine industry as well as the organic industry in Switzerland are observed to get a broader view than just the biodynamic wine industry scope.

#### 2.1.1 Political

The political aspect is useful since it is this body that sets the possible new rules in industries and controls the business activities. We could agree in saying that Swiss politics is relatively stable. Swiss government is lead in majority by right-wing political group. Politics are then more focus on conservative principles which tend to enhance economics good health rather than ecological values.<sup>6</sup>

There are several ordinances on viticulture issued by the Federal Council, notably on viticulture and wine importation, on PDOs<sup>7</sup> and PGIs<sup>8</sup>, organic farming and the designation of organic products and foodstuffs.<sup>9</sup> Still, there is no ordinance on biodynamic viticulture specifically. The article 2 of the ordinance on alcoholic beverages by the Federal Department of the Interior, states that “Alcoholic beverage means any beverage with an actual alcoholic strength by volume greater than 0.5% vol.” Whereas the article 4 mentions that: “The wine must, after any enrichment operations [...], have an actual alcoholic strength by volume of not less than 8.5% vol. and a total alcoholic strength by volume not exceeding 15% vol.”<sup>10</sup>

Alcohols are subject to a federal tax, but not all in the same way. Indeed, wine is not subject to this tax, called the tithe of alcohol.<sup>11</sup> 10% of tithing profits are allocated to the cantons according to the respective rates of their population. These sums are then used

---

<sup>6</sup> Newspaper Le Nouvelliste

<sup>7</sup> Protected Designation of Origins

<sup>8</sup> Protected Geographical Indications

<sup>9</sup> Federal Council – Ordinance on viticulture and wine import

<sup>10</sup> Federal Council – Ordinance on alcoholic beverages

<sup>11</sup> Federal Custom Administration

by the cantons for addictive preventions. For example, the cantons generally fight against the causes and effects of alcoholism, which in 2017 was more than CHF 10 million.<sup>10</sup>

There are several ecological labels within the Swiss landscape, such as Naturaplan, Max Havelaar, bio natur plus, Terrasuisse and Naturafarm.<sup>12</sup> Labels have strict directives to argue with the state in order to get recognised and directives to enforce with farmers. For instance, the directives for Swiss organic are stricter than the ones for the European organic.

Vitiswiss, which is the Swiss Federation for the Development of Sustainable Wine Culture, has been commissioned by the Federal Office of Agriculture to develop sustainable viticulture.<sup>13</sup> Thus its own label, Vinatura, is one of the most known of all.

### **2.1.2 Economical**

The 2018 turnover of the organic sector amounted to around 3.066 billion, with an increase of 13.3% over the previous year. The Swiss Romande shows an increase of 14.4% in organic consumption, which represents the biggest increase of the country. Switzerland has, compared to other countries, the highest per capita spending for organic products, being CHF 360.- which shows an increase from the prior year (CHF 320.-). (FiBL, 2017).<sup>14</sup>

The prices of organic and biodynamic products are on average 15% higher than conventionally produced goods, which has an impact on consumers' decision-making when buying. (Delmas, Doctori-Blass, Shuster, 2008)

Some farmers receive federal subsidies. In fact, they were for a time the most subsidized farmers in the world as CHF 3.5 billion a year is spent on Swiss agricultural policy.<sup>15</sup> However, winegrowers in particular do not receive any subsidies.<sup>16</sup>

---

<sup>12</sup> Fédération Romande des Consommateurs

<sup>13</sup> Swiss Wine website

<sup>14</sup> Newspaper La Liberté 03.04.2019

<sup>15</sup> Swissveg

<sup>16</sup> Federal Finance Administration - Subsidies

### 2.1.3 Social

Wine is part of the culture of the place, as for instance, wine is typically the symbol of Lavaux. Moreover, the « Fête des Vignerons » is a traditional and ancestral feast that takes place once a generation in Vevey since 1797 and showcases the traditions and values of Swiss viticulture. This year, the festival is expected to attract many people and makes of the city of Vevey one of the most attractive city to visit in 2019.<sup>17</sup>

Proof of the wine culture implementation in Switzerland: the popularity of the “open cellars” which are held once a year in the different cantons. Few days during which more than 300 winemakers in the canton of Vaud and 80 winemakers in the canton of Genève open their doors for public tastings.<sup>18</sup>

Wine also represents a symbol of conviviality, as people gather to share bottles of wine together. Wine is, indeed, the alcoholic beverage with the highest consumer rate, in fact, nearly 80% of the population consume wine, compared to 60% for beer. The gap is even greater for the women, as 80% consume wine, against only 20% for beer.<sup>20</sup>

The consumption of alcoholic beverages per capita in Switzerland was halved, decreasing from 17 litres of alcohol in 1900 to 8.5 litres in 2011.<sup>19</sup> Although wine is loved by a larger part of the population, beer is more consumed. Indeed, in 2016, the total consumption of wine in Switzerland in hectoliters is 2'847'114, compared to 2'941'171 in 2015. As for the beer, in 2016, 4'623'323 hectoliters were consumed, which is almost double the wine consumption for the same year.<sup>20</sup>

The total population drinking wine has declined slightly in recent years, going from 81% in 2013 to 77% in 2017. In addition, 60% of the consumers drinks wine occasionally and 40% does not. These rates have changed with times, a few years ago the regular consumer rate was 60%. Swiss wines are favoured by 35% of the Swiss population and within this rate, the people of Swiss Romande are the biggest consumers (52%). It can be explained by the fact that 75% of viticulture of the country are part of the Swiss Romande.

---

<sup>17</sup> RTS

<sup>18</sup> Swiss Wine

<sup>19</sup> Federal Council press release

<sup>20</sup> Statistiques de la Régie fédérale des alcools, Département fédéral des finances, 2017

The average age for people to start consuming wine is 24 years old.<sup>21</sup> Young people usually consume fewer wine than older generations, as wine might seem too chic and not attainable.

Concerning the consumption of organic and biodynamic products, there is an increase in consumption for organic products, as mentioned within the economical section of the PESTEL analysis. Therefore, and looking at the turnover of organic sector, it could be said that there is an increase of people consuming products for which they believe more ethical. That is, they are more attentive to the quality of the product and how ethical the production of the good is.

#### **2.1.4 Technological**

Although the technology continues to evolve in agriculture, the biodynamic is redirected towards a return to the sources. That is to say that biodynamic winemakers favour a simpler production without technological artifice.

Yet, the technological evolution of the tools for the production results in machines which reduce their fuel consumption and thus respect the antipollution norms.<sup>22</sup>

Moreover, the advent of digital tools impacts the way of communicating between stakeholders. For example, it could ease the way of buying wine: In 2017, 29% of people have had already bought wines online.<sup>23</sup>

#### **2.1.5 Environmental**

Landscape is changing over the years. In 2016, Switzerland had 141 thousand hectares of organic land which represents a slight increase over the last few years (IFOAM, 2016). As for the vineyard in Switzerland, no matter the viticulture type, it covered a total 14'748 hectares, 75% of which is within the Swiss Romande.<sup>24</sup>

The respect for nature and sustainable management is now becoming more and more implanted in companies. In Switzerland, 22 companies are certified B-corps, meaning

---

<sup>21</sup> Swiss Wine

<sup>22</sup> Newspaper Agri 20.02.2015

<sup>23</sup> Sowine website

<sup>24</sup> Rapport agricole 2018

they work for the welfare of the society and are models in terms of sustainable management.<sup>25</sup>

There are now 255 farms certified Demeter in Switzerland, which represents 4.5% of the total Demeter certified farms in the world. As for the certified Swiss distributors, they are 54, giving 12.4% of the worldwide distributors and finally 63 processors which gives 5.6% on the worldwide scale.<sup>26</sup>

### **2.1.6 Legal**

As for the legal factor, there are some point to take into account. First of all, the minimum legal age to consume wine and beer is 16 years old.

Then, the labour law is to be taken into consideration, especially during the grape harvest period. As during these periods, winegrowers call on seasonal workers to help. Depending on the conditions, this represents a considerable increases in workers for a winemaker.

There is also some mandatory information that must appear on the bottle labels. These mentions are of two types. The first type, horizontal, applies to all foodstuffs. The second type, specific to wine, includes the compulsory display of, between others, the name of the product category ("wine"), the term "protected designation of origin", the actual alcoholic strength by volume (TAV), the origin and the identity of the bottler.<sup>27</sup>

## **2.2 Stakeholders' perception**

The perception of the actors of both the supply and demand sides will assess the stage at which the biodynamic wine industry currently is in the two cantons studied. Knowing the different perceptions will also provide valuable insights on the potential development of the industry.

---

<sup>25</sup> B-Corporation website

<sup>26</sup> Demeter website

<sup>27</sup> DFI Ordinance on alcoholic beverages

## **2.2.1 Research methodology**

### **2.2.1.1 Qualitative**

To understand the consumer's perception on biodynamic products, based on the Central Core Theory, short interviews were conducted on almost a hundred people present at various wine events. The choice of interviewing one-to-one rather than any other tools was to evaluate the interviewees' understanding of the subject and the clarification of some points if needed.

However, people can be subject to social pressure while being interviewed. As a result, and in order not to influence the answers, techniques such as projection and associative were favoured. Thanks to these methods, the datasets have a minimum of biased answers.

The places chosen to conduct the interviews also have an impact on the answers. In the present case, a couple of wine salons, impacted the answers in the sense that the interviewees were interested by the broad subject of the research and might have had higher knowledge of it than the rest of society. Furthermore, some interviewees knew a lot on biodynamic wines as they knew or were even personally farmers and winegrowers in the field of biodynamics. Thus, they might not be representative of the average people's knowledge on the subject.

To gather data on the supply side of the market, winegrowers that manage grapes in different ways have been interviewed. As a result, owners of biodynamic, as well as conventional and organic lands represents the dataset for the supply side analysis. It is interesting to not only have the point of view of biodynamic winegrowers as it might not depict the perception of the stakeholders of the wine market as a whole.

### **2.2.1.2 Quantitative**

To then compare the consumer's words to their acts, a hedonic regression has been made, using the price of different wines from the region and the nature of the culture of the soil for each wine. This is to analyse whether the different types of winegrowing in the Lake Geneva region have an impact on the demand and thus on the price of wine.

## **2.2.2 Supply side analysis**

The data are based on a dozen winegrowers' interviews. All of them who are from the canton of Vaud. The difference between these winegrowers is the type of viticulture of their respective domain. Five of them are indeed cultivating using the biodynamic principles, whereas four are non-biodynamic winegrowers and the last one is a conventional winegrower about to reconvert his viticulture into another type.

### **2.2.2.1 *Biodynamic winemakers' perception***

Several reasons could be assumed to define the motives of winegrowers to go biodynamics. The main three that come to mind are personal, economic and environmental. The personal reason being, for instance, that a relative die due to a cancer caused by the chemicals within products and so it makes the winegrower seeks other way to produce. The economical, as the winegrower sees that clients buy more when there is a presence of a label on the bottles. Finally, environmental is for the pursuit of a healthier land.

