

Choosing the Ideal Wine and Cheese Associations: A Comparison between Experts and Consumers in France

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Abstract

◦*Purpose* – This study evaluates the ideal associations between wine and cheese with an audience of experts and consumers in a French cultural context. The objectives are twofold: first to compare the sensory interactions between wines and cheeses for experts and consumers; second to understand why experts and consumers choose the ideal associations, using both qualitative and quantitative studies.

◦*Design/methodology/approach* – We carried out two studies, Study 1 and Study 2. Study 1 is a wine & cheese tasting with seventeen experts. Study 2 is a consumer tasting with sixty people.

◦*Findings* – We compare experts and consumers on two criteria: (1) for sensory preferences, the evaluations between experts and consumers for ideal wine & cheese associations are globally similar at 77% level. However, the preference for the three best wine & cheese associations are different, with one exception. For these last ones, experts do not set up exactly research findings as consumers do. (2) Experts use an analytical learning process based on rational prototypes of information and technical language and vocabulary. Consumers develop an hedonic learning based on images and narrative description.

◦*Practical implications* – Wineries can propose a cheese platter with a series of wine, and pair them according the balance between sweetness of wine and salt of cheese, and fatness of cheese and acidity of wine.

Key words: ideal wine and cheese associations, expert, consumer, sensory interaction, language

1. INTRODUCTION

The ideal wine and cheese associations have been studied in several different contexts, whether in Australia (Bastian *et al.*, 2009), Canada (Harrington *et al.*, 2010, King and Cliff 2005), or in France in the region of Burgundy (Galmarini *et al.*, 2016, 2017). Most of this research test several cheese with several wines (red or white) only on the consumer target. The only study that compares experts and consumers is that of (Bastian *et al.*, 2009). Their results show that the consumers agreed with the experts on 75% of the 'ideal' pairings of eight different cheese and wine (white, red, sparkling) styles. In our research, we will study the ideal wine/cheese associations by focusing only on white wine.

Joint tasting of wine and cheese involves multiple sensory interactions. Pairing wine and cheese is very complex and need a multisensory analysis to have the perfect match in terms of flavors. Indeed, the flavor of the cheese could hide the wine. If the cheese is strong in terms of tasting, the acidity of wine can balanced the taste of the association with the integration of multisensory interactions (Piqueras-Fiszman and Spence, 2016) perceived as congruent. Therefore, this integration develops a more positive liking (Prescot, 2016).

In the end, the comparison of the choice of ideal wine and cheese associations between experts and consumers has not been compared yet in tasting session, with the exception of (Bastian *et al.*, 2009) in an Australian context. In addition, to our knowledge, no research has implemented both quantitative & qualitative studies to explain the complex reasons for the choice of ideal associations by experts vs consumers.

The objectives of our study are then twofold:

- (1) to evaluate the ideal associations between (French) dry white wine and (French) cheese in a French context with an audience of experts AND consumers;
- (2) to compare the choice of these ideal associations for experts vs consumers on different criteria.

2. THEORETICAL BACKGROUND

2.1. Ideal Match between Wine & Cheese

In some cases, the taste of certain wines can alter the taste of cheese, and vice versa. Several researchers, and in particular (Morten *et al.*, 2014), have highlighted research findings to be respected in wine/cheese associations.

King and Cliff (2005) and Bastian *et al.* (2009) analyzed the wine/cheese combinations using an ideal matching scale between cheese domination and wine domination: the ideal match is between this two dominations. For Bastian *et al.* (2009), Brie dominates some wines (sparkling wine, Sauvignon blanc, Chardonnay, Gewürztraminer) more than Goat, Gruyere or Chaource. According to King and Cliff (2005), white wines (Sauvignon Blanc, Chardonnay, Pinot Gris, Gewurztraminer, and Riesling) have a standard deviation less than the average compared to red wines (Pinot Noir, Merlot, Meritage, and Foch). In any case, the cheese with the most powerful taste is difficult to associate with a wine, whether red or white. For Koone *et al.* (2014), when you get a good balance between a wine and a cheese, consumers implicitly appreciate this association. Thus Sauvignon goes perfectly with goat cheese and Brie. These ideal agreements can be explained by the level of acidity of the wine and the percentage of fat in Brie. According to Harrington and Hammond (2005), the sweetness of a wine contrasts with the saltiness of

