

Defining “milk quality”:

The construction of meaning



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Defining “milk quality”: the construction of meaning

A master thesis exploring how the concept of quality is built and communicated

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DECLARATION

I hereby declare that this thesis is accomplished with my own work and all sources of literature that I have used are cited. I also assure that this work has not been presented to any other university

ABSTRACT

The objective of this thesis is to investigate the meaning of milk quality. For that two main blocs are analyzed: building the concept of quality and communicating the concept of quality. First of all, to understand how the concept of milk quality is built an analysis of the dairy actor's perceptions about quality is performed. The goal is create one big table to summarize such perceptions into four categories: quality in terms of technological components, in terms of hygienic components, in terms of food safety and in terms of sustainability. Each one of these categories has a certain number of indicators that are used to measure the quality perceptions (categories). For such categorization a deep literature study and the testimony of several dairy actors has been used. Second of all, to understand how the concept of milk quality is communicated three analysis have been done: an internet-based analysis of retailers and processors webpages, an analysis of claims, images and labels on pack, and a consumer analysis via questionnaires. For such analysis the quality categories described in the first bloc were used. The overall findings say that milk quality can be understood as the four perceptions mentioned which are related to the several dairy actors and which are communicated in specific ways, in most of the cases from processor to consumer, mainly via packaging and using labelling. However such perceptions are context-related and thus depend on the social construction of the milk quality concept of the country where the analysis takes place.

Keywords: milk quality, quality categorization, quality communication, dairy actors, packaging and labelling.

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1. INTRODUCTION

1.1 BACKGROUND OF THE STUDY

After the past 1st of March the EU milk quota regime was ended, the European milk market was found under a liberation that was and still is unknown whether it will be beneficial or not. Until then milk quota was a measure that limited the amount of milk that a farmer could sell every year without paying a tax. Under this premise deliveries in the EU had been below the overall quota, with only the Netherlands, Austria, Ireland and Germany producing above their quota (Ministry of Agriculture, Food and Environment 2013). This new milk quota situation puts farmers and producers under pressure because prognostics say that the quota removal consequently will produce a reduction in the price of processed products, ranging on average between 2.5 percent and 8.8 percent less (Ministry of Agriculture, Food and Environment 2013).

1.2 RELEVANCE, PROBLEM STATEMENT & RESEARCH QUESTIONS

Despite that “milk” and “milk industry” are widely researched topics, so far there is little research done that focus exclusively on the notion of “milk quality” beyond the technological and hygienic definitions already existing. Furthermore as previously mentioned, the European dairy industry landscape has changed the past months and has brought the industry under pressure due to the prognosis on the reduction of dairy products’ price (European Commission - DG Agriculture and Rural Development 2013:V). One might ask: how could this research about the notion of “milk quality” help? The current knowledge of milk quality understood as hygienic and technological components is useful, however, it does not reveal all the possible perceptions of milk quality. Consequently, given the new European market landscape, a possible solution to help farmers and processors increase their margins could be related to the notion of “milk quality” because it could help to increase dairy products competitiveness. This competitiveness could be understood as the ability to satisfy demand by final consumers, who are more conscious of the importance of the quality of the aliments they consume. In other words, the dairy sector –and in specific the drinking milk sector- needs to exploit the opportunity of better differentiating their products from those from the competency. In this context the differentiation is based on high quality milk production products which consumers are willing to pay higher prices for. The main motivation of this report is not to try to solve the problems that arose with the abolition of milk quota, since the dairy industry is still adapting to it. However, having a deeper knowledge of what milk quality means could overcome future burdens. Yet, how is the notion of quality constructed and communicated is still unanswered. As to my knowledge, there is no research that would have a scientific approach and that would specifically analyze the dairy value chain to know what its actors perceive as quality and how do they communicate it. This research attempts to find an answer to these questions by analyzing such quality perceptions and communication in two different European countries with contrasted dairy conditions: Spain and The Netherlands. Consequently the main research question are: [RQ1] how is the concept of quality built? And the other one [RQ2] how is the concept of quality communicated? For this reason the specific sub-research questions are:

[SRQ1] What are possible milk quality perceptions according to dairy actors? Which actors perceive them?

[SRQ2] Is quality communicated? And if so, how and by who to whom?

[SRQ3] Is there one definition of quality or more than one?

[SRQ4] Is the definition valid for the entire dairy industry?

[SRQ5] Do Spain and The Netherlands have very different opinions about milk quality?

The purpose of this study is not to develop a strict equation of how to measure milk quality, but to outline the different ways that stakeholders in the dairy industry perceive and communicate milk quality.

Finally, the value of this research is that it may bring new insights to future research when trying to develop new strategies for milk competitiveness in the market, thus helping processors and farmers to emphasize the “reason to believe” for consumers that the higher prices is due to higher milk quality.

2. METHODOLOGY

This section explains the research design that attempts to answer the research questions.

2.1 THE NATURE OF THIS RESEARCH

This research is an explorative two-case studies (the Dutch and the Spanish notion of milk quality). The main reason why these two cases are chosen is for the opportunity they give to research a “contemporary phenomenon within its real-life context” (Z.Zainal 2007:2). In this case the phenomenon is the construction of the notion of milk quality nowadays in the Dutch and Spanish dairy chains (real-life contexts). The reason why these specific contexts are selected is because of the researchers’ proximity with the context and because both belong to the EU and yet they have a very different dairy landscapes (see literature review, 3.2).

To analyze both cases specific units are used, like: the categorization of milk quality according to stakeholder perceptions and the communication of milk quality via internet, packaging and labelling. Such specific units are organized in two main blocs. First bloc entails the categorization of milk quality unit. This unit is a compilation and further categorization of six stakeholder perceptions about milk quality. The stakeholders are: farmers, processors, retailers, consumers, veterinarians and State regulatory departments. Such categorization allows for a clear relation between quality categories, their possible indicators and specific stakeholders related to them. The second bloc is a communication analysis based on the other three specific units: internet content analysis (to indicate to what label milk quality is framed on retailers and processors websites), packaging analysis (to understand how the meaning of milk quality is constructed on pack and specially to investigate the role of labelling on pack), and the third section is a consumer analysis (using the social construction of meaning perspective to see how consumers perceive quality and whether there are significant differences between Spain and The Netherlands). To analyze all these specific units multiple data resources (qualitative and quantitative) are used. This is what is called triangulation (TDJick 1979:602), and it brings complementary pieces of the same phenomenon (the notion of milk quality). The different resources (triangulation) have helped to examine the information for each specific unit, and hence it is possible to compare the findings between the two contexts (the Spanish and the Dutch dairy industries). Data regarding how the dairy value chain in each country looks like is used as background of the study (appendix A).

For this research, as well as for any other, it is necessary put boundaries and this report is bounded by the milk industry actors (six in total) along with the media channels used for the communication analysis (packaging and webpages). Another boundary is that due to the nature of a case study analysis, results cannot be generalized. However they could be considered as knowledge addition or even for future research.

2.1.1 METHODS OF DATA COLLECTION

The first stage for the thesis is the data collection and choosing the best methods of approach in gathering such data. Consequently the best methods are: a literature study, surveying (with questionnaires), web qualitative content analysis, pack examination (and the role of labelling) and interviews with dairy actors. The second stage is the analysis of the collected data (2.1.2 Method of analysis).

The specific units for this explorative 2-cases analysis are chosen carefully with the aim of giving an overall picture of how dairy actors perceive quality (using what indicators and under which definition of quality) and understanding how that quality can be communicated (via what channels, from whom to whom).

For the method of surveying, questionnaires to consumers collect information about their milk quality perceptions. The sample is N=200 consumers/questionnaires, from which 100 are Dutch and the other 100 Spanish. The questionnaires are performed at the retailer point and the majority of questions are closed-ended

and one is open. In order to create the questionnaire, literature from the work done by K. Casellas and M. Berges named *Consumers' willingness to pay for milk quality attributes* was used. Using questionnaires for the survey is a perfect method for consumer research although the sample is not representative because of three bias used for sampling (Lane n.d.). First bias is the sample selection. For example the questionnaires are performed in just one province where people might have different habits and opinions than in other provinces within the same country. Furthermore just two retailers are used for each country sample. Another reason why the sample of this survey is not representative is because of "Berkson's fallacy" which means that the questionnaire is performed not just at the retailer point but next to the dairy section which increases the chances of finding milk drinkers than in any other section inside the supermarket. The final reason for this sample to not be representative is due to under coverage which means the sample has too few observations from a segment of the population since for Spain, with 46.464.000 inhabitants (Instituto Nacional de Estadística, INE 2014), the amount of consumers questioned should have been of 384 consumers, and for The Netherlands with 16,923,880 inhabitants (CBS, statistics Netherlands 2015) the sample should have been of 205 consumers. Therefore it is important to know that the results of this survey don't apply to anyone other than those who responded. Due to limited time, lack of economic resources and the size of the lands, it has not been possible to overcome these bias.

To select where the questionnaires would take place four retailers have been selected according to two criteria: the same type of retailer should be present in both countries, and they should be different among them within a country (i.e.: one is the top national supermarket chain and the other is the one with the best price deals). Therefore for The Netherlands the two retailers are *Albert Heijn* (top-end supermarket chain and the largest in the Netherlands) and *Dirk van den Broek* (discount grocery stores with a wide range of goods on offer for the lowest prices in the Dutch market); and for Spain the two retailers are *Mercadona* (also top-end supermarket chain in Spain) and *Dia* (a discount grocery store).

The interviews are semi-structured in order to embrace the speakers to talk and gather as much information as possible (FAO n.d.). The conduction of interviews helps to gather a varied and wide range of open-ended, qualitative data from some key actors within the dairy industry that it could have been missed otherwise and that supports the other sources. For some interviews performed with Spanish dairy actors it was necessary to perform them via skype since the location of the interviewer at that moment, was The Netherlands.

The Dutch interviewees are: Kees de Koning (manager of the dairy campus), Hein van Valenberg (dairy professor at Wageningen University), Peter de Jong (professor of dairy process technology and process engineer at NIZO food research) and Wibout Bouma (a Friesland Campina farmer and thus stakeholder). The Spanish interviewees are: Pedro Valentín-Gamazo de Cárdenas (Assistant Director of the National Federation of Dairy Industries, also known as FENIL), Sergio Calsamiglia Blancafort (researcher for the department of Animal Science and Food of Autonomous University of Barcelona) and the director of a milk processor company who wanted to remain anonym.

Another method for this study is a literature research which helped to identify the knowledge gap as well as determinate which actors in the dairy chain would be considered for the analysis.

For the communication bloc one of the methods is the collection of packaging samples in order to analyze their written content as well as their labels and drawings. The reason behind this analysis is to see what is communicated in the packaging from processors towards consumers. A problem for this method is that it is time consuming since six pictures from each of the packages of cow milk that could be found in each of the four retailers under analysis (*Albert Heijn*, *Dirk van den Broek*, *Dia* and *Mercadona*) allowed a sample of around 65 packs (390 pictures). Some difficulties when collecting this data are related to the fact that it is not allowed to

take photos inside establishments, let alone product pictures. Therefore in some cases it was necessary to ask permission directly to the manager or even send a copy of the thesis contract to the supermarket's manager.

Also related to the communication part another method of analysis is the internet-based data content analysis. The goal of doing an internet-based analysis from a content analysis perspective is to see how retailers and processors communicate milk quality and towards whom.

