Master thesis
Master Program in Systemic Design

# Packaging for luxury products:
## Sustainability and innovation in the conditioning of Champagne

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*Family is our greatest luxury – Granit Xhaka*

# ABSTRACT

Packaging, like other sectors, is subjected to new environmental and social constraints. Global issues are constantly evolving, and products must follow those new rules without impacting the users.

Luxury products have, for a long time, been exempt from these changes but have now been caught up by the awareness of actors and consumers.

The work carried out focuses in particular on the study of Champagne and Spirituals packaging. They are multifaceted products whose tradition and uniqueness belong to the luxury world.

The project was reinforced by in-depth analysis of many case studies, to understand the relation between the packaging of luxury brands and the customers, and analyze the environmental, social, and communication performance skills.

*What is the next packaging for luxury products regarding the new environmental and social awareness of the customers and the brands?*

Finally, the result of the Master thesis is a guidelines proposal, based on the linear system of wine exploitation and production, that includes a larger strategy focused on a symbiosis with the environment.

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# I

# LUXURY MARKET

# CHAPTER 1

# LUXURY MARKET

The relationship between luxury and fashion is interesting as fashion does not completely belong to the Luxury world but overlaps with luxury in its most expensive and exclusive segments. Both luxury and fashion share the common need for social differentiation, but they differ in two major aspects: the timeless aspect as fashion is ephemeral and the self-rewarding aspect. (Kapferer 2012).

## 1.1 Luxury DNA

### 1.1.1 Notion of Luxury

Luxury goods are goods whose price are high, and the number of pieces produced is small. Sometimes the rarity of the product is even organized by the brand, as a concept named limited edition product, a commercial approach.

From the Cambridge definition, the luxury market is a market for expensive goods that are not necessary but are bought for pleasure.

*Figure 1:luxury boutique*

A Luxury item is not a necessary product but highly desirable within. Items tends to be sensitive to a person's income or wealth, that can also refer to services. Thus, creating a big elasticity of demands, and explaining why the luxury market is more sensitive to changes in the economic environment than other markets.

### 1.1.2 Classification of luxury

D'Arpizio proposes a 3-level classification of luxury. These are validated by the Fashion and Luxury insight of Bain & Altagamma.

The first level is **ABSOLUTE LUXURY**. This level is accessible only for luxury brands that are characterized by elitism, uniqueness, and heritage. (e.g., Cartier). The history of the brand is associated with manufacturers of precious products that are traditionally the drivers of the market.

The second level is **ASPIRATIONAL LUXURY**. This level is reachable by luxury brands that achieve their status by being distinctive and recognizable (e.g., Louis Vuitton).

The third level is **ACCESSIBLE LUXURY**. This level is obtainable by luxury brands that are more affordable, purchased by middle class households (e.g., Hugo Boss).

## 1.2 Different luxury items

Today, the luxury market is made up of several sectors and few things that bring them together, as the products are very different from their nature (Burnel). Luxury items can be different depending on the point of view. Castarède proposes a division of luxury into seven sectors, each corresponding at several activities:

- The cultural Market: market of art
- The transportation sector is composed of automobile, yachts, and private jets
- The personal equipment composed of Couture and Haute Couture, Fine jewelry and fine watchmaking, Shoes, High cosmetics, Perfumery, and fine perfumery
- Hobbies: Cruise, Palace, Castle, Luxury hotels, luxury sports (golf, hunt, polo)
- Home equipment mainly with art de la table: crystal, porcelain, goldsmith, earthenware
- Alimentary: Wine, alcohols and spirituals, luxury food and restaurants

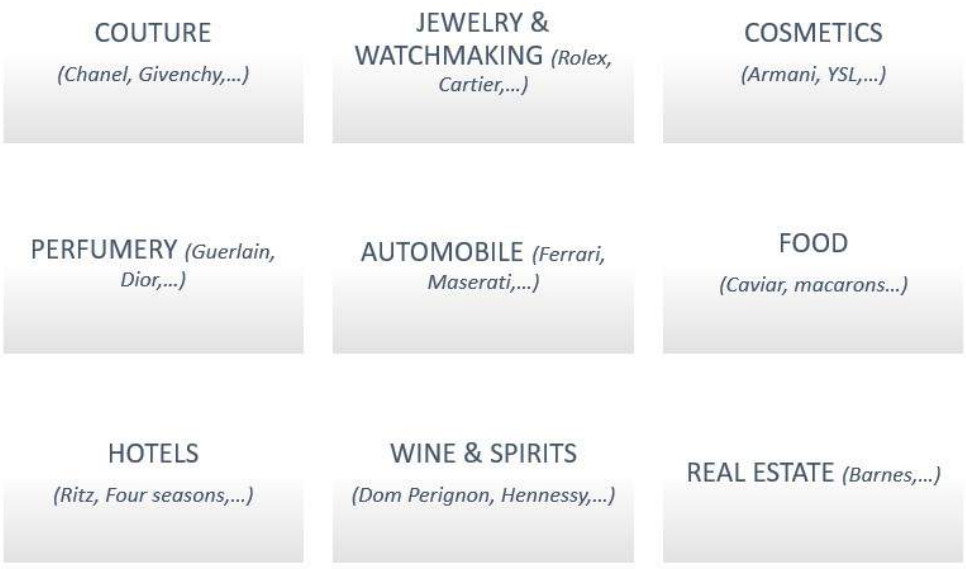


*Figure 2: luxury items*

## 1.3 A growing market

For more than 10 years, the luxury market has been growing steadily, and has thus established its influence in the global economy. With a turnover three times larger than the aeronautics industry, the luxury industry has become the leading player in terms of exports. Today, more than 50 billion euros worth of products are exported to nearly 180 countries.

With figures in constant progression, and in all sectors, the luxury industry was extremely powerful in 2019 as shown in the following graph.

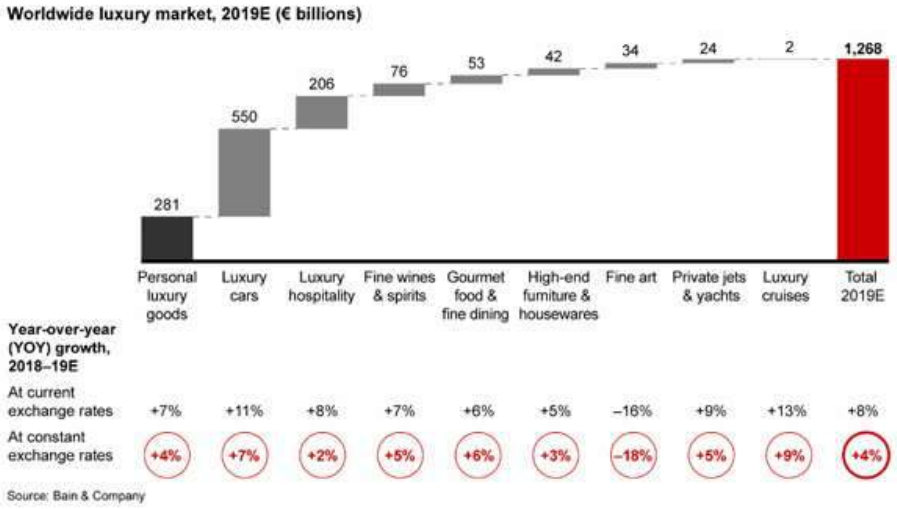


*Figure 3: Value of the global luxury market 2019 - Bain & Company*

Luxury goods are very sensitive to the market and to the situation of countries and consumers. It has thus been extremely affected by the arrival of the coronavirus and the successive confinements. This situation has forced brands to digitalize in order to offer new experiences to their customers: digital marketing, virtual reality etc. Thus, e-commerce has jumped from 12% to 23% in less than a year (Bain &

Company). These measures have limited the decline in sales to 40% during the successive phases of the pandemic.

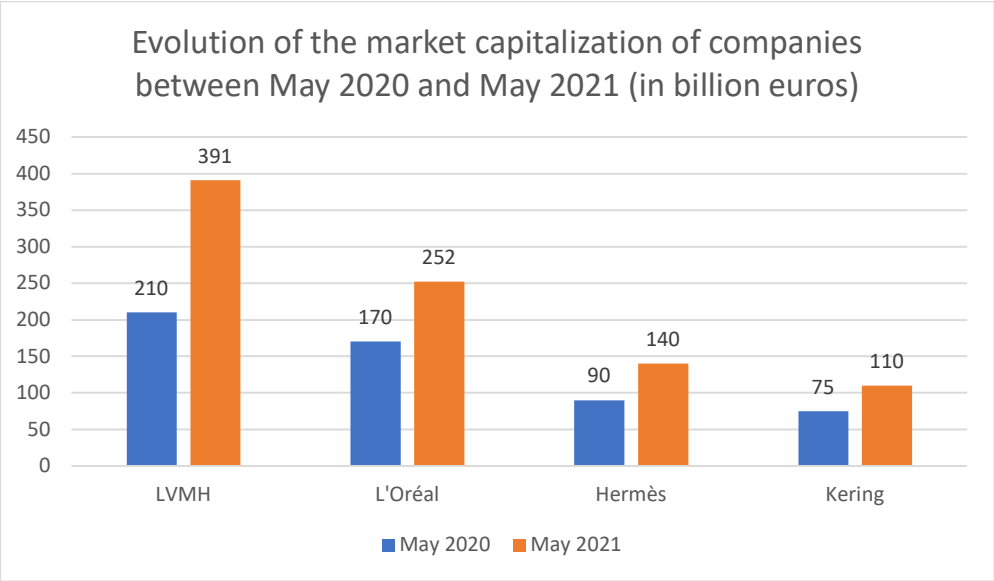


*Figure 4: Evolution of the market capitalization of companies between May 2020 and May 2021 (in billion euros) - Companies market cap*

The post Covid period was very successful for the luxury industry with exceptional figures. Forecasts predicted a return to normal in 2024/2025. This took place in the first quarter of 2021 with better results than in 2019. Thus, there was an increase of 30% for LVMH, 26% for Kering and 44% for Hermès. The 2019 results were already considered by the industry and the global economy as exceptional. These increases could be explained by the concept of "revenge shopping" as well as the increase in the number of billionaires in 2020. With the rise of the luxury industry in Asia, it is now estimated that 1 in 2 buyers will be Chinese by 2022 (Usine nouvelle).

The forecasts announced by the various companies for the last quarter of 2021 promise a boom in the luxury industry for the years to come, with more and more young customers.


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# II

# SUSTAINABLE LUXURY

# CHAPTER 2

# SUSTAINABLE LUXURY

Sustainability and innovation are two concepts that appear far from the Luxury sector. The word collides with the new developments in band management, consumer behavior, advertising, design thinking, processing, and marketing. The transformation of the luxury market is happening with the new luxury business model with narrowing, sharing (Loussaief et al, 2019) especially personal goods with the new generation of consumers.

## 1.1 definition

Sustainable luxury can relate to all kinds of sectors, and all kinds of luxury brands. The objective of sustainable Luxury embedded in sustainable ethics, principles and practices inside a brand or a luxury product.

Migel Angel Gardelli defines it as the concept of going back to the essence of luxury.

With today's new challenges, luxury brands are adopting this concept. As Jean Noel Kapferer state the interconnections between sustainability and luxury, Luxury goods are very close to sustainable concerns in nature, because they are nourished by rarity and beauty, so there is an interest in protecting them.

There are two main aspects of the sustainable production relevant to the luxury sector:

- the social aspect
- the environmental aspect

## 1.2 Challenges and issues

Today, Luxury brands have the power to influence consumer behavior and its aspirations. The influence can be through the design, the marketing, or the distribution of the product. They can also influence the use time of a product.

Luxury brands have the power to promote sustainable consumption. This leads to different challenges, responsibilities, and issues.

In the past years, voluntary corporate action took place to boost environmental and social accomplishment. Lots of luxury brands publish annual reports detailing their environmental and social impacts, lots of firms have been certified as compliant with a scope of independent voluntary standards.

This approach not only involves strict compliance with national laws but is also committed to meeting international standards and social expectations. It involves enabling stakeholders to understand and manage potential corporate risks, build trust in society, stimulate innovation, enable new business models, and enter new markets more effectively. Sustainable luxury involves innovative products and business processes that effectively respond to social and environmental challenges we face today.

1- Social affiliation: Consumer desire to have a social affiliation by following the “fashion” but always with the quality of luxury. This means changes and inflated production cycles.
   - The practice of sustainable luxury can change the consumers perception of buying sustainable luxury products and change the habits of the customer, always following the “fashion”.

*As an example, Cartier Group is a member of the Responsible Jewelry Council, that certifies good social and environmental conditions for diamonds and gold used in for the luxury products every year.*

2- Convergence: The geographical expansion of the luxury sectors means that brands are growingly selling in areas and markets that are highly unequal and with outstanding poverty. Furthermore, local styles converge making it difficult for the compatibility with local climates.

- One of the challenges could be to prompt the convergence of producers in producing sustainable luxury, by developing processes, techniques and materials that are consistent with the demands of sustainable development.
- Luxury brands could cheer affluent consumers in China or India, known to save a relatively big proportion of their income to spend more on luxury goods and services

*If we take the example of Lacoste, on f the best seller shirt for years, reputed for his high quality and softness. It's made with the Pima cotton, coming from Peru. Each shirt needs 25km long fibers. Buying cotton from sustainable trade would demonstrate Lacoste's support to local producers in emerging countries with the same or better quality of cotton of course.*

3- Autonomy and Personalisation: Different choices and designs makes it difficult to assure the sustainability of the process. Creative autonomy makes it also difficult to create it eco sustainably.

- Encouraging actors and industries to develop aesthetically appealing designs that are high values for eco sustainability and change of processes. Need of a process of internal change, fostering sustainable business practices in all parts of the organisation and its supply chain. The brands can influence to set sustainable trends and spill it over.

*For instance, Jérome Drevfuss, launched the Agricouture Brand - a clothing label supporting local supplies, recyclable materials and vegetable leather.*

4- Symbolisation and imperialization: Luxury brands have the power to influence consumer behaviour and its aspirations, behind a stylistic trend change. The symbolisation of the brands can pass through a celebrity endorsement seen as a reflection of the brand's personal values... Supporting socially and environmentally underperforming brands can damage the reputation of these celebrities and undermine the good cause they support.

- Encouraging luxury brands to leverage on, create a symbol with a proactive message on environmental issues and cares.
- WWF-UK has created some principles for the celebrities to undergo to be coherent with the values they share and support and the brand's endorsement.
    - *To recognise their potential to influence consumer behaviour.*
    - *To encourage both consumers and companies to be aware of the social and environmental aspects of their activities.*
    - *To consider the social and environmental performance of companies before endorsing them.*
    - *To obtain expertise on a subject before endorsing the brands.*
    - *To address any public concerns over the sustainable performance of the brands*
    - *To tell professional colleagues about their commitment to the Star Charter.*
- In the future, luxury brands can represent the greatest positive contribution that any product or service can make to mankind and

the planet, as they see luxury consumers as people who have both the means and the motivation to ensure that others are not affected.

*For example, Angelina Jolie, the celebrity representing Guerlain is endorsing the Brand with the Fragrance Bees. Angelina Jolie is encouraging people to take care about sustainability. She is launching a project for the protection of the bees in Samlot in Camboge. The objective is to collaborate with local people to inform them about the bees, and Guerlain is supported the project*

5- Fast Fashion: The development of luxury goods is accelerating due to technological innovations in communications and production. Although these mass retailers and brands can usually imitate product attributes, they may not be able to match deeper value elements such as high ethical standards in procurement, effective use of materials, low-impact manufacturing, assembly and distribution, and the provision of repairs and upgrades service. All of this provides an opportunity for luxury brands to justify their share in the wallets of wealthy consumers.

- Traceability is a key point for luxury and can be a key point for sustainable luxury.
- Luxury can present integrity all along the business model and embrace the sustainability in terms of economic, social and ecological terms.

*To respond to the fast fashion, YSL designed the collection New vintage" made with recycled materials from previous seasons*

*Hermès launched the "Petit h" collection, using cast-offs and scrap coming from the workshops to build the collection of accessories, toys for children and apparel, to denounce the linear model.*

*Figure 5:closet representing overconsumption*

6- Counterfeiting**:** The technology and the production enabling the fast fashion is also used to make fake and counterfeit luxury products. According to a study (Davenport Lyons Law), the number of counterfeit luxury goods, fakes and copies are increasingly accepted by consumers.

- In response, the luxury goods industry lobbies the governments to impose stricter regulations and inspections on manufacturers and traders and take direct legal actions against those involved in the counterfeit market.

*The police are tracking a lot of products like Lacoste the most counterfeiting brand. Some luxury goods are even designed by the illegal manufacturers like the Louis Vuitton cap that we can see in the streets with the logo, and Louis Vuitton did never design any cap.*

7- Social Network: Today, the use of social media is a market point. The rise of social media has witnessed the democratization of the luxury market and the opening of new customers. Customers pay more attention to the new expectations brought about by the luxury experience.

*For example, some other brands such as Bottega Venetta do not use Instagram or other media, and with it comes the secret impression of rarity and luxury.*

Similarly, with the booming e-commerce, brands have played their role by focusing on packaging as a means of recreating the tactile physical retail experience at home. The social media "unboxing" trend and countless influential posts dedicated to filming the unboxing of shopping carts have

made people pay more attention to packaging. Excellent "Instagrammable" product design usually equates to more likes, sharing and hype.

## 1.3 Sustainable luxury for packaging

Sustainable luxury calls for integrating sustainable development and social environmental strategies inside of Luxury packaging brands through the life cycle, the regulations of the brands and through the supply chain.

Packaging and its functions in product protection, waste prevention and safety can indeed play a huge role" (Nordin, Selke, 2010).

Sustainable luxury has different factors that need to be considered such as the consumption trend, the market segmentation, the client behaviour toward the product, distribution innovation, ethics of the product...

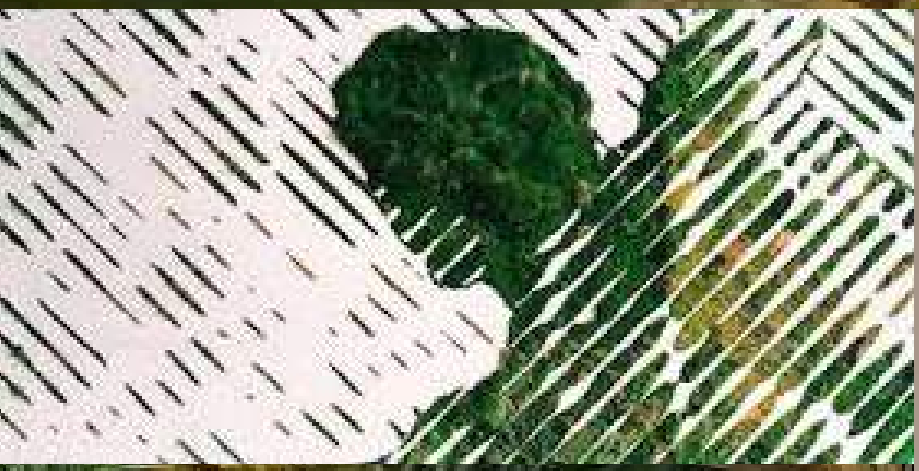
In the Luxury field, those factors could conflict with the sustainable development, that's why some organizations are trying to provide guidance in decision making in favour of sustainable development. For instance, The Sustainable Packaging Consortium (SPC) in the United States and the Sustainable Packaging Consortium (SPA) in Australia attempt to express a common understanding and provide different guidelines (Nordin and Selke, 2010). SPA (2005) defines sustainable packaging with four dogmas: effectiveness, efficiency, periodicity, and safety.

Traditionally, Packaging systems have been developed around waste management systems (reduction, reuse, and recycling) (Johnson, 2008). Nevertheless, sustainable packaging will still focus on the entire life cycle of the entire life cycle by evaluating all opportunities for improvement, transformation, and optimization. The system has now been developed to include raw materials, packaging processors, manufacturers, distributors, and retailers (Vrolijk, 2006).

The key role of packaging is to ensure that the product is in the best condition in the hands of consumers, while also meeting consumers' expectations of reducing the product's environmental impact. Moreover, for the sustainable luxury packaging, the customer demand is a crucial factor.