the cheese. The sweetness of the wine and cheese can also balance the acidity of wine and the salty taste of cheese especially in the case of Roquefort (Nygren *et al.* 2003; Galmarini *et al.* 2016). For Sela *et al.* (2009), “choosing from assortments of food products often shifts choice from vices to virtues (salty as a vice and sweetness as a virtue). Biswas & al. (2014) demonstrate that the level of similarity (vs dissimilarity) between the sensory cues of the products influence choices.

Another criterion must be taken into account in the evaluation of a wine and cheese association: the order of presentation. When consumers are sampled with a sequence of sensory-rich experiential products (wine, cheese, chocolate, fragrances), there are two cases: (1) if these products have similar sensory cues (e.g., smell, taste, color), consumers prefer the first product in the sequence; (2) conversely dissimilar sensory cues, consumers prefer the second product.

The order in which wine and cheese are tasted, affects the evaluation of products in terms of discriminating sensory evaluation (Nygren *et al.*, 2017). For example, the intensity of a wine's aroma and acidity decreases after tasting the cheese, which shows the crucial role of sequential sensory indices in the evaluation of a hedonic product. In addition, the duration of the wine sensations is modified after the cheese tasting (Galmarini *et al.*, 2017). As a result, the sensory evaluation of wine decreases more during a tasting of mixed products than during a sequential tasting (Nygren *et al.*, 2017).

2.2. Ideal Match between Wine & Cheese: differences between Experts vs Consumers

The academic literature distinguishes between the sensory preferences of experts and those of consumers. According to (Barton *et al.* 2020), the tasting of white wines by different panelists (experienced, trained, consumers and experts) show that the experts' results were significantly different from the other participants. According to Koone *et al.* (2014), “food and wine expertise also significantly impacted the level of match, indicating differences between the more expert and non-expert participants in the role wine sweetness, acidity, and tannin had on level of match”. As a result, the sensory preferences of experts in terms of the ideal wine/cheese combination may differ from those of consumers. Harrington and Seo (2015) assessed the impact of the liking level of specific wines and foods on wine–food match perceptions. They showed that this relationship depends on the knowledge of wine and food of the interviewees, as well as their involvement. This relationship could be applied to the choice of the ideal wine and cheese association, opposing experts and consumers. Nevertheless, Bastian *et al.* (2009) showed that consumers agreed with the experts about six of the eight wine & cheese combinations.

Overall, the two types of research mentioned above may appear contradictory. Therefore, in our study, we evaluate whether the sensory preferences of experts in terms of the ideal wine and cheese association are similar to those of consumers.

Wine experts (oenologists, producers, specialised critics) have developed a specific language to describe the sensory properties of wine (Brochet and Dubourdieu, 2001). According to (White *et al.*, 2020), language can affect human chemosensory perception and responses to food flavours; language and memory of prior experiences with a food affect food acceptability and

preferences. Specifically, the identification of smells, tastes, and texture are acquired through learning.

According to Alba and Hutchinson (1987), for beverage tasting, analytic processing is associated with experts, while holistic processing is associated with novices. For LaTour, Deighton (2019), an expert is characterized by two points: (a) an analytical processing; (b) the adoption of a lexicon or a consumption vocabulary to decompose a stimulus. According to (LaTour and LaTour, 2010), the main differences between experts and novice consumers differs on two types of knowledge: experts have a high level in both perceptual knowledge (usage frequency) and conceptual knowledge (general knowledge of the product category), whereas novice are low at both levels. The experts use more vocabulary than visual imagery (LaTour and Deighton 2019) to describe holistically the tasting. In contrast, consumers will use a more intuitive rather than rational approach (Snell et al., 1995), and a more visual imagery (LaTour and Deighton, 2019).