2.1.2 METHODS OF ANALYSIS

For the analysis of questionnaires the program SPSS was key since it allowed performing descriptive statistics and crossing tabulations between variables. For each question the frequency, standard deviation, mean and rank within each of the answers was analyzed as well as its relation with other variables. The findings were analyzed using a theoretical perspective called "social construction of meaning", coined by Berger and Luckmann (1991). Such perspective has helped to reveal how specific constructions of the meaning of "milk quality" -from the consumer point of view- are created. Berger and Luckmann view knowledge as created by the interactions of individuals within society. Thus knowledge is not objective and in this thesis the knowledge of milk quality that consumers have will be analyzed using this perspective thus based on interactions of Spanish and Dutch respondents within society (Andrews 2012).

The interviews have been transcribed with a system called "clean read or smooth verbatim transcript" (Mayring 2014:45). This means that a synthesis of the main ideas said was done. Furthermore such synthesis serve as primary content for the categorization table (section 4.1). Such categorization is been done according to the theory of Philipp Mayring about "inductive category formation" based on creating the categories from the material itself (interviews), not from theoretical considerations (Mayring 2014:79). Therefore the interviews were crucial in order to build the possible milk quality categories and their related indicators of quality and afterwards make a relation between such categories and the dairy actors using them.

For the literature research a literature review was done (see section 3) which allows the reader to know what is already known and how exactly some of the elements in this research are used/understood in order to understand the overall analysis and the thesis findings.

For the analysis of packs, the claims (text), images and labels on the pack have been analyzed examining the possible construction of meaning from such images and claims. Additionally, the understanding of labelling when framing quality has been analyzed as well. A table with all the findings was created to summarize all the information found. What has helped to develop the tables for the packs is the usage of the categories created in section 4.1. To see all the data extracted from the analysis see appendix. C.

For the internet-based analysis of webpages, the fact that the content was readily available made the research faster and cheaper than performing other methods. The data analyzed is based on eight webpages: four from the retailers in which the surveying method took place (*Dirk van den Broek, Albert Heijn, Mercadona* and *Dia*) and four from the most popular milk brands as well as private labels in each of the samples. To see the specific click-trajectory an internet viewer should take to read about milk quality (directly mentioned) is shown in appendix D.

3. THEORETICAL FRAMEWORK & LITERATURE REVIEW

There is a need for some definitions and clarification that will be used throughout this thesis like: what specific milk product is the focus of this study; what is quality perception; what kind of communication is analyzed to understand how the concept is communicated; whose stakeholders' perceptions are investigated; and the actual dairy industry context in Spain and in The Netherlands. These clarifications are expected to create guidance to the overall research project. At the end of this section there is the conceptual framework which explains how the milk quality concept will be understood in this study.

3.1 THE NOTION OF DRINKING/LIQUID MILK

For this research milk is understood as cow *drinking milk*, thus ready to drink for consumers.

3.2 UNDERSTANDING THE ACTUAL DUTCH AND SPANISH DAIRY LANDSCAPES

The Dutch dairy industry is chain-orientated in such a way that it takes care of each individual link in the production chain. Such effort allows traceability within the industry. Another aspect is that the Dutch dairy chain works closely with the government to facilitate authorities constantly supervise the quality of products and their production and assure that the rules and regulations are met. These rules and regulations are found on the Dutch and European legislation and regulations (Prodzuivel 2015). Within the EU, The Netherlands are a very important player in terms of milk production and trade (export) since although Germany, France and the UK are the biggest players, The Netherlands comes right after. However, this is not the case for Spain which needs to import milk in order to fill its demand. Another characteristic is that while for The Netherlands the cheese production is very important (accounts for 55,7% of the dairy production), for Spain the drinking milk production is the most important product (accounts for 55% of the dairy production) (OFC 2012). In other words, in the global market, The Netherlands and Spain are in opposite sides of the spectrum. Another differentiating aspect is "the limited role of cooperatives and the low development of relationships along the chain compared with the situation in other countries" (Sineiro & Vázquez 2014:8). At the moment, in Spain, there is a strategic plan about how to restructure the sector by the end of 2015. The objective of this restructure is to gain bigger returns for the farmers and improve the competitiveness among producers. However, it is still unclear how to do it. One of the solutions that the Spanish dairy industry has thought of is entering the world of labelling and certification. In chapter 3.4 called "The notion of quality communication" the role of labelling will be more explained, as it is one of the communication points analyzed in this research. However it is important to notice that whereas Spain sees certification as a future method to improve competitiveness among processors, Dutch milk packages come with, at least, one or two certifying labels of any type (see Dutch pack in appendix C). A third point in the new Spanish strategic plan for this 2015 is the improvement of the market balance by reinforcing traceability and ensuring fair competition with strong links between the members of the industry (Mouriscade 2010), which is something that already exists among members in the Dutch dairy industry.

3.3 THE NOTION OF QUALITY PERCEPTION

For this study perception of quality is the way each of the stakeholders in the value chain think about, notice and/or understands milk quality. The intention of this thesis is to assemble such perceptions and categorize them (section 4.1).

According to Harding, Schukken, Wilson, Welcome, Garrison-Tikofsky and Gonzalez milk quality is related to the compositional quality, the hygienic quality and the health of the cow in terms of mastitis and in terms of number somatic cell counts (Harding 1995:102; Schukken et al. 2003:593). Other authors, like Spreer, say that quality is

“the result of sociological and scientific-technical work and simultaneously a parameter for their economic efficiency” (Spreer, Edgar, 1998:45). However how this sociological work is done and by whom, it is still unknown.

Trina Vargas defines milk quality using three parameters: physicochemical composition, microbiological qualities and a new one which is organoleptic features. The three of them used by the farmer to test his milk. For the physicochemical composition is important to look at mastitis, fatty acids and proteins (mainly), which are technological components; for microbiological qualities is important to look at total cell count which is a hygienic component; and finally for the organoleptic parameter it is important to look at taste, color and odor (Vargas 2000:1-3).

Noordhuizen and Metz state that there is a new concern of the world about animal health and welfare addressing the whole production process which appoints other actors in the milk industry besides farmers, like processors who are responsible for a better processing practices (i.e.: less environmental impact with some activities like packaging) and the use of programs that would guarantee food safety and public health. In this same article the topic of quality beyond the hygienic components on farm level is linked to the principles of HACCP (Private food standards to assure quality and safety) and uses the Dutch dairy sector as an example (Noordhuizen & Metz 2005). Other authors, like De Boer, talk about quality with regard to less environmental impact and hence the article assesses the fact that there is a “public demand to diminish environmental pollution of agricultural production” (De Boer 2003:70). Gilg & Battershill explain the consumer dissatisfaction with intensive farming systems and standardized farm products, and hence the high demand for ‘quality’ coming from alternative farming and marketing sectors (Gilg & Battershill 1998:25-28).

The graph below is a Eurobarometer from 2009 that shows the data in relation to the question “name three priorities for the EU’s agricultural policy”. Looking at the answers given, the most answered topics consumers would prioritize for the EU’s agricultural policies are related to food safety, health, the environment and animal welfare.

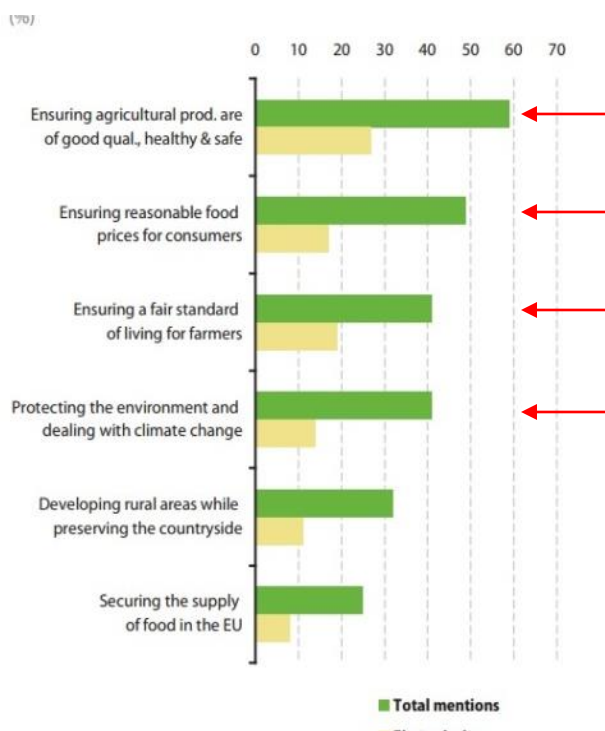


Table 1: Public opinion on the main priorities for EU agricultural policy, EU - 27 (Eurostat 2009)

In summary, the concept of quality does not apply exclusively to hygienic and technological aspects but also to new potential ones such as animal welfare (grazing practices, herd size...), sustainability (environmental impact), and private food standards to assure food safety... However it is still unknown which actors within the value chain have what exact quality perceptions and last but not least, how do they measure the applicability of them, via what indicators? [SRQ1]

3.4 THE NOTION OF QUALITY COMMUNICATION

Other research questions in this thesis are how the concept of milk quality is communicated, via what channels, and from whom to whom [SRQ2]. For this research two types of communication are under analysis: internet-based communication via websites; the other type of communication analyzed is via the packaging. A lot of attention is paid to labelling, as new method of “communication on pack” since labels can explain the value of the product and thus give a reason for the consumer to buy the product. In this research the meaning of each of the labels found on packs is explained in appendix B.

Communication via internet (retailer and processors websites). The Internet has become a major channel for communication since progressively more consumers change from traditional to the digital media. Consequently retailer’s and processor’s communication strategies also had to adjust. That's why with the internet era retailer and processor communication is opening to new channels to interact with customers. Some of the advantage of using Internet as a communication channel are: ability to provide information, simplify two-way communication with customers, assemble market research data, and promote goods and services among others (Doherty & Ellis-Chadwick 2010:943-946).

Communication via the packaging. Current consumer and industry trends suggest a gradually more important role for product packaging as a marketing communication vehicle for brand managers as it is a strategic element for differentiation and identity (Kit L., Takhistov & Miltz 2005:2). The role of packaging as a vehicle for communication and branding is growing and therefore it is essential for this thesis to analyze the communication done via the packaging, especially when it comes to labelling. Labelling allows consumers to recognize the superior version of the product and distinguish it from the lower quality variants (Zago & Pick 2004:153).

3.5 STAKEHOLDERS WITHIN THE INDUSTRY

In this section six dairy actors used for this research are described (farmers, processors, retailers, consumers, veterinarians and state regulatory departments). They are chosen for being direct actors/players in the dairy value-chain with direct relation to milk quality, although there are other stakeholders not included in this study that also contribute to the dairy chain development (like input suppliers or NGOs). More information about the two generic value chains (Spanish and Dutch) and how their stakeholders interact with each other are available in appendix A.

DAIRY FARMERS: Dairy farmers are in charge of the dairy cows that produce the milk that later will be processed. Their job is to keep their cows healthy and comfortable, and their dairy farms clean. In other words, many of the farmer efforts are concentrated on the diets (well-balanced) and living conditions of their cows, which need to entail appropriate disinfected equipment and exhaustive cleaning of the cow’s udder prior to milking (Dairy farming today 2014).

PROCESSORS (DAIRY COOPERATIVES AND PRIVATE COMPANIES): The main goal of the processor is to obtain milk that will be used for different purposes (cheese, drinking milk, butter, yoghurt...). Processors pay farmers for the milk they deliver according to the technological components of the milk (fat, lactose and especially protein), and to the

hygienic components (low cell count and bacteria count and no antibiotic residues). Technological and hygienic components are measurable and therefore it is easy to pay for it.

RETAIL DISTRIBUTORS: retailers are the actor between processors and consumers and thus they are the ones selling the milk. For this study the premium supermarket in Spain and The Netherlands and a big discount chain were chosen in order to compare equally two different types of retail between the two countries.

CONSUMERS: are the end-user of the milk. They have their own perceptions about milk quality which can shape the processing and farming practices and thus have a big impact in the milk offer.