The luxury packaging should be sourced responsibly, designed to be effective and safe, manufactured efficiently using renewable energy, and meet market standards for cost and performance. Finally, at the end of the process, once used, recycling or effective reuse should provide precious resources for future generations.


ECO AWARE



# III
# PACKAGING

# CHAPTER 3

# PACKAGING

## 3.1 definition

### 3.1.1 short history

According to the definition, packaging refers to the "visible wrapping of the product". It appeared in ancient times to transport foodstuffs and many traces of these containers can still be found today in archaeological excavations. Purely functional, they were soon used as a support for various art techniques: painting, mosaics or engravings. A first type of communication was then born.

*Figure 6: Roman amphorae found during excavations*

The history of packaging then adapted to different eras and lifestyles and was transformed by technical innovations. Indeed, with the economic boom of the thirty glorious years and the growing power of globalization, brands quickly developed strong marketing strategies based on advertising and packaging (laundry detergent advertising, soup...). It thus became a real communication tool.


*Figure 7: Bonux Advertising 1958*

### 3.1.2 definition and concept

The modern way of life is closely linked to the use of packaging. Every product or foodstuff is packaged in one or more elements that make up its packaging. Consumption is such that almost 10 packages are used and thrown away per day and per person.

The word "packaging" alone represents several things and functions. In many languages, the English word is used because it is not translatable in its current state.

It is defined as follows by Lendrevie and Lévy:

"Material elements that are sold with the product in order to allow and facilitate its protection, transport, storage...".

Different levels of packaging can be identified today. They each have their own characteristics and objectives:

- **Primary packaging**: this refers to packaging in contact with the product. This can be a bottle, a perfume bottle, a shoebox. It is in direct contact with the consumer.

*Figure 8: Primary packaging*

- **Secondary packaging**: which groups together several primary packages. Like the primary version, it is not in direct contact with the user. In fact, it can be seen and touched, but it will be discarded very quickly in order to access the primary packaging and the product.

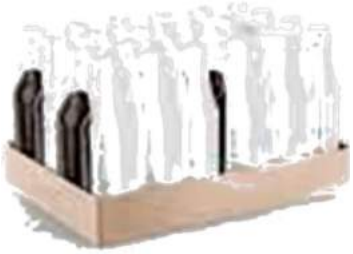


*Figure 9: Secondary packaging*

- **Tertiary packaging** combines the first two. It is sometimes called transport packaging. It is the key element in logistics. It will be used by purchasing centers and transporters to facilitate their work and to group together several secondary packages. It can be wooden pallets or transport crates.

*Figure 10: Tertiary packaging*

## 3.2 objectives and functions

Packaging must be very versatile. Indeed, depending on the product it is going to surround, it will have to meet different criteria, more or less challenging. It is a real asset for the different actors in the life of a product. It will enable the company that designs and manufactures the product to identify and protect it. It will be a key element in the sale for the retailer and finally it must inform the consumer.

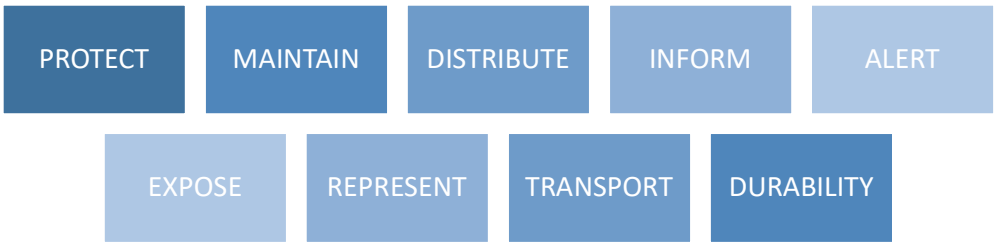



*Figure 11: Main packaging objectives*

Thus, the functions can be both technical and communicative related.

### 3.2.1 Protection et conservation

Protection and conservation are the main function of packaging. From food to luxury goods, the protection of a product is a key element. The packaging will then act as a physical barrier against the various elements that occur during the storage, transport, and use phases.

Protecting a product ensures its quality and integrity. Indeed, the consumer must be able to use or consume the product at the right time. This main function is present in all sectors of activity from food to super luxury. A bottle of perfume must arrive in the user's hands in perfect condition, just like a deodorant or a telephone.

Thus, different characteristics are applied to the packaging depending on the product it will contain: waterproof, hermetic, opaque... these elements are chosen at the product design stage.

### 3.2.2 transportation

Packaging will simplify the handling, transport, and storage of products. Indeed, often standardized and rectangular in shape, tertiary packaging plays a key role in product quality. It is during this phase that the product will be confronted with numerous shocks and movements.

*Figure 12: Transport cases*

This function is constantly reinforced by the explosion of online sales on platforms such as Amazon. This acceleration was intensified during the Covid crisis when many companies had to respond to the needs of mail order.

### 3.2.3 Inform and alert

The packaging will convey a lot of information about the product: such as legal information, instructions for use. It will also convey the brand image.

It is thus like a salesman, a representative of the brand. It must seduce the consumer by its appearance and convince him that the product it contains is the best.

However, it must also alert consumers to the dangers that the product may represent for the consumer as well as for the environment.

*Figure 13: Safety pictograms*

### 3.2.4 Represent

The packaging of an article must reflect its product category. Brands therefore associate visual codes with each category (blue and white for milk, for example).

The packaging will convey the identity of the brand, its positioning, its distinctive features

This characteristic is omnipresent in the luxury market where packaging is a symbol of dreams and absolute desirability. Brands have understood this and play with their packaging codes to intensify this vision.

It has even become the central element of the Hermès and Chanel fashion shows.

*Figure 14: Hermès fashion show sets - courtesy of Hermès*

## 3.3 Consumer perceptions and impacts

### 3.3.1 Perceptions

Packaging is designed to attract consumers and influence their choice. Thus, it is not uncommon that the success of a product depends on its packaging. According to marketing research, consumer perception can be divided into three distinct parts:

- Cognitive perception: the packaging can give the idea of longevity, prestige or belonging
- The affective perception corresponds to the emotion that the product will create on the consumer
- The behavioral perception which will succeed in creating attraction or on the contrary disgust in the person who observes the packaging.

Nevertheless, the consumer's perception of the packaging will be nuanced because it is dictated by his tastes and education.

### 3.3.2 Impacts

These perceptions will have an impact on the consumer. Indeed, a packaging will communicate by the image it sends back, the quality of the product it contains. It is on this point that the work of a marketing team is based.

Indeed, the packaging is discovered progressively by the consumer. He will first be attracted by a color, then a shape before being able to read the name of a brand or even to take the object in his hands.

#### *3.3.2.1 Chromatic impact*

The colors give the product and the brand its character and personality. It is a non-verbal communication that is established between the product and the one who looks at it.

Today, the favorite colors of consumers in northern countries are blue and red. On the contrary, the least liked are green and purple. Brands rely on these studies when developing new products.

However, some colors are also associated with a type of product well defined such as coffee, butter ... Finally, other colors are associated with an idea or a symbol such as gold that will have a luxurious image, or red that will touch, depending on the context to love or blood.

Finally, the colors will also have an influence on the dimensions of the product. Thus, the so-called cold colors will tend to visually reduce the object while the warm colors will make it appear more massive.

#### *3.3.2.2 shape*

The shape of the packaging is a determining element. It can be an eye-catcher, making competitors look bland and justifying a higher than usual price.

Research in 1935 showed that round shapes were perceived as sentimental, reminiscent of the curves of a body, while straight lines were perceived as serious and masculine. These shapes are also associated with precise dimensioning. The golden ratio has always been a symbol of perfection and aesthetics. It is frequently used to determine the height/width ratio of packaging.

In recent years, the consumer has become increasingly aware of the so-called "thief" packaging. This perception occurs when the container appears disproportionate to the size of the content (half-filled bottle for example). This problem regularly occurs on perfume packaging, for example, where the bottle has a very thick glass bottom or is slipped into a cardboard case that is too large.

Therefore, the design of a packaging is a crucial element in the development of a new product. It alone will play a role in the commercial success of a launch.

### 3.3.3 Limits

This development cannot be done randomly. Indeed, certain constraints must be considered when developing a packaging:

- What will it contain?
- How will it be produced/packaged?
- What is its lifespan? Its typical use?
- Who is it intended for?

These questions are crucial. It would indeed be a shame to package a product in something unsuitable.

The sector is something predominant. A good example is the perfume industry. Men's and women's perfumes are very different in terms of packaging. Indeed, they come to rely on strong visual codes to make understand, at first glance what it gives off. Some brands like Azzaro or Mugler propose very strong shapes like a gun barrel or a galactic star. These shapes have been chosen for the targeted customers and the desired use. This is a good example of a well-developed packaging.

Cost constraints must be taken into account. Packaging can represent a significant amount in a product price. It is calculated according to the materials used, the decoration techniques and the size.

The shipping areas are also a very important factor to consider. Indeed, the colors and shapes do not all have the same meaning around the globe. Thus, it will be necessary to make differentiated packaging or to choose from the brief the adapted colors.

Finally, the legal aspect is very important. The packaging must provide certain regulatory information such as the expiration date, the percentage of alcohol for example.

### 3.3.4 Environment and innovation

Environmental protection is a major concern in our society today. Manufacturers must reduce their ecological footprint to remain attractive to consumers or to meet legal obligations.

The solutions are numerous:

- Weight reduction
- Elimination of controversial materials
- Refillable packaging

Eco-packaging can create a real economic advantage. Companies have understood this and communicate on their social networks their environmental programs with strong objectives.

Veuve Clicquot has invented packaging made entirely from grape waste, and Mugler has launched the first refillable perfumes.

A new idea of packaging is therefore being put in place. It is now an integral part of the product and brands communicate overall. Armani has released the first perfume with a neutral carbon footprint (packaging + juice).

Beyond ecological concerns, packaging is also evolving thanks to new technologies.

Today, packaging is becoming intelligent. It can inform the consumer about the state of the product and to give information to the brand about the user. This has

been made possible thanks to the implementation of QR codes (which will eventually replace the EAN codes) and RFID chips integrated into packaging.

Mumm champagne launched the first connected champagne bottle, and Paco Rabane the first perfume.

A new era is opening for packaging design, driven by consumers and companies to keep up with technical progress and environmental awareness.


CHANEL
CHANEL
CHANEL


DAISY
MARC JACOBS
3
L'IMPERATRICE
D&G

# IV
# CHAMPAGNE

# CHAPTER 4

# A SPECIFIC PRODUCT: CHAMPAGNE

With more than 200 million bottles produced per year, champagne has established itself as the leading alcoholic beverage. Opened and drunk at the most important events, is this product considered today as a luxury product?

## 4.1 A luxury product…

Luxury refers to anything that is "expensive, refined or sumptuous". This definition varies according to time, culture, and especially geographical area. Certain specific criteria have now been attached to a luxury product:

- An irreproachable quality
- A substantial price
- An exceptional heritage and know-how
- A powerful aesthetic image
- Rarity and protected exclusivity
- Non-necessity

As these criteria are considered by some as essential or intrinsic to a luxury product, it is interesting in this study to associate them with champagne

### 4.1.1 An irreproachable quality

In the public opinion, these two words are immediately associated, and thus become almost synonymous. This is because it is created through the use of superior raw materials, processed according to exceptional know-how. This combination ensures the longevity of the products and guarantees a constant quality.

Champagnes are subjected to strict regulations which govern and control each stage of production. In addition, the origin of the product, as well as the grapes used, are subject to precise specifications allowing the product to be given an “appellation d'origine contrôlée” (AOC). There are many different types of champagne today, with many different tastes, but they are all recognised as references for sparkling alcoholic drinks.

### 4.1.2 A substantial price

By questioning consumers (regular or not) of luxury products, we quickly understand that the equation luxury equals high price is a standard for them. Indeed, it allows the user to reinforce the idea of quality in a conscious way. The high price is thus felt to be the logical consequence of the quality of the product. It is therefore easy to say that the price proposed by the brand offers the consumer an idea of security and legitimacy of the product. The monetary value of a product can be exorbitant and thus be an obstacle to purchase. This feeling will amplify the idea and the image of dream conveyed by the product and consequently the desire to buy and possess it. Finally, the symbol of a brand or a product makes it possible to justify and claim a high price (such is the case of the Kelly and Birkin bags from Hermès).

Champagne has the image of a relatively accessible product compared to other luxury sectors (jewelry, handbags,). Today, bottles can be found for an

average of thirty euros or more. Some supermarkets manage to break the prices, making champagne accessible to all. These short-term commercial operations can damage the luxury image of a product. Fortunately, this does not concern the major Champagne houses, which offer ranges well over a hundred euros (Dom Pérignon, Krug). Other bottles can exceed a million euros when brands associate champagne with packaging made of diamonds and crystal, for example.

The positioning of champagne is thus unstable with regard to price. With a very wide price range, it manages, thanks to the great houses, to meet the price requirements of luxury products

### 4.1.3 An exceptional heritage and know-how

Each luxury product is associated with a heritage, a story. The houses, for their part, constantly use, almost to excess, storytelling, and the pillars of their history to reinforce their image and the idea that time has no effect on their products. Moreover, symbolism and tradition can be directly associated with a product, as is the case with the diamond that is given to celebrate love.

Champagne is a perfect candidate for this need for heritage. It can be associated with many legends, from its creation to its tasting ritual. We can think of Dom Pérignon who is said to have discovered and perfected the champagne method in his abbey, or of the champagne glasses that were molded directly onto the chest of Marie-Antoinette, then Queen of France. Today, certain traditions or conveniences persist, such as the ritual of tasting champagne in flutes or glasses, and always without ice.

### 4.1.4 A powerful aesthetic image

A luxury product must be beautiful (Castarède, 2014; Dubois & al., 2001). In addition to being visually aesthetic, it must awaken the consumer's senses by being

pleasant to hear, touch and taste (Dubois & al., 2001). Aesthetics is becoming such a priority that the product can become a work of art and be the centerpiece of a painting (Andy Warhol and the number 5) or the masterpiece of an exhibition (Louis Vuitton, Cartier, etc.).

Again, champagne is a very good student. Indeed, according to a Sparflex study, nearly 70% of consumers are influenced by the aesthetics of a bottle of champagne and its box at the time of purchase. The champagne houses have understood this and are basing themselves on tradition with sober and elegant packaging, or showing extravagance and originality during limited editions that can be luminous or in collaboration with other brands or personalities...

### 4.1.5 Rarity and protected exclusivity

Based on the above characteristics such as quality or ancestral know-how, it can be deduced that mass production is not something easy. The scarcity of a luxury product can be artificial, dictated by the brand as a marketing tool or based on long and complicated manufacturing processes using a limited quantity of raw material. This controlled scarcity increases and maintains the prestige of the product and its exclusivity. Similarly, a limited and controlled distribution network offers the consumer the luxury dimension of the product and the associated purchasing experience.

Champagne, thanks to its protected appellation, has a maximum quantity of bottles produced per year (360 million). Its distribution is diverse with many different channels: supermarkets, wine shops, nightclubs, etc. However, it has a special place in luxury boutiques when it is offered to customers at the time of their purchase. It thus contributes to the atmosphere and the shopping experience. It thus creates a

feeling of exclusivity for the consumer and an idea of luxury that is experienced and sometimes shown.

### 4.1.6 Non-necessity

A luxury product must finally be different from an everyday product, it must therefore be superfluous with the sole aim of pleasing oneself.

Champagne intrinsically has this characteristic. It does not meet any necessary need.

*In conclusion, champagne meets these six main criteria and is therefore a luxury product.*

## 4.2 With a strong story and area…

### 4.2.1 Champagne

Name of a large region in the north-east of France, it gave its name to this sparkling wine produced with grapes from three distinct varieties:

- Pinot Noir (40% of the Champagne region)
- Milling (30%)
- Chardonnay (30%)

The different houses then compose their champagne by varying the percentage of each grape variety in their champagnes. It is in fact a sparkling wine known as a blend, which allows each brand to create an inimitable and identifiable taste. This

particularity also allows the intensity of the drink and the alcohol content to vary (extra-brut, brut, dry, semi-dry, sweet).

Some champagnes break this "rule" by being mono varietal, i.e., made from grapes from a single type of vine: Blanc de Blancs (Chardonnay) and Blanc de Noirs (pinot noir or pinot Meunier).

The Champagne region is distinguished by its soil and climate, which give the champagne its characteristics. It is following this argument that the region was delimited and protected in 1927 by the National Institute of Origin and Quality. Today, the appellation covers nearly 35,000 hectares and 300 communes.

Over the years, this protection has been reinforced on several occasions. First in 1887, with the acquisition of the word "Champagne" by the champagne houses' union. The product was recognized as: "wine both harvested and produced in Champagne, an ancient province of France, geographically determined and whose limits can neither be extended nor restricted". This was followed in 1935 by the award of an appellation d'origine contrôlée. These measures make it possible to manage the end-to-end quality of the product and guarantee its authenticity by avoiding counterfeiting.

### 4.2.2 Origins

The composition and creation of champagne has evolved over the years to perfect a unique technique still used today.

We have to go back to the Roman era to discover the first traces of viniculture in the Champagne region. At that time, red wine was produced, which became sparkling through a fermentation process.

These drinks were not sought after and were even considered defective. It was not until 1675 that they were successful. Some of the producers let the juice ferment a

second time and it became fizzy. As production was not easy, only a few notables were able to obtain bottles, and it was not until the end of the 18th century that the million bottles produced were reached. After difficult periods, linked to the political and social context, the sales of champagne increased to reach 30 million bottles in 1950 and eventually exceeded 320 million bottles annually today.

There are many legends surrounding the discovery of champagne. The most popular is that of Dom Pérignon. He is said to have developed the traditional Champagne method with the blending and vinification processes. He is also responsible for the bottle, which is thicker than a wine bottle to withstand the pressure of the fizzy drink, and the cork.

Since its discovery in the 18th century, champagne has been regarded as a symbol of French joy and luxury. Considered the drink of kings, it appeared very early on European tables until it was at the center of banquets for Marie-Antoinette, or Winston Churchill for whom champagne was a daily pleasure.

## 4.3 For a powerful market…

Champagne, like all luxury products, is distinguished by the cohabitation of large houses and family producers. With an annual growth rate of nearly 3%, the champagne market is a major player in the sale of drinks.

Despite this solidity, the champagne market remains dependent on numerous factors such as the price of raw materials, market fluctuations, and economic and social crises. The unprecedented health crisis in 2020 highlighted this fragility with a 20% drop in sales due to successive confinements, and the decrease in air traffic. With the resumption of a near-normal lifestyle signified by the reopening of restaurants and travel, sales have picked up exponentially with results up 48% compared to the year 2020 (first half results).

If we look at the figures, we can understand the scale of the champagne industry and its importance in the wine and spirits' sector. Despite the health crisis, champagne generated 4.2 billion euros in sales in 2020, including 2.6 billion euros in exports alone. This lower result is due to reduced growth and lower shipments. The sector has managed to maintain a decent turnover thanks to actions taken by producers such as reducing production to avoid flooding the market and thus devaluing the product. Forecasts for 2021 are good and would exceed the 5 billion achieved in 2019.

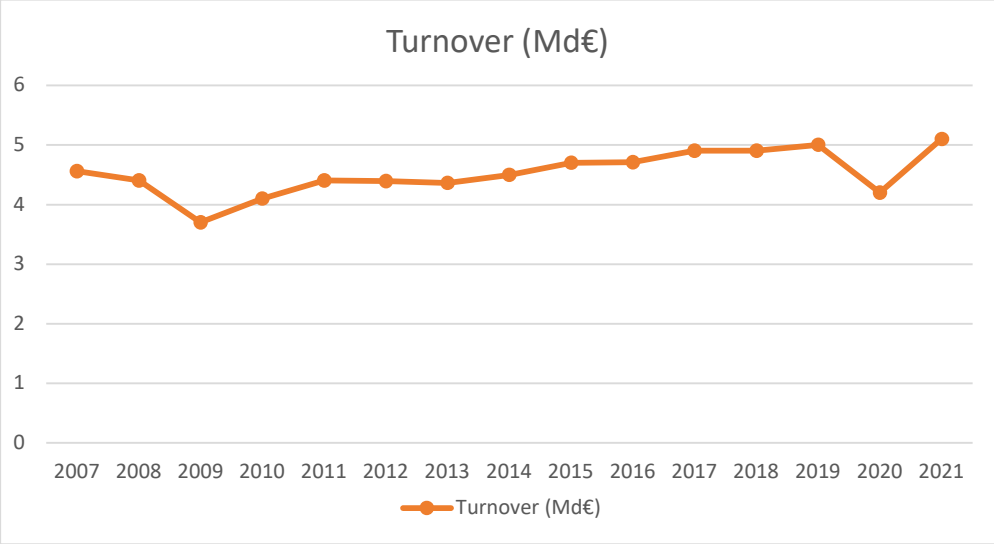



*Figure 15: Champagne turnover 2007-2021*

The graphic above represents the turnover of champagne from 2007 onwards. It highlights the decreases linked to the economic and social problems of recent years such as the subprime crisis in 2009, or the health crisis of 2020. However, this graph also highlights the reactivity of the market and its elasticity, with relatively constant figures that very quickly return to their pre-crisis levels, exceeding them.