3. METHODOLOGY

3.1. Study 1 (Expert)

Sample

Study 1 in July 2019 gathered seventeen experts in the oenology laboratory of a French Business School. These experts follow a 13-month course in wine, and spend 70% of their time in a company from the wine sector. 80% of these students will be hired by their wine company following their paid traineeship: these students are therefore already semi-professionals. They have taken about 100 hours of training in oenology. These seventeen experts come from a sample of convenience, with the following characteristics: 66% male, 41% under 26 years of age, 35% live in Paris, 35% in the southwest, and 30% in Brittany and Savoy.

These students can be considered experts according to the literature review, as they are: (a) semi-professionals (Bastian et al., 2009; Melcher and Schooler, (1996); (b) they have both a conceptual knowledge and a perceptual knowledge (LaTour and LaTour, 2010); (c) their Master's degree in wine is one of recognized in France (LaTour and Deighton, 2019).

Stimuli

Nine white wines have been selected from the Sauvignon Blanc, Chardonnay and Semillon grape varieties (see Appendix 1). We selected only white wines (Sauvignon Blanc, Chardonnay, and Sémillion). White wines were selected for three reasons: first they have a standard deviation less than the average compared to red wines (King and Cliff, 2005) ; second because it is the recommendation of wine's professionals (www.thewinesociety.com/pairing-cheese-and-wine) ; third, Sauvignon Blanc and Chardonnay are the most harvested in France and have been tested in several research experiments to determine the ideal combinations between wine and cheese (Bastian *et al.*, 2009; Koone *et al.*, 2014). These wines were presented blindly. The characteristics of the nine wines (% alcohol, acidity, glucose, grape varieties) were analyzed through an independent oenology laboratory in Bordeaux.

Five cheeses have been selected: Goat, Camembert, Brie, Raclette, Blue (see Appendix 2). There is a difference in terms of milk (cow versus goat). All the cheeses were quite young (less

than 10 weeks). These cheeses were easily recognizable by their visual aspects. The nutritional characteristics from the cheese were given by cheese producers.

Tasting design and data elaboration

At first, the experts tasted the nine wines successively. These were identified by numbers. After evaluating their sensory characteristics and giving them a preference score (from 1 I hate it to 9 I love it), they rejected the three lowest rated wines, to retain six wines in the end. During the tastings, experts could eat bread and drink water to clean their palates.

In a second step, the experts evaluated the six wines chosen and the five cheeses. These associations were evaluated on the following scale (Bastian *et al.*, 2009):

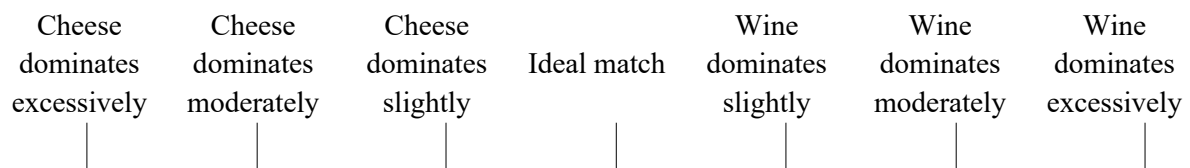


Figure 1: Ideal association scale

In a third step, the experts chose the three best wine/cheese combinations, and explained why. In addition, a qualitative phase was implemented. The seventeen experts expressed through open-ended questions the choice of their associations. We use content analysis to define sensory descriptions of the association chosen. We use multiple correspondence analysis to represent graphically the sensory lexicon described the association of these wine and cheese selected (Benzecri and Benzecri 1980).

3.2. Study 2 (Consumer)

Study 2 in February 2020 gathered sixty consumers in four sessions (see Appendix 5). There is no effect of the tasting session on the choice of the association (chi-deux 12.359 p=0.976). The sample is 56.7% female. It includes 21.5% under the age of 30, 38.3% between 31 and 40, and 19.1% between 41 and 50.

In the first step, consumers evaluated the nine wine & cheese pairing with the scale of Bastian & al. (2009). Then they choose the three best associations. In a second step, consumers explained through qualitative studies why they chose the ideal association. We use content analysis to describe their ideal association by sensory descriptors. Multiple correspondence is used to positioning wine, cheese and sensory lexicon.