What can be concluded from the interviews is that winegrowers following biodynamic principles are driven by similar values. The motives that drive them to go biodynamics were: the personal conviction that it is the best sustainable solution nowadays, the respect towards the soil and the need to return to the sources.

Winegrowers are indeed doing biodynamics for themselves, as they truly believe it. This type of viticulture represents for them the maximum respect they could give to the nature. It also represents the way ancestors used to work; using natural products back when chemicals didn't exist.

They were also asked what consumers know and think about biodynamic according to them. Their belief is that average people don't know biodynamic, or if they heard it once, they don't understand it yet. Some points of biodynamic principle might be difficult to integrate as it is a philosophy.

As a result of this lack of knowledge of average people, winegrowers envision bio as an intermediary step to something better and more sustainable, which is biodynamic. They indeed only see the organic as an intermediary step that although might be a necessity at the moment, cannot last long in the future. However, organic is already within people's mind. They therefore firstly want to validate the organic message before emphasizing on the biodynamic way of living.

Regarding the taste, they also all agree that there is a large difference of taste between biodynamic wines and conventional wines. Biodynamic wines are much more harmonious and the fair soil treatment gives back all the vitality to the soils and thus restore the nobility to wines.

Though winegrowers concede that the process of producing has an impact on the taste, some deny categorically that the place of origin makes a wine and they lament the fact that industries play on this statement. According to them, the quality and ethical treatment of the land prevails over other criteria. Moreover, just by looking at the vineyards, the difference between conventional and biodynamic can be spotted, as the latter is way nicer and lets the nature speak for itself.

### **2.2.2.2 Difficulties to move to biodynamic**

Changing the entire production and operating system of a domain may be more difficult than expected. Winegrowers have different opinions on where the difficulty lays while changing. Some winegrowers say that the change from a conventional to an organic viticulture is more challenging than any other changes, whereas others assure that the change from organic to biodynamics is more challenging. Another contradicts by saying that biodynamic is not more complicated than organic.

The direct change from conventional to biodynamic is not feasible. This is due to the fact that organic viticulture is an intermediary step and therefore would not consider going from conventional to biodynamic without being organic for a while.

Moving from conventional to organic is seen as the hardest step for some winegrowers as all the products have to be changed to be conform to the organic principles. Moreover, according to winegrowers, their personal convictions are stronger when following organic principles. However, the information on what are the best preparation adapted to a specific soil are more difficult to find and is thus time-consuming.

The difference between organic and biodynamic seems large to some people, but almost inexistent to others. Indeed, it only represents habits to be taken, because biodynamic preparations are in the continuity of organic logic. It is however right that the preparations are more natural and stricter on many aspects.

Indeed, to achieve biodynamic viticulture, preparations are required. The preparations called 500 and 501 (or “horn silica”), using cow horns, are the most recognised within



the field. The preparation 500 is about cow's excrement that is put inside a cow horn and buried in the ground during the winter. After the season, the horn is dug up and its contents is energized in water and sprayed on the ground. The preparation 501 is similar but instead of cow's excrements, the horn is filled with crushed quartz and is buried in summer. Many other preparations are used along with the preparations 500 and 501; it can indeed be mentioned between others: the *Urtica dioica* (504) which promotes humidification within the soil using nettles, *Matricaria recutita* (503) that regulates the process of nitrogen with wild chamomile and *Equisetum arvense* (508) as a liquid fertilizer made from field horsetail. These preparations are ways of transforming organic substance by composting and using herbal preparations to get fertilization with proper effects on the plants. Moreover, the preparations are to be used at the right time, according to the lunar cycles.

Some difficulties of managing a biodynamic viticulture might reside in the respect of the biodynamic agenda in accordance with materials available. To illustrate this point, a small domain might be not big enough to own some materials, such as a tractor, so it shares the materials with neighbouring domain, in order to split the costs. As a result, depending on the availability of the materials, the required biodynamic agenda might be not respected.

Another difficulty may come from the fact that when there is a lack of conviction from the winegrower, it will be impossible for him to be successful. This unconvinced person might try for a few years, but will see at some point that it gives nothing apart from bad performance and energy investment. Because not being convinced about the purpose itself of biodynamic, is similar to not having all the cards in hand.

Biodynamics implies lots of trial and discussion with colleagues and companions to share ideas and experience. Biodynamic principles are always to be adapted to the type of soil. A land that is within a dry area will not be of the same quality as a land within a humid area. Thus, winegrowers are searching new and natural elements that suits the best their area. It also implies to set a new tolerance threshold downward, in order to value the quality of the product over its quantity.

To conclude, the difficulties are many but the strength of biodynamics is the will and conviction of its users. As mentioned previously, if they made this change, it is because they believe in the global welfare of this viticulture and see it as the best solution nowadays.

### **2.2.2.3 Other winemakers' perception**

When it comes to winegrowers of other types of domain, none of them have much to argue about biodynamic lands. It cannot be said that they are against biodynamics.

They accept biodynamics as a “different” and “particular movement”. They perceive it as time-consuming, long to implement and also a bit enigmatic as, for some of them do not share the same philosophy. This philosophy might indeed not be understood from everyone as the aspect that the human being has in the universe and the fact that one must play with the magnetism between the plant, the ground, the human and the stars in order to reach a harmony is a little too holistic for people to believe it.

However, they blame a lot of things on organic viticulture. They state that organic is a fashion and also hypocrisy. It represents just a way to charge more for a label. According to them, it is all the more hypocritical because non-organic production is very respectful of nature as well. Strict controls are continuously done to make sure that no dangerous products are used for the soil.

While one interviewee mentioned that it is good that things are globally changing, organic wines should still be taken more lightly. Indeed, some winegrowers are dishonest as they use the organic term for selling more while they benefit from treatment of neighbouring plots.

Moreover, they also all agreed that there is no difference in taste according to soil treatments, the different tastes are based on other factors.

As a result, they don't see any motives to move from their culture to an organic one, as it would be against their values and also a lack of sincerity towards their clients. However, even though they don't have much to complain about biodynamics, they still don't see any motives to implement it. This could be explained by the fact that their current conditions are suitable for them at the moment. Furthermore, it must be emphasized that they perceive their way of working as not pejorative for the environment and for the quality of the soil. Another reason to explain the lack of motives might be that their current viticulture type with the respective requirements may also be easier in the daily routine than the biodynamic viticulture and its requirements.

Seeing those radical and rather negative responses above, a winegrower that is about to change from a type of viticulture to another type might put things into perspective.

This winegrower shares the same opinion of the biodynamic winegrowers about the taste that is different. Although not a strong advocate of the organic viticulture, as he doesn't completely believe in its efficiency, he is about to change to comply with others.

Even though this person doesn't own his personal brand, meaning he doesn't produce his wine, he still owns a few parcels of land and delivers his grapes to another winegrower. As a result, the desire to change is driven by his partnerships, rather than a belief that it is better for the respect of the planet. The main disadvantage that he blames for the biodynamic viticulture, is that its evolution is not well programmed, according to him.

What can be deduced from this, is that as he is not convinced about more sustainable way of producing, his motives for changing are economical. Change can be seen as an adaptation to the market and as well to the demands of stakeholders. Being adaptable represents an advantage for the long term.

### **2.2.3 Demand side analysis**

The dataset created for the analysis of the consumer's perception is made of 93 people, split into 58% of women and the remaining 42% of men. The majority of people interviewed were between 30 and 39 years old. The range of age is as shown in the Table 1.

**Table 1 - Quantity of respondents by age categories**

Age range	Number of people	Total percentage of the population by age range
18 - 27	21	23%
28 - 37	22	24%
38 - 47	16	17%
48 - 57	12	13%
58 - 67	11	12%
68 - 77	7	8%
78 - 87	3	3%

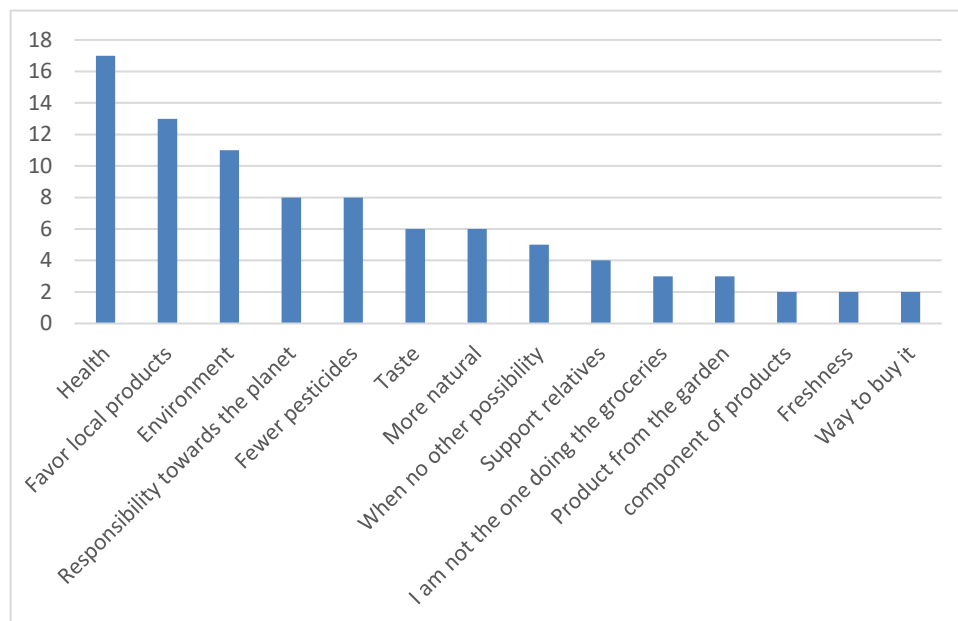
We can assume that the people above 40 years old know more about wines than younger people. Although it is a generality, due to experience, it seems logic that they have a better knowledge.

#### **2.2.3.1 What drives consumers to consume organic products**

Out of the 92 interviewees, 68 said that they usually consume organic or biodynamic products and 24 answered that they did not.

The overall result for the positive organic consumption shows that the main reason for consuming these products is the benefits for the health, followed by the fact of privileging product from local places and then the benefits it would have on the environment.

**Figure 3 - Reason for organic / biodynamic consumption, by frequency of answer**



The main reason of the health is explained by the fact that the products, such as pesticides, that are supposed to help the grapes grow are then consumed by humans through the product. Thus, organic products harm not as much the human, given that they have fewer pesticides.

The proximity of origin of the product is also a concern for people as they favour local products. It can be seen as organic as it reduces the pollution made through exports.

Globally, 75% of men said they consumed organic, compared to 65% of women. In more details, all men between 58 and 77 years old consume organic. 80% of men in their fifties do consume as well. Rates decrease for younger age groups, the lowest being the thirties, with a rate of 56%.