VETERINARIANS: veterinarians are in charge, mostly, of doing herd surveys which allow them to evaluate milking procedures, management, housing, equipment, and mastitis control (Cornell University College of Veterinary Medicine 2014).

EXTENSION STAFF: are organizations in charge of what they call “quality control” in terms of ensuring the application of approved practices, standards and regulations concerning the milk and milk products. The final outcome tells whether the milk products meet accepted standards for technological and hygienic as well as food safety standards (FAO 2014). These specific organisms in charge of such practices in the Netherlands are QLIP, COKZ and NVWA. In Spain are CERTICAR and ENAC. A short explanation of each of them follows:

- **QLIP:** supports stakeholders in the agro food sector, in particular companies in the dairy chain, by being a leading, reliable and committed partner in the area of food safety, quality, composition and sustainability (QLIP 2015).
- **COKZ:** The Netherlands Controlling Authority for Milk and Milk products (COKZ) assures the safety and quality of dairy products produced in The Netherlands. This assurance offers the dairy sector better access to (inter)national markets and the guarantee that all social requirements are complied with (COKZ 2013).
- **NVWA:** The task of The Netherlands Food and Consumer Product Safety Authority is to protect human and animal health. It monitors food and consumer products to safeguard public health and animal health and welfare (NVWA 2015).
- **CERTICAR:** Spanish Certification of Food Products is accredited by the National Accreditation Body (ENAC). Producers, manufacturers, industry, retail distribution, retailers and consumers: in CERTICAR participating in the Governing Body, all parties and interests in the food chain are present (CERTICAR 2006).
- **ENAC:** ENAC (Entidad Nacional de Acreditación) is the body designated by the Government to assess technical competence in accordance with international standards. ENAC accreditation is recognized and used both by central and local government. The purpose of ENAC is to build trust thus contributing to people's safety and the quality of products (ENAC n.d.).

3.6 KNOWLEDGE GAP

The literature reviewed talks about milk quality in terms of technological and hygienic aspects, mainly used by farmers and processors. Also nowadays concerns about the environment, animal welfare, processing techniques, food safety are mentioned... However such concerns have not yet been translated into potential new ways of perceiving milk quality for some of the dairy actors, let alone no specific indicators have been associated to such possible milk quality perceptions.

Regarding the communication of quality via an internet-based analysis and packaging analysis, literature states that these two channels are fast growing and becoming very important as a marketing communication vehicle. Yet, there is no clarity on how milk quality is specifically framed in such channels and from who to whom is communicated.

3.7 CONCEPTUAL FRAMEWORK

H₁: milk quality can be defined through stakeholder perceptions, which can be translated into quality categories and have specific indicators to measure them.

H₂: milk quality can be defined through stakeholder perceptions and this lets an analysis of internet and pack communication to be possible.

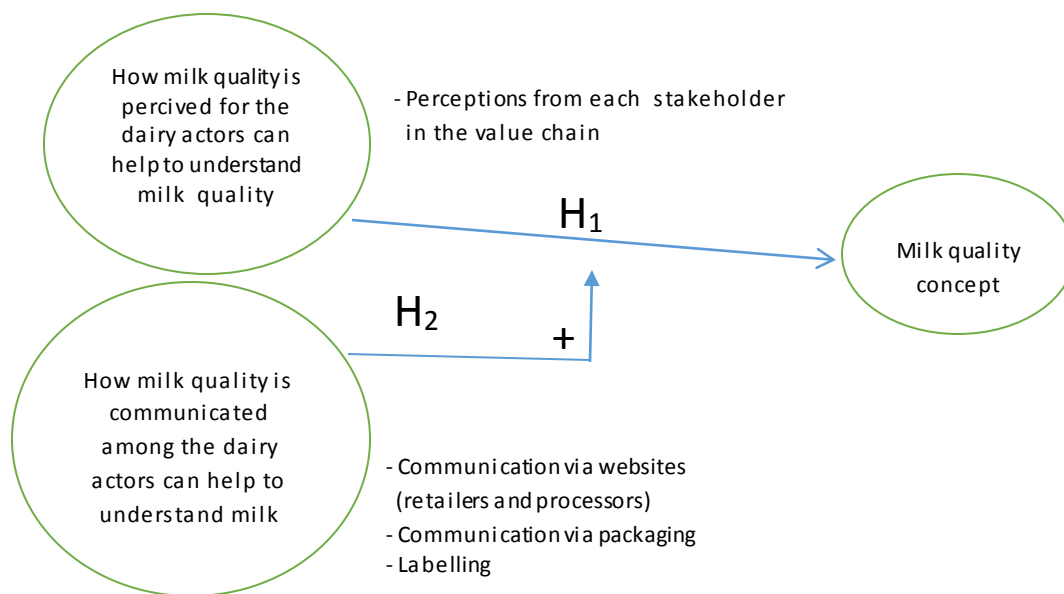


Figure 1 Conceptual framework

4. BUILDING THE CONCEPT OF QUALITY

In this section the goal is to categorize quality perceptions, find their indicators and relate them to specific stakeholders. In other words this section tries to answer [RQ1] and [SRQ1], and for that the literature reviewed as well as the field work done (interviews and questionnaires) are used to inductively form categories (Mayring 2014:79).

4.1 MILK QUALITY CONSTRUCTION IN THE NETHERLANDS AND SPAIN

In the earlier years (20 years ago) the only important and measurable milk quality features were the technological components of the milk. Afterwards the hygienic value was added followed by the food safety quality perception. And nowadays the milk quality concept includes the former ones plus others like: animal welfare (cow's treatment, grazing, and no antibiotic), and sustainability for the environment... (De Koning, pers. comm., 4 April) However such perceptions are not perceived the same way in both countries under study, since terms like "less environmental impact", "food security", and "animal welfare" are a lot less important in Spain than in the Netherlands (Calsamiglia, pers. Comm., 29 May) or are "starting to be echoed in the Spanish society but with delay in relation to other European countries" (anonymous, pers. Comm., 12 May).

The first table below distinguishes four quality categories (A,B,C and D): quality in terms of technological components (A), quality in terms of hygienic components (B), quality in terms of food safety (C) and quality in terms of sustainability (D). Each of these four categories have specific indicators to measure them. Thus, for category A (quality in terms of technological components) the indicators are fat, protein and lactose which are the main components of the milk. These components are essential and can be affected by the nutrition and feeding practices, stage of lactation, cow's age, season, mechanical errors, such as cooling problems in the bulk tank (Heinrichs, Jones & Bailey 1997:4). For category B (quality in terms of hygienic components) the indicators are somatic cell count, antibiotic residues and bacteria. Either for indicators in category A or in category B there are regulatory standards in cow milk that help to measure whether the milk is apt or not for further processing (Milk facts n.d.). For category C (milk in terms of food safety) the indicators are organoleptic characteristics (auditors are in charge of evaluating whether the milk smells good or bad and the same for taste), milk collection (is indispensable that trucks have optimum conditions for transportation to ensure that the milk picked-up at the farms keeps the same values from categories A and B until the truck arrives to the processor), milk reception data collection and evaluation (supplier and route, quantity in liters, temperature, pH, protein and fat), milk healthiness (this indicator is related to the "nutritional value" of milk understood as number of vitamins, calorie information, fatty acids, carbohydrates and minerals) and private food standards (a set of food processing standards indicated by the EU). The last category is category D (quality in terms of sustainability). This category is the fourth and contains the newest quality perceptions and its indicators are: animal welfare (whether cattle is housed in free stall barns or is housed in tie-stall barns and thus they suffer from restricted voluntary movement possibilities and restricted social behavior) (Popescu, et al 2013:2-5), grazing practices (cows walk outside in the meadow at least 120 days per year for at least 6 hours a day from spring to autumn), packaging (whether the packaging is done with environmental friendly materials and following environmental friendly practices) and herd surveys (an evaluation of milking procedures, management, housing, equipment, and mastitis control according to certain standards). The table below summarizes the four categories with its respective linked quality indicators.

Quality categories and its definitions			
Category	Category explanation	Indicators in the category	Explanation
A	Quality in terms of technological components	Fat, protein, lactose	Fat: made up of triglycerides [1].
			Protein: about four-fifths of the protein consists of casein, which in turn is a mixture of approximately 10 different proteins [2].
			Lactose: is the distinctive carbohydrate of milk. It is a disaccharide composed of glucose and galactose [2].
B	Quality in terms of hygienic components	somatic cell count (SCC), bacteria count & antibiotic residues	Somatic cells are known as leukocytes constitute the majority of somatic cells in question. The number of somatic cells increases in response to pathogenic bacteria like Staphylococcus aureus, a cause of mastitis. If the amount of SCC is higher than 400.000/ml, that milk has bad quality, and has a lot of changes in its components. If the number of somatic cells in milk is lower than 400.000/ml, milk is good because it has appropriate quantities of milk components and standard characteristics [3]
			Antibiotic residues appear because of mastitis treatment. Such residues stay in the tissue for a period. Each antibiotic has a prescribed period during which the milk from that cow cannot be used [4].
C	Quality in terms of food safety (guarantee that all processing steps have been done following the standards of food processing in other words EU hygiene ordinance for milk and dairy products 92/46/EWG and the	Organoleptic characteristics	Organoleptic refers to the testing of milk using sensors. It determines the flavor and taste of the milk. [5].
		Milk collection	Route plans need to be well-known and are constantly optimized for an optimum utilization of the transport facilities and keeping transport costs low [6]
		Milk reception data	When the processor receives the milk its quality will be evaluated by collecting the following data from a sample: supplier and route, quantity in liters, temperature, pH, protein and the most important:

	FAO/WHO food standards program) [7]	collection and evaluation	protein. Protein is a key factor for pricing the milk and the end product [6]
		Milk health-iness [8]	Nutritional value (minerals, vitamins, carbohydrates, calories...).
		Private food standards [9]	These standards are to assure quality and safety. Example could be COKZ in NL or ENAC and CERTICAR in SP
D	Quality in terms of sustainability	Animal welfare	Animal welfare is an indicator of milk quality. Aspects that could help to enhance animal welfare are: housing conditions (cows need clean, fine bedded stalls of the correct design and size to stimulate clean udders and reduced teat end bacteria exposure); other aspects that can enhance animal welfare are: milking routine practices (applying and removing the milking units correctly, and using pre and post milking teat dips), the operation of the milking equipment[11]
		Grazing[10]	Grazing contributes to a more sustainable production process because it allows more freedom to cows (opportunity to move freely and show social behavior) and because it is the most ecologically sustainable form of agriculture. Besides grazing increases milk quality due to the ingest of fresh green forage, especially grazed grass, which has higher unsaturated: saturated fat proportion with more poly-unsaturated FA (beneficial for heart diseases) and more conjugated linoleic acid (possible anti-cancer effects). Therefore is good for the consumer's health and for the environment. Furthermore farmers are better rewarded if they graze because receive a premium on top of their milk price.
		Packaging	Whether the packaging procedure done by processors contemplates the sustainability aspect
		Herd surveys	Examine and evaluate milking procedures, management, housing,

			equipment, and mastitis control. This is done by trained personnel. Then a report is done and sent to the veterinarian and farmer [12]
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Table 2 Author's own compilation based on literature research. See specific references in section 7.4

So far a description of four different quality categories and their indicators has been given. Now it is important to see the relation between these categories with the different actors within the dairy industry and whether such relation is the same one for The Netherlands and for Spain. In order to make it clearer a table has been built. The table contains the different dairy chain actors in the first column. In the second column, there are the indicators of quality that each stakeholder might use to prove and guarantee quality. Moreover the acronyms "SP" or "NL" show whether such indicator is specific for Spain or The Netherlands. When nothing is written it means that it is present in both. In the third column indicates to which category (A, B, C or D) the quality indicators belong to according to the explanation done in the table above. The goal of this table is to show a clear overview of the nowadays notion of milk quality according to dairy actors quality perceptions. This brings the possibility to understand quality from a measureable, scientific and understandable approach.