4. RESULTS

4.1 Choice of ideal wine and cheese associations: similarities between experts vs consumers

The evaluations between experts and consumers for ideal wine & cheese associations are globally similar. Labouré roi is a chardonnay from AOC Bourgogne Côtes de Nuit 2017 ; Moulin de l' Œuvre is a chardonnay from AOC Mâcon-Uchizy ; Château les Maudioux is a semillon from AOC Bergerac 2018.

Table 1: Evaluation of the wine & cheese associations: experts vs consumers

	Expert	Consumer
Labouré roi/blue	3,78	2,44
Labouré roi/brie	3,85	3,92
Labouré roi/Goat	3,82	4,31
Moulin de l'œuvre/blue	3,57	3,18
Moulin de l'œuvre/brie	4,30	4,78
Moulin de l'œuvre/goat	4,00	5,15
Château les Maudioux/blue	3,50	3,50
Château les Maudioux/brie	4,50	4,68
Château les Maudioux/goat	4,14	5,08
Total	3,93	4,11

For the consumers, wine dominates in most of association except for Labouré roi/blue and Moulin de l'Œuvre/blue and especially when you associate the brie and the goat with Moulin de l'Œuvre and château les Maudioux. Concerning the brie, it is the same for the experts. For them, Blue cheese matches more with all the wine and Labouré roi matches more with all the cheese. Château les Maudioux/blue is the best match for both of them.

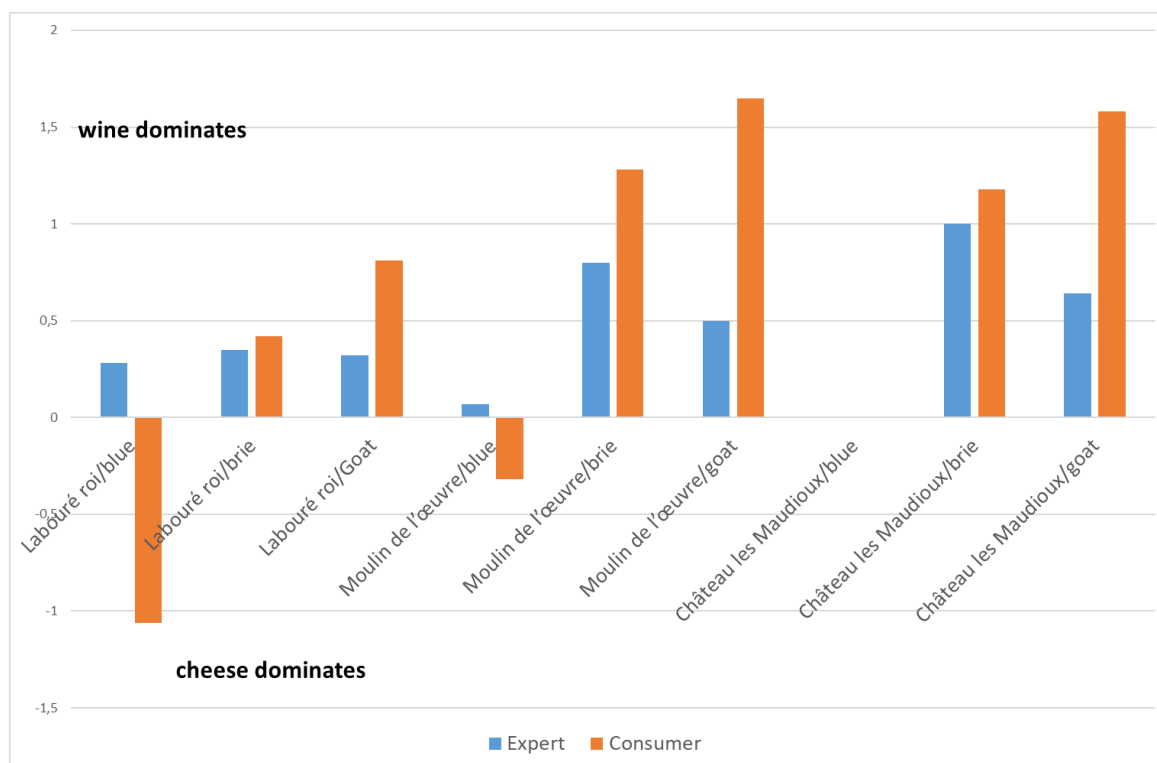


Figure 2: Wine & cheese ideal associations: domination of wine vs domination of cheese for experts and consumers.