The first reason that drive men, no matter the age range, to consume organic and biodynamic products is that it is healthier. Follow after, the fact that they favour local products. For the categories that consumed a lot, they seem to have personal reasons, however the support they bring to relatives who are working within the organic and biodynamic field, seems to be their main reason to buy organic products.

As for women, the 50-year-old category is the biggest female category of organic consumer, with a rate of 86%, then follow the categories between 38 – 47 and 58 – 67

with an equal rate of 80%. Women in their thirties are, like the men, the most refractory to organic (69%), whereas 71% of millennials (20 year old category), all sexes combined, said they consumed organic food.

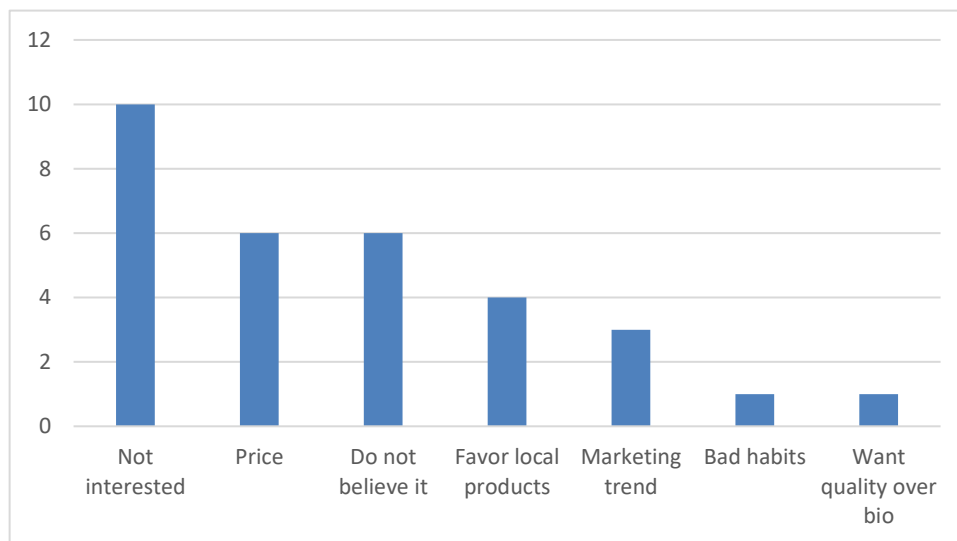
Women also tend to take firstly into account the impact it would have on their health (9 answers) as a reason for organic and biodynamic products. Then they are equally concerned by the environment (8 answers), the fact of favouring local products (8 answers) and the fact that there is fewer pesticides (8 answers). The age ranges being the most attentive to their health are the ranges of 18 to 37 year old. Therefore, it could be assumed that they are concerned about organic cosmetics.

While looking at the reasons of specific age categories, it can be seen that women within their fifties, representing the main female age range buying organic products, are driven by various reasons, including the environmental aspect and the health. However, within this category, some mentioned that they would take organic products when they would not find them in the non-organic section. Therefore, it could be deduced that their favour the facility while doing the groceries, rather than the origin of the products.

It can also be seen that some people don't really feel affected by the topic. Few interviewees are not the ones doing the groceries, as a result, they do consume organic but with little interest. It could be deduced that these people consume whatever is at home. Another category, the "when no other possibility" is, as well, made of people not really impacted. They could be seen as reluctant and only consumer of necessity.

The overall results for the negative response depict a lack of interest as the main reason. It is then followed by the price that is seen as too high for this type of product and the misbelief that people have regarding the organic production.

**Figure 4 - Reason for non-organic / biodynamic consumption, by frequency of answer**



Even though a majority of people do believe in organic, some are still sceptical. They perceive it as a trend or a pretext from companies to sell more.

Moreover, a reason for them not to believe in organic is the proximity between organic and non-organic lands. Indeed, when a land is treated in an organic or biodynamic way, and is situated right next to a conventional land, the products administrated to the second land still affects the grapes of the first, through the air and the soil. As a result and for those non-organic believer, the products supposed to be organic are still affected by chemicals.

Even though the majority of them still consume organic product, the fact that men and women in their thirties are the most reluctant for buying organic products can raise questions. Their main reasons is the lack of interest and the fact that they don't believe the organic system. Moreover, the women are part of the segment that thinks local production is not organic but should be favoured.

#### **2.2.3.1.1 Conclusion**

The categories with the highest response rate, meaning that the category in which the interviewees developed the most their answers, are the women between 18 and 35. The fact that, no matter the positive or negative responses, these categories have a higher rate of response could be explained by several factors. Firstly, as the interviewer was a woman, they could have felt more at ease and eager of sharing their point of view.

Secondly, and even though it is changing with time, it is current that women are the ones doing the groceries for the family. As a result, they tend to know more about the shopping habits.

What is interesting from both figures (Figure 3, page 21 and Figure 4, page 23) is that the reason of favouring local products appears on both sides. Meaning that, for some, the fact of consuming local product is an organic gesture, whereas for others, the same thing appears to be a non-organic gesture. It can indeed be assumed as eco-friendly as it reduces the pollution made through exports. However, there are no signs that the products are made following organic principles. Whereas the people of the latter are not really convinced by the organic movement as they believed in manipulation from companies. So instead, they prefer buying to the farmers, being either for food or wine, next to their place. For this segment, a product that is labelled organic but is imported from another continent is nonsense.

Another point to highlight is that the majority of consumers are 40 years old and older. Men tend to buy more if they feel their personal responsibility is involved, through their support for their relatives, their care for their health and their responsibility towards the planet. Whereas women pay attention to their health as well, but also take into account the environment and the ways to make life easier.

While 20 year olds also buy, they also tend to be suspicious. In addition, prices too high do not match their means. The fact that they are still in the age of study explain that they may not be able to afford to buy more expensive products, due to their limited budget.

Finally, people in their thirties are more suspicious about the manipulation from brands and thus tend to not trust so easily labels as it might be just a trick to make them pay more.

### **2.2.3.2 Perception of biodynamic wine by consumers**

To get their perception on biodynamics, people were asked what came to their mind when hearing the term “biodynamic wine” and as a matter of comparison, the question was also asked about the term “organic wine”. These word associations were put in place to analyse if people do a difference between those terms – organic and biodynamic. Moreover, it is interesting to see if the panel are linking both terms, as they share a similar pronunciation in the French translation, language in which the interviewees were made.



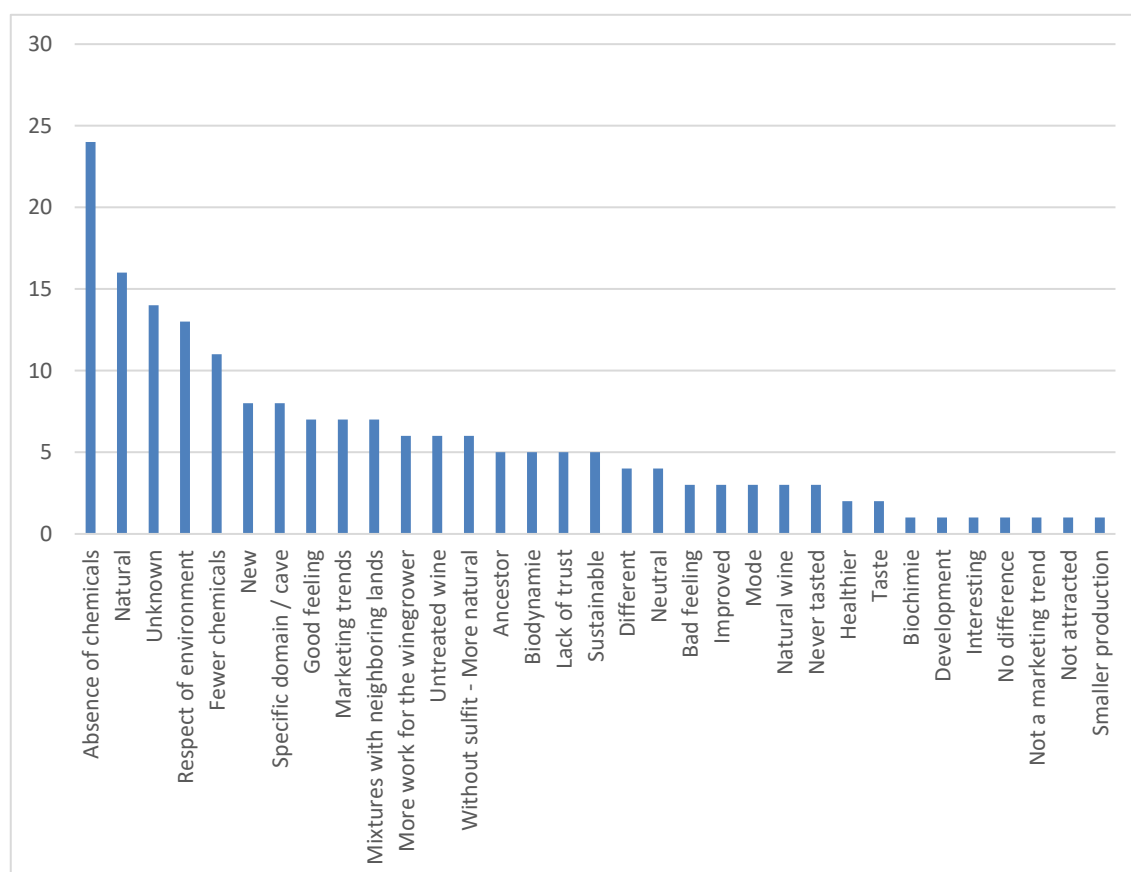
In order to set the frequency, the category that has been mentioned the most has been divided by 2 and the result gives the delimitation between very frequent and less frequent segments. Regarding the importance of the categories, only the first word has been considered as very important and the following words as less important. Meaning that when the sum of category X within the first word column is above the sum of category X within the word columns two to four, then the category X is considered as very important. In the contrary, it would have been considered as less important.

#### 2.2.3.2.1 Organic wine word association

For the organic wine section, 33 categories were created for a total of 187 associations.

The figure 5 depicts that the *Absence of chemicals* is the most frequent category, with 24 people mentioning it, including 15 times as the first word. Then come *Natural* with 16 mentions and *Unknown* with 14.

**Figure 5 - Categories' frequency organic wine**



As it can be seen on the Table 2, the categories *Absence of chemicals* and *Unknown* are within the central core of consumers' perception, meaning that these categories are both very important and very frequent on their minds. The *Unknown* category appears 14 times and its frequency makes it the second most frequent of the list (8 Very important > 6 Less important) right after *Absence of chemicals* (15 > 9). The first periphery is made of the categories *Natural* and *Respect of the environment*.