Worldwide, champagne represents 9% of the sparkling wines produced each year (Prosecco, crémant, etc.) but 33% of total consumption for only 0.5% of the wine-producing territory. In 2020, 53.6% of the production was exported to nearly 190

countries. These countries alone account for more than 60% of the turnover of champagne sales. France is the leading consumer of champagne in the world with almost 50% of the annual production (4.7 liters per person per year). It is followed by the United Kingdom and the United States thanks to the stable economic climate and a lifestyle similar to that of the French. Third countries (Japan, Australia...) are gaining market share every year and are becoming major players in the import of champagne.

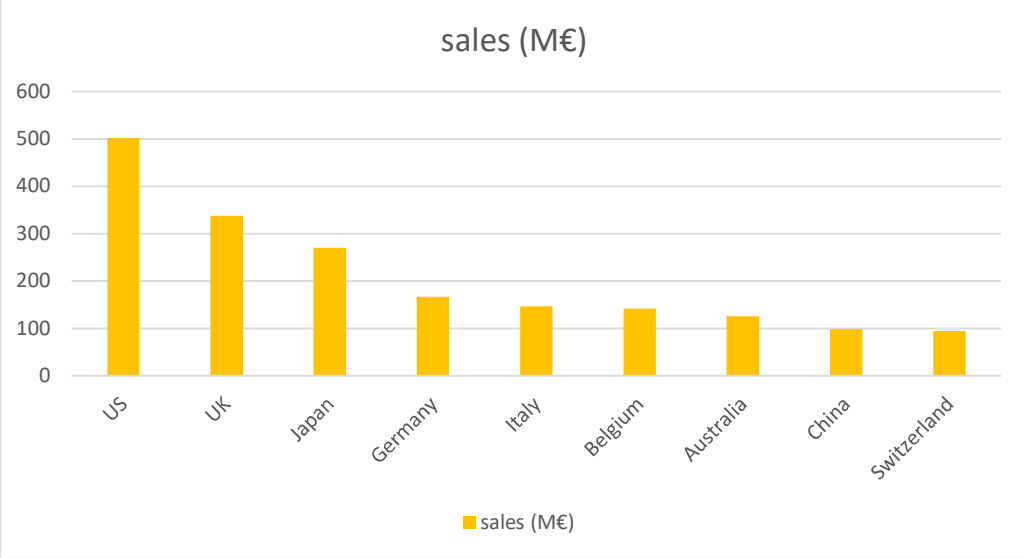



*Figure 16: Champagne sales in the most important countries outside France*

## 4.4 Dealing with traditional technics and modern packaging

### 4.4.1 Agriculture and transformation

#### *4.4.1.1 Agriculture*

The cultivation of the vine is mainly used for wine production, but other products are also produced from this agriculture, such as table grapes, soft drinks, and vinegar.

The production process starts with the planting and cultivation of vines. The environment and the soil will determine the size of the vine and the shape of the vine to obtain the best yield and above all the best quality. There are different methods of shaping the vines, the most commonly used today is the Guyot method, which consists of keeping only the fruiting branch, which is then guided to the right or to the left.

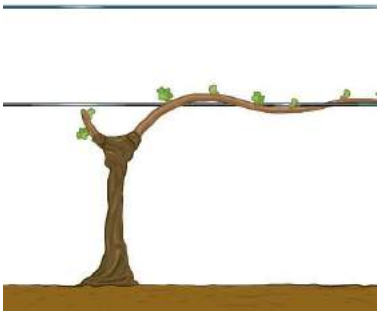


*Figure 17: Schematic representation of the Guyot method*

This pruning takes place every year in the autumn in preparation for the next season. It allows the vine to prepare itself to face the winter in a phase called dormancy before budding in the spring.

Then begins the fertilisation phase which will allow the soil composition to be adjusted to allow the plants to develop at their best. After 3 years, the vine is finally ready to be used for the production of grapes.

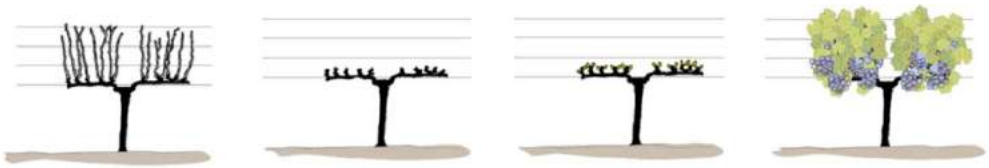


*Figure 18: Schematic representation of the culture of the vine*

Finally, the harvest takes place between August and October. It is launched when the bunches are ripe, when the sugar level in the grapes is optimal. Numerous controls are carried out to determine the best date for the harvest.

Once harvested, the grapes are ready to begin their transformation into champagne.

The first step in the wine making process is **weighing**. The grapes arrive at the winery by shuttle and are then weighed and tested. This allows the producer to obtain the first information on the quantity and quality of the grapes. The second operation is **the crushing** of the bunches and the grape stalks to extract the must. Historically done with the feet, this pressing operation is now done mechanically. The result of this operation is then put into vats and yeast is added for a **first fermentation**. This enzymatic operation is carried out at 25°C and allows the transformation of sugars into alcohol. The solid particles (grape skins, etc.) then tend to rise and form a layer on the surface of the vat called the marc cap. The liquid obtained is then filtered by decantation to guarantee optimal clarity by removing the particles in suspension. The result is a non-sparkling, single-variety wine that will be blended with other varieties as well as with so-called reserve wines to preserve the character and taste of the champagne year after year. This is what is known as the "**assemblage champenois**", an ancestral technique, specific to each house and producer. The resulting mixture is then **bottled** with the addition of a liqueur composed of wine, sugar and yeast before being hermetically sealed. The **second fermentation** (or "prise de mousse") will then start. The bacterial reaction

created will release carbon dioxide which will remain trapped in the bottle making the wine sparkling. The bottles are then left **to age**, flat, for between 1 and 3 years. They are then tilted, neck down, and regularly turned over so that the deposit is positioned at the neck: this is the **riddling**. The next step will allow the deposit to be expelled during **disgorging**. To do this, the deposit is frozen and then expelled by pressure. Once this has been done, the missing volume is completed with a "liqueur d'expédition" (wine and sugar), which will determine the nature of the cuvée (brut, sweet, etc.).

It is at the end of all these stages that the champagne is created, and ready to be labelled and sold in the various distribution networks.

Thanks to the research work carried out, it was possible to create a map of champagne by identifying the inputs of the different stages of production and distribution.

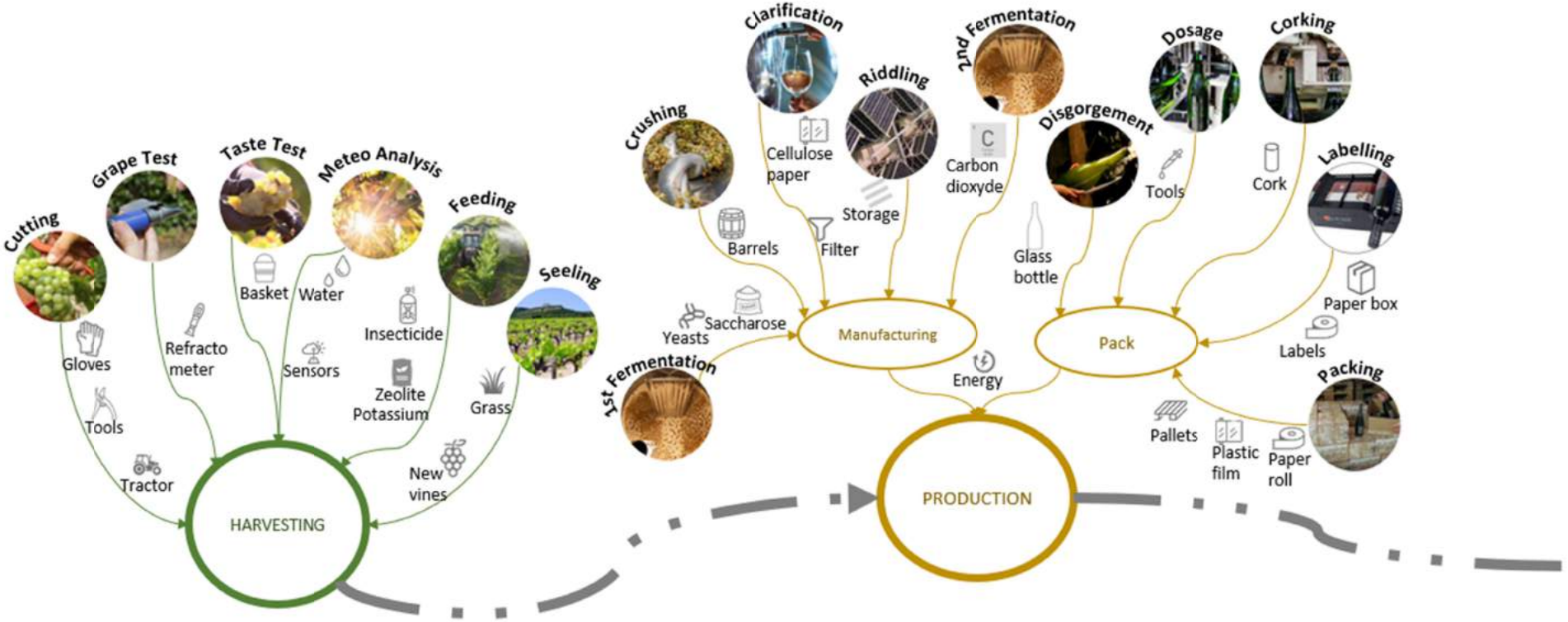



*Figure 19: Input of the Champagne sector 1*

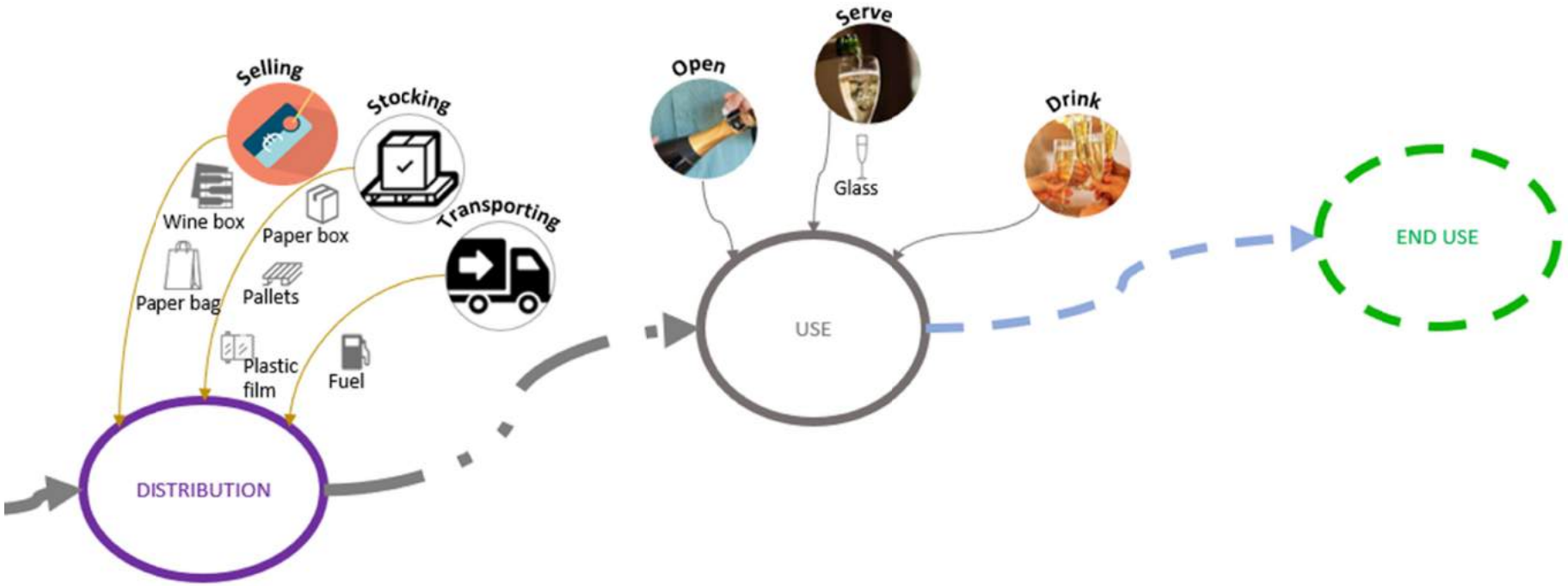



*Figure 20: Input of the Champagne sector 2*

*4.4.1.2 Outputs of the system*

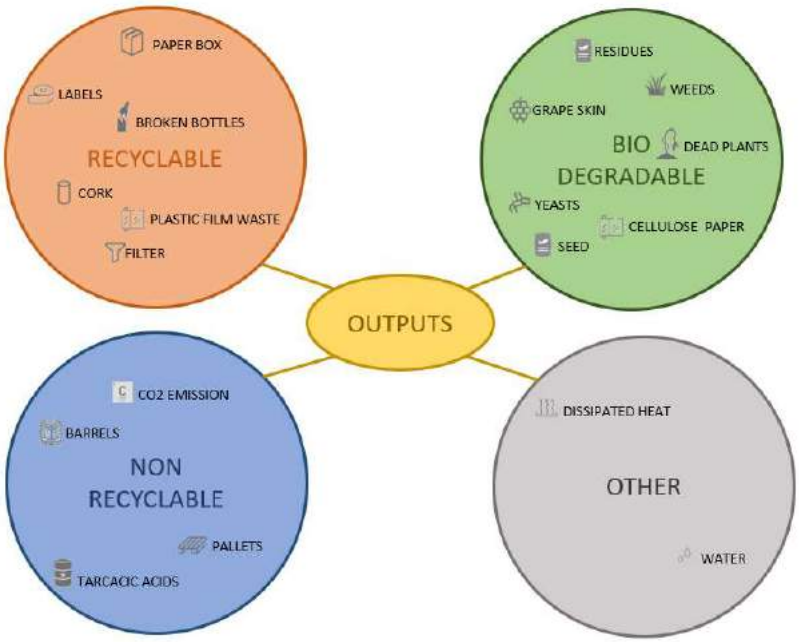



*Figure 21: Champagne outputs*

- Harvesting:

During the harvesting process, there are physical outputs like stressed grapes, dead plants, weeds.

Pesticide treatments exists to avoid the development of parasites and all kinds of viruses to reduce these outputs. But pesticides are very expensive and polluting. Pesticides are used today because a virus can lead to the loss of crops, a lower quality of the grapes, a total loss of plants and trees). Today, the legislation is rude about virus, producers must verify and eradicate the virus before the spreading, but every vineyard uses a pesticide treatment such as glyphosate to protect the vines.

The use of pesticide is controlled, and many producers are trying a system based on the zero/ limited used of products to eradicate insects. This is better for the environment and can reduce the development of new pesticides.

Another different system is the biodynamic one. Bringing the culture closer to the energetic forces, first introduced mu Rudolf Steiner. This method aims to reduce chemical products use and encourage the plants extracts to increase the self-defense of the plants. This is also very nice for the biodiversity, insects and do not impact the taste of the wine.

Some hazard wastes are created. For instance, sulfur dioxide is used to prevent oxidation and preserve the characteristics of the wine. It's mainly used for the conservation of the wine because it can inhibit bacteria. It can be dangerous for humans.

*Figure 22: Pesticide spraying in a champagne vineyard*

Furthermore, the use of tractors and machines to proceed to the harvesting is creating an output of CO2 emission.

- Production:

The production is the biggest source of output in the whole process of Champagne.

The fermentation is a cause of outputs also. Co2 emissions are coming from the fermentation process. Carbon dioxide is produced during the first and second fermentation by the selected yeasts. About 50 percent of alcohol produced from the must, the CO2 emissions produced represent 45 percent of the total products of the fermentation reaction. It's released in the air, this is a dissipated heat output's, which is a problem for the workers and for the environment.

The heat from the fermentation process must always be monitored but carbon dioxide, and heat are dispersed in the air and this represent a big problem for global warming. Moreover, the electricity used for the overall production is based on non-renewable resources and in large quantity. The heat generated is mainly lost.

Furthermore, the 1st source of outputs is the packing operation inside the production process.

Indeed, During the bottling, corking and packing process, a huge range of materials are used: cardboard, plastics, wood, paper, especially for the luxury sector… The packaging is supposed to protect the final product, and the cellulose paper and the plastic film are mainly use for the shipping and to ensure that the bottles can't move? For instance, glass bottles are packaging in a plastic film, the caps in cork, with is filled with plastics around and everything is contained in cardboard boxes, and the cardboards are filled with plastic film on the pallet. All of this with the color of the brand, and label of the brand.

Often the wood to make the ageing barrels, the caps, and the bottles for packaging, come mainly from foreign countries, and non-EU countries (due to pricing issues). This creates a big problem of pollution due to the transportation, airplanes, road transport which emit high quantities of CO2.

- Distribution:

The transportation and exportation of the product has an impact on the Co2 emission emitted. Billions of paper bag and pallets are created to export the Champagne, creating a big output of paper and wood.

- Use and End-of-use:

During the use, there are different kinds of outputs that has a different end on use depending on the consumer for instance, the bottle, the box, and the cork.

The cork can be reused by the users, to make decoration, to close other bottles. The bottle can be kept being used as a decanter or thrown away. The first paper packaging is usually thrown away.

Depending on the user, the sorting Can be done. According to the labels and logo on the waste, the outputs can be recycled.