When you compare experts and consumers, there are only two associations Labouré Roi-blue (KW 122,066, $p=0,047$) and Moulin de l'Œuvre-goat (KW -127,404, $p=0,039$) that have different evaluations, as show in the figure below. These association Labouré Blue cheese and Moulin Goat cheese match more for the experts than the consumers. Globally, there are no differences for 77% of the associations between experts and consumers.

4.2. Preference for the three best associations

In terms of Preference for the three best associations, experts and consumers do not associate the same wine & cheese associations, with the exception of Les Miaudoux/Blue. The association “Les Miaudoux/Blue” is the first association chosen by consumers, and the third association for experts.

Table 3: Choice of the three best associations for experts vs consumers

Associations between wine & cheese experts	Associations between wine & cheese consumers
“Labouré-Roi” (AOC Burgundy) (acidity+, sweetness-) / Brie (fat+, salt-)	“Château Les Miaudoux” (AOC Bergerac) (acidity-, sweetness-) / Blue (fat+, salt+)
“Le Moulin de l'Œuvre” (acidity-, sweetness +) (AOC Macon-Uchizy)/ Goat (fat-, salt-)	Labouré-Roi (acidity+, sweetness-)/ Goat (fat-, salt-)
“Château Les Miaudoux” (AOC Bergerac) (acidity-, sweetness-) / Blue (fat+, salt+)	Moulin de l'Œuvre Macon-Uchizy (acidity- /sweet+) /Blue (fat+, salt+)

The characteristics of the nine wines and the nutritional characteristics of cheeses are detailed in Appendix 1 and 2. The table below highlights the characteristics of the three best wine & cheese associations for experts and consumers.

4.2.1. Why the experts choose these associations

We take a closer look at the experts' results based on their choice of the three best associations. There is no effect of gender (Kruskall and Wallis 0.372; P=0.542) or age (Kruskall and Wallis 0.01, p=0.921), or place of residence (Kruskall and Wallis 0.935; P=0.627) on the evaluation of associations. On the other hand there is an effect of the associations' type on associations evaluation (Kruskall and Wallis 67.036; p=0.012). Now, we analyze what words they use to explain their choice (see appendix 3).

For blue, “Château Les Miaudoux” (33% of those who selected blue) was the most chosen. For the Brie, it is the “Labouré-Roi” (41.7% of those who selected the Brie). Finally, for the goat, it is the “Moulin de l’Œuvre” (33.3% of those who selected the goat). We implemented a correspondence analysis involving wines, cheeses and sensory lexicon.



Figure 3: Correspondence analysis with wine, cheese and sensory lexicon

* 0.58 represents eigen value of the first axis and 22.32 represent variance explained

The two axes represent the positioning of cheeses and wines and the choices in terms of sensory evaluations. They account for 42% of the variance. We have three associations (“Le Moulin de l’Œuvre”/Goat, “Les Miaudoux”/Blue, and “Labouré-Roi”/Brie). The first one is associated with the freshness of aroma and the second one with slight softness. The acidity bitterness could be associated to the associations (“Les Miaudoux”/Blue and “Labouré-Roi”/Brie).

4.2.2 Why the consumers choose these associations

The three best associations are “ les Miaudoux/Blue, Labouré Roi/Goat, and Moulin de l'Œuvre/Blue. There is no effect of gender (Kruskall and Wallis 0.292; P=0.407) or age (Kruskall and Wallis 4.426, p=0.219) on the evaluation of associations. On the other hand there is an effect of the associations' type on associations evaluation (Kruskall and Wallis 41.737; p=0.000). Now, we analyze what words they use to explain their choice. The table in appendix 4 presents the verbatims and lexicon that are most specific to the most selected associations. The association “Les Miaudoux”/Blue is the most selected for 25% of the sample, the “Labouré roi”/Goat for 15%, and the “Moulin de l'Œuvre” /Blue for 11.7%, the “Labouré roi”/Brie for 10% and the “Moulin de l'Œuvre”/Brie for 10% of the sample.