**Table 2 - Consumers' perception of organic wine**

Central core	1 <sup>st</sup> periphery	Contrasted elements	2 <sup>nd</sup> periphery
Absence of chemicals Unknown	Natural Respect of environment	Fewer chemicals More work for the winegrower Untreated wine More natural Biodynamie Neutral Bad feeling Improved Mode Natural wine Healthier Taste	New Specific domain / cave Good feeling Marketing trend Mixtures neighbour lands Ancestor Lack of trust Sustainable Different Never tasted Biochimie Development Interesting No difference Not a marketing trend Not attracted Smaller production

Differences were made between some categories in order to better represent the panel of answers. For instance, *Unknown* (central core) and *Never tasted* (Second periphery) are distinct categories. To illustrate the latter: "I have never tasted so I don't know what to say" shows that it is not an ignorance of the subject. The respondents have heard the term "organic wine". As a consequence, and to not biased the results, those types of answer are classified as *Never tasted*.

There is as well a difference of categories, depending on the use of the term "nature". *Natural* can be seen within the first periphery, *More natural* within the contrasted elements, so is *Natural wine*. The first term is about a natural production, so it focuses

on the way the wine is produced, the second is a direct comparison to other products or lands and the latter focused on the wine itself.

As it is represented within the second periphery of the table, the categories *Lack of trust*, *Mixtures with neighbouring lands* and *Marketing trend* show that, as seen previously, some individuals are sceptical about organic food.

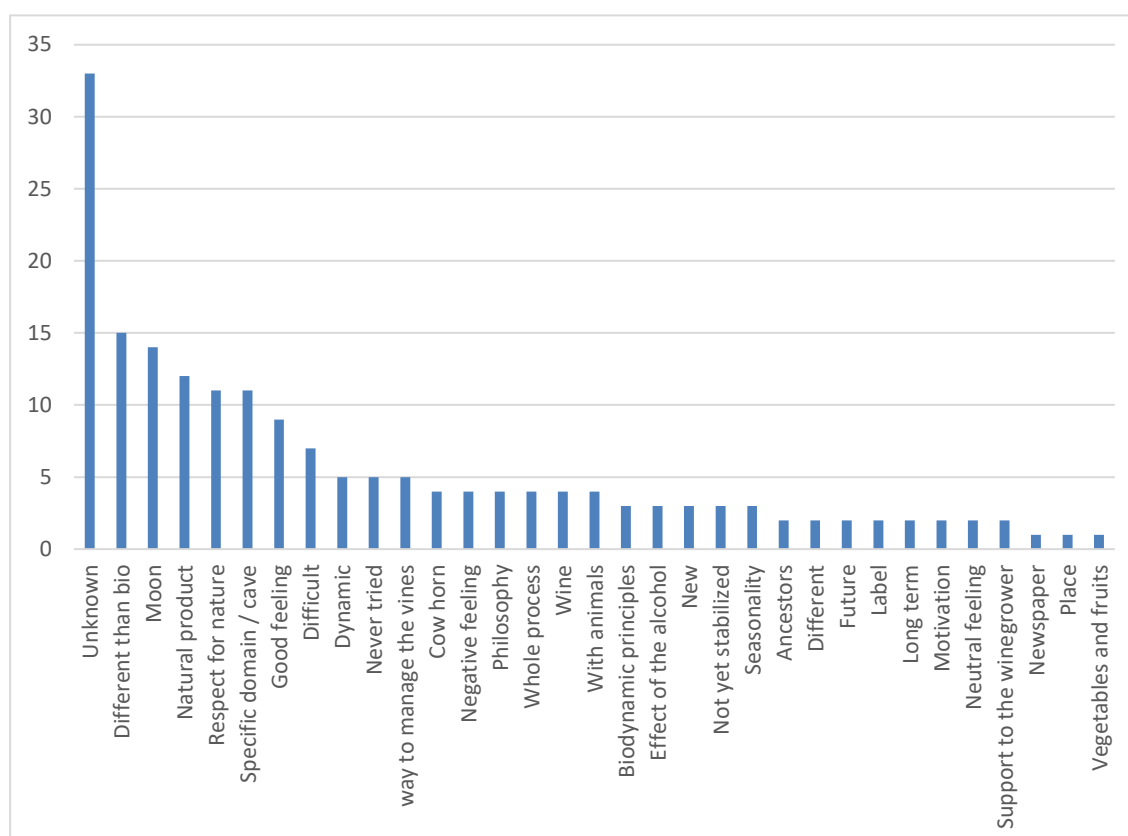
The *Absence of chemicals* and *Fewer chemicals* are as well separated categories, due to the quantity of time they were mentioned. Majority of people associate organic wine to absolute absence of pesticides, while a fewer conceive that it is only a decrease of products and not a total absence.

The *Absence of chemicals* being the leading category is linked to previous point of the analysis. Indeed, as people think about their health while buying, the absence of chemicals is the first thought they have. And only then, they think of the environment. Thus it explains the reason that *Respect of environment* category is within the first periphery, interviewees mention it but rarely as a first word.

#### **2.2.3.2.2 Biodynamic wine word association**

Within the Biodynamic wine section, there are 185 words divided into 33 categories.

**Figure 6 - Categories' frequency biodynamic wine**



The graph above shows that the *Unknown* category is leading with a total of 33 responses and also the first in term of frequency (28 Very important > 5 less important). As a result, this category is the unique at the central core. Furthermore, the first periphery remains empty as the *Unknown* category being so popular, all the other cannot reach the target to be perceived as very frequent.

Although it is kept in mind that the *Unknown* category remains the first both in importance and frequency, by removing it from the word association, the analysis will be more detailed with the perception of people that do know a minimum on these wines. Moreover, the *Unknown* being so above the rest, it could be viewed as an outlier.

The removal changes the results as following: within the central core are now present the *Different than bio*, *Respect for nature* and *Specific domain/cave* categories. Moreover, from the second periphery, the categories *Moon*, *Natural product* and *Good feeling* are moved into the first periphery. Thus giving a more balanced table than if *Unknown* had been kept.

**Table 3 - Consumers' perception of biodynamic wine**

Central core	1 <sup>st</sup> periphery	Contrasted elements	2 <sup>nd</sup> periphery
Different than bio Respect for nature Specific domain / cave	Moon Natural product Good feeling	Way to manage the vines Whole process Biodynamic principles Effect of the alcohol Seasonality Different Vegetables and fruits	Difficult Dynamic Never tried Cow horn Negative feeling Philosophy Wine With animals New Not yet stabilized Ancestors Future Label Long term Motivation Neutral feeling Support to the winegrower Newspaper Place

The *Different than bio* category might be constituted of some people (15) who didn't know much about biodynamics but still wanted to pretend they did. As the term is different and sounds more technical, logically it is different. Yet, the terms constituting the category are almost all going in the same direction by saying that biodynamic is better than bio.

The *Respect for nature* category implies that biodynamic agriculture protects the product as well as the environment. The category appears 11 times and is first in term of importance (8 > 3).

Finally, the last category of the central core, *Specific domain/cave*, has a frequency of 11. Its presence in this column is explained by the fact that it might be easier for people to link the term with something concrete or someone they know.

Concerning the first periphery, the *Moon* category appears a total of 14 times. While other biodynamic methods or tools appear on the table, the impact of the moon on the whole process, seems to be main specificity of biodynamics that people have in mind.

The *Natural product* category is about the kind of product used for biodynamic agriculture, for instance natural fertilizer and lack of pesticides.

### **2.2.3.2.3 Conclusion**

There is a general lack of knowledge on the subject of biodynamic wine. Indeed, while talking about organic wine, few people are mentioning the biodynamics, as it can be seen within the contrasted elements of the Table 2. This mention is as if the latter was a specific branch of the first. As the word came from their own initiative, it can be assumed that these people know the biodynamic topic. Whereas, while talking about biodynamic wine, people specify that it is different than organic. Because, although they share a similar sonority in French, the terms organic and biodynamics are different, it can be assumed that their definitions are different as well. Moreover, as the word “Biodynamic” sounds more technical than the word “Bio”, people might be pushed to say that it is more philosophic and complicated to understand.

Once that people’s lack of knowledge on the subject is put aside, rather positive judgement are discovered. The *Good feeling* appears on the first periphery of the biodynamic table (Table 3), while for the organic table (Table 2), not only the *Good feeling* category appears only on the second periphery, but there are as well rather negative categories, such as the *Bad feeling* category within the contrasted elements and the *Lack of trust* in the second periphery. However, the majority of respondents who had negative feeling on organic, did not know about biodynamics. It can thus be deduced that if they knew about it prior, they would have had similar negative feeling towards biodynamics.

People know more about biodynamics when they directly know someone or have a specific brand in mind. They are impacted by relatives which is not the case for organic.

While the word association for organic wine shows as a main category the absence of pesticides, the biodynamic word association shows no specific category for that. However, the absence of chemicals is included in another biodynamic category. Therefore, chemicals is associated to organic products and not biodynamics.

### **2.2.3.3 Consumers’ willingness to pay**

In the whole, 58% of interviewees are ready to pay more for organic and biodynamic products. As the organic consumers represent 74% of all the interviewees, it means that 16% of them are not willing to pay an additional amount.

Within the amount of positive response, 36% of respondents are women between 18 and 37 year old. But, overall, it is the people between 18 and 27 years old, who are the most

inclined to pay more. On the side of the negative responses, it is also women who dominate. In this category, the majority being between 28 and 57 years old.

For organic consumers, men between the ages of 20 and 40 show a tendency to pay more for the satisfaction to have a better health. So are the women of 30 years and older. As for older men, above 60 years old, they are ready to put more into the organic in order to support their loved ones working in the field. For women in their twenties, they pay more for the environment and respect for the planet.

Logically, all the people that do not consume organic because of its price, are not willing to pay more. However, of all the people who do not consume, there are categories in which people would still be willing to pay more in the case they consumed. Indeed, men who do not consume organic due to lack of interest, are still willing to pay more. While women in their forties and who do not consume organic are also willing to pay more if the taste is there. These women do not want to pay for the way the good was produced, but rather for the quality it has in their hands. It can also be deduced that these women are thus not paying attention on the labels on products, because labels are supposed to be the distinctive sign for the good's quality. Finally, women in their thirties who do not consume organic because they do not believe in it, also show a tendency to be willing to pay more. This last observation seems irrational, as it is contradictory to not believe in something and still show willingness to pay for it. An explanation would be for them to show that it is not because of the price that they do not believe in organic.

There is a general perception that healthy products are more expensive. Indeed, only 2% of those interviewed said that the products can be found at low price. The rest is based on the principle that the cost is higher. In addition, some people feel manipulated. According to these people, it is fair to pay for a good product, but there is also the fact that companies take the opportunity to charge even more on the pretext that it is organic.

What would be interesting to know is if the price was lower than currently, would people buy as much? Since it is so based in people's minds, a price similar to the non-organic product would raise a suspicion that it would not be quality.

#### **2.2.4 Perception on Label**

This point will address the perception of both winemakers and consumers on labels. It will include general label and more specifically the Demeter label, which corresponds to the label of biodynamic products.