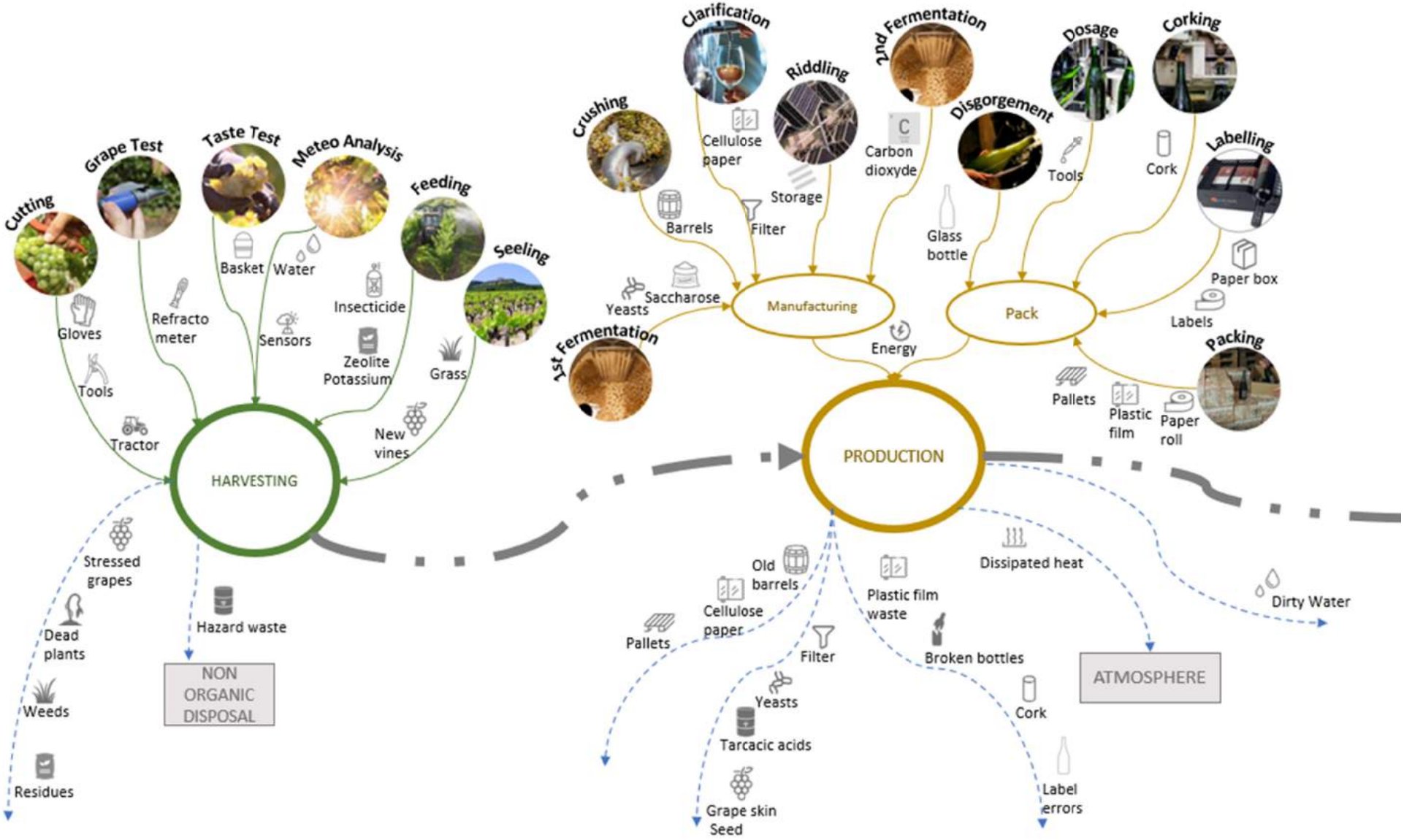



*Figure 23: Inputs and Outputs of the champagne sector*

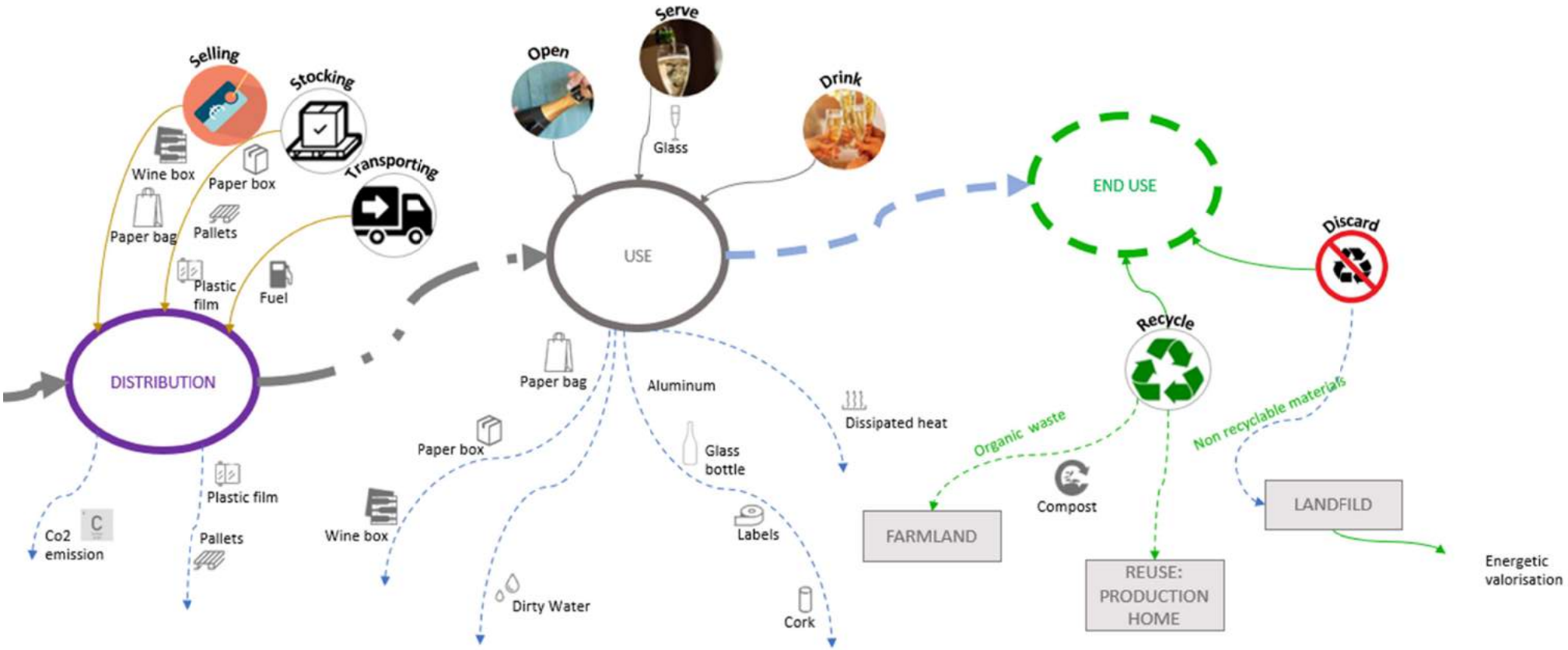





*Figure 24 : Inputs and Outputs of the champagne sector*

### 4.4.2 Packaging for champagne

The packaging comes into play very quickly in the champagne production process. Indeed, some of the primary packaging appears as early as the blending process.

Traditionally, champagne is packaged in a champagne-shaped bottle made of thick glass to resist the pressure exerted by the carbon dioxide contained in the champagne. It is sealed with a cork stopper held in place by an aluminum wire. The neck of the bottle is then covered with aluminum and label is affixed to the front of the bottle.

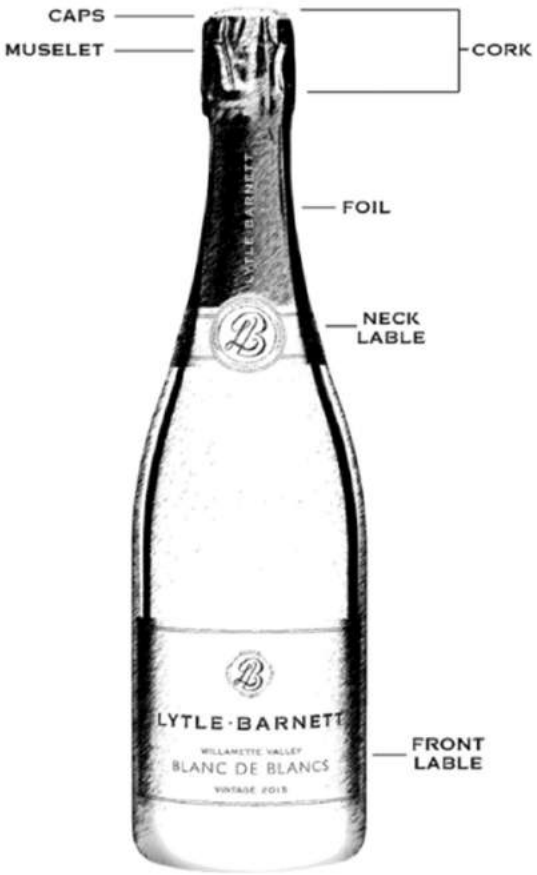



*Figure 25: Champagne Bottle anatomy - Lytle-barnett*

These bottles can then be put in wooden or cardboard boxes most of the time, but more and more producers and houses are innovating to integrate more modernity and innovation.

### 4.4.3 Case studies

In the last few years, packaging has evolved around two axes:

- The environment
- New technologies

It is interesting to study different packaging proposed by brands today to see this richness and diversity. The boxes studied below are based on champagne packaging but also on wine packaging in order to highlight new practices and habits of the wineries.

Thanks to the different information collected, it was possible to create a technical sheet for each packaging studied. Composed according to the same scheme, they propose a global description of the packaging, then expose some environmental, marketing and social characteristics. In order to facilitate reading, these criteria are represented graphically, and the "good, average, bad" evaluation is made thanks to the technical characteristics of each product in order to avoid any subjectivity.

# Protective box Vs Envelope

## RUINART - LVMH - FRANCE


## Product description

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **GLASS, CORK, ALUMINIUM, CELLULOSE**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE FROM **LIGHT.**
- WITHSTAND THE **REFRIGERATOR HUMIDITY** FOR MONTHS
- **RECYCLABLE**
- **PLASTIC AND GLUE-FREE**


## Innovation details

Material: **mono-material** Molded cellulose pulp. Soft-touch matte finish, texture designed to recall Ruinart's chalk cells.

Fabrication: **Waterjet cutting** technology used. "R" is moulded in the material to recall the brand's signature. The second case skin is moulded in **3 dimensions** at the shape of the bottle, to marry some lines.

Environment: **Recyclable** with a **60% reduction** in carbon footprint. **9 times lighter** than the previous individual cardboard boxes (40g Vs 360g).
100% of the paper used is coming from the **FSC forest**. The Conception **100% ecological**
91% of the water needed to produce it is discarded intact in nature.

INNOVATION

SECONDE PEAU - RUINARD - LVMH - FRANCE

## Innovation Environmental performances

Material with low environmetal impact

| | | | |
|---|---|---|---|
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |

Ressource & emissions minimisation

| | | | |
|---|---|---|---|
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |

End of life optimisation

| | | | |
|---|---|---|---|
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

Product protection

| | | |
|---|---|---|
| During transportation | Yes | No |
| At point of sale | Yes | No |

Packaging ease of use

| | | |
|---|---|---|
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

Consumer vision

| | | | |
|---|---|---|---|
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |

eco-communication

| | | |
|---|---|---|
| Raw material | Yes | No |
| Origin | Yes | No |
| Cultural | Yes | No |



# Transport cases

**CITADEL - USA - FRANCE - CHINA**


## Product description

Component/ process

PACKAGING: **SECONDARY**

MATERIALS: **GLASS, CORK, CARDBOARD**

FUNCTION :

- **PROTECTION** OF THE WINE DURING TRANSPORTATION**.**
- **RECYCLABLE**
- **PLASTIC** AND **GLUE-FREE**
- EASY TO HANDLE **VERY LIGHT**
- **OPTIMIZATION** OF THE LOGISTIC

## Innovation details

Material: Light packaging made from **recyclable** and **biodegradable** Kraft paper materials.

Fabrication:  Manufacturing **next to the world's major wineries** to reduce transportation.
**Flat packed** for increased logistic optimization.

Environment: **Recyclable** according to the cardboard industry. Box made with a **single material**, without glue. The cardboard boxes are **biodegradable** and **compostable** in less than 3 months.

INNOVATION

Transport case - CITADEL - USA - FRANCE - CHINA

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# *Packing with waste*

## VEUVE CLICQUOT - LVMH - FRANCE


## *Product description*

Component/ process

PACKAGING: **PRIMARY**

*MATERIALS:* ***GLASS, CORK, ALUMINIUM, CARDBOARD, GRAPE POWDER***

FUNCTION :

- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION.**
- PROTECTION OF THE CHAMPAGNE FROM **LIGHT**.
- **RECYCLABLE**


## *Innovation details*

Material: Packaging made from **recyclable** cardboard and **residual grape waste** naturally produced during the wine making process. Collected and reduced to powder.

Fabrication: Mixture of **grape powder** and **recycled paper**. Saving 5.2 tons of virgin fibres by using the grape residues from the Veuve Clicquot manufacturing process to dye the paper in the mass. The printing of the case is based on **solvent-free ink** and varnish and the glued label is made from **sugar cane**.

Environment: **Recyclable**. The cardboard boxes are **biodegradable** and **compostable.**

INNOVATION

Packing with waste - VEUVE CLICQUOT - LVMH - FRANCE

## Innovation Environmental performances

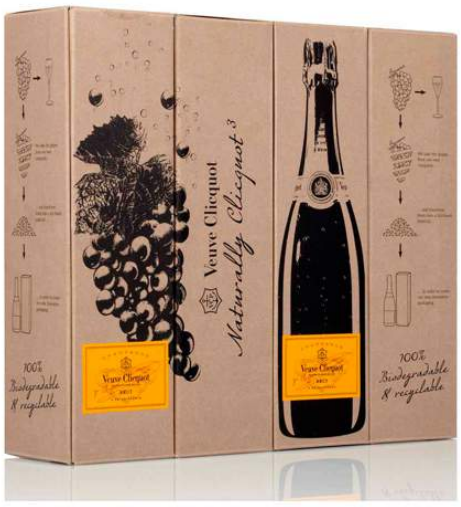
| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# *Labelling with waste*

## TERRA NOE - ARDECHE - FRANCE


## *Product description*

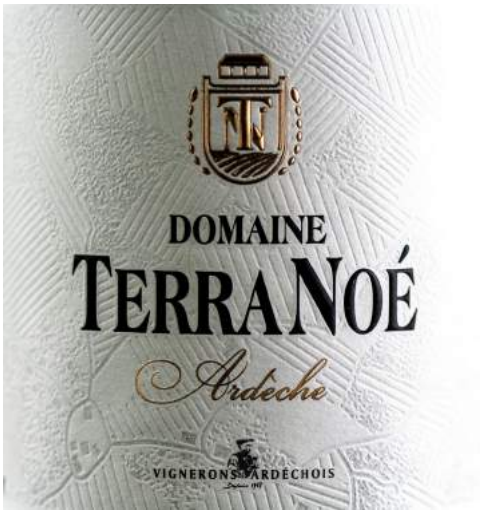
Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **GLASS, CORK, ALUMINIUM, CARDBOARD, GRAPE & CITRUS POWDER**

FUNCTION :

- IDENTIFICATION OF THE WINE.
- COMMUNICATION DISPLAY
- **RECYCLABLE**




## *Innovation details*

Material: **Label** composed of **15% organic residues** of grapes, barley or citrus fruits and **40% recycled paper**. Collected and reduced to powder.

Fabrication: Mixture of **organic powder** and **recycled paper**. saving 3800 trees and reducing greenhouse gas emissions by 35% compared to the traditional labels. The printing process is based on **solvent-free ink.**

Environment: **Recyclable, biodegradable** and **compostable.**

**ECOLOGICAL**

Labelling with waste - TERRA NOE - ARDECHE - FRANCE

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |



# Eco-friendly cap

**AMORIM - TOP SERIES - FRANCE**

## Product description

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **CORK, PLASTIC**

FUNCTION :

- BOTTLE **SEALING**
- **RESISTANCE** OVER TIME
- NOT TO MODIFY THE **SMELL**, THE **TASTE** OF THE PRODUCT
- **RECYCLABLE**

## Innovation details

Material: 30% to 50% agglomerated **cork** added to a **bio-sourced or recycled polymer**

Fabrication: **Injection moulding** techniques.
Since the cap is lighter than a traditional cap, it requires **less energy** to produce.
**Customization** is possible using different marking techniques.

Environment: **Recyclable**. The caps are **biodegradable** and may be **compostable.**

**ECOLOGICAL**

AMORIM - TOP SERIES - FRANCE

Eco-friendly cap -

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# Paper bottle

## FRUGALPAC - FRUGAL BOTTLE - UK


## Product description

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **PLASTIC, CARDBOARD**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE FROM **LIGHT**.
- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION AND DISPLAY.**
- **RECYCLABLE**


## Innovation details

Material: 94% **recycled paperboard** with a plastic food grade pouch

Fabrication: Silver plastic pocket to ensure a constant level of humidity and temperature. Cardboard bottle in which the bag is inserted. All the elements are **separable** to allow the recycling of the different elements. Five times lighter than a normal glass bottle and carbon footprint up tosix times lower than a glass bottle

Environment: **Recyclable**. the carboard part is also **biodegradable**

**ECOLOGICAL**

Paper bottle - FRUGALPAC - FRUGAL BOTTLE - UK

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# Eco-box

## PERRIER JOUET - FRANCE


## Product description

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **CARDBOARD, GLASS, ALUMINIUM, CORK**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE FROM **LIGHT**.
- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION AND DISPLAY.**
- **RECYCLABLE**


## Innovation details

Material: 100% **natural fiber** from FSC-certified forests; ink and glue made from **mineral oils**

Fabrication: Minimalist design, **mono-material** box and **limited ink use.** Reduced environmental impact with a weight **30% more reliable** than classic cardboard packaging.

Environment: **Recyclable**. the carboard part is also **biodegradable**

**ECOLOGICAL**

Eco-box - PERRIER-JOUET - FRANCE

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# *All cork*

## GLOBAL CREATIVE AGENCY ANTHEM - BENELUX


## *Product description*

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **CORK**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE FROM **LIGHT**.
- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION AND DISPLAY.**
- **MONO-MATERIAL** PACKAGING
- **RECYCLABLE**


## *Innovation details*

Material: 100% **natural cork**

Fabrication: **cork** mixed with a **natural binding** agent to increase its strength and prevent the liquid inside from being absorbed by the **porous materi**al.

Environment: material that **rapidly regenerates** and is entirely **compostable**

**ECOLOGICAL**

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# Connected bottle

## GH. MUMM - FRANCE


## Product description

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **GLASS, ELECTRONIC COMPONENT**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE FROM **LIGHT**.
- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION AND DISPLAY.**
- **CONNECTED PACKAGING** PACKAGING
- INTERACTIVE


## Innovation details

Integration of **electronic components** at the neck of the bottle (**RFID** technology) and the cap (**sensor** to detect bottle opening).

This technology allows the consumer to access from his phone to different services that will detect the opening of the bottle

Environment: Multi-component packaging difficult to recycle. Electrical components will disrupt the recycling stream

INNOVATION

Connected bottle - G.H. MUMM - FRANCE

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# 2-in-1 packaging

## MOËT CHANDON - FRANCE


## Product description

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **GLASS, ALUMINUM, PLASTIC**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE FROM **LIGHT**.
- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION AND DISPLAY.**
- **ISOTERM** PACKAGING


## Innovation details

InReplacement of the traditional cardboard box by a double-walled plastic/aluminum cylinder.
This insulation allows to keep the temperature of the champagne during 2 hours.

The packaging is designed in such a way that it transforms into an ice bucket.

Environment: Multi-component packaging difficult to recycle. For an optimal recycling, a disassembling is necessary.

INNOVATION

2-in-1 packaging - MOËT CHANDON - FRANCE

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# Natural bottle

## GREEN GEN - FRANCE

## Product description

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **LINEN RESIN AND PINE RESIN**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE FROM **LIGHT**.
- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION AND DISPLAY.**
- **MONO-MATERIAL PACKAGING**
- **RECYCLABLE**


## Innovation details

Material: resins of vegetal origin, renewable and biodegradable produced in France

Fabrication: Blends biobased fibers with sustainable and compostable resins to create an airtight bottle.

Environment: material entirely **compostable** made in France with **local ressources**

ECOLOGICAL

Natural bottle - GREEN GEN - FRANCE

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# *Lightweight case*

## NICOLAS FEUILLATE - FRANCE


## *Product description*

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **GLASS, CORK, ALUMINIUM, CARDBOARD**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION.**
- PROTECTION OF THE CHAMPAGNE FROM **LIGHT**.
- **RECYCLABLE**
- **PRODUCT LOCALLY**

CHAMPAGNE
Nicolas Feuillatte
FRANCE

## *Innovation details*

Material: Packaging made from **recyclable** cardboard, 20% lighter than a regular folding box, reducing the number of additives.
The inks and varnishes are use in a smaller quantity to avoid recycling perturbations.

Environment: **Recyclable**. The cardboard boxes are **biodegradable**.
This folding box is produced 120kw away from the vineyard.

**ECOLOGICAL**

*lightweight case* - NICOLAS FEUILLATE - FRANCE

## *Innovation Environmental performances*

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## *Innovation Functionnal performances*

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## *Innovation Communication performances*

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# *Luminous bottle*

**DOM PERIGNON - FRANCE**


## *Product description*

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **GLASS, CORK, ALUMINIUM**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE FROM **LIGHT**.
- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION AND DISPLAY.**


## *Innovation details*

Traditional champagne packaging in which a new technology of decoration has been integrated. Indeed the paper and the ink have been enriched in the label with bio-luminescent bacteria
these bacteria have the property to glow in the dark thanks to the light they have assimilated.