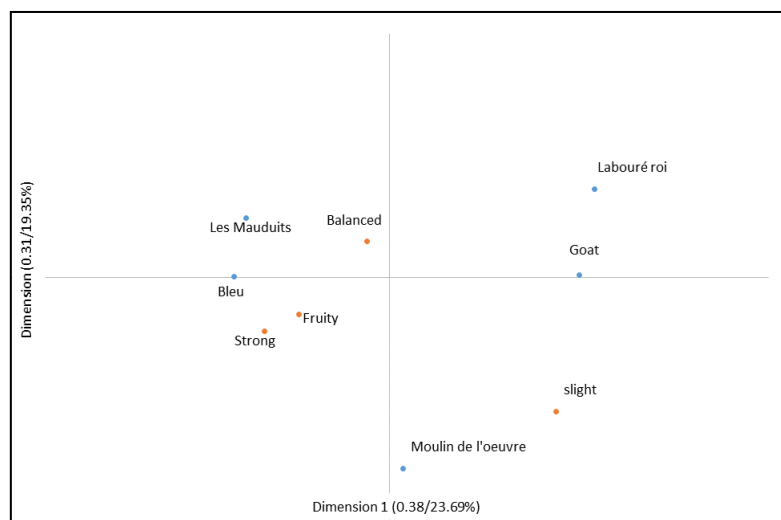


Figure 4: Correspondence analysis with wine, cheese and sensory lexicon

The two axes represent the positioning of cheeses and wines and the choices in terms of sensory evaluations. They account for 43% of the information. Positioning Brie degrades the representation of the positioning map. It appears that we have a group around the wine “Les Miaudoux” and the blue, which are strongly associated with a strong and fruity taste, allowing a balance between the two. The goat is associated with the “Labouré-Roi” by its light character. The “Moulin de l'Œuvre” is a compromise between the two other wines.

5. GENERAL DISCUSSION

Globally, there are no differences for 77% of the associations' evaluations between experts and consumers. This confirms the findings of (Bastian *et al.*, 2009) in an Australian context, that 75% of the ideal associations chosen by experts and consumers are similar. However, the preference for the three best wine & cheese associations are different, with the exception of les Miaudoux/Blue.

Concerning the level of fat for the cheese in comparison with the level of acidity for the wine (Koone *et al.*, 2014), the expert equilibrate the high (low) level of fat by the high (low) level of acidity, except for the association Chateau les Miaudoux – Blue ; for the consumers'

perspective, they don't equilibrate the level of fatness and the level of sweetness. Concerning the level of sweetness for the wine and the saltiness for the cheese (Koone et al, 2014, Harrington and Hammond 2005), the high (low) level of sweetness is equilibrate by the low (high) level of saltiness except for Labouré roi Brie for the experts. The consumers don't verify this rule except for the association Château les Miaudoux Blue.

As Barton *et al.* (2020), we verify that consumers don't prefer the same association and don't have the same sensory evaluation in terms of how associate acidity and fatness and sweetness and saltiness. Most of research associate the experts to evaluate the association wine and cheese and our experts respect the two rules for two chosen association. They balance the fatness of the cheese with the acidity of the wine while sweetness of the wine dominates the saltiness of the cheese. On the other hand, consumers don't use these rules. The sweetness compensate or contrast the saltiness of the cheese and it is the same for fatness and acidity. It seems that the sensory evaluation of chosen association defines a vice and virtue logic (Sela et al. 2009). Fatness (sweetness) represents the vice and acidity (saltiness) the virtue. They search the contrast because we have one sense that dominate the other sense (Krishna, 2012) and it is confirmed by Nygren *et al.* (2017) in the case of tasting wine with cheese.