A label represents the image of a way of doing and followed principles, and thus ensures the quality of a product. It represents the quality of a producer for consumers and can also be an incentive for people to buy a product, in line with a marketing strategy.

Some people have complained about this last point during the interviews. Although there are not a lot of them, in fact 10 people which still represents 11% of the panel, this point is relevant to raise. It has been a decade since organic is trendy, and companies have seen the potential to make money and thus use it for commercial purpose. Therefore, the 11% of interviewees are suspicious that an organic label is just a logo to hide the marketing strategy that is to charge more for a similar product, which is then not necessarily organic. The refusal to buy the labelled products can be seen as a boycott for companies to be more transparent.

#### **2.2.4.1 *Demeter label***

##### **2.2.4.1.1 *Winegrowers' perception***

On average, winegrowers feel that the label is to have a recognition from the public, a way for the clients to understand the work done by the winegrowers. If they did not have this label, no one would really know the effort. Therefore, it is a certification to be recognized.

It is also a way of communicating, if they themselves do not advertise and communicate directly with the public, they feel that the label does it for them.

Furthermore, the interviewees don't really understand their colleagues who declare they are following specific principles without being certified. This behaviour is related to marketing, because something holds them back from being certified while if they did everything following the principles, nothing would hold them back.

An explanation for some winegrowers not to be certified even though they are working using biodynamic principles might be the cost of the certification. This cost includes the royalty for the trademark, a membership fee and the cost of the inspectors. Which in total, represents a large amount for small firms. As a consequence, some winegrowers prefer to declare their grapes as organic, as the cost for organic certification is lower than for biodynamics. (Vastola, Tanyeri-Abur, 2009).

As mentioned, the Demeter label is expensive for some winegrowers. However, according to the winegrowers interviewed, the Demeter label is not really difficult to



obtain. In itself, diligence and sincerity are required. In fact, one believes that the label doesn't even ask enough and could be stricter. Indeed, the people who get involved in biodynamics are the ones willing to do more and as best as possible for the environment, while the label is satisfied with the base.

Before obtaining the label, some stages have to be passed to be in conversion. As part of these stages, some preparations are required at least once a year. It includes the horn silica preparation, the horn manure preparation and the compost preparation. Once these preparations are done at the right time regarding the growth stage of the plant, the winegrower can officially be considered in conversion to receive the Demeter label.<sup>28</sup>

#### **2.2.4.1.2 Consumers' perception**

Only 37% of the respondents knew about the logo. It corresponds then to the global lack of knowledge on the subject depicted previously.

However, all the men within the age range of 50 years old recognised it. So did the majority of men within the 40 age range and the majority of women within the age range of 50. The categories that recognised the less the logo were the women between 18 and 37 years old. The women of 38 to 47 also had a low score.

The reasoning behind these results is that the Demeter label, although it includes other foods, is especially known for wines. It indeed counts the wine as the most emblematic biodynamic product.

The majority of 50-year-olds said they were organic products consumers. As a result, it can be deduced that these people know this label because they are regular consumers of wine and they pay a little attention to the products they buy. Whereas the younger women are not regular wine consumers. For the women in the thirties and more, it could also be deduced that women are indeed wine consumers, however, within relationships, men are the ones choosing the wines. It is a cultural trait that men are usually offering each other a bottle of wine when invited for dinner, while women are offering each other bouquet. Therefore, women do not choose the wine.

---

<sup>28</sup> Demeter website

#### **2.2.4.2 Conclusion**

To conclude, some people remain sceptical about the validity of labels in general, as it can be viewed as a way to charge more for a product. Furthermore average people can be drown within the market in which many labels exist. In addition to all the official labels, consumers also have to deal with producers claiming they are following principles of labels without being certified. As a result, consumers can feel overwhelmed and thus take distance from labels in general.

As for the Demeter label, a majority of the respondents did not know what label it was. Though, people above 40 years old seem to know the label. It might be analysed as a sign that they are more attentive while buying or that they consume more wines.

A label remains the best way for winemakers to make their work recognized by a wide audience and therefore a proof of the quality of the product and the effort of the producer.

### **2.3 Hedonic regression**

As seen previously, a majority of consumer are willing to pay more for organic and biodynamic products. The point here is then to understand whether the biodynamic process is really the reason for the higher price of wines. The hedonic regression will determine which attributes of the wine constitutes the price of wine, in order to study if it is the type of viticulture that impacts the most the price variation or if other attributes are more important.

In order to analyse the impact on the price, the dataset was made to take into account the different types of winegrowing explained in the section Types of viticulture on page 5. The dataset have a total of 174 observations.

**Table 4 - Number of observations by types of vineyard**

Types of vineyard	Number of observations
Conventional	56
Organic	25
Biodynamic	31
Integrated production	42
Mix of winegrowing	20

The data are based on 75 centilitres bottles from vineyards of the cantons of Vaud (164) and Geneva (10). They were taken based on the information present on the bottle labels. The other variables taken into account for this analysis are the types of winegrowing, the types of grapes, the vintage and the price of bottles. As the prices are the core of this analysis, the wines are within a price range as shown in Table 5 below. In order not to bias the results, the information of each items have been search directly on the winegrower website, so that to ensure none incremental cost would have been added. The average price for the biodynamic wines is CHF 17.95, whereas the average price for organic is CHF 16.70 and for conventional CHF 15.00.

**Table 5 - Price range of bottle**

Minimum price	6.80 CHF
Maximum price	35.00 CHF
Mean	16.16 CHF
Mode	12.0 CHF

### 2.3.1 Model

The model used for this hedonic regression is the following:

$$\text{Price} = P(Z) + \varepsilon = \alpha + \beta_1 A + \beta_2 B + \beta_3 C + \varepsilon$$

Corresponding to:

$$\text{Price} = \alpha + \beta_1 \text{Vintage} + \beta_2 \text{Canton} + \beta_3 \text{Grape} + \beta_4 \text{Winegrowing} + \varepsilon$$

The formula above is simplified using general dummies to understand what variables have been used. The vintage represents the year in which the grapes were harvested and the wines produced, it goes from year 2013 to 2018 in the dataset. The Cantons are Vaud and Geneva. There are 13 dummies for the grapes: Altesse, Chardonnay, Chasselas, Doral, Epesses, Gamaret, Gamay, Garanoir, Kerner, Merlot; Pinot; Viognier, Sauvignon and assemblage. Finally, there are 4 dummies for the types of winegrowing: Conventional, Organic, Biodynamic, Integrated production and a mix of different winegrowing.

### 2.3.2 Analysis

The table on the following page shows the regression between the price, the year, the canton, the vine and the winegrowing. Looking at the p-value of the F-test, we can see that the overall model is globally significant with a value of zero. The R-squared of 0.4970, meaning that 49% of the price variation is explained by the variables of the model, is not perfect but seems enough. Therefore, we can assume that some pertinent values are missing to the model and the price cannot be predicted with entire precision.

Concerning the variables, the t-stat show that a majority of values are not significant as they are lower than 1.96 in absolute value. When looking at the details, we can see that the year (vintage) is a significant value as it has a t-stat value higher than 1.96 (4.50) as well as a P-value less than 0.05 (0.000). We can then assume that  $\beta_1$  is equal to (0.16).

The next value, the canton variable, shows that a bottle from the Vaud canton, costs on average CHF 0.23 less than a bottle from the Geneva canton. As the P-value and the t-stat show, this variable is significant with 2.02 for the t-stat and 0.046 as a P-value and must therefore be taken into account.

The orange rectangle represents the dummies of the winegrowing, with the conventional type as the reference point. As we can see, the mix variable shows significant values

with t-stat of 4.22 and P-value of 0.000, whereas the remaining variables are insignificant. However, seeing the values of the biodynamic variable, I decided to keep them within the model as the P-value is still 0.058 and thus remains really close to the confidence level. Meaning that there is almost 95% of certainty that the price of a bottle of biodynamic wine has a price of CHF 0.15 higher than other types of viticulture.

Finally, within the blue rectangle that represents the grapes, none variable is significant to the model. It can thus be assumed that the grapes do not have any impact on the price of wine bottles.

**Figure 7 – Result hedonic regression on STATA**

Source	SS	df	MS	Number of obs	=	120
Model	7.81007117	18	.433892843	F(18, 101)	=	5.54
Residual	7.90430661	101	.078260461	Prob > F	=	0.0000
				R-squared	=	0.4970
				Adj R-squared	=	0.4074
Total	15.7143778	119	.132053595	Root MSE	=	.27975

lprice_per_bottle	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
year	-.165409	.0367928	-4.50	0.000	-.2383961	-.092422
vaud	-.2353617	.1163788	-2.02	0.046	-.466226	-.0044973
biologique	.1593985	.1001693	1.59	0.115	-.0393106	.3581075
biodynamique	.1489481	.0776749	1.92	0.058	-.005138	.3030341
Productionintégrée	-.1407809	.076035	-1.85	0.067	-.291614	.0100522
mixdedomaine	.4053313	.0960646	4.22	0.000	.2147651	.5958976
chardonnay	.0636129	.3351802	0.19	0.850	-.6012945	.7285202
chasselas	-.2285323	.2902921	-0.79	0.433	-.8043938	.3473292
doral	-.065584	.4088685	-0.16	0.873	-.8766691	.7455012
epesses	.0521991	.4088685	0.13	0.899	-.758886	.8632842
gamaret	-.1321694	.3577245	-0.37	0.713	-.8417986	.5774598
gamay	-.3625734	.3104076	-1.17	0.246	-.9783386	.2531917
garanoir	-.1899039	.4064947	-0.47	0.641	-.9962801	.6164723
assemblage	-.2026161	.2955294	-0.69	0.495	-.788867	.3836348
merlot	-.0346933	.3256008	-0.11	0.915	-.6805977	.6112111
pinot	-.1399186	.3012917	-0.46	0.643	-.7376004	.4577631
viognier	.1267627	.3554189	0.36	0.722	-.5782928	.8318182
sauvignon	-.1324054	.4237973	-0.31	0.755	-.9731053	.7082946
_cons	336.6789	74.22223	4.54	0.000	189.442	483.9159

Source: Result from STATA, BOVET Joëlle

As a result, and as there are multiple insignificant variables that could biased the model, a new regression, with only the significant variables kept, is required.