Environment: Multi-component packaging, the separation of the components remains a key element to good recycling.
Bacteria do not modify the recycling characteristics of the product, as they come from living organisms

INNOVATION

Luminous bottle -DOM PERIGNON - FRANCE

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# *Transport cases*

**RUINART - FRANCE**


## *Product description*

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **GLASS, CORK, CARDBOARD, WOOD**

FUNCTION :

- **PROTECTION** OF THE WINE DURING TRANSPORTATION**.**
- **RECYCLABLE**
- PROTECTION FROM THE LIGHT

## *Innovation details*

Material: case made with recycled wood to make reference to the origins of the Maison.

Environment: **Recyclable,** all the component of the box are coming from a post-consumer recycled chain. the output of another system is used here as an input

**ECOLOGICAL**

Transport case - RUINART - FRANCE

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# Transport cases

## DAVIDE PAGANOTTI - ITALY

## Product description

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **CARDBOARD**

FUNCTION :

- **PROTECTION** OF THE WINE DURING TRANSPORTATION**.**
- **RECYCLABLE**
- EASY TO HANDLE

## Innovation details

Material: honeycomb cardboard, snap-fit assembled. Light packaging where printing or labeling is not need as the bottle label is accessible and fully visible.

Environment: **Recyclable,** all the component of the box are are easy to disassemble. No disruption of the recycling chain in the sleeve. Traditional bottle

ECOLOGICAL

Transport case - DAVIDE PAGANOTTI - ITALY

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# *Tradition & environment*

**TELMONT - FRANCE**


## *Product description*

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: GLASS, CORK, ALUMINIUM

FUNCTION :

- **PROTECTION** OF THE WINE DURING TRANSPORTATION**.**
- **LIGHT**
- PROTECTION FROM THE LIGHT

CHAMPAGNE
TELMONT
MAISON FONDÉE EN 1912

## *Innovation details*


Material: Elimination of individual boxes and cases. Elimination of transparent bottles and replacement by 100% recyclable dark glass with 80% recycled glass.

Environment: Bottle 100% recyclable, the packaging is made with renewable energy.
A system of reuse of the bottles is being set up.

ECOLOGICAL

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# STELLAR

## G.H. MUMM - FRANCE


## Product description

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: GLASS, ALUMINIUM, STAINELESS STEEL, CORK

FUNCTION :

- **PROTECTION** OF THE WINE DURING TRANSPORTATION**.**
- WEIGHTLESSNESS TASTING

## Innovation details

Material: Patented double cavity glass system with an internal machined system topped by a ring. This allows to create a champagne foam which will be collected with adapted glasses

Environment: Multi-component packaging, very difficult to recycle without prior dismantling

INNOVATION

STELLAR - G.H. MUMM - FRANCE

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

G.H.MUMM
CHAMPAGNE

# *Wrapped bottle*

**ABSOLUT - SWEEDEN**


## *Product description*

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: GLASS, CORK, PLASTIC, ALUMINUM

FUNCTION :

- **PROTECTION** OF THE WINE DURING TRANSPORTATION**.**
- PROTECTION FROM THE LIGHT

## *Innovation details*


Material: Bottle wrapped in a metalized plastic sheet. It is removed at the time of use.
Reuse of traditional packaging codes

Environment: Multi-component packaging, easy to disassemble. Plastic envelope not recyclable because of the decoration

COMMUNICATION

Wrapped bottle - ABSOLUT - SWEEDEN

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# *Innovative box*

**VEUVE CLICQUOT - FRANCE**


## *Product description*

Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **CARDBOARD, GLASS, ALUMINIUM, CORK**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE FROM **LIGHT**.
- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION AND DISPLAY.**
- **RECYCLABLE**

## *Innovation details*

Material: 1Paper coming from FSC-certified forests

Fabrication: **mono-materia**l box aconverting into a foldable paper ice-bucket

Environment: the box is recyclable, the ice bucket is coated with a plastic film to guarantee watertightness but which disrupts the recycling process

INNOVATION

Innovative box - VEUVE CLICQUOT - FRANCE

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# *Simple box*

## WAY CHAMPAGNE - SWEEDEN

## *Product description*

Component/ process

PACKAGING: **SECONDARY**

MATERIALS: **CARDBOARD, GLASS, ALUMINIUM, CORK**

FUNCTION :

- PROTECTION OF THE CHAMPAGNE DURING **TRANSPORTATION AND DISPLAY.**
- **RECYCLABLE**
- **BOTTLE GROUPING**

## *Innovation details*

Material: 100% **natural fiber** from FSC-certified forests; ink and glue made from **mineral oils**

Fabrication: **mono-materia**l box and **limited ink use.** Reduced environmental impact.

Environment: **Recyclable**. the carboard part is also **biodegradable**

**ECOLOGICAL**

Simple box - WAY CHAMPAGNE - SWEEDEN

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# *Folding case*

**VOION - CHINA**

## *Product description*

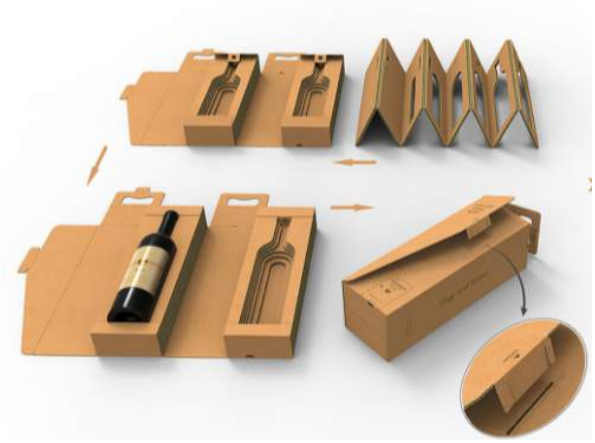
Component/ process

PACKAGING: **PRIMARY**

MATERIALS: **CARDBOARD**

FUNCTION :

- **PROTECTION** OF THE WINE DURING TRANSPORTATION**.**
- **RECYCLABLE**
- EASY TO HANDLE



## *Innovation details*

Material: Made of corrugated cardboard without any glue. Very easy to assemble and open, it is used to store, transport and present the bottle.
A locking system is integrated into the product guaranteeing its inviolability.

Environment: **Recyclable,** all the component of the box are are easy to disassemble.

**ECOLOGICAL**

**Folding case - VOION -CHINA**

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# Naturally packaging

## VEUVE CLICQUOT - LVMH - FRANCE


## Product description

Component/ process

PACKAGING: **PRIMARY**

*MATERIALS:* ***GLASS, CORK, ALUMINIUM, CARDBOARD, POTATO STARCH***

FUNCTION :

- PROTECTION OF THE CHAMPAGNE
- PROTECTION OF THE CHAMPAGNE FROM LIGHT.
- **RECYCLABLE**

Veuve Clicquot
REIMS FRANCE


## Innovation details


Material: Packaging made from potato starch, 100% recyclable and biodegradable. A strong and light case.

Environment: **Recyclable**. The boxes are **biodegradable** and **compostable.**

INNOVATION

Naturally packaging - VEUVE CLICQUOT - LVMH - FRANCE

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

# Flexible packaging

**FLEXI-HEX - UK**


## Product description

Component/ process

PACKAGING: **SECONDARY**

*MATERIALS:* ***CARDBOARD***

FUNCTION :

- PROTECTION OF THE CHAMPAGNE DURING TRANSPORTATION
- **RECYCLABLE**


## Innovation details

Material: Packaging made from honeycomb cardboard, 100% recyclable and biodegradable and reusable.

Environment: **Recyclable**. The boxes are **biodegradable** and **compostable.** The glue is water-based

INNOVATION

Flexible packaging - FLEXI-HEX - UK

## Innovation Environmental performances

| | | | |
|---|---|---|---|
| Material with low environmetal impact | | | |
| Use of materials with low values of EE | Poor | Good | Excellent |
| Use of materials with low CO2 footprint | Poor | Good | Excellent |
| Ressource & emissions minimisation | | | |
| Efficiency (pack weight/product weight) | Poor | Good | Excellent |
| Number of packaging component | Poor | Good | Excellent |
| End of life optimisation | | | |
| Separation of components | Poor | Good | Excellent |
| Potential recycling percentage of materials | Poor | Good | Excellent |
| presence of material identification marking | Poor | Good | Excellent |

## Innovation Functionnal performances

| | | |
|---|---|---|
| Product protection | | |
| During transportation | Yes | No |
| At point of sale | Yes | No |
| Packaging ease of use | | |
| Recloseable packaging | Yes | No |
| Simple opening mechanism | Yes | No |
| Stackability | Yes | No |
| Reusability | Yes | No |

## Innovation Communication performances

| | | | |
|---|---|---|---|
| Consumer vision | | | |
| Name of the brand | Yes | No | |
| Story telling | Yes | No | |
| Visual impact/Colors | Poor | Good | Excellent |
| eco-communication | | | |
| Raw material | Yes | No | |
| Origin | Yes | No | |
| Cultural | Yes | No | |

All these case studies allow us to highlight the packaging innovations of the last years. The diversity of products studied illustrates the complexity of packaging which, in addition to being practical and adapted to the product, is a very important communication tool.

How to highlight the producers, how to create a new tasting ritual? These questions allow us to exercise the senses of the packagers but also of the consumers.

Thanks to these studies, we see today that packaging is ready for a real transition. This vision is even more present when we look at other everyday products.

Is the consumer as ready as the technology? This is the question that needs to be answered before thinking about the packaging of tomorrow.


MOET


BOLLINGER
CHAMPAGNE
BOLLINGER


# V
# GUIDELINES

# CHAPTER 5

# GUIDELINES

## 5.1 consumer studies

After studying champagne, its sector, and its packaging, it was interesting to study consumer behavior towards luxury products.

Indeed, the case studies carried out, and the technical knowledge showed that we could already drastically reduce the intoxicating impact of packaging. However, the research carried out during the study highlighted the importance of packaging in the consumer's purchase intention and therefore in the commercial success of the product. It was therefore important to analyze people's attitudes to packaging and luxury before proposing guidelines for new packaging.

Nearly 500 responses were collected on various topics such as:

- Luxury market
- Luxury Vs Pandemic
- Packaging for luxury products
- luxury & environment

### 5.1.1 Luxury market

Taking up the elements studied in the first part of this document, these questions allow us to relate the state of the market to the perception of the consumers on the panel.

Thus, we first asked how brands get their attention, and the most common answer was: Mostly through social networks and television and stores. Despite the pandemic, the figures show that shops are still the preferred means of communication for consumers, followed closely by social networks. Brands are now all present on the internet, and this is an increasing fact, particularly during the successive confinements, as shops have been closed. Customers have therefore turned to these communication channels, thus increasing e-commerce.

The consumers of the panel admit to buying luxury products for special occasions, which clearly shows that there is no need for luxury products, which are associated with pleasures and gifts, thus preserving, and amplifying the symbol of prestige and inaccessibility. It is interesting to note that the most cited sectors according to the panel remain accessories (shoes, handbags) leading with 24%and cosmetics with 22%, followed closely by fashion and jewelry. The sectors that come back at the end of the ranking are food and spirits.

However, when asked about the latest luxury purchases made, these sectors come out on top with 24% followed by cosmetics (16%). This can be explained by a difference made by the consumer between the dream product, or even the sacred product such as a Chanel handbag for example, and the budget they have or allow themselves for their purchases. This is where branding comes into its own. Indeed, by choosing a Chanel perfume for example, the consumer will keep the prestige associated with this brand, associated with the product of their dreams within a more reasonable budget. Moreover, with the pandemic, habits have been modified with a real desire to eat better, to consume better, even if it means paying more for

better quality. As a reminder, the definition of luxury being personal to each person, we can imagine that the purchases made are not absolute luxury, but more accessible luxury.

Finally, in view of the figures announced by the brands for 2021, and the results of the questionnaire, the habits acquired during the confinements were quickly chased away in favor of a return to more usual consumption. The answers were mainly collected during the pandemic, and already at that time, 62% of the respondents thought they were returning to their previous relationship with luxury products.

### 5.1.2 Packaging

It was then obvious to refocus our questions on packaging to obtain valuable information on the customer-product relationship and on what people expect from luxury product packaging.

It is interesting to note that the consumers take attention to the packaging (about 41%). However, for some people it will depend on the type of packaging (40%). Packaging is a highly anticipated and observed element by consumers from advertising, to on-shelf selection and use, and is central to the impulse to buy. Millions of videos on the internet show the unboxing of luxury products and the excitement of consumers after opening the box. The packaging thus brings a theatrical aspect to the product. It is highlighted, observed, and described.

Only 20% of the survey's luxury consumers throw away the product packaging. The others prefer to keep it to store the product or reuse it for decoration or to store other products. The packaging therefore becomes a product. It must therefore be designed to be aesthetically pleasing but also durable, without neglecting its primary

functionality. For example, luxury shoe boxes are often used for storage, but there is not necessarily the right pair inside. It can therefore be said that the design of the packaging is important for consumers to keep it.

However, there is now a disagreement among consumers about the opulence of packaging. Indeed, half of them think that it is not necessary for the packaging for luxury products to be a luxury object in its own right, whereas for the others, this is one of its characteristics. This highlights different mentalities among consumers which must be considered when developing packaging, since 55% of those consulted expect the packaging to be beautiful first, before being practical, which comes in second place.

The position of consumers on over-packaging remains to be defined, in fact, according to the questionnaire, 68% of consumers think that it is necessary to reduce the intensity of packaging. However, when faced with a concrete case (proposal to reduce packaging for a luxury bag), they want to keep each element (tissue paper, dust bag, counter box, etc.)

The consumer is ready on paper, or maybe to give himself an ecological conscience, to change his way of perceiving packaging but not yet in a concrete way.

According to the survey, what first attracts the attention of the panel in the packaging of the luxury product is the image of the brand at 30%. The standing and reputation of the brand attracts customers, and this has an impact on the packaging. Shape and Colour together are the second choice with 29%, showing the importance of design as discussed above. Finally, the materials used are not the most eye-catching to consumers but are important in creating and appealing to the consumer's senses such as touch, or in some cases smell (18%), so they play a role in the marketing of the brand and the values claimed.

We have seen that luxury packaging is an object in its own right. The brand image must be represented, with a logo, a particular Colour or shape, while respecting the

functionalities of the packaging and in particular the protection of luxury products. Consumers are not yet ready to reduce the amount of packaging used today, particularly for gifting, but there is an awareness that suggests very important changes in the years to come. 55% of consumers are now concerned about the environmental impact of luxury products (packaging + products)

To conclude, we have observed through research that we now have the technical tools to develop ecological and sustainable packaging. This questionnaire also showed that the consumer is not yet ready for a radical change in what they know and appreciate. They are still very attached to the historical codes of luxury. The customer remains responsible for the commercial success of a product, and his opinion must therefore be taken into account at every stage of development. In order to get consultations, use tests are frequently organized by brands, ready to propose innovative solutions for a more sustainable world.

Thus, the creation of new guidelines must take into account not only the technical aspects but above all the psychology of consumers by using innovative and novel modes of communication.

*Details of the 21 questions and the full results are available in the appendix.*

## 5.2 Guidelines proposal

Thanks to the case studies and the study conducted through the questionnaire, it is possible to look at new guidelines for the design of a more sustainable and responsible packaging. These design methods are aimed at engineers on the one hand, but also at the development and marketing teams of brands.

Indeed, it is important to remember that we have seen that many things are achievable from a technical point of view, however, the perception of the consumer must remain the center of attention. The transition must therefore be made smoothly, while remaining alert so as not to fall into greenwashing, which is still very present today.

The proposals will initially focus on champagne before being extended to packaging in general.

### 5.2.1 Guidelines about Champagne

The stages of champagne packing are regulated by the AOC which governs it. Thus, the levers at the level of the bottle, its label and its closing system must be adapted while meeting the specifications. Indeed, it imposes to pack the champagne in a glass bottle, labeled, and closed by a cork maintained by an aluminum collar.

#### *5.2.1.1 The bottle*

At the level of the bottle, the possible changes are thus quite numerous. They will focus on reducing the weight of glass and increasing the percentage of recycled glass.

The production of glass bottles incorporating recycled glass reduces energy consumption. In fact, 10% recycled glass reduces glass emissions by 5% and fossil energy requirements by 3%. The advantage of reducing the weight of glass is that it does not change the aesthetics of the bottle or its size. This weight reduction will then have repercussions on the entire life cycle of the product. In particular, it reduces greenhouse gas emissions linked to the transportation of bottles.

The increase in the percentage of recycled glass in a bottle is something that can be adjusted. Indeed, it is known that glass is an infinitely recyclable material. However, the recycling process will alter the transparency of the glass and its color.

This change in appearance is not visible on a glass bottle such as that of a raw champagne, where percentages of around 80% can be reached. Today, some champagne houses keep their transparent bottles (Cristal - Louis Roederer, or some bottles of Blanc de Blancs champagne). For these different vintages, it is also possible to work with recycled glass. The percentage will then be reduced to 40% in order not to deteriorate the aesthetic aspect of the bottle. Another solution for these companies is to use dark-colored bottles, as is the case for Telmont.

Another possible element is the reuse of bottles through a deposit system. Consumers can be rewarded when they bring their empty bottle back to the store. The collected bottles are then washed before being refilled. This system reduces greenhouse gas emissions by up to 85% compared to single-use packaging. It also reduces water consumption, despite the fact that cleaning is less energy-intensive than producing a bottle.

For the moment, consumer habits do not allow this system to be sustainable. Brands must therefore use different communication and distribution channels to encourage consumers to take this step.

#### *5.2.1.2 the label*

The label is also subject to strict regulations. It must include various elements dictated by the controlled designation of origin.


*Figure 26: Champagne label explanations - Vinepair*

In view of all this information, it is complicated to consider a reduction in the size of this label. Thus, the eyes will turn to the paper used, the ink, or the glue.

Today, there is many materials on the market that can reduce the impact on the environment on the one hand but also the disruption of the recycling process.

- The soluble glue allows the separation of the components before recycling. Labels are often decorated using hot stamping techniques which are not recyclable. They also allow for the reduction of solvents in adhesives. The glycol ethers released by the solvents can have very important side effects such as neurological, metabolic, or even renal disorders.
  Sorting is therefore a key element for sustainable packaging

- The green inks. They allow a wide variety of colors and aspects. Solvents are responsible for the emission of highly volatile organic compounds that can be harmful to the environment and to the health of consumers and workers.

- The paper used for the label can also be transformed to be more sustainable. Environmental labels exist to ensure sustainable forest management. They

mainly concern virgin paper. There is also recycled paper which allows to save natural resources and energy. Paper made from virgin pulp requires 2 to 5 times more energy, water and greenhouse gases than recycled paper. However, the same sheet of paper can be recycled on average 2 to 5 times. With each additional recycling it will be necessary to increase the virgin fiber content to maintain the final quality of the paper.

#### *5.2.1.3 Closing system*

The champagne bottle is traditionally closed by a cork stopper in the shape of a mushroom, maintained by an aluminum collar and covered with an aluminum sleeve.

The cork and the cage are two elements easily identifiable and separable from the rest of the packaging. It is thus easy for the consumer to sort them out so that they are then recycled. The main problem here is related to the aluminum foil that covers the top of the bottle. Indeed, this foil does not come off the bottle... it disturbs the glass recycling process and degrades the quality of the glass from domestic use.

Making this cover completely removable will increase the overall recyclability of the packaging without affecting its aesthetic appearance. We can refer here to the case study made on the Absolut bottle.

*Figure 27: Plastic foil - Absolut*

A peel-off system is integrated into the cover, which allows for optimal separation of the various components. This cap can also be made of paper as proposed by the company BillerudKorsnäs with its product FibreForm Cap. It allows to reduce the use of aluminum while keeping an intact image and an almost infinite personalization.