Quality indicators used by the varied stakeholders		
Stakeholder	Indicators of quality for stakeholder	Category
Dairy farmers	somatic cell count and bacteria [13] [15] [18] [19]	B
	Fat, protein, lactose [13] [17] [18] [19]	A
	Animal welfare (NL) [13] [17]	D
	Private food standards [9]	C
	Herd surveys [12]	D
	Grazing practices (NL) [13] [17]	D
	Antibiotic residues [15]	B
Milk processors (cooperatives and private companies)	Milk reception data collection and evaluation [6]	C
	Private food standards to assure quality and safety [16]	C
	Fat, protein and lactose [18] [19]	A
	Grazing (NL) [17]	D
	Packaging [14] [19]	D
Retailers	Private food standards [9]. In concrete CERTICAR (SP) and NVWA (NL). CERTICAR is the Spanish Certification of Food Products company. Producers, manufacturers, industry, retail distribution, retailers and consumers (all parties and interests in the food chain are present). NVWA is the Netherlands Food and Consumer Product Safety Authority whose goals is to protect human and animal health. It monitors food and consumer products to safeguard public health and animal health and welfare. The Authority controls the whole	C

	production chain, from raw materials and processing aids to end products and consumption.	
Consumers of dairy products	Organoleptic characteristics [18][19] (table x, pg. 35)	C
	Healthiness (table X pg. 35)	C
	Grazing (NL) (table X pg. X)	D
	Animal welfare (NL) (table X, pg 33)	D
Extension staff: State regulatory departments	In Spain, ENAC (Entidad Nacional de Acreditación) is the body designated by the Government to assess technical competence in accordance with international standards [16]. In The Netherlands, COKZ is the Controlling Authority for Milk and Milk products (COKZ) assures the safety and quality of dairy products produced in the Netherlands [9]	C
Veterinarians	Herd surveys [12] [11]	D
	Animal welfare [11]	D
	Somatic cell count [15]	B

Table 3 Author's own compilation based on literature from section 7.4 and personal communication (interviews)

In conclusion dairy farmers understand quality by taking into account specific indicators such: "somatic cell count, antibiotic residues and bacteria count", "fat, protein and lactose content", "animal welfare practices (just Dutch farmers)", "private food standards" and "herd surveys". Milk processors need to know the "protein content" since that will stipulate the money they will have to pay to farmers. Either farmers or processors use the indicators of "private food standards" and "grazing" (although this last one just in the Netherlands). Other indicators used by processors are "packaging" (most of the consumers look into the packaging to read information of the milk that they are about to buy and thus it is important that the packaging is well made and it transmits all the messages consumers are looking for when buying milk, see table 22), and "milk reception, data collection and evaluation". This part is important since the milk collection in The Netherlands and in Spain is similar. In Spain, there are what they call "coops or cooperatives" whose function is to pick up milk from farms and bring it to processors but they are neither part of one or the other. They are independent parties whose job is to transport milk from farms to processors (Calsamiglia, pers. Comm., 29 May). In The Netherlands the companies in charge of bringing the milk from farm to processor are also independent parties (but they are not called coops as it happens in Spain). Retailers are the ones least interested in sustainable, hygienic or technical features of the milk but rather the "private food standards" indicator. It is thus for retailers very important that what they sell follows strict private food standards. The main purpose for retailers is to differentiate products and build reputation upon food safety. For consumers, indicators such "organoleptic characteristics", "healthiness", and in the Dutch case also "grazing" and "animal welfare", are very important indicators of quality. "Organoleptic characteristics" are very important because they determinate the major part of the experience of drinking milk. "Healthiness" is an indicator of quality because nowadays consumers find more and more important to look after their diets, and thus they look often to the nutrition facts table on pack (see section 5.3). Finally, in The Netherlands there is this extended consumer perception that in order for the milk to be premium, it needs to come from cows that graze and thus that there is a guarantee of sustainability and animal welfare (see results section 5.3). For the State regulatory departments there are two clear organizations: ENAC in Spain and COKZ in The Netherlands (explained on page 16). These two bodies are very important since together with other organizations such CERTICAR (Spain) or NVWA (The Netherlands) they can build a very consistent infrastructure to guarantee food safety which is one of the quality perceptions.

Finally, veterinarians' main indicators of quality are "herd surveys", "animal welfare" and "somatic cell count" (mastitis infection control). Although it is indispensable to say that due to their concern about sustainability, it is significant for them to determine if there is any action required to improve the indicators of quality categories A and B.

5. COMMUNICATING THE CONCEPT OF MILK QUALITY

5.1 ANALYSES OF MILK CARTONS

This section's goal is to see what kind of communication is given on pack by analyzing three elements: messages (text), images (photos, drawings, etc.) and labels on pack. As it was explained in the methodology, for this analysis a total of 65 samples have been photographed including all the packs available during the supermarket visits to *Dirk van den Broek*, *Albert Heijn*, *Mercadona* and *Dia* (see appendix C for specific information from each pack). The texts and messages analyzed are translated from Dutch and Spanish to English. Such analysis captures the meaning of such messages and images (what is their role on pack?). Furthermore the labelling analysis allows this study to understand to what extent quality is framed using labels as a communication tool.

Before going into deep with communication messages on pack a few general remarks. As it was answered for the majority of Dutch respondents and Spanish respondents (see section 5.3), the packaging is the main source of information when buying milk and thus it has a very important role during purchase decision.

Regarding the milk location in the store, the majority of Dutch packs were located in the fridge (90% of milk available in the supermarket was pasteurized), while the majority of Spanish packs were located on shelf next to the cookies section (there was almost no possibility to buy pasteurized milk since 99% of brands just offered UHT milk). Regarding the milk offer, the amount of brands and milk variants available in The Netherlands was much bigger than the one in Spain, where the private label was very much present. Another observation when looking at the milk shelf is the color code used on pack. For instance, each brand in Spain uses blue, green or red/pink to distinguish types of milk according to whole, semi-skimmed or skimmed milk, being in the majority of cases the first one blue, the second green and the last one red/pink. In The Netherlands, this color code is not visible in any brand. However many Dutch packs use the color blue as it is the same color for other cooled products in the retailer's fridge. Furthermore some brands followed also a color code by using different blue colors for the different types of milk within one brand.

One commonality between all the retailers was the milk placement on shelf. Thus the white label brands were always located above or below the middle shelf, while the other brands (i.e.: *Campina*, *Arla*, *Central Lechera Asturiana*, *Llet Nostra*) were located in the middle shelf thus taking into account brand placement and consumer choice -which might be effected by such brand placement- (Valdimar, Saevarsson & Gordon 2009:741-742).

According to the categories built in table 2, quality could be understood in terms of technological components, hygienic components, food safety and/or sustainability. Therefore an analysis of to what extent these four categories are communicated on pack have been done. The findings say that the quality perception, in terms of hygienic components is not visible on pack since there is no information related to it at all. Instead, information related to technological components such as fat, proteins or energy is written on pack. Findings say that, in general, pasteurized milk is richer in fat and proteins according to the standard composition than UHT milk (see appendix C to see what the standard composition is). Another milk quality category is related to food safety and this one is present always on pack in terms of "milk healthiness" (nutritional information table). Still, among all indicators of milk quality in terms of food safety, there is no information on pack related to private food standards, milk collection or milk reception. Last one is milk quality in terms of sustainability. The last milk quality category is quality in terms of sustainability. This category is well-communicated on pack, especially with the use of labelling (being this labels official global ones or country specific). For instance, labels like "organic farming" (which guarantees among other things that all cows have a natural protein hormone (bST) and antibiotics are kept out of the milk supply), "weidemelk" (specific for The Netherlands) which means that the cows walk outside a minimum time per year, or "Beter Leven" (also specific in The Netherlands) which tells the consumer how the

life of the cow is according to a three star system. Other labels related to quality in terms of sustainability are environmental friendly packaging labels such as FSC, tetrapak, ELOPAK, SIG, etc. Still, the role of labelling is much bigger since a big range of other labels (see appendix B) is used to frame quality in terms of food safety as well (i.e.: gluten free, heart association FHOEMO). However the use of labelling is not equal in both case studies. Therefore it is possible to find animal welfare and grazing cow's labels on Dutch packs, while in Spain, brands like *Central Lechera Asturiana*, *Pascual* or *Llet Nostra* just use a drawing or a picture of grazing cows to give the consumer the impression that their milk came from grazing cows but still there is no presence of official labels. About other sustainable labels related to environmental friendly packaging both countries use them in almost every sample analyzed. Regarding food safety labels both The Netherlands and Spain use them.

Pack format

There are two commonalities regarding the pack format: in each country when a milk brand has a specific milk variant this one shares the same pack design (text and images) for all the milk types within the specific milk variant (i.e.: *Llet Nostra* in Spain or *Frische Vlag* in The Netherlands). However while Spain uses three different distinguishable colors as a pack background (blue, green and red/pink), The Netherlands uses the same color but then lighter versions, like for example the blue from *Landhof* milk. The other commonality is that in Spain the white label is generally a carton of milk or a plastic bottle with a very simple design and with a capacity for 1Lt. In most of the cases the pack is environmental friendly although for some milk variants from the retailer *Dia* this is not the case. In The Netherlands the white label also is the one with the simplest designs (i.e.: *Albert Heijn*).

A divergence among country samples is that the pack capacity used in Spain is always or 1Lt four-sided milk carton or the 1L and 1,5L bottle, while in The Netherlands there are some brands (i.e.: *Campina*) which offer 2,4L and 1,6Lt plastic carafe, the 0,5Lt plastic bottle or four-sided carton. This difference already suggest a different consumption habit of the product and the need for adaptation to consumer demand.

Either for Spanish or Dutch UHT milk packs, it was important to have a good lid that allows to open and close the recipient as many times as desired.

Text (claims) conclusions

The Dutch claims on pack put a lot of emphasis on explaining what type of milk the recipient contains and what does exactly mean (i.e.: many claims talk about “weidemelk” and what it means or what is the meaning of “organic milk”). However this is not the case in Spain.

While for Dutch UHT milk packs there is an effort to compare UHT milk with pasteurized milk and say that it is the same with the only difference that it lasts longer if you don't open it; for Spanish packs, instead, the majority of the claims on pack are very simple (type of milk and nothing else in the front pack), and just the most expensive brands put some effort to talk about the taste of the milk or even use the farmer story to create more empathy with consumer (i.e.: *Central Lechera Asturiana*), but there aren't many cases. .

In both countries there are brands that have a very specific target like for example elderly people. Then claims on pack are very specific for them. Brands like *Becel* in The Netherlands or *Flora* in Spain put a lot of emphasis in explaining the advantages of the ingredients that help to lower cholesterol. And thus such brands communicate a health message related to quality in terms of food safety (category c in table 2).

Images (photos and drawings) conclusions

In general the packs either in The Netherlands or in Spain use one of these three images: a clipart or drawing of a happy cow, or cows grazing in the emadow or a glass full of milk with milk streaming inside the glass. Just in some Spanish cases the main image was a family or a person but this was for brands dedicated to specific targets.

However while the grazing cows on many of the Dutch respondents packs might confirm the practice of such activity, the grazing cows on Spanish cows are just a marketing tool since no brand analyzed had the official label regarding grazing cows. The glass full of white milk is understood in our society as very tasty; happy cow is related to a good animal welfare.