Experts, in our research, use a detailed and technical vocabulary and an analytical processing. These results confirm the definition of "expert" in two points by (LaTour and Deighton, 2019). Indeed, it is normal that expert uses more elaborate words like "freshness of aroma", "acidity/bitterness", whereas consumer prefer the term "fruity" (Alba and Hutchinson 1987). The experts show the ability to match language with perceptual experience by an analytical approach that relies semantically cheese with wine (Labroo *et al.*, 2010). The experts have conceptual knowledge organized around prototypes of information and detect fault when they taste (Brochet and Dubourdieu, 2001, Honoré-Chedozeau *et al.* 2017) even more they make tasting script when they don't have any information concerning the wine (Honoré-Chedozeau *et al.* 2017).

On the other hand, consumers can use more simple image or representations ("fruity") to explain their choice in holistic manner (LaTour and Deighton, 2019). Consumers develop a narrative approach. This approach reveals some representations ("good, strong") of what they experienced, because they need to taste and discover wine and cheese associations on perceptual orientation (Honoré-Chedozeau *et al.* 2017). Consumers live an experience as a narrative event (*ibid.*).

The difference between experts and consumers in terms of language is confirmed by Barton *et al.* 2020 and also the description and the positioning of wine and cheese on the perceptual map. First, they associate the same wine with the same cheese: Château les Maudioux with blue cheese and goat with moulin de l'Œuvre. It is not the case for Labouré roi associated with brie for the expert sample and with goat for consumer sample. Concerning the positioning, the association La Maudioux/ blue is the opposite of the others associations for the consumers and for the experts this association share some words with Moulin de l'Oeuvre goat but not in the same cell. Moreover, the difference is more focused on the association wine and cheese. Indeed, the association Moulin de l'Œuvre is described by freshness of aroma (conceptual word) for the expert sample and with slight for consumer sample. Moreover, The association Les

Maudioux blue is depicted by the experts as slight softness and acidity bitterness (conceptual word) whereas for the consumers, we have more concrete words (balanced, fruity and strong).

6. CONTRIBUTIONS AND CONCLUSION

Our objective was to evaluate the ideal associations between (French) dry white wine and (French) cheese in a French context, and to compare the choice of these ideal associations for experts vs consumers on two criteria. Our theoretical and managerial contributions are the following.

Our *main theoretical contribution* is to compare experts and consumers in their choice of the ideal wine and cheese association, using both qualitative and quantitative studies. To our knowledge, this has not been done in previous research on the two targets, and in terms of methodology. Two criteria were highlighted: (1) Sensory Preferences; (2) Language and vocabulary.

In a French context, experts and consumers do identify the same ideal wine and cheese associations at 77% level. We managed to underline which sensory cues dominate (wine vs cheese), and if there is a balance between the two sensory cues.

However, the preference for the three best wine & cheese associations are different (with one exception). Our results are based on a scientific analysis of nutritional characteristics (appendix 1 and 2): wines are analyzed according to at least two criteria (acidity +/-), (sweetness +/-), as for cheeses (fat +/-), (salt +/-). For these last ones, experts do not set up exactly research findings as consumer do.

In addition, experts do not use the same language & vocabulary for the choice of ideal wine and cheese associations vs consumers. Experts use an analytical learning based on rational prototypes of information (i.e. conceptual knowledge) and technical language and vocabulary. Consumers develop an hedonic learning based on images and narrative description.

On a *managerial level*, the operational use of our wine-cheese pairs increases the pleasure of a wine tasting on a winery. First, wineries can propose a cheese platter with a series of wine, and pair them according to the research findings we studied. If we have a wine with strong acidity and less sweetness, we counterbalance the wine tasting by a cheese with high level of fat and low level of salt. On the other hand, if you have a wine sweet and low acidity, you can choose cheese with low level of fat and salt. If we have only a low acid wine, we counterbalance by a high level of fat and salt.

Second, our recommendation is addressed to French wineries, and by extension, to wineries from all over the world where the first criterion for associating wine and cheese is the valorization of the origin. These French wineries highly value their terroir. They very often combine a wine from their own region with a cheese from the same region. This is the case, for example, in the south-west of France, between the AOP Jurançon wine (sweet +, acidity +) and the AOP Ossau-Iraty sheep cheese (fat+, salt+). However, these associations are not ideal. Ideal associations between wine and cheese could apply research findings. Based on the analysis of the characteristics of their own wines (acidity, glucose, etc.), wineries can propose to associate cheeses with complementary characteristics (fat, salt, glucose).