**Figure 8 - Regression remaining significant variables**

lprice_per~e	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
year	-.2054492	.0344695	-5.96	0.000	-.2737265	-.1371718
vaud	-.2118131	.1092087	-1.94	0.055	-.4281346	.0045084
biodynamique	.1933845	.0632011	3.06	0.003	.0681952	.3185738
mixdedomaine	.4272545	.0837721	5.10	0.000	.2613182	.5931909
_cons	417.1762	69.49889	6.00	0.000	279.5123	554.8401

Source: Result from STATA, BOVET Joëlle

The equation when the insignificant variables are put aside is as follow:

$$\text{Price} = 417.17 + (0.20) \cdot \text{Vintage} + (0.21) \cdot \text{Dummy Vaud} + 0.19 \cdot \text{Dummy Biodynamic} + 0.42 \cdot \text{Dummy Mix} + \varepsilon$$

However, for this new regression, the value of the R-squared is of 36%, meaning that this new model explains less than the model with the insignificant variables. This can be explained by the fact that within the first model Figure 7 the variables were the ones explaining the best the model, in comparison to others. However, when taking off all the insignificant variables of the first model, the remaining variable have then less impact on the model as they do not represent the main variables to explain the price.

### 2.3.3 Conclusion

To conclude, people are indeed willing to pay more for organic and biodynamic goods. However, in the case of wine, the general higher price is not only explain by whether the vineyard is treated in biodynamics or not.

The data that could be considered significant at first sight, such as the grapes, are not the most significant data to explain the price of wine. Indeed, the data show no or little impact on the price. The most relying variables are thus the canton of origin of the wine, meaning the terroir, and the year it was produced, meaning the vintage.

As the variation is not mostly explained by neither the first nor the second regression model, important variables were lacking in order to explain the variation of price. Some of these variables could potentially be the reputation of the vineyards and the critic rates. However, as the dataset was made based on the information on the bottle labels, such criteria (reputation and critics) could not be found. The higher price of biodynamic wines

could also be explained by the presence of labels or not. Another criteria could be the harder work done by the winegrowers.

## **2.4 Porter five forces**

The model help assess the attractiveness, the interaction and powers of the stakeholders of the industry, it however focuses more on threats than opportunities and leaves little room for collaborative strategies. Yet, biodynamics is a sustainable commitment. As part of this sustainable commitment, collaboration are encouraged as companies do not want to be better than the others, they want to be better for the world. Therefore, the five criteria have been slightly modified as it is not an analysis of a specific company, but the analysis of the biodynamic wine industry in general. Some freedoms were taken to consider a model that would then correspond to the industry.

### **2.4.1 Industry rivalry**

The rivalry within the wine industry, is high as there are many producers in the Swiss Romande. Whereas within the biodynamic industry, the rivalry might be perceived as low. There are indeed a lot of winegrowers in the region of Vaud and Genève, yet just a minority of which are following biodynamic principles.<sup>29</sup>

The uncertified winegrowers who claims they are managing the vineyards following biodynamic principles could be seen as an unfair competition.

Moreover, at a moment in which biodynamics is still not really known, it seems that the winegrowers stand together and support each other to make biodynamics viticulture more known.

### **2.4.2 Substitutes**

Biodynamic wine industry has high substitutes. The direct being represented by the wines of other type of viticulture and the indirect includes the other alcoholic beverages, such as beers and spirits. The threat is high as the substitutes are cheaper than the biodynamic wines.

---

<sup>29</sup> Newspaper 24 heures

### **2.4.3 New entrants**

The barriers to entry in the biodynamic industry are low for current organic producers. The initial investments are not higher than for other viticulture, neither is the process difficult to certify. Apart from the cost to get the Demeter label, which can be seen as pretty high, the difficulties lay on the organization and time management as well as the general management of the viticulture if the winegrowers themselves do not believe in the process. In fact, the real concern for new entrants is to believe in the biodynamic philosophy. However, it is harder for a conventional winegrower to go biodynamic as the first step is to be certified organic.

As it represents the industry in general, the more entrants there are, the better for the industry. In the case of biodynamic wine industry, it seems that more and more organic winegrowers are moving into biodynamics naturally as it is the logic farther step to take to a more sustainable way of producing and thus represents the next stage of the organic logic.

### **2.4.4 Power of suppliers**

The power is relevant in the case where the suppliers are only a few and condensed into an area.

Yet, biodynamic winegrowers do not have suppliers for the grapes, one of the criteria to be biodynamic is indeed that the grapes are to be from the same land. Still, it would be an issue for other materials, such as bottles and barrels.

Another reason to consider suppliers as threats is to see them become competitors. In this case, if they do not own any vineyards, there is little risk to see them become competitors or even substitutes.

### **2.4.5 Power of buyers**

There are many customers within the global wine industry for a rather reasonable number of biodynamic vineyards. However, the high quantity of substitutes let the choice to buyers between the different types of product, taking also into account that most substitutes are cheaper. However, the products are different from a substitutes to another and the buyers could be more sensitive to the ethical production of biodynamic wines.



Buyers can hardly penetrate the biodynamic industry and produce themselves the wines if they do not possess the infrastructure and the know-how. Thus, the backward integration being difficult, the buyers' power is low on this aspect.

Moreover, as seen previously, it is not the consumer's knowledge that push winegrowers to go biodynamics. Thus it seems that the consumers will not be a motive for more biodynamic companies to be funded. Therefore, the power of buyers of this industry can be seen as moderate.

#### **2.4.6 Conclusion**

Following biodynamic principles is being part of a sustainable approach. The goal is not to make the biggest monetary benefit, it is also to preserve the resources of nature and being more collaborative. So, if winegrowers have the values to follow a sustainable business, the industry shows attractive aspects.

The force of the industry rivalry is rather low, meaning not threatening as it is more a collaborative industry in which the producers want to evolve together for the well-being of the environment. The barrier to entry in the industry is low for organic winegrowers, but high for other conventional viticulture type, as to be biodynamic, the land has first to be certified organic. The power of buyers is moderate as there are not as many buyers as for the substitutes, but the products are different and the backward integration is hardly feasible. Whereas the power of suppliers as well as the substitutes are high forces, as both can be potential brakes to production.

At some extent, it can be beneficial to see these forces lower in order to develop this sustainable industry. Having said that, the biodynamic wine industry shows attractive aspects for stakeholders. Furthermore, the sector has not reach its full potential yet and is still in development.

### 3. Discussion

The PESTEL gave an insight on the environment in which biodynamic wine is evolving. Although overall alcohol consumption is decreasing in Switzerland, wine remains the beverage with the highest consumer rate. Biodynamic products are on average 15% more expensive than conventional products. Moreover, technological improvement makes the machinery consume fewer fuel and there is an overall awareness about environmental concerns.

As for the stakeholders' perception, there is a global lack of knowledge from the customers. However, once we go beyond this lack of knowledge, there is a good overall resentment. For the great majority, they had good terms coming to mind while thinking about biodynamics, compared to organic word associations, for which several word categories were negative. The first things that come to their minds were the difference that biodynamics has with organic viticulture, the large respect for the environment and name of specific domain. They then perceive a mystical side of the biodynamic philosophy, with the implications that the moon has on the global process.

Consumers above 40 years old, more particularly men, tend to have higher knowledge on the subject as they recognised the Demeter label. Consumers in their thirties are part of the category the most reluctant to organic and biodynamic consumption, due to the fact that they are more suspicious than other generations.

The majority of respondents are willing to pay more for organic and biodynamic products. The main reason for it being related to human health. In general women are more attentive to health, whereas men are attentive to their personal implications in a process.

The price for biodynamic wines is higher than for the other type viticulture. But, the price is not consistent with the additional work done by the winegrowers. Moreover, bottle prices do not only depend on the types of viticulture, they also depend on the terroir and the vintage. However, these are not the only characteristics that explain the price.

The main motives for winegrowers to follow biodynamic principles are personal convictions and those are focus on the respect of environment. Moreover, the fact that there are so many people who do not know biodynamics while winegrowers are aware of that, shows again that winegrowers do not do this for attracting more consumers. Winegrowers believe in the global welfare of this viticulture and see it as the best way to work in their field while respecting their good and values nowadays.

Being certified by the Demeter is a way for winegrowers to make the average people understand what biodynamics is. However, the majority of people do not know the label and might be generally overwhelmed by the competition between all the labels and individuals that guarantee the fairness of their products without being certified. As a result, it is difficult for consumers to choose between different products while doing groceries.

Finally, the Porter tools highlighted the high forces of substitutes and suppliers. On the contrary, the forces of the rivalry, buyers and new entrants are moderate within the market. For these reasons, the biodynamic wine industry is still attractive for the future and still has room for development.

Thus, through various analysis tools, the current state of biodynamics has been observed as well as the possibility for the industry to have reached its full potential. The present part investigates the potential obstacles for further development and some solutions for moving biodynamics forward.

### **3.1 SWOT analysis**

The SWOT is based on the results of the analysis done in the previous part of the report. This tool help identify the strengths, weaknesses, opportunities and threats of biodynamic wine industry. It would therefore provide insights on obstacles for further developments. As for the previous tool, the SWOT analysis has been modified to be applied to an industry in general rather than a specific company.

**Table 6 - SWOT biodynamic wine industry**

<p style="text-align: center;"><b>Strengths</b></p> <p>S1. Motivated winegrowers who deeply believe in the welfare of what they are doing.</p> <p>S2. Has a positive impact on health</p> <p>S3. Has a positive impact on the environment</p> <p>S4. The winegrowers are the industry representative</p> <p>S5. Demeter label is a communication tool</p> <p>S6. Positive perception from consumers</p> <p>S7. Perceived as different than organic wines</p>	<p style="text-align: center;"><b>Weaknesses</b></p> <p>W1. Lack of knowledge of consumers</p> <p>W2. Complicated to understand all the aspects included by this way of production</p> <p>W3. Time consuming process for winegrowers</p> <p>W4. Higher prices</p> <p>W5. Linked to organic</p> <p>W6. Philosophy might be seen as brainwash</p> <p>W7. Not recognised by politics</p> <p>W8. High dependence to suppliers</p>
<p style="text-align: center;"><b>Opportunities</b></p> <p>O1. Consumers' increasing interest towards healthy and environmental concerns.</p> <p>O2. Change of people habit, increase in organic food consumption</p> <p>O3. Inhabitant of Suisse Romande are the biggest local consumers.</p> <p>O4. Improvement of technology (might help materials reduce the fuel consumption and improve the communication)</p> <p>O5. The winegrowers are the industry representative</p> <p>O6. Companies are now aware of the importance of sustainable development</p> <p>O7. Wine is part of the culture and associated to conviviality</p> <p>O8. Wine has a high consumer rate</p> <p>O9. Majority of people are ready to pay more</p>	<p style="text-align: center;"><b>Threats</b></p> <p>T1. Swiss politics is not based on ecological values but rather on financial competitiveness and productivity</p> <p>T2. Substitute products</p> <p>T3. Uncertified winegrowers</p> <p>T4. Wine consumption keeps decreasing in Switzerland</p> <p>T5. Lack of trust of people on labels</p> <p>T6. Winegrowers do not have subsidies</p>

### **3.2 Hypothesis matrice**

Now that we have a global view of the biodynamic wine industry and its attractiveness, as well as a clearer definition on the perception and the roles of the stakeholders, we can study the different options available to the industry, based on the SWOT. The aim is to cross the points on the SWOT analysis in order to deduce some hypothesis for the future.