The images on the Spanish packs are mostly drawings of elements related to cows (milk can, glass of milk) or sometimes even cows. A few brands use the image of a cow but is mostly to give the impression that they are grazing (i.e.: *Central Lechera Asturiana*). Generally speaking there is not much effort after the images on Spanish packs

Labels

In the first place is importance to notice the location of the labels on pack. Labels related to animal welfare, grazing cows or healthiness are placed always in the front of the package, labels related to the environmental friendliness of the pack are rather on the bottom or the sides of the pack. This tells that there is a prioritization of some labels above others when designing the pack to catch consumer's attention. General speaking Dutch packs use more labels than Spanish packs. For example, a pack from *Campina* in The Netherlands has up to five labels while a pack from *Llet Nostra* in Spain has two labels. However it is important to know that although The Netherlands uses more labels than Spain it does not guarantee a better quality communication because the consumer needs to know the meaning of such labels in order to know what they communicate, and this is not always the case. Furthermore the use of labels might help to communicate some message but whether consumers are able to see a clear straight-forward relation between them and milk quality concepts is not in the scope of this research.

Some labels are country specific (like *Dieren bescherming*, *Beter Leven*, *Gezondere keuze*, *Harts Stichting* or *Weidemelk* in The Netherlands or PLS, FHOEMO or FEC in Spain), and some others are globally known (gluten-free, organic farming, vegan, FSC, tetra pack, Recycling symbol...). Regarding the labels in terms of official and country-specific labels there is no evidence with the samples analyzed that this differentiation affects their place in the pack.

None of the Spanish packs analyzed use labels related to animal welfare, grazing cows or organic farming. However the most expensive brands in Spain as well as many brands in The Netherlands use labels related to food safety (i.e.: PLS, FEC, FHOEMO, *Gezondere Keuze* or gluten free). Besides having official labels, some Spanish brands have sponsors (i.e.: *Llet Nostra* has F.C. Barcelona or donors' organization) which is an appeal to give a good image. In this case of *Llet Nostra* being associated with a very famous football club and an organization about health. This does not happen with Dutch brands.

5.2 COMMUNICATION ANALYSIS OF THE WEBPAGE

For this section an internet-based communication analysis via websites is performed, hence the content of six webs is analyzed from an approach called "qualitative content analysis". This approach is an objective, systematic and qualitative examination of communication content. However, applying content analysis to these six webpages have many challenges such as sampling and coding, or that since the content is frequently changing it could be problematic for data collection (Inhwa & Kuljis 2010:283-284). For this study the date is clearly specified to avoid confusing in case the web changes in the future. For more information about the exact data for this analysis look appendix D.

Sampling. The sample for this study consists of two Spanish and two Dutch retailers and two Spanish and two Dutch processors. The processors are chosen considering their reputation in the milk market as well as their high market share and hence *FrieslandCampina* and *Arla Foods Nederland B.V.* are the two chosen. The first one,

FrieslandCampina, was in 2014 the second largest brand based on sales in supermarkets in the Netherlands (FrieslandCampina 2015). The second one brand is *Arla* and is the number two in the Dutch market for fresh dairy products (Euromonitor 2014). For Spain the two milk processors selected for the analysis are *Central Lechera Asturiana* and *Pascual* also chosen for being the biggest players in the Spanish dairy market, excluding private label (OCU n.d.). The four retailers are chosen considering the four retailers used to sample the consumer analysis. This internet-based analysis is one of the tools to be able to answer the research question “how is the concept of quality communicated?” and “from whom to whom?”

Coding. The units of measurement for this study are the number of times the word “quality” (in relation to milk) appears on the webpage. Afterwards the number of words is considered “poor”, “medium” or “high” according to the measurements. The measurements are: poor if the word is mentioned from 1 to 3 times inside each section clicked; “medium” if it is written from 4 to 6 times; and “high” if the word quality appears from 8 to 10 times in the section.

In order to navigate through the sections the word “quality” –in Dutch “kwaliteit” and in Spanish “calidad”- was typed in the homepage search. The results in many webpages showed the news page with several links to articles which talked about the organization and its products but not directly about milk quality or no results were found. Therefore this was not a good keyword to start with. The first problem about applying the same coding to all webpages was that the webpages did not have the same target and hence the websites content was very different among them. For instance the retailers’ websites were purely tools to sell their goods whilst the processors’ webpages embraced knowledge about the organization and other topics like innovation, living styles, recipes... Therefore it is not rare to see that for retailer’s webpage there was only one way to get information about the drinking milk quality which was via the category “dairy”+“liquid milk”+“products” and yet the number of times the word “quality” was mentioned was null times. However long descriptions about the characteristics of the product (nutrients, fat, proteins, price, labels...) were available which somehow could relate to the food safety notion of quality, but still not in a direct way. Thus somehow although the quality was not mentioned directly it could be interpreted by the viewer as long as s/he would have knowledge about dairy products. Still this would be the consumer’s interpretation and not a real reference from the retailer or neither a clear use of the word “quality” when talking about milk.

For the processors’ websites the results are not different but yet show some more content related to milk quality. However since the content they show is not directly countable using the coding of this study, it is not possible to analyze it deeper. In general, processors, either Spanish or Dutch respondents, do talk slightly about quality on their websites but still in terms of content analysis the appearance of the word quality in relation to milk is low or almost null. The fact that processors talk more about quality than retailers could be due to the fact that the target audience for their webpages is broader since it includes retailers and consumers, while the target audience for retailers’ website is just the consumer. For instance, they talk about sustainability of milk production, environmental carefulness and nutritional healthiness of the milk, which are milk indicators of quality. Another way to find out about milk quality on processors’ websites is by reading the links to which the search bar directs the viewer when using the word “quality”. There a list appears with a lot of links which talk about the procedures and programs followed by the processor in order to deliver good products, and some of them talk about the healthiness of the milk which then again could be related to quality in terms of food safety. .

In general the analysis of the quality communication via the webpage has not been very successful and thus a conclusion is that webpage communication is not yet sufficiently exploded by dairy actors and quality itself is not framed as the content-analysis shows.

5.3 PERCEPTION OF QUALITY FROM THE CONSUMER POINT OF VIEW

This section is an analysis of consumer perceptions since such perceptions also constitute an element for the construction of the meaning of “quality”. The data is analyzed from a social constructionism perspective which makes easier to understand how the quality meaning is constructed.

INTRODUCTORY FINDINGS: RESPONDENT PURCHASING PATTERNS

Question	Survey Spain		
	Answer	Frequency	Valid percent
Which type of milk does the respondent buy?	UHT Whole	16	16,2
	UHT semi skim.	40	40,4
	UHT skimmed	33	33,3
	UHT sin lactose	3	3
	Pasteur. Whole	1	1
	Pasteur. Semi sk	2	2
	Other	4	4
Question	Survey Netherlands		
	Answer	Frequency	Valid percent
Which type of milk does the respondent buy?	Lactose free whole	1	1
	Organic whole	8	8,2
	Pasteur. Whole	8	8,2
	Lactose free semi	2	2
	Organic semi sk	10	10,2
	Semi sk calcium	8	8,2
	Pasteur. Semi sk	36	36,7
	Pasteur. Skim	10	10,2
	UHT (any)	7	7,1
	Flavoured milk	8	8,2

Table 4 Type of milk respondents buy

First of all a bit of contextual information that will help to understand the milk purchasing patterns in each country. According to the sample, Spanish respondents buy most frequently UHT semi skimmed milk with 40.4% of respondents. There is one main reason for them to buy it: the higher unit price of pasteurized milk compared to long-life/UHT milk. The Spanish consumer has traditionally preferred long-life/UHT milk, and it has been further emphasized during the last economic crisis with strong focus on unit price (Euromonitor 2014). For the Dutch sample the most bought milk type is Pasteur. Semi skimmed milk with 36,7% of respondents. Dutch people consume mostly pasteurized milk as it is always also been traditionally preferred.

Regarding the frequency with which respondents buy milk, Dutch respondents buy milk mostly several times a week (with 47% respondents) while Spanish respondents buy milk several times a month (with 79% of

respondents). This could be due to the fact that in Spain the most popular type of milk is UHT, which lasts longer (months) if not open, than the most popular type of milk in The Netherlands which is “pasteurized” (which lasts days even if not open). Another explanation could be due to milk consumption per capita (Kg) per year. According to the FAOSTAT from 2011, the Netherlands had a milk consumption (excluding butter and cheese) of 348.90 Kg/capita/yr. whereas Spain had a milk consumption of 179.90kg per capita a year (FAO, 2011).

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
How often does the respondent buy milk?	Every day	5	5	15	15
	Several times per week	15	15	47	47
	Several times per month	79	79	36	36
	Never	1	1	2	2

Table 5 Frequency in which respondents buy milk

Question	Survey Spain		
	Answer	Frequency	Valid percent
Which brand does the respondent buy?	Hacendado	11	11,1
	Dia	22	22,2
	Llet Nostra	28	28,3
	Pascual	10	10,1
	Puleva	6	6,1
	Flora	2	2
	Asturiana	14	14,1
	Celta	2	2
	Other	4	4
Question	Survey Netherlands		
	Answer	Frequency	Valid percent
Which brand does the respondent buy?	<i>Albert Heijn</i>	18	18,4
	Arla	12	12,2
	Campina	16	16,3
	De Zaanse	9	9,2
	Hoeve		
	Friesche Vlag	3	3,1
	Melkunie	58	8,2
	Dreefstigt	5	5,1
	Vecozuivel	5	5,1
	Landhof	1	1
	Bio-plus	1	1
	Other	10	10,2
	Melkan	3	3,1
	Superunie	7	7,1

Table 6 Milk brand respondents buy

Regarding the most bought brands in the Spanish sample were *Llet Nostra* and the private label *Dia*. The first one probably due to proximity (*Llet nostra* is the milk from the specific region where the questionnaires were performed, bias) and the second one because the private label accounted for 49.95% of the market last year due to consumer price sensitivity (Euromonitor 2014). The amount of brands available for each Spanish retailer was more or less the same and distributed as following: a big offer and variety of the own private label and about five other brands, although almost all brands were available in both retailers, however not all types (i.e.: in *Dia* there was no pasteurized milk available while yes in *Mercadona*). Despite that the amount of brands was not as high as in Dutch retailers. For the Dutch case, there was availability of either pasteurized or UHT milk in both Dutch retailers. However, brands available on shelf were not the same in each of the two Dutch retailers and just three brands *Campina*, *Arla* and the *Friesche Vlag* were present in both retailers. The most bought brands in the Dutch sample were *Campina* and *Albert Heijn*. This big role of the private label could be due to its strong demand, lately, among Dutch consumers who are now basing their buying

decisions on price (Euromonitor 2014), like the Spanish.

Tables 7-10: for the two Spanish retailers the milk brands offer is quite similar, being the retailer the largest distribution chain or the one with the best discounts. However when talking about brands offer in Dutch retailers *Campina*, *De Zaanse Hoeve* and the private label *Albert Heijn* would be found just in *Albert Heijn* (largest distribution chain) while *Melkan*, *Dreefstigt*, *Vecozuivel*, *bio-plus* or *Superunie* are characteristic of *Dirk* (retailer with best discounts). Thus not just the brand offer is larger than the Spanish one, but such offer also differs quite a lot between Dutch retailers in the same country. However both retailers offer pasteurized and UHT milk.