Our experts, coming from the same Master specialized in wine, have a homogenous level of expertise as far as wine tasting is concerned. However, we have not evaluated their level of cheese tasting, which could be a limitation. To have the same level of expertise, we could choose experts in gastronomy or culinary area. A second limitation is that it does not explicitly take into account the length in the mouth between wines (vs. cheeses), highlighted via the concept of "Temporal Dominance Sensation" (Galmarini *et al.*, 2017). This specific analysis could be conducted at a later stage.

This research was conducted in a French context on experts and consumers. It would therefore be interesting to compare this French consumer study to that of a nearby European country such as Germany or Austria. This research perspective will enable us to potentially highlight the cultural factor in the evaluation of the wine-cheese association (Allen *et al.*, 2008). We could compare the ideal associations in France (French wines and French cheeses) with the associations in Germany (German wines with the same grapes varieties as the wines offered in France, and French cheese), to also highlight the cultural factor.

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8. APPENDIXES

Appendix 1: Characteristics of the nine wines and their grape varieties

	Alcohol % vol	Glucose	Acidity total g/l H2SO4	Grape varieties
Château Les Miaudoux Bergerac blanc sec 2018	13.12	0.45	3.37	Sémillon
Le Moulin de l'Œuvre Macon-Uchizy 2017	12.96	2.15	3.32	Chardonnay
Labouré-Roi Bourgogne Hautes-Côtes de Nuits 2017	12.61	0.64	3.67	Chardonnay
Château Cantelaudette Cuvée Prestige Graves de Vayres blanc sec 2017	13.03	0.85	3.68	Sémillon
Château Landereau Entre-Deux-Mers 2018	12.98	0.59	3	Sémillon
Domaine de la Girardièrre Touraine 2015	13.79	1.6	3.78	Sauvignon blanc
Domaine Fichet Château London Macon-Igé 2017	13.08	2.23	3.56	Chardonnay
Domaine des Corbillères Touraine 2017	13.25	1.97	4.13	Sauvignon blanc
Gérard Bigonneau Reuilly 2017	13.29	0.51	3.38	Sauvignon blanc

Appendix 2: Nutritional characteristics of cheeses

	Fat	Salt	Glucose	Proteins
Brie	30	1.3	1	17
Goat	13	1	2.6	8.7
Blue	33	2.2	0.5	16
Camembert	21	1.4	1	20
Raclette	26	1.7	0.5	23

Appendix 3: The three best wine/cheese ideal associations for experts

Associations between wine & cheese	Qualifiers given for wine/cheese associations	Verbatims
“Labouré-Roi” (AOC Burgundy) / Brie	Freshness of aromas Fat and strong Slight softness	The contrast is pleasant. The dominance of the wine at the end is very appreciable although the Brie also persists and makes the length last.
“Le Moulin de l'Œuvre” (AOC Macon-Uchizy)/ Goat	Freshness of aromas Balanced Acidity bitterness Fat and strong	Balance between the freshness of the goat and the fat/roundness of the wine
“Château Les Miaudoux” (AOC Bergerac) / Blue	Balanced Slight softness Fat and strong	We distinguish between the two components of the agreement. Nevertheless, the acidity of the wine makes the blue lighter.

Appendix 4: Consumers: most selected verbatims for wine and cheese associations

Associations	Lexicon	Verbatims
“Les Miaudoux”/ Blue	Strong balance good fruity	Good balance between the two products. The fruity taste of the wine alters the bitter taste of the blue.
“Labouré roi”/ Goat	Complements itself well strong	Combined with goat cheese, which is also sweet in the mouth, the two complement each other well, without annihilating the taste of the other.
“Moulin de l'Œuvre”/ Blue	Strong light complements itself well fruity	Weak cheeses (Brie, goat) mix with the taste of the wine, especially when it is light.

Appendix 5: Wine and Cheese tasting for consumers (February 2020, before Covid-19)