#### Hypothesis 1

##### **Based on SWOT points: S4, S6, O3 and O5**

The biodynamic industry remains small compared to organic viticulture, which in turn remains relatively small compared to conventional viticulture. Thus biodynamic wine is a niche market, with the specific customer segments made of the people from 40 to 55 years old. As these consumers are the ones that consume a lot of local products and they already know biodynamics and recognise the label.

Consequence: The industry does not evolve from its current state and remains a niche market.

Analysis: It is indeed an offer that works for this customer segment. However, the other customer segments are not efficiently used and it relies too much on a segment that could get tired of the products and therefore turn away from it with time. The risk here is the overdependence it has with the customer segment.

Probability for this hypothesis to happen: 5 /10

Potential solution for moving forward: Broaden the customer segment by different communication tools. A lot of people recognise biodynamics when they know a specific vineyard or domain in mind. Winegrowers are then the brand image of the biodynamic viticulture.

#### Hypothesis 2

##### **Based on SWOT points: W2, O4 and S5**

There are too many labels on the market, they are all slightly different but not enough to let people differentiate them. Facing so many labels, consumers do not know what to believe in and which one to favour.

Consequence: The industry does not know any particular boom because the biodynamic symbol of recognition is drowned in the mass of label.

Analysis: There are so many labels to ensure the quality of products, that it might frustrate some consumers. Indeed, when someone decides to buy a product that has been done more ethically and is then facing ranges of wine bottles with labels, how to know which label is the most trustworthy to a specific cause? It can surely be found on the internet, however, while doing the groceries people do not want to make their life more complicated by searching the origin of each product. Facing that, the person might go for a conventional wine as it was too frustrating to choose a label to trust. Thus, the risk is for consumers to turn their backs on labels.

Probability for this hypothesis to happen: 7/10

Potential solution for moving forward: An app that would scan the labels and review the main competitive advantage of them. There are already many mobile apps on wines and I said above that the fact of searching the information on the phone could be already too much, yet an app with the information at one place would not make the life so much more complicated.

### Hypothesis 3

#### **Based on SWOT points: T5, W5, W6, S6, O1, O5 and O7**

Consumers do not feel that biodynamic wines are tastier, biodynamic is seen as another way to charge people more for so-called natural products. The concept of biodynamics is too holistic to be taken seriously by stakeholders and a return to the roots in the production will not help the industry to advance.

Consequence: Demand will decrease and winegrowers will not have enough revenue to maintain their viticulture.

Analysis: People reluctant to change are to be seen everywhere. When something, no matter what it is, gets a bit of public recognition, it will also receive reproaches. Wine is an ancestral and cultural good of Swiss Romande, so when a winemaker is talented, even if the vineyard is treated conventionally or biodynamically, there is little risk for him or her to not sell anything. Moreover, there is an increased awareness of individuals towards healthy and environmental concerns. Therefore, even if there are reluctant people, there are also high chances for supportive people to be more numerous.

Probability for this hypothesis to happen: 1 /10

Potential solution for moving forward: develop the communication with consumers to make them understand the biodynamic process. Through wine fairs, winegrowers have the opportunity to explain biodynamics.

#### Hypothesis 4

**Based on SWOT points: O1, O2, O6, W7 and T1**

The industry is getting bigger with time as people are more attentive to their consumption habits. Consumers are paying extra attention to sustainable activities. Thus, companies are forced to go greener, not only to match their ethics chart, but also to comply with the demand of consumers. At some extent, with the companies being more sustainable, it affects Swiss politics.

Consequence: Biodynamics become more interesting than any conventional viticulture and success is here.

Analysis: It is a long process for even individuals to change their habits, after that this is an even longer process for companies to adapt themselves. As a result, this hypothesis might happen in a long-term scope. The risk of this hypothesis lays in the fact that consumer pressure would push winegrowers to say that they are biodynamic without certification when they would not follow the biodynamic process, just so to have the selling argument of biodynamics. Which could lead to a strong lack of trust towards labels.

Probability for this hypothesis to happen: 6 / 10

Potential solution for moving forward: Accompany people realising how positive the impact of biodynamics has on the environment through social media. This will increase people awareness faster and, in return, consumers will change their consumption habits.

#### Hypothesis 5

**Based on SWOT points: S1, W3, O4**

Biodynamic agriculture requires too much work for the winegrowers, it is time-consuming. Winegrowers stops producing wines using biodynamic principles.

Consequence: Supply of biodynamic wines stops.

Analysis: Although biodynamics might ask more workload than conventional viticulture, the winegrowers deeply believe it is best solution nowadays and they made the conversion to be more truthful to their belief. Moreover, tendencies shows that organic are naturally moving to biodynamics.

Probability for this hypothesis to happen: 2 / 10

Potential solution for moving forward: The constant technological improvement might help to ease the workload.

## Hypothesis 6

### **Based on SWOT points: S1, S5, W1, W4 and O9**

The market changes as both supply and demand increase but not at the same speed. Supply increases faster than demand due to the fact that most people do not know about the existence of biodynamic wines, whereas organic producers are already converting themselves.

Consequence: The change in both demand and supply will set a new equilibrium price and quantity.

Analysis: The new equilibrium changes the price of the goods. However, consumers are already willing to pay more for these eco-friendly products. The risk here is that the supply is increasing much faster than the demand and therefore a lower price would not cover entirely the winegrowers' production costs.

Probability for this hypothesis to happen: 9 / 10

Potential solution for moving forward: To make biodynamic wines more known from consumers, the Demeter label could change its communication strategy and explain the principles, firstly by focusing on what people have already in mind.

The review of the prospects in terms of hypothesis is as shown in the table below.



**Table 7 – Review shift in demand and supply, by hypothesis**

Hypothesis	Shift in the demand side	Shift in the supply side
H1	⇒	⇒
H2	⇒	↗
H3	↘	↗
H4	↗	↗
H5	⇒	↘
H6	↗	↗

### **3.3 Solution for moving forward**

As mentioned several time in the previous point, potential solution for moving forward could be a communication strategy. The aim of the strategy would be to develop the consumers' knowledge firstly based on their impressions of biodynamics. Thus, as a first step, develop a communication strategy to attract them to the understanding of biodynamics through more popular notions, such as the impact of the moon on the production process. Such things could raise consumers' curiosity.

The second step of the strategy would be to raise the consumers' knowledge of biodynamics beyond curiosity by using the contrasted elements categories of the Table 3 of page 29. By developing them, these categories could become the central core of consumers' perception. For instance, the category *Way to manage the vines* is currently very important but not frequent. By improving the communication, it could become a central core element and thus become very important and very frequent.

The communication channel could either be the social networks in order to reach a younger generation or through the winegrowers themselves. Indeed, the communication that goes from the winegrowers to the consumers, has a different impact than if it was done by shops. Consumers showed knowledge on the subject when they knew specific places where biodynamics was used, personal interaction with the producers make the consumers more aware of the production process.

This communication strategy should be taken in charge by the Demeter label as independent winegrowers can hardly promote biodynamics themselves. Indeed, a communication strategy is expensive and has risks not to provide a return equivalent to costs. Moreover, in the case where a winegrower promotes biodynamics in general rather than his/her wines, all other biodynamic winegrowers would benefit from this advertisement at no costs. This explains the reason why biodynamics is currently not advertised by winegrowers themselves. A way to solve this would be to create winemakers collectives in which the costs would be divided into several winegrowers and the word to mouth would benefit the winegrowers.

## 4. Conclusion

The present report analysed the prospects of biodynamic wines in Suisse Romande. The PESTEL, the perception of the stakeholders and the Porter 5 forces were used to understand the current state of the biodynamic wine industry. Based on the results and strengths of these analyses, a dynamic SWOT has been developed. The crossings of the different points of the SWOT then made it possible to determine future prospects for this industry as well as potential solutions to move forward.

The prospects were divided into 6 hypothesis and rated in terms of probability to happen. Nothing predicts that these prospects are independent of each other. They could very well be mixed with one another. However, presenting them this way gives a clearer idea of the different possibilities ahead.

The least probable prospect being that the demand will dramatically decrease and winegrowers will not have enough revenue to maintain a biodynamic viticulture as the trends showed an awareness on organic and biodynamic consumption.

Then, the prospect that biodynamics will not persist due to unmanageable workloads for winegrowers is also relatively low. Indeed, winegrowers are deeply convinced that biodynamics is the best solution nowadays and they produce this way for personal reasons and ethical purpose. These being the best motivation possible, the risk for the workload to surpass these motivations is very low.

The fact that demand for biodynamic wines might not vary is also to be taken into account. As a majority of people does not know biodynamics or are not interested by it might be a prospect of the industry of a lack of evolution from its niche market.

The prospect that is the most relevant to the biodynamic industry is that both demand and supply increase in the long-term. Indeed, although consumers do not know biodynamics yet, a majority of people are still willing to consume organic and biodynamic products for personal convictions. For those who know, they have good perception of it, the respect towards the environment being one of the main aspect they keep in mind. Furthermore, more and more organic winegrowers are converting to biodynamics, confirming in passing that organic is just an intermediary step for the more sustainable method that is biodynamics. Finally, a communication strategy is observed as the best solution to move forward, no matter the prospect.

## Bibliography

Agriculture biodynamique, 2019. *Wikipédia* [online]. [Viewed 19 June 2019]. Available from: [https://fr.wikipedia.org/wiki/Agriculture\\_biodynamique](https://fr.wikipedia.org/wiki/Agriculture_biodynamique)

BOECHAT, Sylvain, 2015-Evolution des équipements agricoles et de leur consommation de carburant, *Agri*. February 2015. P.21.