*Figure 28: Champagne paper foil - BillerudKorsnäs*

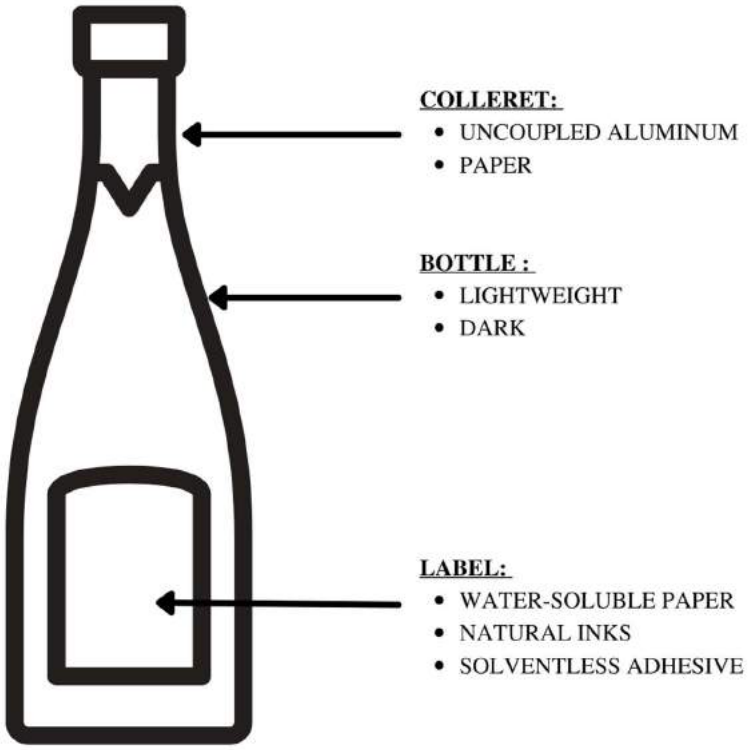



*Figure 29: Bottle guidelines*

#### *5.2.1.4 protection and transportation*

Like any glass product, champagne is a fragile object that needs to be protected during the different stages that separate it from the consumer. There are different types of packaging on the market, ranging from cardboard boxes to plastic shells.

In recent years, plastic has been increasingly decried by consumers, forcing manufacturers to turn to innovative alternatives or more respectful materials such as cardboard or cellulose. The Ruinard boxes initially made of cardboard with a thermoformed plastic shell have become second skins made of cellulose.

Boxes have changed a lot since the ecological awareness of consumers. Virgin cardboard boxes are now respectful of standards and brands are developing new technologies to further reduce their carbon footprint. It is therefore possible to design a box using the skin of a grape or a potato etc. These new materials are based

on biodegradability and compostability while maintaining a strong environmental approach

The reduction of intensity remains the number 1 pillar, especially on boxes, and secondary and tertiary packaging. Plastic tape can easily be replaced by its equivalent in kraft paper, and cellophane plastic can be replaced by recycled or biodegradable equivalents as proposed by the company Soluplast. An even more sustainable step is possible thanks to the use of reusable pallets and racks. A rotation is established between the supplier and its distributors thus allowing to reduce waste. It is important to mention that the best waste is that which is not produced.

Nevertheless, it is possible to go even further in reducing the volume of packaging. Davide Paganotti proposes a box where the bottle becomes the decoration. This development meets the requirements of packaging: to protect, transport and communicate and puts the bottle back in the center of attention.

*Figure 30: Transportation and protection box - Davide Paganotti*

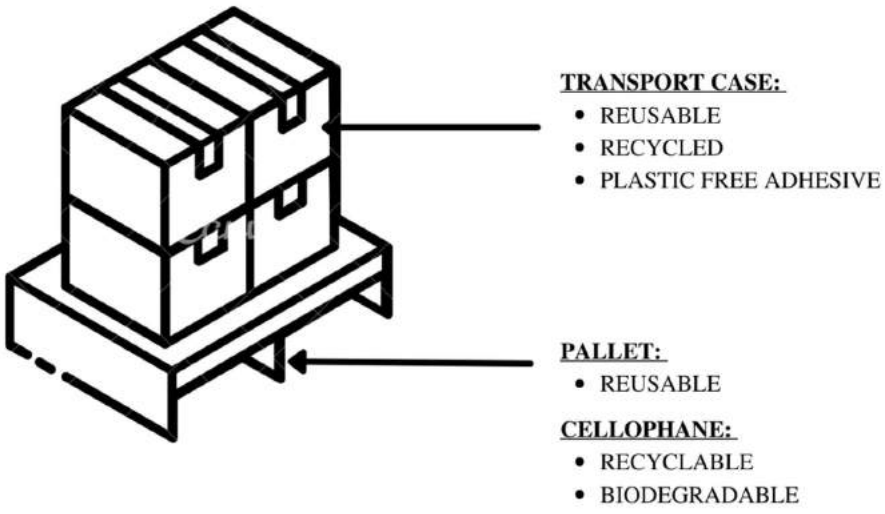



*Figure 31: Transportation guidelines*

### 5.2.1 Communication guidelines

From a technical point of view, we have seen that techniques allow us to design a more sustainable and ecological packaging. However, the study carried out on consumers shows that they are not ready to give up their habits and review their expectations.

Communication therefore has a very important role to play in changing/improving consumer perception.

Today, this communication remains very limited on packaging. Some sectors are starting to claim certain percentages of recycled materials or highlight the carbon neutrality of their products (Armani My Way). This approach is still very limited in the world of champagne, where tradition dictates the codes.

One of the best techniques is to involve the consumer. This can be done in different ways without moralizing.

- Involve them in the brand: by making them discover the faces behind the product. The brand will then gain in humanity and draw the

consumer's attention to the different social issues (working conditions, techniques) but also to the territory associated with the product.

This is the method chosen by Nicolas Feuillate for the decoration of these boxes. The consumer is then invited to take an interest in the winegrowers and the environmental or social message is then explained by a familiar face. Familiar because this face invites itself in the intimacy of the consumer, we know his first name, and he is often staged in his working conditions as if he had stopped to question the consumer.

- This idea of belonging and transmission can be reinforced through visits and days in the vineyards. They allow the consumers to discover the stages of production of champagne but also of conditioning. The packaging process can then become a powerful means of communication on the importance of packaging, its intensity and the innovations implemented by the champagne houses to reduce their environmental impact.

  In addition, the companies sometimes work with associations for the integration of disabled people. They are generally posted on packaging and shipping stations. These visits are also an opportunity for consumers to be made aware of the social positions of a company, and to identify with their values.

- The implementation of recycling instructions on bottles or boxes. For a long time, these signs were hidden or omitted.

Today, communication on recycling and sorting processes is not a pejorative thing for consumers.

They are now appearing on perfume bottles and cases, as at Armani. They are a key element in the sustainability of packaging. Indeed, today the sector is strongly disrupted by sorting errors and multi-component packaging that cannot be separated.

These pictograms can be redesigned to be as close as possible to the brand image and the atmosphere created by the packaging.

They must be placed in visible places such as the cardboard box, the primary packaging, and of sufficient size to be readable.

The three points discussed above can be implemented in different ways. Today, we find packaging on the market that integrates RFID chips, such as the Mumm bottle or the Phantom perfume from Paco Rabane.

This system allows to send the consumer on the website of a brand, to communicate with them and share the history of the brand. However, this adds an electronic component to the packaging that will then have to be sorted and recycled. We are thus witnessing a complexification of the packaging itself.

This chip can easily be replaced by a QR code, which once scanned will offer the same services to consumers. Moreover, this code, printed on the packaging, can replace the EAN code, be an anti-fraud system and finally give the brand information on its consumers (geographical location, time of use, places of purchase etc.). The addition of a QR code can be done on any type of packaging and without making the end of life and reprocessing more complicated for the consumer. This technology is therefore to be favored over RFID chips.

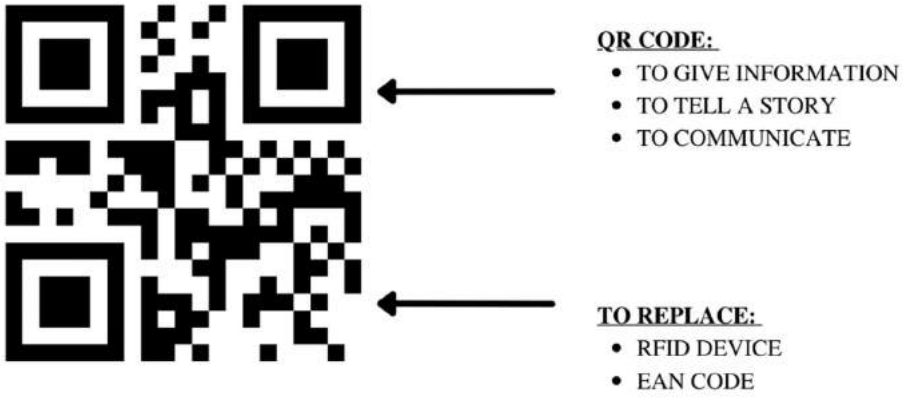



*Figure 32: QR code - a new communication*

Finally, this change of image can also be accompanied by a renewal of colors in favor of green, blue, or brown tones or raw textures that recall nature at first glance.

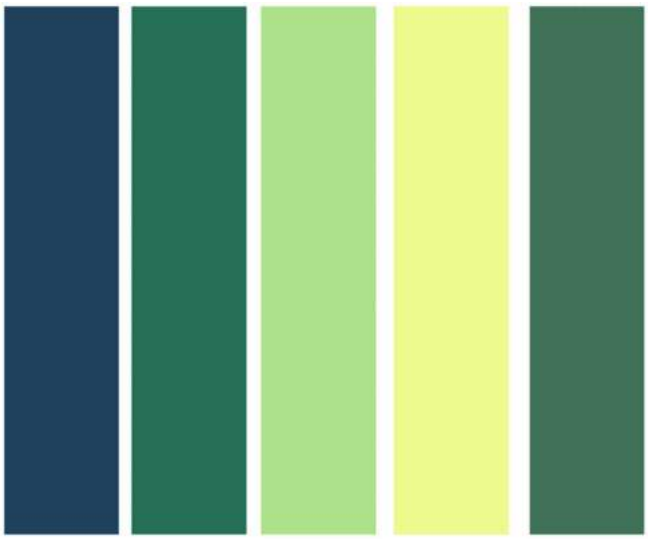


*Figure 33: Sustainable colors*

Communication is a key element of packaging; it must not be neglected by brands to succeed in this transition to a more sustainable packaging. The consumer must feel concerned.

*This study has highlighted key elements of sustainable packaging. Today, they are used separately at different scales, not allowing to create a real unity or willingness to change among brands and consumers.*

*These different elements must now be combined to further advance the approaches initiated a few years ago. We have seen during this research that the social attachment of packaging is very important, the support of the consumer is therefore a key element for the success of this transition.*

*The next step of this work could be to model a packaging using the above guidelines to submit it to a consumer test. This confrontation with the customer will allow to evaluate these guidelines and to prioritize them before implementing them.*

# BIBLIOGRAPHY


Ampuero, O., & Vila, N. (2006). Consumer perceptions of product packaging. *Journal of consumer marketing,*

Bain & Company. (2014). *Etude mondiale 2014 de Bain & Company sur le marché des produits de luxe.* http://www.bain.fr/publications/communiques-de-presse/etude-mondiale-du-marche-des-produits-de-luxeedition-2014.aspx.

Bastien, V. & Kapferer, J.N. (2012). *Luxe oblige*. (2è éd.). Paris. Eyrolles.

Bloch, P. (1995). Seeking the ideal form: Product design and consumer response. Journal of marketing, vol 59,3, pp16-29

Campbell, M. C., & Goodstein, R. C. (2001). The moderating effect on consumers' evaluations of product incongruity: preference for the norm. *Journal of Consumer Research*, 28(3), 439-449.

Castarède, J. (2014). *Que sais-je ? Le luxe* (8è éd.). Paris : Presses universitaires de France.

Celhay, F., Flocher, P., & Cohen, J. (2013). *Decoding wine label design: A study of Bordeaux Grand Crus visual codes*. http://academyofwinebusiness.com/wp content/uploads/2013/04/Celhay-Folcher-Cohen.pdf

Delpal, F., Jacomet, D. (2014). *Economie du luxe*. Paris : Dunod

Déribéré, M. (1964). *La couleur. Que sais-je ? Presses Universitaires de France*, Paris.

Dörnyei, K., Gyulavàri, T. (2012, janvier). *Exploring consumer attitudes toward informative function ofpackaging*. In 11th International Marketing Trends Conference, Venice, Italy.

Kapferer, J.-N. (2012) The Luxury Strategy: Break the Rules of Marketing to Build Luxury Brands (London: Kogan Page).

Vrolijk K., (2006), "Toward sustainable distribution: performance of INCPEN members"
http://www.incpen.org/pages/data/TowardsSustainableDistribution2006.pdf

Sustainable Packaging Alliance (SPA), (2005), "Defining sustainable packaging"
http://www.sustainablepack.org/research/subpage.aspx?PageID=10&id=7

Sustainable Packaging Coalition (SPC), (2005), "Definition of sustainable packaging
http://www.sustainablepackaging.org/content/?type=5&id=definition-of-sustainable-packaging

Bickerstaffe J., (2000), "Communicating with consumers about packaging". In Packaging Policy and the Environment, Levy GM (ed.). Aspen Publisher, Inc.: Gaithersburg, pp.102-113.

Nordin, N., and Selke, S., (2010), "Social Aspect of Sustainable Packaging", Packaging Technology Science, Vol. 23, pp. 317-326

*Absolut Tune Packaging Design*. (2012). feel desain. https://www.feeldesain.com/absolut-tune-packaging-design.html

*AMORIM FRANCE*. (2020). Packaging France. http://www.packaging-france.com/annuaire/technologies/bois-liege-cuir-textile/amorim-france-1681.html

*The Anatomy Of A Wine Bottle: Know A Wine Bottle Head To Toe - Wines And Spirits Academy*. (2020, April 2). Wines and Spirits Academy. https://www.winesandspiritsacademy.com/blog/wine-bottle-anatomy/

*THE ANATOMY OF LYTLE-BARNETT SPARKLING WINE BOTTLES*. (2020, October 22). lytle-barnett.com. Retrieved July 15, 2021, from https://lytle-barnett.com/blog/PRODUCTION/The-Anatomy-of-Lytle-Barnett-Sparkling-Wine-Bottles

B. (2013a, July 10). *Davide Paganotti*. Behance. https://www.behance.net/davidepaganotti

*BillerudKorsnäs FibreForm Cap wins Special Jury Award at Luxe Pack Monaco*. (2018). BillerudKorsnäs. https://www.billerudkorsnas.com/press--news/news/2018/billerudkorsnas-fibreform-cap-wins-special-jury-award-at-luxe-pack-monaco

*Biobased, compostable PaperFoam captures prestigious DieLine Award for sustainable packaging design - bioplastics MAGAZINE*. (2015). Bioplastics Magazine. https://www.bioplasticsmagazine.com/en/news/meldungen/20150506-PaperFoam-captured-prize.php

Botta Packaging. (2021, June 10). *solutions éco-emballage - FLEXI-HEX®*. https://www.botta.it/fr/prodotto/eco-prodotti-fr/flexi-hex/

*Ce en quoi nous croyons*. (2021). Oé. https://oeforgood.com/pages/activisme

*Champagne et développement durable*. (2020). https://www.champagne.fr/. https://www.champagne.fr/fr/developpement-durable/champagne-et-developpement-durable

*Champagne Wine Label Information | Wine-Searcher.com*. (2021). Wine-Searcher. https://www.wine-searcher.com/wine-label-champagne

*Citadel Casing - Sustainable, Protective and Beautiful Wine Packaging*. (2020). Citadel Casing. https://www.citadelcasing.com/?lang=fr

Claeys, S. (2020a, February 11). *Zéro plastique, 100% écolo, la révolution du packaging chez Ruinart !* La Champagne de Sophie Claeys. https://lachampagnedesophieclaeys.fr/zero-plastique-100-ecolo-la-revolution-du-packaging-chez-ruinart/

Claeys, S. (2020b, December 4). *Le coffret écologique et recyclable de la maison Perrier-Jouët sort pour les fêtes*. La Champagne de Sophie Claeys. https://lachampagnedesophieclaeys.fr/le-coffret-ecologique-et-recyclable-de-la-maison-perrier-jouet-sort-pour-les-fetes/

*Clicq'Up : un seau à champagne ou un origami écologique ?* (2011). Paperblog. https://www.paperblog.fr/4370755/clicq-up-un-seau-a-champagne-ou-un-origami-ecologique/

Crozet, A. (2019, April 4). *Mumm Stellar : le champagne des touristes de l'espace*. Capital.fr. https://www.capital.fr/conso/mumm-stellar-le-champagne-des-touristes-de-lespace-1334198

Culbertson, B. (2020, August 4). *The Best Sustainable Champagnes and Sparkling Wines*. 101 Ways to Save The Planet. https://savetheplanetpodcast.com/blog/sustainable-champagne

Demorest, A. (2020, January 22). *Une coiffe en papier signée BillerudKorsnäs*. www.luxepackaginginsight.com. https://www.luxepackaginginsight.com/article/une-coiffe-en-papier-signee-billerudkorsnas.43629

*Green Gen Bottle*®. (2021, November 5). Green Gen Technologies. https://www.greengentechnologies.com/green-gen-bottle/

G.S. (2021a, August 25). *Corking climate change: sustainable practices bear fruit in champagne production*. The Guardian. https://www.theguardian.com/sustainable-business/2015/dec/31/corking-climate-change-sustainable-practices-bear-fruit-in-champagne-production

Heffernan, J. S., PhD. (2020, October 2). *2021 Predictions in the Luxury Market*. Live Trading News. https://www.livetradingnews.com/2021-predictions-in-the-luxury-market-197317.html

Hohweyer, P. C. (2019, December 2). *viticulture : La Champagne a besoin d'accélérer sa transition écologique*. Journal L'Union abonné. https://abonne.lunion.fr/id113315/article/2019-12-02/la-champagne-besoin-daccelerer-sa-transition-ecologique

*In Nomine Terrae: Telmont unveils its sustainable approach – Rémy Cointreau*. (2021, June 21). RCO. https://www.remy-cointreau.com/en/news/in-nomine-terrae-telmont-unveils-its-sustainable-approach/

*Innovation*. (2020). Frugalpac. https://frugalpac.com/innovation/

*Innovation et respect de l'environnement réunis pour un emballage Veuve Clicquot unique*. (2015, November 4). DSSmith.com Packaging. https://www.dssmith.com/fr/packaging/strateges/resultats/etudes-de-cas/innovation-et-mere-nature-reunies-pour-un-emballage-veuve-clicquot-unique

L. (2013b, May 20). *Naturally Clicquot, un emballage isotherme 100% biodégradable – L' EMBALLAGE ÉCOLOGIQUE*. l'emballage écologique. https://www.lemballageecologique.com/naturally-clicquot-un-emballage-isotherme-100-biodegradable/

L. (2021b, January 7). *Ruinart propose un étui écologique*. https://www.ekopo.fr/. https://www.ekopo.fr/Thematique/entreprises-1285/Breves/Ruinart-propose-etui-ecologique-354908.htm

*LE DOMAINE TERRA NOÉ*. (2020). Vignerons Ardéchois UVICA. https://www.vignerons-ardechois.com/fr/visiter#domaine

L.M. (2021c, May 26). *Paboco dévoile un prototype de la bouteille en papier nouvelle génération*. le maitre papetier. https://www.lemaitrepapetier.ca/sciences-et-innovations/avancees-dans-l-industrie-papetiere/paboco-devoile-un-prototype-de-la-bouteille-en-papier-nouvelle-generation.html

M. (2018, December 18). *Mumm envoie le Grand Cordon dans l'espace*. Le Blog de Plus de Bulles. https://www.plus-de-bulles.com/blog/2018/09/18/le-champagne-mumm-grand-cordon-stellar/

McQuarrie, L. (2019, June 25). *All-Cork Wine Bottles*. TrendHunter.Com. https://www.trendhunter.com/trends/cork-wine-bottle

Nichol, K. (2021a, February 11). *Sustainable caps & stoppers a new focus for Guala Closures*. www.luxepackaginginsight.com. https://www.luxepackaginginsight.com/article/sustainable-closures-a-new-focus-for-guala-closures.57704

Nichol, K. (2021b, November 29). *IPL Packaging debuts sustainable champagne packaging concept*. www.luxepackaginginsight.com. https://www.luxepackaginginsight.com/article/ipl-packaging-debuts-sustainable-champagne-packaging-concept.59717

*Objets connectés : Champagne GH Mumm lance la première bouteille connectée – Monogramme Maison de Marketing*. (2015). Monogramme marketing. https://www.monogramme-marketing.com/objets-connectes-champagne-gh-mumm-lance-la-premiere-bouteille-connectee/

Perrier-Jouët. (2021, May 11). *Discover our new, eco-designed gift box uniting beauty and sustainability*. https://www.perrier-jouet.com/en-ww/news/ecobox-sustainable-gifting

Poulter, S. (2020, June 30). *Fancy a Châteauneuf-du-PAPIER? New "game-changer" wine bottle is made out of paper*. Mail Online. https://www.dailymail.co.uk/news/article-8472419/Fancy-Ch-teauneuf-du-PAPIER-New-game-changer-wine-bottle-paper.html

Rédaction, L. (2012, January 23). *Buvez la lumière. . ..* Agro Media. https://www.agro-media.fr/actualite/buvez-la-lumieree-6336.html

*Ruinart Champagne Reclaimed Wood Packaging by Piet Hein Eek*. (2015, February 5). Retail Design Blog. https://retaildesignblog.net/2015/02/05/ruinart-champagne-reclaimed-wood-packaging-by-piet-hein-eek/

Shaw, L. (2014, April 10). *Paper wine bottle maker folds*. The Drinks Business. https://www.thedrinksbusiness.com/2014/04/paper-wine-bottle-maker-folds/

*Shurtape HP 535 Hot Melt Packaging Tape*. (2021, February 9). Packaging Strategies. https://www.packagingstrategies.com/articles/95954-shurtape-hp-535-hot-melt-packaging-tape

Staff, V. (2017, January 10). *How To Decode Champagne Labels [Infographic]*. VinePair. https://vinepair.com/wine-blog/how-to-decode-champagne-labels-infographic/

*Sustainability*. (2018). Amorim Cork. https://www.amorimcork.com/en/sustainability/

*Sustainability*. (2021, January 13). G.H.Mumm. https://www.mumm.com/en-ww/the-house/sustainability/

*Terra Noé, domaine participatif éco-responsable*. (2019). sans transition magazine. https://www.sans-transition-magazine.info/terra-noe-domaine-participatif-eco-responsable#:%7E:text=En%20Ard%C3%A8che%2C%20Terra%20No%C3%A9%20est,Ard%C3%A9chois%2C%20acquis%20en%20financement%20participati

f.&text=L’ambition%20est%20d’en,dans%20une%20d%C3%A9marche%20%C3%A9co%2Dresponsable.