Spain	Hacend	Dia	Llet No	Pascual	Puleva	Flora	Asturia	Celta	Other
Mercadona	15	X _(na)	24	1	3	0	4	0	2
Dia	X _(na)	22	0	9	3	2	10	2	2

Table 7 Brand available in each retailer (Spain)

Retailer where the questionnaire took place * Type of milk the respondent bought last Crosstabulation

Count		Type of milk the respondent bought last							Total
		UHT whole milk	UHT semi-skimmed milk	UHT skimmed milk	UHT sin lactose: whole, semi or skimmed	Pasteurised whole milk	Pasteurised semi-skimmed milk	Other	
Retailer where the questionnaire took place	Mercadona	8	22	12	2	1	2	2	49
	Dia	8	18	21	1	0	0	2	50
Total		16	40	33	3	1	2	4	99

Table 8 Type of milk available in each retailer (Spain)

In this table is possible to see how pasteurized milk is not present in *Dia* supermarket, the “0” is not because no one bought it, but because it was not available on shelf.

NL	AH	Arla	Campina	ZH	FV	Melk uni	Dreefstig	Veco	Landhof	Bio-plus	Other	Melkan	superuni
AH	18	11	9	9	1	X(na	X(na	X(na	X(na	X(na	4	X(na	X(na
Dirk	X(na	1	7	X(na)	2	8	5	5	1	1	6	3	7

Table 9 Brand available in each retailer (The Netherlands)

Retailer where the questionnaire took place * Type of milk the respondent bought last Crosstabulation

Count		Type of milk the respondent bought last										Total
		lactose free whole milk	organic whole milk (biologische volle)	whole milk (volle)	lactose free semi-skimmed milk	organic semi-skimmed (biologische halvolle)	semi-skimmed Calcium Plus milk	semi-skimmed milk	skimmed milk (margere)	UHT milk of any type	flavoured milk	
Retailer where the questionnaire took place	AH	1	2	4	1	8	0	21	5	3	4	49
	Dirk	0	6	4	1	2	8	15	5	4	4	49
Total		1	8	8	2	10	8	36	10	7	8	98

Table 10 Type of milk available in each retailer (The Netherlands)

QUALITY PERCEPTIONS: RESPONDENT MOST VALUABLE CRITERIA WHEN BUYING MILK

Once the respondents' preference about what type of milk they like to buy and the differences between retailers milk offer in each land are explained another topic is what exactly do respondents value when choosing such preferences. For this reason respondents were asked to rank many criteria when buying milk to know which ones had the highest ranks and thus could be interpreted as quality perceptions.

Criterion	Survey Spain			Survey Netherlands		
	Rank	StDev	Mean	Rank	StDev	Mean
Type and/or brand of milk you want	4	1,203	1,89	4	1,230	1,95
Information of artificial additives	4	1,198	2,73	4	1,012	2,84
information about where the milk has been produced	4	1,270	2,88	4	1,158	3,29
presence of vitamins, minerals, fibres, energy value	4	1,231	3,12	4	1,167	2,35
the package is environmental friendly	4	1,019	4,31	3	,797	4,59

Composition, mineral and vitamin (equilibrated fat and protein content)	3	,926	2,02	3	1,070	1,99
Taste and appearance. (Vision-packaging, smell and taste)	3	,800	1,75	3	,833	1,87
Price	3	,957	2,89	4	,924	3,37
whether the cows are well treated (grazing practices and animal welfare)	4	,993	3,35	3	,944	2,79

Table 11 Criteria rank when buying milk

The first five criteria were asked to be ranked from 1 to 5, being 1 the most important. The other four criteria were also asked to be ranked from 1 to 4, being 1 the most important. Results say that either Spanish respondents or Dutch respondents consider type and/or brand of milk very important when buying milk (means of 1,2). Regarding the criterion about “information of artificial additives” Spanish respondents believe is the second most important (mean=1,198) while Dutch ones the third one (mean=2,84). For Dutch respondents the second most important criteria is the presence of vitamins, minerals, fibers and the energy value (mean 2,35). Both criteria related to nutritional and compositional factors and thus related to the healthiness of the milk, which is an indicator of quality in terms of food safety.

In respect to the criterion about “Information about where the milk has been produced” the answer differs depending on which nationality you ask. For Spanish respondents this is the third most important criteria (mean=1,270) while for Dutch respondents is fourth (mean=3,29). A possible explanation could be because Dutch respondents assume that the milk they drink comes from The Netherlands, since they are one of the biggest exporters of milk to the rest of the world (Dutch Dairy board 2011), whereas Spain has milk processors very regionally focused and still the offer does not match the demand and milk needs to come from other sources. With regard to the criteria “the package is environmental friendly” Dutch and Spanish respondents find it the least important criteria when buying milk (the highest means). Thus this indicator of quality in terms of sustainability is not important for respondents in this sample.

Regarding the other four criteria, for Spanish respondents “taste and appearance” (organoleptic features which is an indicator of quality in terms of safety) is the most important since it is placed as the one closest to 1 (mean=1,75). The criteria “price” is mostly on a third position out of four. The criteria “grazing practices” is, on average, the least important criteria with a mean of 3,35 thus being the one with the highest score and thus the least important. An explanation could be because no labels regarding information about grazing is available on Spanish packs. For Dutch respondents, however, this criteria is not the least important. One explanation could be related to the fact that in The Netherlands, the percentage of milking cows that graze is predicted at 62% (Reijs, et al. 2013) by 2025, while in Spain none of the packs under study showed an official label regarding pasture milk like in The Netherlands it was almost always visible the label “weidemelk”. Moreover, during the interviews with a dairy processor and a dairy researcher from Spain (appendixes G and I), they mentioned the fact that this animal welfare concept is a new upcoming notion in Spain which is not yet related to food processing. Finally, the criteria “composition, minerals and vitamins” was chosen the second (mean= 2,02).

Dutch respondents also chose “taste and appearance” as the most important criteria, since it was the one with the lowest mean (1,87). The criteria with the highest mean and thus the least important criteria was the price with a mean of 3,37.

In conclusion while for the Spanish respondents the least important criteria is whether the cows are grazing and the animal welfare, while for the Dutch respondents the least important criteria is the price. One commonality is that for both countries the criteria “taste and appearance” is the most important. Here it is important to see how for Spanish respondents a higher price does not signal a better quality while for Dutch respondents it does (table 12). If for Spanish respondents it does not signal higher quality then it is indeed important to buy cheap milk since there is not difference between cheap and expensive milk and thus it is important to consider the price. That is why a lot of people in Spain buy the distributions label since it is always the cheapest option (Euromonitor 2014). Alternatively in The Netherlands a higher price does signal a better quality in almost half of the cases and therefore the price could not be a barrier when buying milk. However research done by Euromonitor say that Dutch society is changing towards being more price sensitive.

The question below “Does a higher milk price signals a higher milk quality?” had two clear different answers among respondents. For Spanish respondents answered “no” in 85% of the cases and Dutch respondents answered “yes” in 50% of the cases. This could be due to the fact that UHT milk in Spain does not have many differences among brands, because all dairy companies process their milk quite similarly and the differences in taste (one the most important criteria for Spanish milk consumers) are not noticeable. This together with the fact that in Spain milk never is consumer “white” but with other products (coffee and chocolate) makes it even more difficult to realize the difference between brands. Moreover the Spanish milk market is cannibalized by the white label which offers the lowest prices (Mrs S Casalmiglia 2015, pers.comm., 29 May).

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
Does a higher milk price signals a higher milk quality for respondents?	Yes	10	10	49	50
	No	85	85	45	45,9
	No opinion	4	4	4	4,1

Table 12 Respondents’ answers to whether the higher the milk price the better its quality.

When asking for a short definition of milk quality, the answers also varied per county. The question was open and respondents had to fill in, in one sentence, what they thought it was quality for them. Due to the diverse answers it was necessary to create a list of possible categories in which the definition would fall. This was done thus inductively.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
What is for the respondent “milk quality” (definition)?	Taste and appearance	5	5,1	9	9,5
	Taste	15	15,3	10	10,5
	Pasteurised	1	1	10	10,5
	A healthy product for myself	4	4,1	9	9,5
	No opinion about it	8	8,2	6	6,3
	Pure, no additives	45	45,9	13	13,7
	Animal welfare	1	1	2	2,1
	Biological	2	2	11	11,6
	Produced locally	2	2	2	2,1
	Environmental friendly	1	1	1	1,1
	Animal welfare and pure	2	2	8	8,4
	Animal welfare and environ. friendly	0	0	8	8,4

	Fresh from the cow	3	3,1	2	2,1
	Dense	4	4,1	0	0
	From the specific brand they buy	3	3,1	0	0
	Animal welfare and locally produced	2	2	0	0

Table 13 Quality definitions

According to the table, 45,9% of the Spanish respondents describe milk quality as “pure, with the least amount of additives possible”. The second most common milk quality definition for 15,3% of Spanish respondents was “the milk has good taste”. The same table shows how for Dutch respondents there were 2 to 4 main definitions of milk quality related to: taste, pasteurized milk, biological milk and pure. Looking at the results from both tables there are a few essential remarks: first of all that both nationalities define quality by talking about taste and pureness and they associate this pureness to the low number of additives. And second commonality is that either for Dutch respondents or Spanish respondents the information of additives is the third most important criteria out of 5 when choosing milk. Respondents, in general, are concerned about preservatives, colorants, and artificial sweeteners in foods and they have difficulties understanding the subject of food additives (Shim, Moon, Kim & Park 2011: 1054-1055). A big difference between The Netherlands and Spain is the fact that for Dutch respondents milk quality is related to the heating process and thus for them it is important that milk is pasteurized while this is not the case for Spanish respondents who mostly buy UHT milk. The last difference between respondents is related to the production process thus being biological milk also a way to define milk quality in The Netherlands but not in Spain. Thus a commonality is that for both samples the definition of milk quality is related to food safety and in the Dutch case is also related to quality in terms of sustainability.

The next set of questions show Likert scales according to “importance” of six criteria when buying milk at the retailer point.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
How important is the criteria “Organoleptic feat.” while choosing which milk to buy	Slightly important	4	4,0	5	5,1
	Important	8	8,1	3	3,1
	Fairly important	32	32,32	10	10,2
	Very important	32	32,32	45	45,9
	No opinion	23	23,2	35	35,7

Table 14 Importance of organoleptic features when buying milk

According to the sample, 64,64% of Spanish respondents consider this criterion fairly important or very important. For 45,9% of Dutch respondents this criteria is very important. An explanation could be related to their definition of milk quality (table 13).

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
How important is the criteria “product safety” while choosing which milk to buy	Slightly important	0	0	0	0
	Important	6	6,1	1	1
	Fairly important	26	26,3	7	7,1
	Very important	58	58,6	76	77,6
	No opinion	9	9,1	14	14,3

Table 15 Importance of product safety when buying milk

According to the sample, 58,6% of Spanish respondents consider this criterion very important. For 77,6% of Dutch respondents this criteria is very important.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
How important is the criteria "milk healthiness" while choosing which milk to buy?	No at all important	0	0	2	2,0
	Slightly important	2	2,0	0	0
	Important	11	11,1	0	0
	Fairly important	22	22,2	12	12,2
	Very important	63	63,6	77	78,6
	No opinion	1	1,0	7	7,1

Table 16 Importance of milk healthiness when buying milk

According to the sample, 63,6% of Spanish respondents consider this criterion very important. For 78,6% of Dutch respondents this criteria is very important.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
How important is the criteria "brand" while choosing which milk to buy?	No at all important	23	23,2	16	16,3
	Slightly important	14	14,1	15	15,3
	Important	27	27,3	29	29,6
	Fairly important	11	11,1	14	14,3
	Very important	22	22,2	13	13,3
	No opinion	2	2,0	11	11,2

Table 17 Importance of milk brand when buying milk

According to the sample, 27,3% of Spanish respondents consider this criterion important. For 29,6% of Dutch respondents this criteria is important.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
How important is the criteria "pack design" while choosing which milk to buy?	No at all important	81	81,8	40	40,8
	Slightly important	9	9,1	17	17,3
	Important	4	4	19	19,4
	Fairly important	1	1	10	10,2
	Very important	0	0	3	3,1
	No opinion	4	4	9	9,2

Table 18 Importance of pack design when buying milk

According to the sample, 81,8% of Spanish respondents consider this criterion not at all important. For 40,8% of Dutch respondents this criteria is not at all important.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent

How important is the criteria "labels" while choosing which milk to buy?	No at all important	8	8,1	2	2
	Slightly important	2	2	5	5,1
	Important	2	2	17	17,3
	Fairly important	6	6,1	34	34,7
	Very important	7	7,1	15	15,3
	No opinion	74	74,7	25	25,5

Table 19 Importance of labels when buying milk

According to the sample, 74,7% of Spanish respondents have no opinion about this criterion. For 34,7% of Dutch respondents this criteria is fairly important.