B CORPS | Certified B Corporation. [online]. [Viewed 29 May 2019]. Available from: <https://bcorporation.net/about-b-corps>

Subventions selon groupes de tâches. *Banque de données des subventions fédérales - AFF* [online]. [Viewed 29 May 2019]. Available from: [https://www.data.efv.admin.ch/subventionen/f/dokumentation/finanzpolitik\\_grundlagen/subv/sub\\_db\\_08\\_aufgabe4.php](https://www.data.efv.admin.ch/subventionen/f/dokumentation/finanzpolitik_grundlagen/subv/sub_db_08_aufgabe4.php)

Alcool, *Administration fédérales des douanes*. [online]. [Viewed 29 May 2019]. Available from: <https://www.ezv.admin.ch/ezv/fr/home/themes/alcohol.html>

BIODYNAMIC ASSOCIATION, 2019. [online]. [Viewed 19 June 2019]. Available from: <https://www.biodynamics.com/what-is-biodynamics>

DEMETER, 2019. *Directives pour l'agriculture portant sur l'utilisation des marques Demeter et Biodynamique ainsi que des marques dérivées et apparentées* [01.01.2019]. [online]. [Viewed 27 May 2019]. Available from: [https://demeter.ch/wp-content/uploads/2019/01/Anbaurichtlinie\\_2019\\_f\\_definitiv.pdf](https://demeter.ch/wp-content/uploads/2019/01/Anbaurichtlinie_2019_f_definitiv.pdf)

Baromètre SOWINE/SSI 2018 – Les Français et l'achat de vin en ligne, [no date]. [online]. [Viewed 29 May 2019]. Available from: [http://sowine.com/barometre\\_2018/page9.php](http://sowine.com/barometre_2018/page9.php)

CASTELLINI, Alessandra, MAURACHER, Christine and TROIANO, Stefania, 2017. An overview of the biodynamic wine sector. *International Journal of Wine Research* [online]. 13 February 2017. [Viewed 24 May 2019]. Available from: <https://www.dovepress.com/an-overview-of-the-biodynamic-wine-sector-peer-reviewed-article-IJWR>

DEMETER, 2018 *Convention Demeter pour l'utilisation des marques Demeter, Biodynamique et des autres marques en relation avec elles*, [no date]. [online]. [Viewed 29 May 2019 a]. Available from: <https://demeter.ch/wp-content/uploads/2019/01/Convention-Demeter-2019.pdf>

DELMAS, Magali A, DOCTORI-BLASS, Vered and SHUSTER, Kara, [no date]. CEAGO VINEGARDEN: How green is your wine? Environmental differentiation strategy through eco-labels. . P. 32.

DELMAS, Magali A. and GRANT, Laura E., 2008. The Eco-Premium Puzzle in the Wine Industry.

DELMAS, Magali, 2019. Perception of eco-labels: organic and biodynamic wines. . 27 May 2019.

DEPETRIS CHAUVIN, Nicolas, 2019. Applied Economics course, Hedonic regression. . 22 November 2019.Course Material: Applied Economics, HEG Genève, 2019

Dîme de l'alcool, *Administration fédérales des douanes*. [online]. [Viewed 29 May 2019]. Available from: [https://www.ezv.admin.ch/ezv/fr/home/themes/alcohol/praevention\\_jugendschutz/alkoholzehntel.html](https://www.ezv.admin.ch/ezv/fr/home/themes/alcohol/praevention_jugendschutz/alkoholzehntel.html)

Directives, aide-mémoire, formulaires, [no date]. *Demeter* [online]. [Viewed 27 May 2019]. Available from: <https://demeter.ch/fr/richtlinien/>

Économie de la Suisse, 2019. *Wikipédia* [online]. [Viewed 29 May 2019]. Available from: [https://fr.wikipedia.org/w/index.php?title=%C3%89conomie\\_de\\_la\\_Suisse&oldid=159423964](https://fr.wikipedia.org/w/index.php?title=%C3%89conomie_de_la_Suisse&oldid=159423964)

Evaluation des labels alimentaires – Fédération romande des consommateurs. [online]. [Viewed 29 May 2019]. Available from: <https://www.frc.ch/labels-alimentaires-evalues/>

Fête des Vignerons, 2019. *Wikipédia* [online]. [Viewed 29 May 2019]. Available from: [https://fr.wikipedia.org/w/index.php?title=F%C3%AAte\\_des\\_Vignerons&oldid=159529112](https://fr.wikipedia.org/w/index.php?title=F%C3%AAte_des_Vignerons&oldid=159529112)

FiBL -Communiqué aux médias, [09.02.2017]. [online]. [Viewed 27 May 2019]. Available from: <https://www.fibl.org/fr/medias/archives-medias/archives-medias17/communique-medias17/article/bio-waechst-weltweit-weiter-509-millionen-hektar-bioflaeche-biomarktu-eber-80-milliarden-us-dollar.html>

GRASS, Michael and RUFER, Rebekka, [2015]. L'importance économique du secteur financier suisse.

Hedonic regression, 2019. *Wikipedia* [online]. [Viewed 29 May 2019]. Available from: [https://en.wikipedia.org/w/index.php?title=Hedonic\\_regression&oldid=891898074](https://en.wikipedia.org/w/index.php?title=Hedonic_regression&oldid=891898074)

GIROUD, Fanny, MUHLEMANN, Anetka, 2017. La viticulture bio mûrit en terres vaudoises, *24 heures*. [online]. [Viewed 29 May 2019]. Available from: <http://vinbio.24heures.ch>

L'alcool en chiffres: la consommation d'alcool en Suisse est stable, *Régie fédérale des alcools*. [2017]. [online]. [Viewed 29 May 2019]. Available from: <https://www.admin.ch/gov/fr/start/dokumentation/medienmitteilungen.msg-id-45460.html>

Lavaux, vignoble en terrasses - Patrimoine mondial de l'UNESCO, [no date]. *lavaux-unesco* [online]. [Viewed 1 June 2019]. Available from: <https://www.lavaux-unesco.ch>

Le bio séduit de plus en plus les Suisses romands, [03.04.2019]. *La Liberté* [online]. [Viewed 29 May 2019]. Available from: <https://www.laliberte.ch/news-agence/detail/le-bio-seduit-de-plus-en-plus-les-suisse-romands/511739>

L'UDC reste le premier parti de Suisse devant le PS, [19.10.2017]. *Le Nouvelliste* [online]. [Viewed 29 May 2019]. Available from: <https://www.lenouvelliste.ch/articles/suisse/l-udc-reste-le-premier-parti-de-suisse-devant-le-ps-les-verts-vert-liberaux-et-le-plr-progressent-709660>

MCCULLOUGH, Michael, [no date]. Biodynamic Wine and the Millennial Generation.

MEREDITH, Stephen, WILLER, Helga and INTERNATIONAL FEDERATION OF ORGANIC AGRICULTURE MOVEMENTS, 2016. *Organic in Europe: prospects and developments 2016*. ISBN 978-3-03736-313-3.

Organic in Europe, *IFOAM EU*, [no date]. [online]. [Viewed 27 May 2019]. Available from: <https://www.ifoam-eu.org/en/organic-europe>

PACCOT, 2017. Caves Ouvertes Vaud 2018. *Swiss Wine* [online]. 19 October 2017. [Viewed 29 May 2019]. Available from: <https://swisswine.ch/fr/agenda/caves-ouvertes-vaud-2018>

POMARICI, Eugenio, AMATO, Mario and VECCHIO, Riccardo, 2016. Environmental

Friendly Wines: A Consumer Segmentation Study. *Agriculture and Agricultural Science Procedia*. 1 January 2016. Vol. 8, p. 534–541. DOI 10.1016/j.aaspro.2016.02.067.

Rapport agricole 2018 - Vin, [2018]. [online]. [Viewed 29 May 2019]. Available from: <https://www.agrarbericht.ch/fr/marche/produits-vegetaux/vin>

Statistiques de la Régie fédérale des alcools, [2017] Département fédéral des finances. [online]. [Viewed 29 May 2019]. Available from: [http://www.suchtmonitoring.ch/docs/library/regie\\_federale\\_des\\_alcools\\_rfa\\_xjzk9svkm1xs.pdf](http://www.suchtmonitoring.ch/docs/library/regie_federale_des_alcools_rfa_xjzk9svkm1xs.pdf)

RODRIGUES, Heber, 2018. Applied Economics course, Méthodes projectives et représentations des consommateurs. . HEG. 1 November 2018. Course material : Applied economics, HEG, 2018

RS 817.022.110 Ordonnance du DFI du 29 novembre 2013 sur les boissons alcooliques, [no date]. [online]. [Viewed 29 May 2019]. Available from: <https://www.admin.ch/opc/fr/classified-compilation/20121963/index.html>

RS 910.12 Ordonnance du 28 mai 1997 concernant la protection des appellations d'origine et des indications géographiques des produits agricoles, des produits agricoles transformés, des produits sylvicoles et des produits sylvicoles transformés (Ordonnance sur les AOP et les IGP), [no date]. [online]. [Viewed 29 May 2019]. Available from: <https://www.admin.ch/opc/fr/classified-compilation/19970229/index.html>

RS 910.18 Ordonnance du 22 septembre 1997 sur l'agriculture biologique et la désignation des produits et des denrées alimentaires biologiques (Ordonnance sur l'agriculture biologique), [no date]. [online]. [Viewed 29 May 2019]. Available from: <https://www.admin.ch/opc/fr/classified-compilation/19970385/index.html>

RS 910.181 Ordonnance du DEFR du 22 septembre 1997 sur l'agriculture biologique, [no date]. Le Département fédéral de l'économie, de la formation et de la recherche [online]. Updated 1<sup>st</sup> January 2019. [Viewed 29 May 2019]. Available from: <https://www.admin.ch/opc/fr/classified-compilation/19970387/index.html>

RS 817.022.110 Ordonnance du DFI du 29 novembre 2013 sur les boissons alcooliques, [29.11.2013]. Le Département Fédérale de l'intérieur [online]. Updated 1<sup>st</sup> January 2014 [Viewed 29 May 2019]. Available from: <https://www.admin.ch/opc/fr/classified-compilation/20121963/201401010000/817.022.110.pdf>

RS 916.140 Ordonnance du 14 novembre 2007 sur la viticulture et l'importation de vin (Ordonnance sur le vin), [no date]. [online]. [Viewed 29 May 2019]. Available from: <https://www.admin.ch/opc/fr/classified-compilation/20071607/index.html>

Statistics, *Demeter*. [online]. [Viewed 27 May 2019 a]. Available from: <https://www.demeter.net/statistics>

PICHLER, Renato. Subventions en Suisse, *Swissveg*, [no date]. [online]. [Viewed 29 May 2019]. Available from: [https://www.swissveg.ch/subventions\\_suisse?language=fr](https://www.swissveg.ch/subventions_suisse?language=fr)

Swiss Wine, 2016. Vitiswiss - Qui sommes nous ? *Swiss Wine* [online]. 2 January 2016. [Viewed 29 May 2019]. Available from: <https://swisswine.ch/fr/professionnels/vitiswiss-qui-sommes-nous>

Swiss Wine, 2017. Etude sur le marché du vin suisse 2017: résumé. *Swiss Wine* [online]. 10 October 2017. [Viewed 29 May 2019]. Available from: <https://swisswine.ch/fr/actualite/etude-sur-le-marche-du-vin-suisse-2017-resume>

VASTOLA, Antonella and TANYERI-ABUR, Aysen, 2009. *Non-conventional viticulture as a viable system: a case study in Italy*. American Association of Wine Economists, Working paper No. 43.

2018. Vevey est une ville incontournable en 2019 selon le National Geographic. *rts.ch* [online]. 13.12.2018. [Viewed 29 May 2019]. Available from: <https://www.rts.ch/info/regions/val-de-romandie/10067217-vevey-est-une-ville-incontournable-en-2019-selon-le-national-geographic.html>

WURST, Alain-Xavier, 2016. Vins Bio: révolution silencieuse, *Agri* [online]. 26.07.2016 [Viewed 29 May 2019]. Available from: <http://www.agrihebdo.ch/viticulture>