*Veuve Clicquot imagine un étui responsable à base de raisins*. (2015, December 14). LVMH. https://www.lvmh.fr/actualites-documents/actualites/veuve-clicquot-imagine-etui-responsable-base-raisins/

*VIP Wine Packaging*. (2019). IF DESIGN. https://ifdesign.com/en/winner-ranking/project/vip-wine-packaging/280414

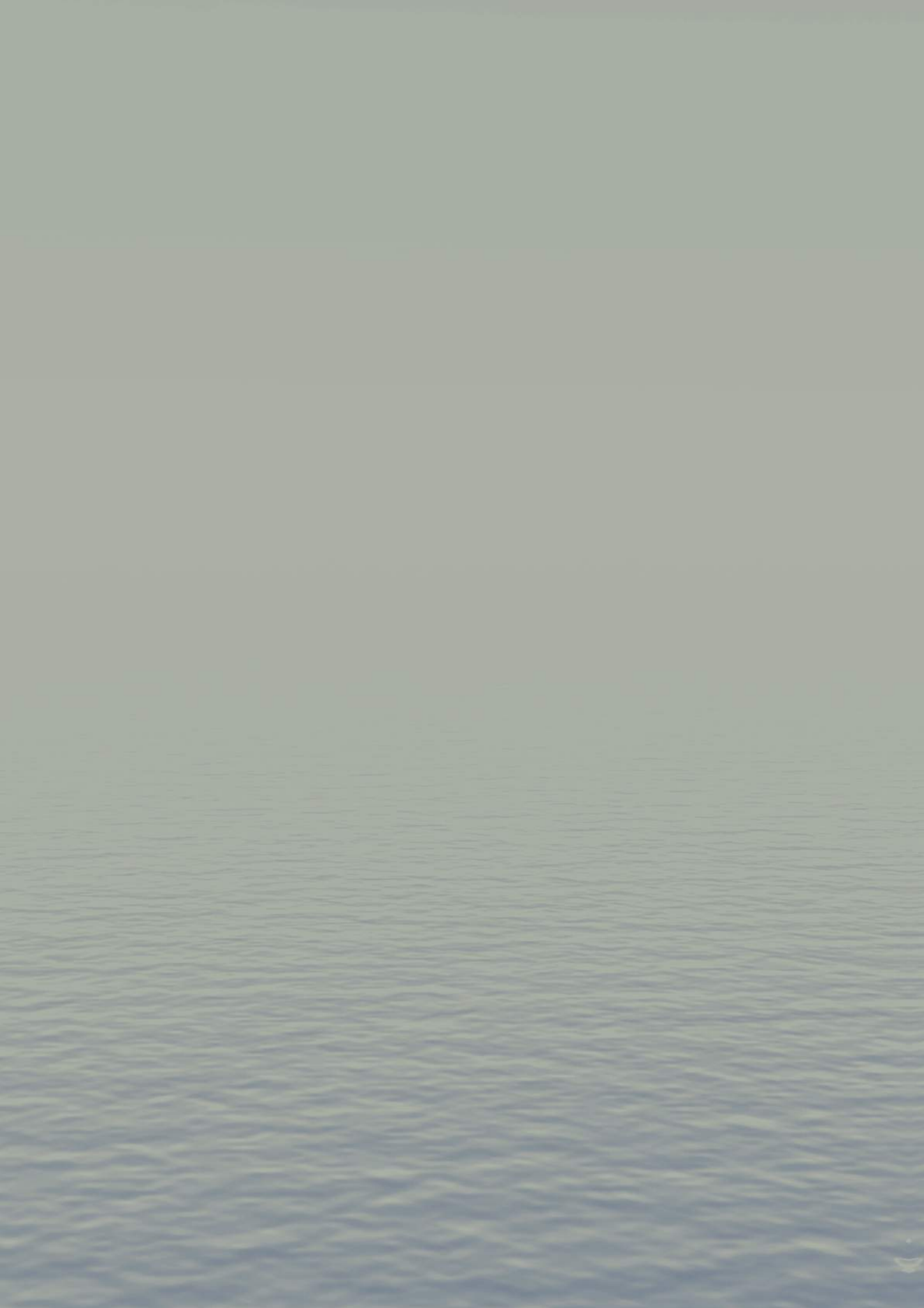
Vosges Matin. (2019, November 17). *Champagne écolo*. https://www.vosgesmatin.fr/culture-loisirs/2019/11/17/champagne-ecolo

Walkey, E. (2019, May 26). *MUMM Launches World First Connected Champagne Bottle*. Glass Of Bubbly. https://glassofbubbly.com/mumm-launches-world-first-connected-champagne-bottle/

Walkey, E. (2020, September 29). *How to Decipher a Champagne Label*. Glass Of Bubbly. https://glassofbubbly.com/how-to-decipher-a-champagne-label/

*WAY Champagne (Student Project)*. (2014, November 3). Packaging Of The World. https://packagingoftheworld.com/2014/11/way-champagne-student-project.html

# ANNEXES



# ANNEXES

To better understand the world of packaging we had the chance to visit several companies.

**SAICA**. Thanks to J.Y Gourlin, working at Saica, in the corrugated packaging solutions market. During our interview, recycling and sustainable consumption were discussed. We learned about packaging in general and about luxury packaging with the example of L'Oréal for whom he works to make perfume packaging.

The requirements are not the same, and many confidential actions are put in place to make the packaging more ecological.

**VISIT OF THE MAYARD CELLAR**. During this visit, the entire wine-making process was retraced. From the vines, to the barrels, to the bottling, and to the labelling. This winery was chosen because grape waste is reused to create natural fertilizers, and the production is completely local. Everything in this house is made in Châteauneuf du Pape.

A lot of plastic film is used, the question has been asked but as there are no regulations on packaging, the question of managing and reducing plastic is not a priority at Mayard.

It was interesting to see the whole process to see the precision of each operation. We were able to note all the outputs created in the Maillard production.

*Figure 34: Visit of Maillard*

**HARVESTING.** We participated in the harvesting over several days to learn more about our sector and case studies.

We took part in the harvest of the Amblard family, a very welcoming and warm family who taught us a lot about the techniques for maintaining the vines and taught us more about the wine and Champagne processes.

During the manual harvest, everyone is at their post with a shears to cut the grapes. In pairs, our buckets fill up quite quickly. Then, we change the bucket at each row of vines. Tractors bring the harvest to the sorting table where the grapes are

selected. Apart from the tiredness, the harvest is known to be an excellent professional and human experience. We had a great time and met some wonderful people. The atmosphere was superb and, as tradition dictates, the final meal, where everyone was gathered around a large table, left beautiful memories.

*Figure 35: Harvesting day - Amblard family*

We invite children, adults and young people to discover this moment of sharing, culture and traditions and thank the family again for this family time.

**AWARDS LUXURY PACKAGING**. We attended some of the talks at the Luxury Awards Packaging, an annual event that celebrates the best and brightest in luxury product packaging design. Many brands and speakers are present.

It was very interesting to attend this gathering online, to learn more about packaging, impacts and challenges.

Thus, we attended the following conferences:

- Focus on sustainability with Mike Rose, Jenny Greenwood and Paula Chin.

During this meeting we discussed the raise the awareness of the consumer and deeper on the difference between the materials used for luxury packaging, materials research, and sustainable practice.

We asked a lot of questions on luxury packaging. Nous avons rencontré et posé énormément de questions sur le packaging de luxe. For instance, the question "How to create the next luxury packaging and with which materials?" The answers were various, and the answer was, it depends on the clients and the brands

- Moreover, a conference was really interesting on the Luxury drink market avec Paul Hamilton et Wayas Qureshi helped us to visualize different packaging and original ones.

The question that Paul Hamilton tried to answer was:

Is aligning sustainability with consumer's needs possible? He believes that continuing to build and design quality packaging with reuse, recycling in mind can allow creating the luxury packaging to have this value.

So, we've been controversial on the subject of secondary packaging. Removing it would be a solution for environmental constraints, but it would take away the luxury experience which is called gifting.

There are many other uses for secondary packaging, far beyond the gift-giving experience. Any brand owner will first explain the importance of packaging for luxury goods-providing differentiation, protection, conveying information, shelf attractiveness, to give a few examples of packaging can be achieved.

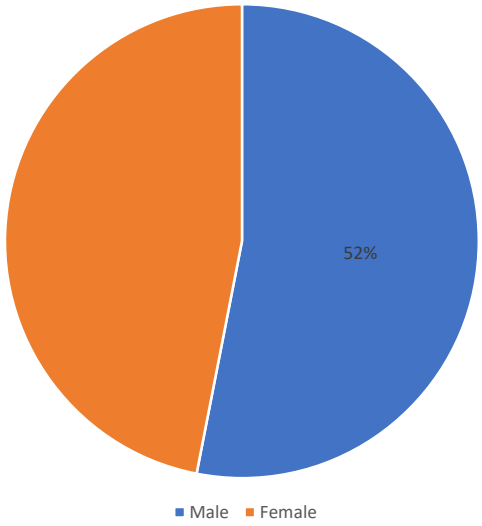
- We had a long discussion on the impacts of luxury packaging with Tracy, a lecturer, on Is Circularity a Realistic Goal for the Luxury Market?

Afterwards, we got in touch with her again, to present our work and to get her opinions and comments. We review with her the difference between sustainable and sustainability.

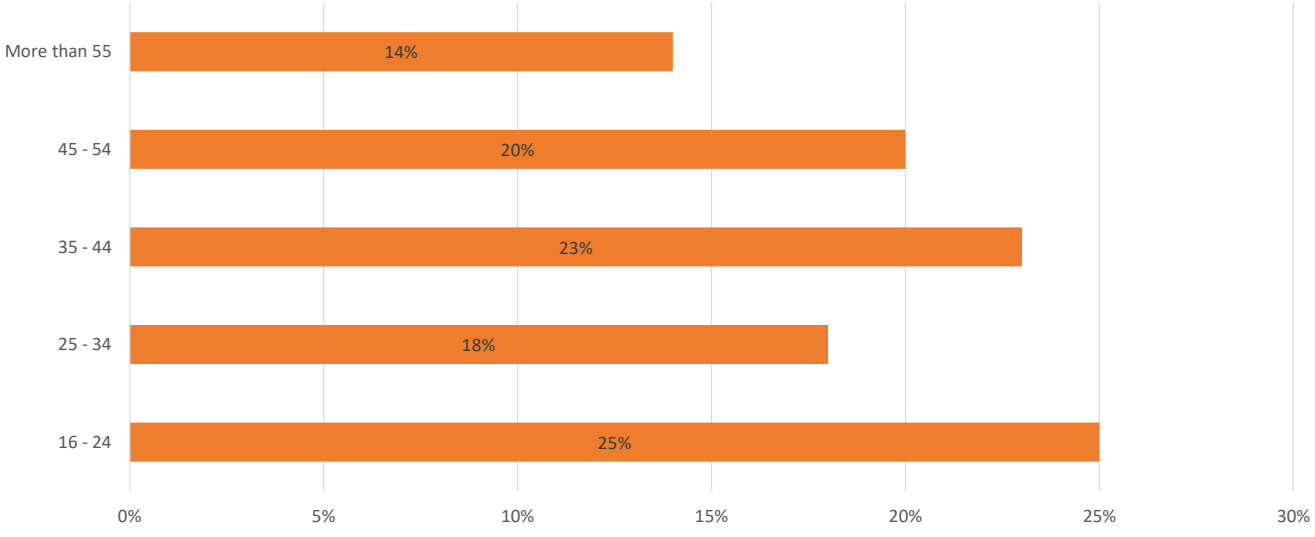
We would like to thank Tracy again for her valuable time.

**SURVEY**. The questionnaire sent to consumers via google has highlighted various elements. All the results collected are presented below.

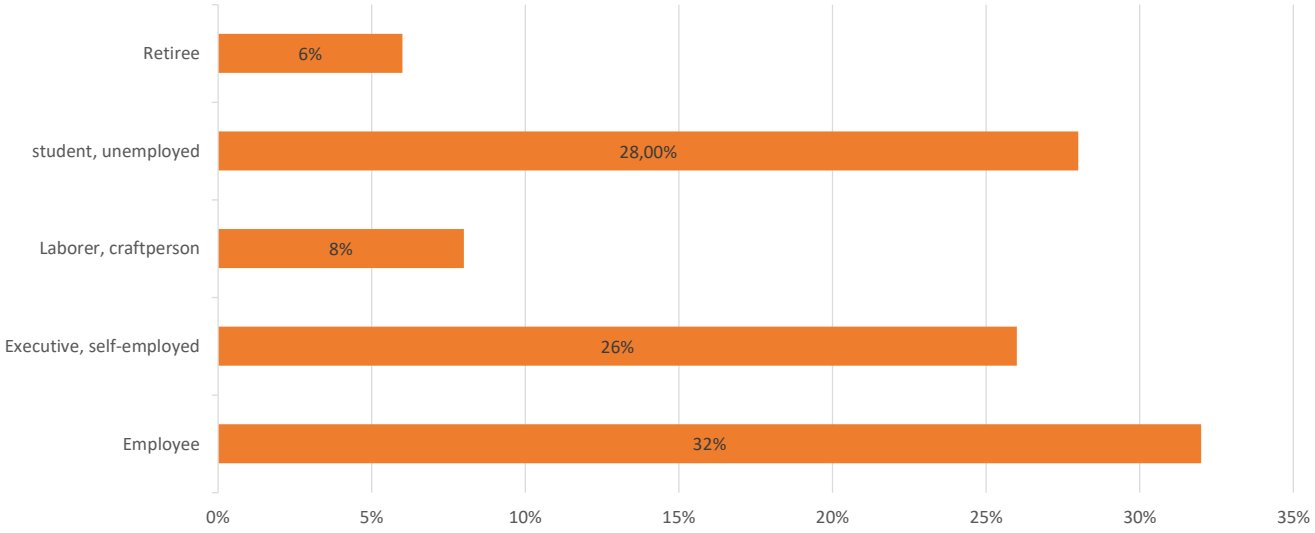
# 01 – Gender



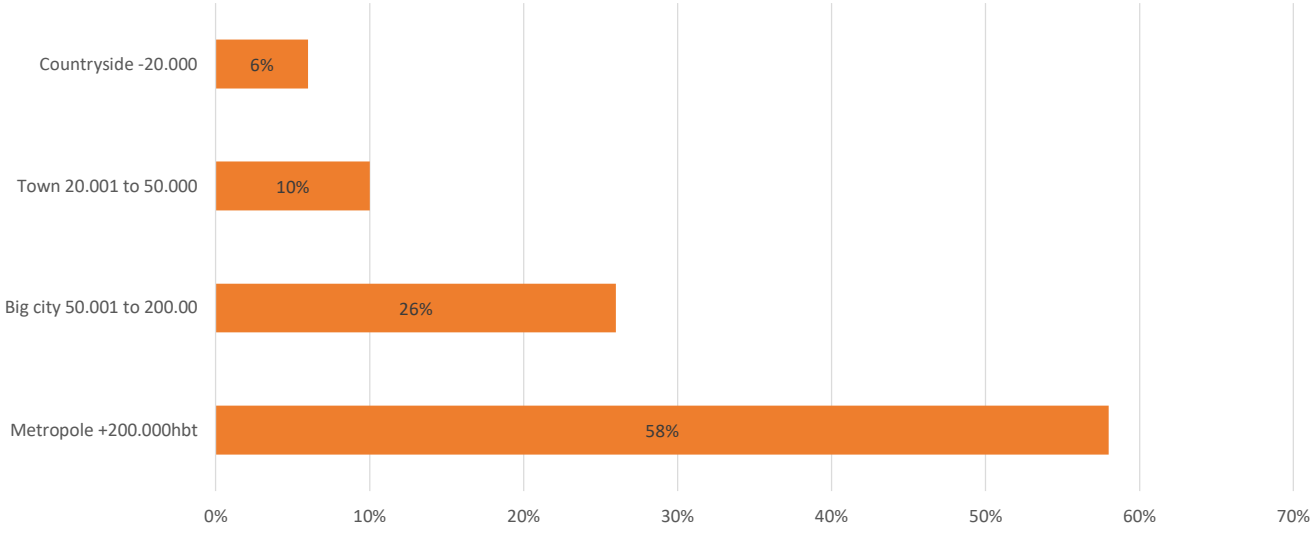

# 02 - Age



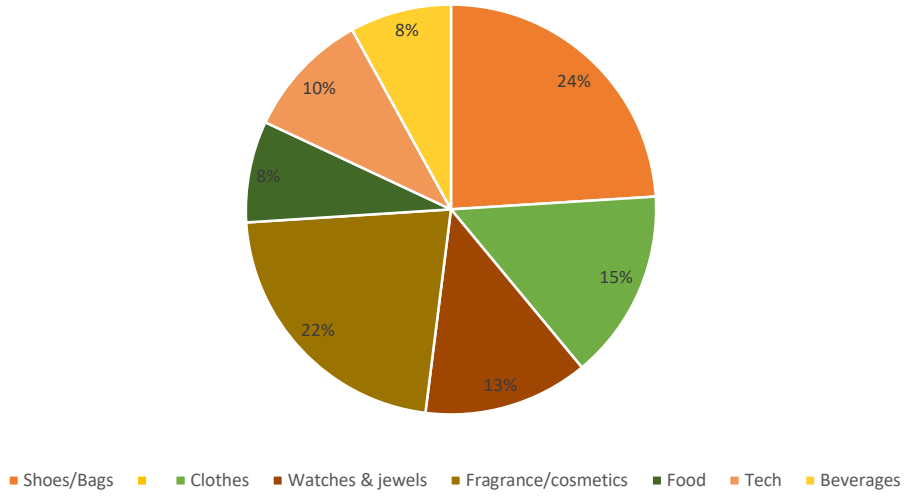
# 03 – Professional situation



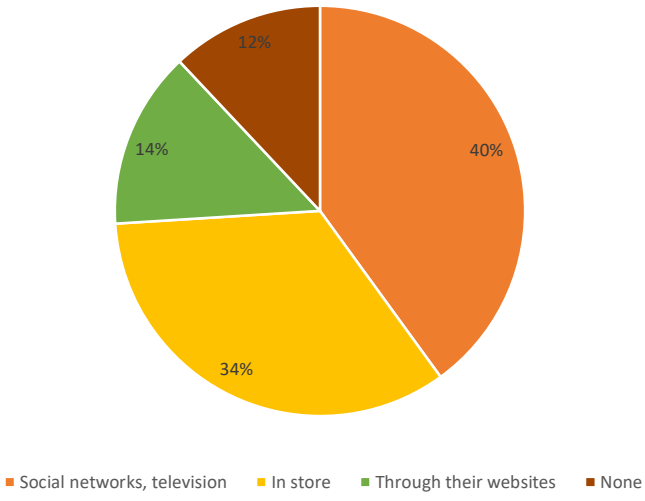

# 04 – Location



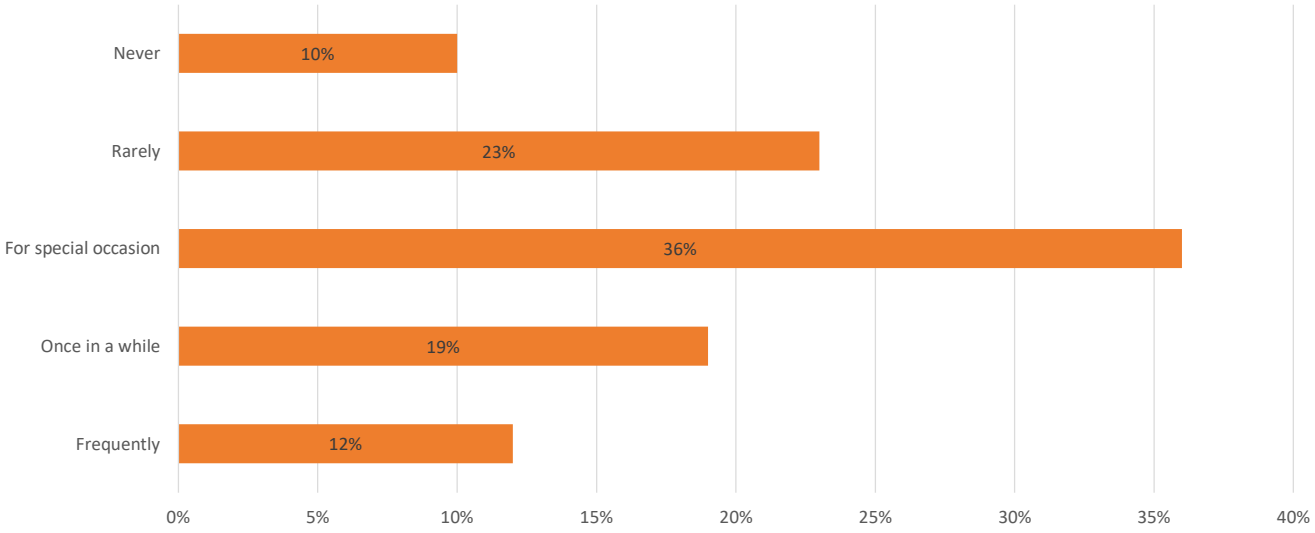
# 05 – Which sector is according to you luxiest ?