Next step is to analyze the mean and standard deviation of the importance of six criteria. In order to understand the mean it is necessary to know that: 1 means "Not at all important", 2 "Slightly important", 3 "important", 4 "Fairly important", 5 "very important" and 6 "No opinion about it". Thus, the following tables show the results:

Criterion	Survey Spain			Survey Netherlands		
	Rank	StDev	Mean	Rank	StDev	Mean
Organoleptic feat	4	1,055	4,63	5	1,251	4,96
product safety	3	,718	4,71	3	,505	5,05
Healthiness	4	,787	4,51	5	,713	4,87
Brand	5	1,508	3,01	5	1,563	3,27
Packaging design	5	1,097	1,40	5	1,606	2,45
Labels	5	1,523	5,26	5	1,283	4,33

Table 20 Ranking of importance when buying milk

Either in the Spanish or the Dutch sample, the criteria with the mean closest to 5 (without going over the five) and thus to "very important" is "product safety" while choosing which milk to buy, being again the notion quality related to food safety. On the one hand, for the Spanish sample the mean of the criteria "labels" is above 5 which means that respondents mainly had no opinion about it (towards number 6) and it also has the highest standard deviation, which means that the mean for this criteria was not concentrated around the overall mean. The mean with the lowest score is the criteria about "the packaging design", which means it had between "not important at all" and "Slightly important". The criteria about "healthiness", "product safety" and "organoleptic features" are among the most important ones, going from "very important" to "fairly important". On the other hand for the Dutch sample the mean of the criteria "labels" is a bit above 4 which means that respondents found it fairly important. The mean with the lowest score is the criteria about "the packaging design". The criteria about "healthiness", "product safety" and "organoleptic features" are among the most important ones, going from "very important" to "fairly important".

In conclusion, respondents of both countries find that the most important criteria while choosing which milk to buy is "product safety". This is reasonable due to the high levels of concern that shoppers unveil about food safety and health issues (Food business news 2014). A big difference comes with the opinion consumers have about the criteria "labels". Whilst Spanish respondents have no opinion about the criteria "labels", the Dutch ones believe it is a "fairly important" criteria. One explanation could be the low number of labels on Spanish packs. Another explanation could be due to the fact that although the existence of logos, nutritional tables and other information on food packaging, consumer's knowledge is not able to understand it even if they know it is important information (Hoogland, de Boer & Boersema 2007:47-50).

When asking “does the respondent seek specifically information about the milk before buying it?”, which is meant to know whether consumers do previous research and try to make a deep choice before they face the product once they are already in the supermarket.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
Does the respondent seek specifically information about the milk before buying it?	Yes	19	19,2	25	25,5
	No	80	80,8	72	73,5

Table 21 whether the respondent seeks specifically for information

According to the sample, neither Spanish respondents nor Dutch respondents seek information specifically about the milk before they buy it. Thus the following questions intend to know what other factors/places respondents find/see information (without looking for it intentionally) about the milk they want to buy.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
What channels does the respondent use to know what kind of milk to buy?	Media advertisements	15	15,2	13	13,5
	Exhaustive research on the internet	1	1	3	3,1
	Specialist opinion (doc)	3	3	4	4,2
	Webpage of the brand of milk you buy	2	2	5	5,2
	Retailer webpage	0	0	2	2,1
	Packaging	74	74,7	61	63,5
	Other	4	4	7	7,3

Table 22 Channels used by respondents to look up information before they buy milk

According to the Spanish sample, 74,7% of Spanish respondents use the packaging to know what kind of milk to buy. The second most used channel is media. The same happens with Dutch respondents since 63,5% uses the packaging to know more information about the milk and 13,5% uses media.

Thus, considering the different channels respondents of this sample use to find information about the milk they want to buy, it is now important to determinate the importance of some channel advantages which will help to know why they choose such specific channels.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
How important is the criteria "Easy to understand" for the respondent when selecting channels?	No at all important	2	2	5	5,1
	Slightly important	0	0	3	3,1
	Important	6	6,1	2	2
	Fairly important	30	30,3	16	16,3
	Very important	37	37,4	51	52
	No opinion	24	24,2	21	21,4

According to the sample, the criteria “easy to understand” is very important for 37,4% Spanish respondents, and also very important for 52% of Dutch respondents.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
How important is the criteria “expert resource” for the respondent when selecting channels?	No at all important	14	14,1	17	17,3
	Slightly important	16	16,2	21	21,4
	Important	28	28,3	14	14,3
	Fairly important	13	13,1	14	14,3
	Very important	15	15,2	6	6,1
	No opinion	13	13,1	26	26,5

Table 23 Importance of expert resource when looking up information before buying milk

According to the sample, the criteria “expert resource” is important for 28,3% of Spanish respondents. For the Dutch sample, instead, 26,5% of Dutch respondents have no opinion about the criteria “expert resource.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
How important is the criteria “easy to find” for the respondent when selecting channels?	No at all important	0	0	6	6,1
	Slightly important	2	2	2	2
	Important	8	8,1	7	7,1
	Fairly important	37	37,4	26	26,5
	Very important	43	43,4	34	34,7
	No opinion	9	9,1	23	23,5

Table 24 Importance of easy to find when looking up information before buying milk

According to the sample, the criteria “easy to find” is very important for 43,4% of Spanish respondents. For Dutch one is also very important for 34,75% of Dutch respondents.

Question	Answer	Survey Spain		Survey Netherlands	
		Frequency	Valid percent	Frequency	Valid percent
How important is the criteria “virtual” for the respondent when selecting channels?	No at all important	40	40,4	4	8,2
	Slightly important	2	2	11	22,4
	Important	0	0	6	12,2
	Fairly important	0	0	4	8,2
	Very important	3	3	4	8,2
	No opinion	53	53,5	20	40,8

Table 25 Importance of virtual when looking up information before buying milk

According to the sample, for the criteria “virtual” 53,5% of Spanish respondents have no opinion about it and another 40,4% think is not at all important. In the Dutch sample 40,8% of the respondents have no opinion about it. However numbers show that many more Dutch respondents than Spanish ones find this criteria slightly important and important. This difference between Spanish respondents and Dutch respondents could be because of more people in The Netherlands looking for information on virtual channels than in Spain (see table 58 and 59).

Criterion	Survey Spain			Survey Netherlands		
	Rank	StDev	Mean	Rank	StDev	Mean
Easy to understand	5	1,026	4,74	5	1,218	4,71
expert resource	5	1,589	3,38	5	1,863	3,50
Easy to find	4	,850	4,49	5	1,318	4,52
Virtual	6	6,239	4,42	5	1,772	3,82

Table 2e Rank of importance of each criteria when looking up information before buying milk

For the Spanish sample the criteria “easy to find” and “easy to understand” are very important and with a very low standard deviation (concentrated to the mean). Controversially the criteria virtual has a mean of 4,42 but a standard deviation very high which means it is not close to the mean. The criteria “expert resource” it is also important in the Spanish case. For the Dutch sample the criteria “virtual” has a standard deviation much more close to the mean and thus meaning that for Dutch respondents this criteria is, indeed, important. The criteria “easy to find” and “easy to understand” as well as for the Spanish respondents are very important.

6. CONCLUSIONS & DISCUSSION

This thesis proposes to unfold the “milk quality concept”. For this reason the main [RQs] are: “how is milk quality built? And how it is communicated?”. To answer these questions, this thesis captured the understanding of how milk quality is perceived and communicated by six dairy actors from the dairy industry. Furthermore, to answer the main questions the following sub-questions are also required:

[SRQ1] How is quality perceived? By who?

[SRQ2] Is quality communicated? How? By who to whom?

[SRQ3] Is there one definition of quality or more than one?

[SRQ4] Is the definition valid for the entire dairy industry?

[SRQ5] Do Spain and The Netherlands have very different opinions about milk quality?

To answer this research question the following hypotheses have been tested:

H₁: milk quality can be defined through stakeholder perceptions because such perceptions have specific indicators to measure them. This hypothesis is true since table 3 shows an overview of such perceptions, their indicators and the stakeholders related to them

H₂: milk quality can be defined through stakeholder perceptions and this lets an analysis of internet and pack communication to be possible. This hypothesis is partly true since the categorization analysis allowed this study to find different quality categories to which pack communication and labelling could be analyzed upon. However no relation exists between milk quality categorization and internet-based communication analysis.

[SRQ1] Quality is perceived in four different ways (categories): in terms of technological components (A), of hygienic components (B), of food safety (C) and of sustainability (D). Such categories imply a number of indicators to measure such quality. For category A the indicators are: levels of fat, protein, and lactose. Such indicators are used by farmers and processors. For category B the indicators are somatic cell count, antibiotic residues and bacteria. Such indicators are used by farmers, processors and veterinarians. For these indicators, as well as for the ones in category A there are regulatory standards to measure whether the milk is apt or not for further processing. For category C the indicators are: organoleptic characteristics (good or bad taste and smell), milk collection (ensuring optimum conditions of pick-up truck to deliver the milk in the same conditions as it was in the farm), reception data collection and evaluation (supplier and route, quantity in liters, temperature, pH, protein and fat), milk healthiness (this indicator is related to the “nutritional value” of milk understood as number of vitamins, calorie information, fatty acids, carbohydrates and minerals) and private food standards (a set of food processing standards indicated by the EU). Such indicators are used by almost all stakeholders but veterinarians. To see specific quality indicator-stakeholder relation see table 3 (pg.21). The last category is category D (quality in terms of sustainability). This category is the fourth and newest and its indicators are: animal welfare (whether cattle is housed in free stall barns or is housed in tie-stall barns and thus they suffer from restricted voluntary movement possibilities and restricted social behavior) [Popescu, et al 2013], grazing practices (cows walk outside in the meadow at least 120 days per year for at least 6 hours a day from spring to autumn), packaging (Whether the packaging is done with environmental friendly materials and following environmental friendly practices) and herd surveys (an evaluation of milking procedures, management, housing, equipment, and mastitis control according to certain standards). These indicators are used by farmers, processors, consumers and veterinaries. For future research it could be useful to include more stakeholders than the six used for this analysis, in order to get an even broader picture of what the concept of milk quality means.

[SRQ2] quality is communicated mainly from processors to consumers through the packaging and its labels. Internet, although literature said that internet is one of the most used tools nowadays to access and deliver information, it does not frame milk quality from a retailers and processors point of view. Maybe the qualitative content analysis was not the most adequate since it did not frame quality according to the four quality categories.

However, consumers also don't use internet often to find information about which milk they want to buy, once again confirming the poor role of the internet on framing quality. The packaging, instead, is the main channel used by consumers when choosing which milk to buy, since its information is clear and concise. Furthermore the packaging contains quality information related to categories A, C and D. However one issue related to communicating quality via the packaging is that consumers need to be capable of understanding such information, which is not always the case. Therefore a recommendation would be towards improving consumer understanding and awareness of labels used in pack.