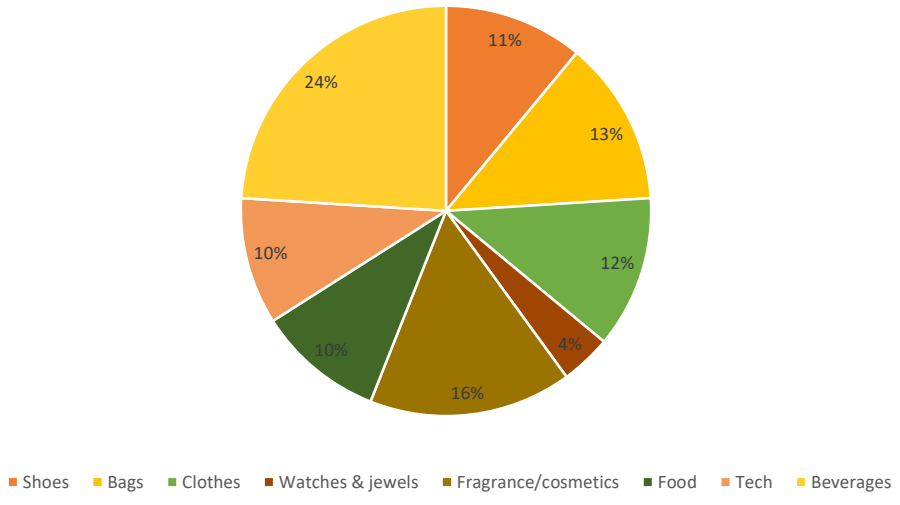

# 06 – How brands get your attention ?



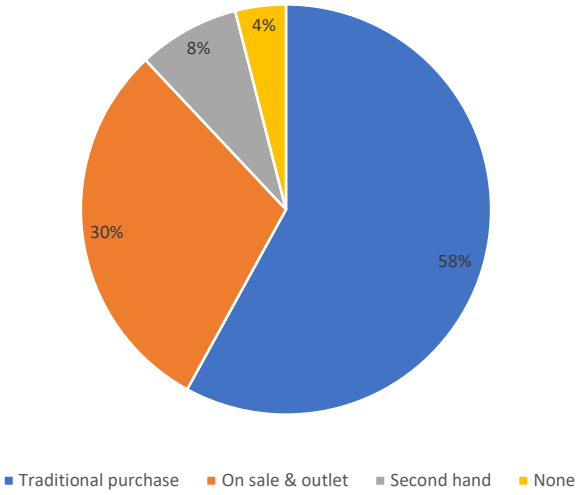
# 07 – How often do you buy luxury goods ?



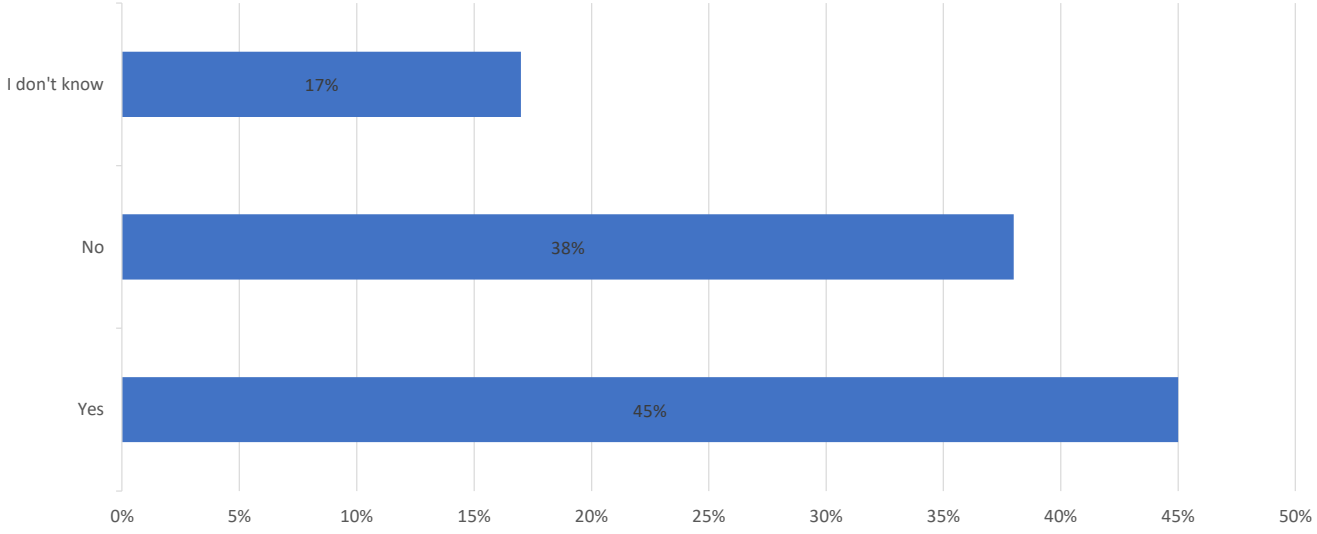

# 08 – What is your last purchase ?



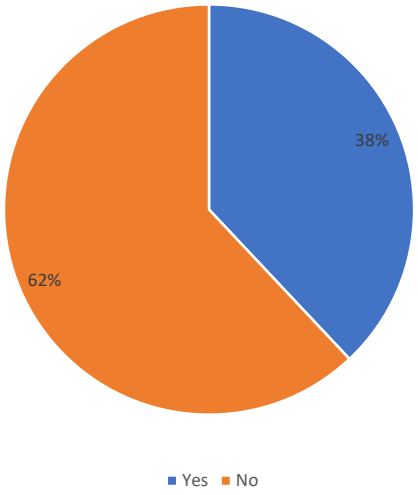
# 09 – How do you buy luxury goods ?



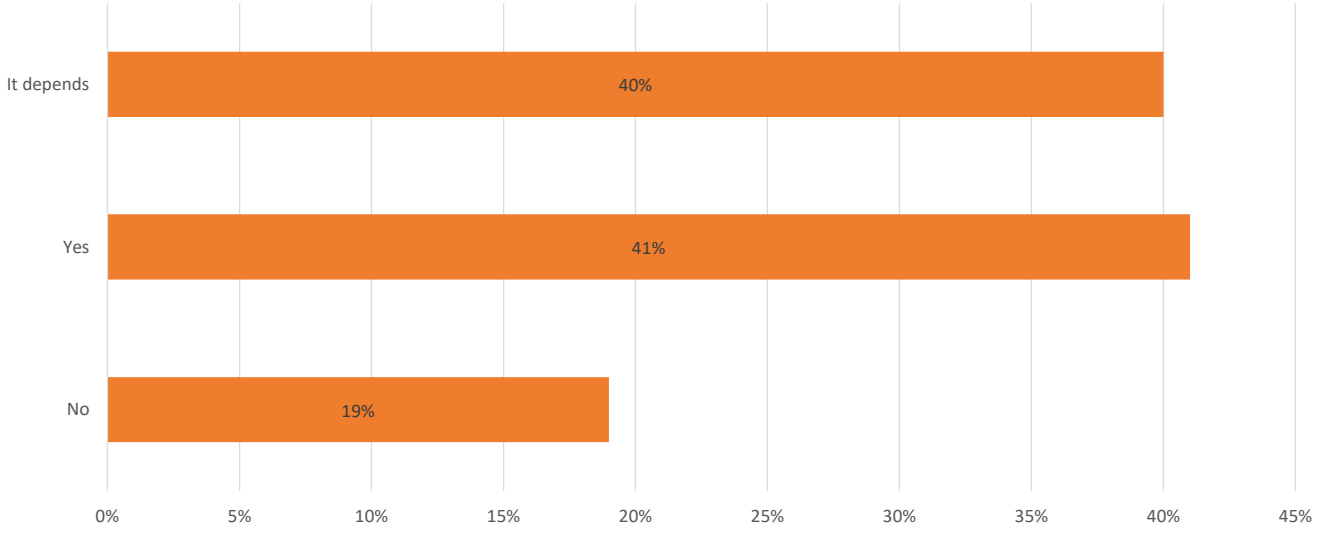

# 10 – Has covid change your relationship with the luxury sector ?



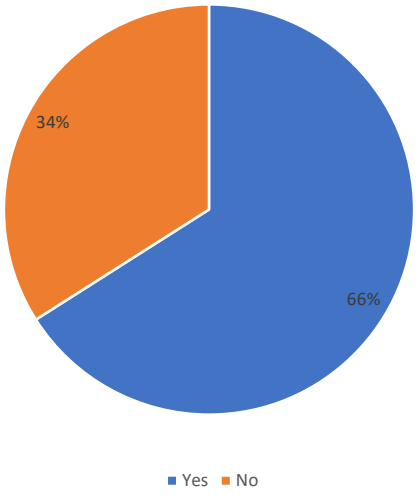
# 11 – Will you change your purchase habits after the pandemic ?



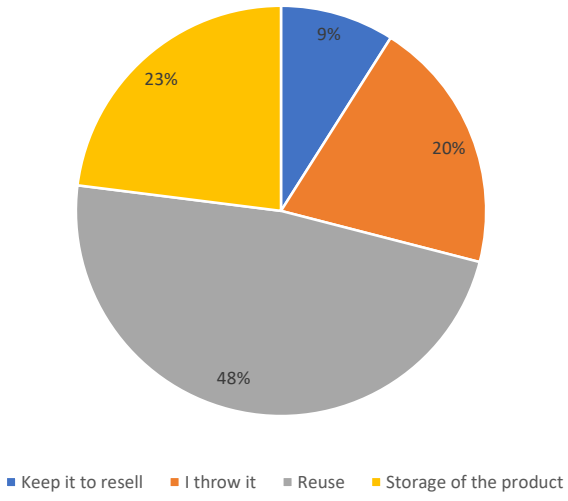

# 12 – Do you pay attention to the packaging ?



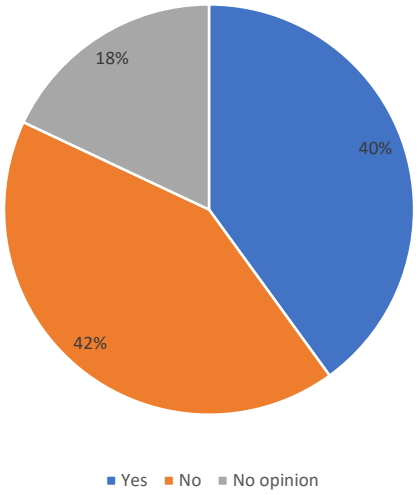
# 13 – Do you pay attention to the packging parts when unpacking ?



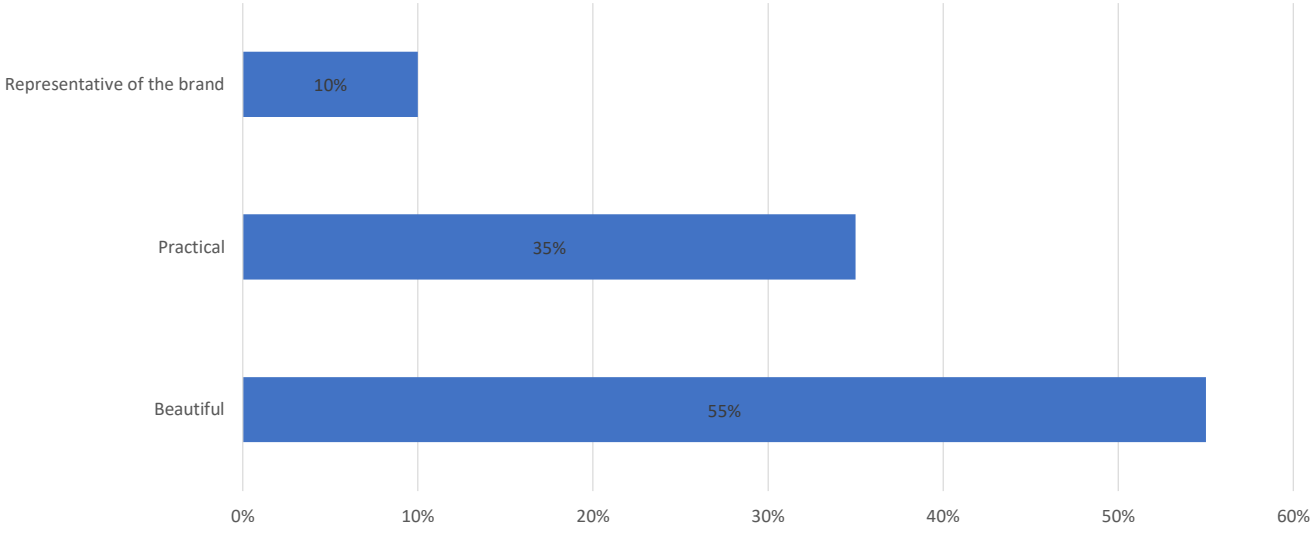

# 14 – What do you do with the pack after using the product ?



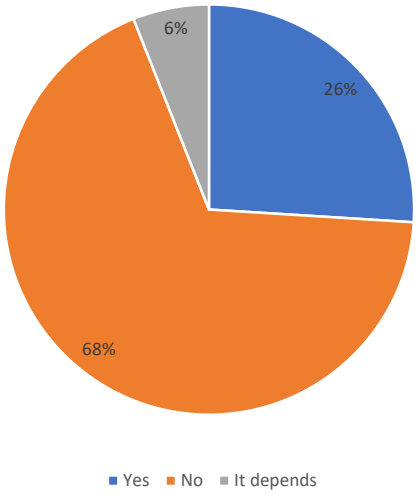
# 15 – Does a luxury product necessarly have to be packaged in an ostentatious packaging ?



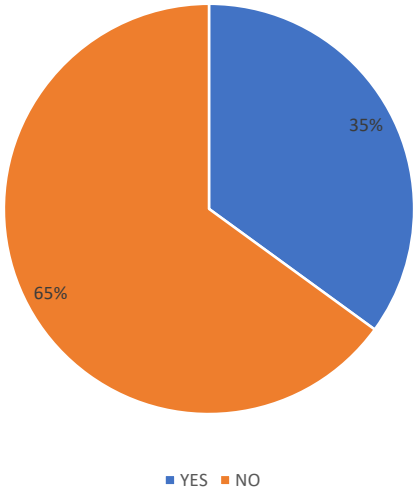

# 16 –According to You a packaging of a luxury product must be fisrt :



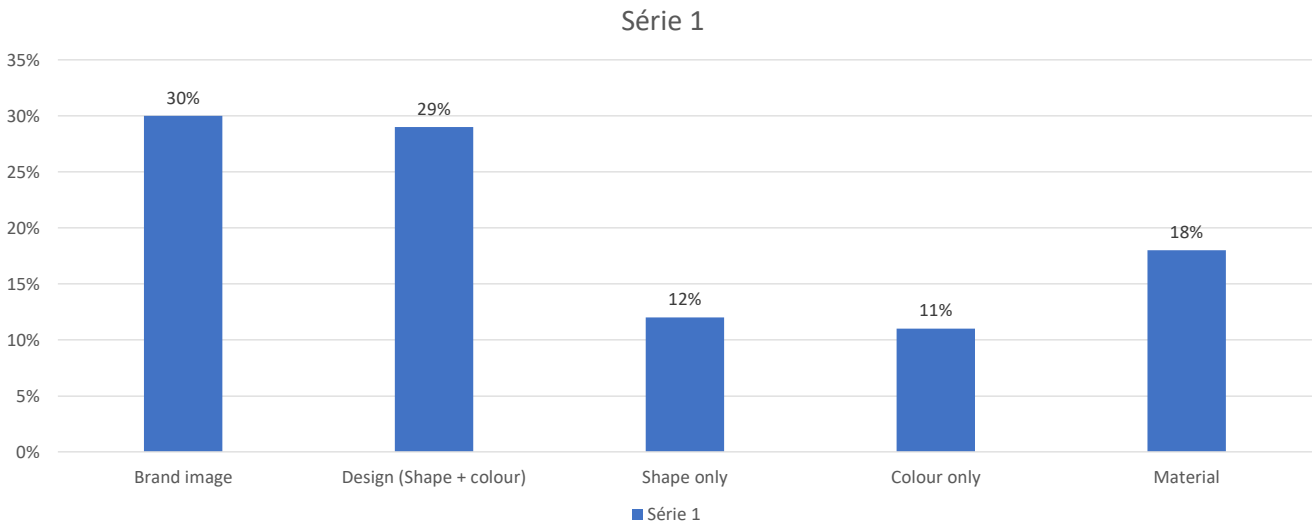
17 – Do you think that all the elements of the packaging are important ?



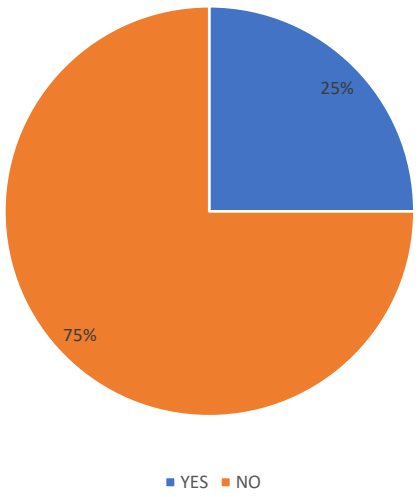

18 – Would you be willing to buy a luxury item without/ or minimal packaging?



# 19 -What catches your eye in a luxury product package at first?




# 20- When buying a second-hand item, do you look to see if it is sold in its original packaging?



# 21- Do you pay attention to the ecological impact of luxury products?