[SRQ3 & SRQ4] This research does not answer these questions directly. However it gives the idea that quality could be defined as a congregation of the four quality categories from section 4.1. Thus a definition could exist, but it should englobe many indicators coming from the different stakeholder's perceptions within the dairy chain. However since not all the indicators are equally used in the both countries under analysis, this would mean that such milk quality definition is dependent on the context [SRQ4]. In other words, the definition of quality could be understood as a social construction occurring due to interactions of dairy stakeholders within society. Thus whether such definition is valid for the entire dairy industry is also not answered by this study. For example the consumer analysis shows how food safety is the most important, above all other quality perceptions, when selecting which milk to buy. Another example is how quality indicators on pack are prioritized and thus milk healthiness or grazing cows have more visibility on pack the environmental friendly labels. However this is not common in both countries which brings again the topic about milk quality being dependent on social interaction. In conclusion, the definition of the quality concept is not one static, objective definition since it has been changing throughout the years due to the different quality perceptions, especially the ones coming from consumers. Accordingly, this study proposes a definition in line with the quality categories developed. However, the quality categorization table is open to new upcoming actors and indicators.

[SRQ5] the differences between Spain and The Netherlands, especially regarding consumer quality perceptions and packaging communication, allowed to understand other differences at all levels of analysis as well as emphasize the fact that this is an explorative 2-cases study and as such the findings cannot be generalized and they are context-related.

It was explained in the literature review that milk quality had already been described in terms of hygienic and technological aspects. However new trends brought other crucial aspects related to milk quality such as food safety or the need for better food processing practices in order to diminish the environmental impact and improve animal welfare. However no study put such perceptions together into a certain category and assembles potential indicators that could help to define and classify each category. This study does it and thus specifies which specific indicators are used by which stakeholders within each quality category. This could serve as a research basis within specific context while exploring milk quality for better processor competitiveness. Another aspect of the knowledge gap was that although packaging is a very important tool for marketing and the main strategic element for differentiation and identity, no research had framed milk quality in pack as a method of differentiation. By using the four milk quality categories, quality has been framed on pack and thus now is possible to say that labelling is a great method to frame such quality.

As it was stated in the introduction, the European dairy industry landscape has changed and has brought the industry under pressure due to the prognosis on the reduction of dairy products' price. Now, by knowing what the milk quality concept means, and knowing that consumers are conscious of the importance of the quality of the aliments they consume, differentiating milk products better than the competency will be easier for processors. And it will be such differentiation that will help to charge higher prices to which consumers will be willing to pay for.

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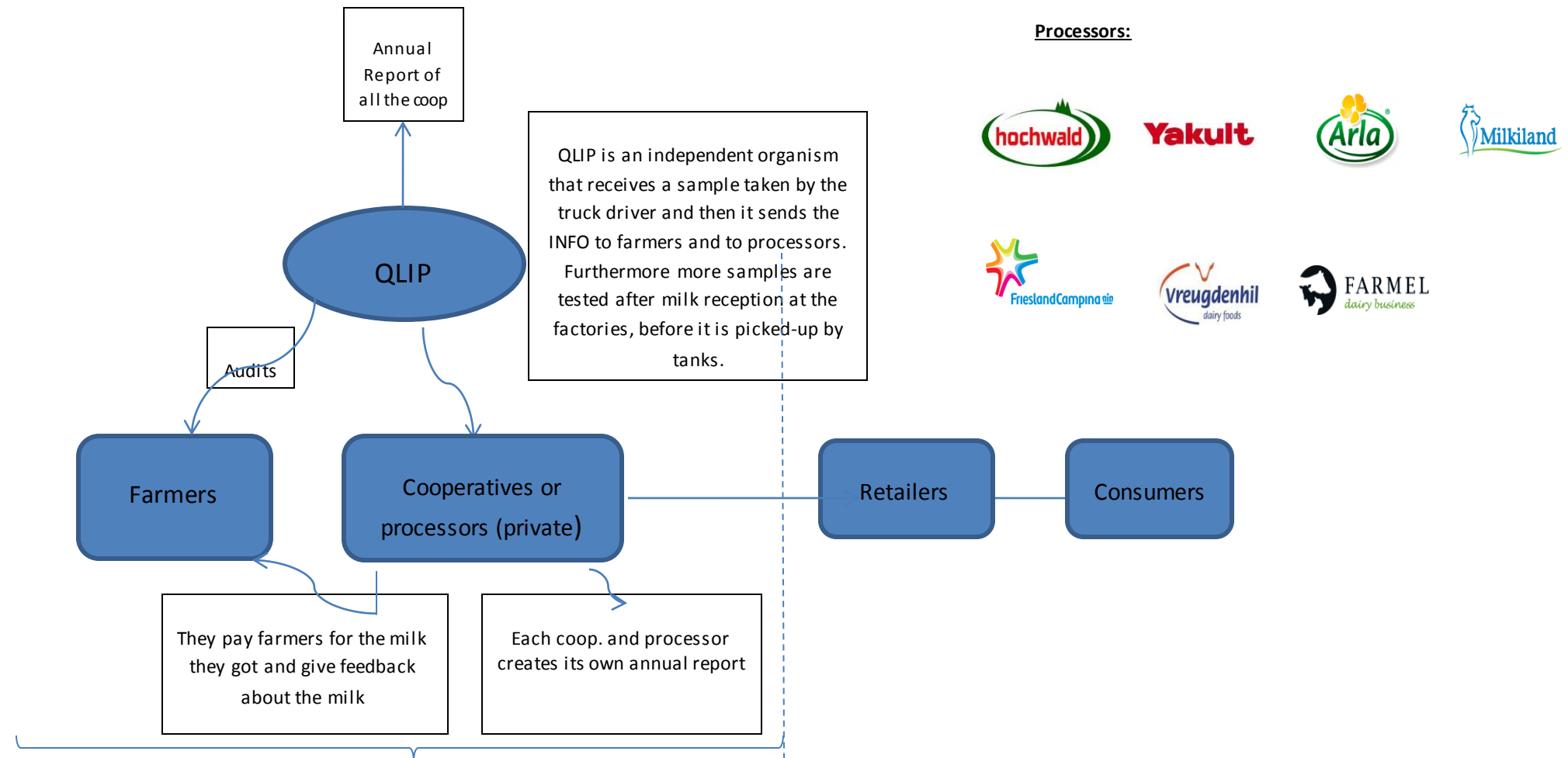
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APPENDIX A: THE CURRENT DUTCH AND SPANISH DAIRY CHAINS

THE DUTCH DAIRY CHAIN

Traceability system: it traces the origin and quality of the milk through the identification and registration of all actors and establishments involved in the production, collection, transport, storage and processing of cow's milk. (<http://www.icar.org/Documents/Santiago%202011/Papers/Perez%20Quintans.pdf>)

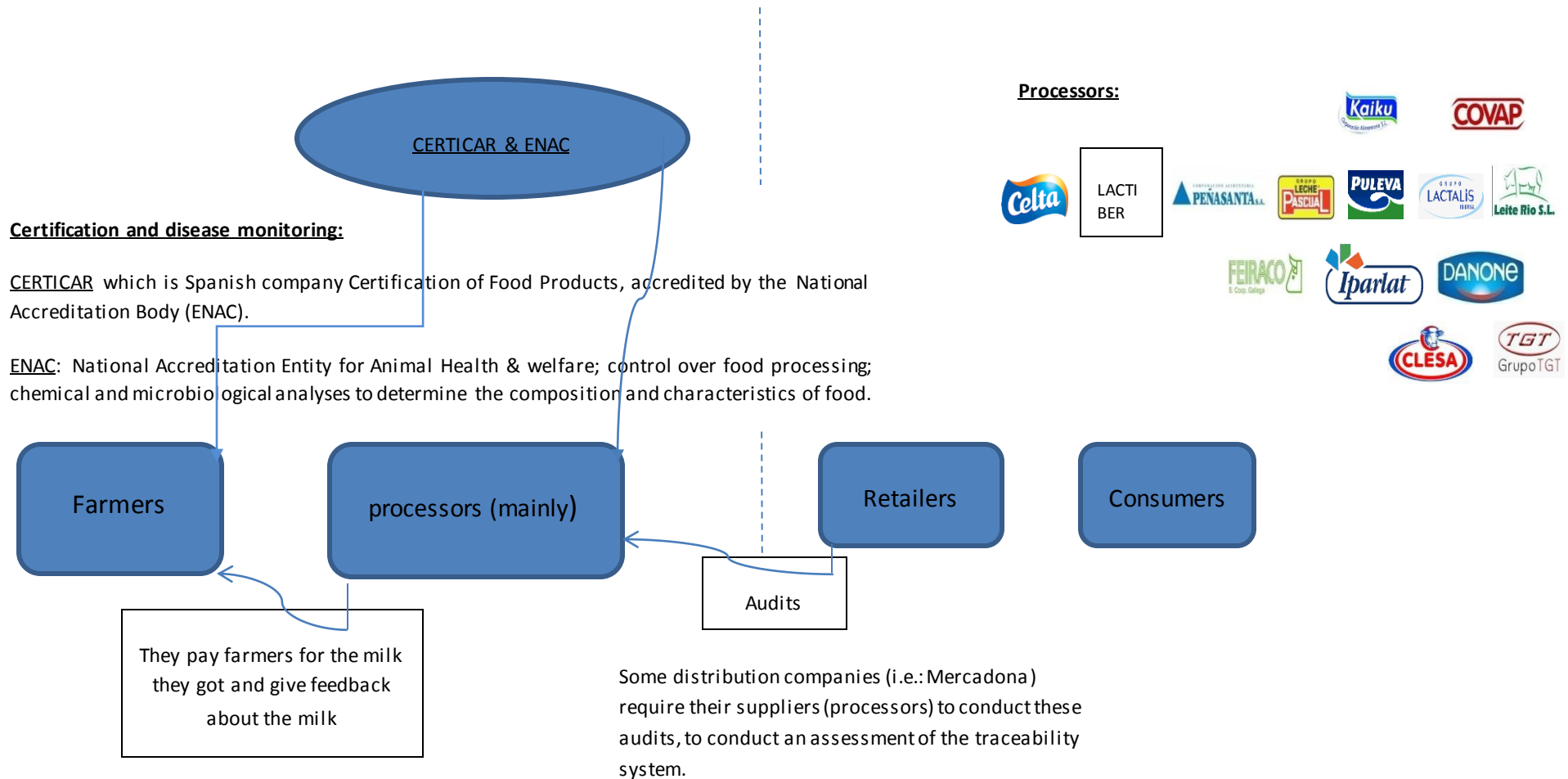


COKZ (they check the whole process, mostly the processors and they look at their products)/**NVWA** (is a food safety authority and they look at all things done specially at the farm level but also at other stages –herbicide, pesticides, mistreatment of animals...)

(cold chain)

THE SPANISH DAIRY CHAIN

The Spanish dairy sector has a business structure essentially oriented towards the production of liquid milk packaged, since about 60% of all milk collection in our country is destined for that market¹. From upstream to downstream the chain has these actors involved in the production, transformation, distribution and consumption of milk²



¹ http://www.oviespana.com/extras/servicio_de_informacion/monograficos/monografia_251110.pdf

² ESTUDIO DE LA CADENA DE VALOR Y FORMACIÓN DE PRECIOS DE LA LECHE LÍQUIDA ENVASADA. http://www.magrama.gob.es/es/alimentacion/servicios/observatorio-de-precios-de-los-alimentos/estudio_leche_tcm7-14628.pdf

APPENDIX B: MEANING OF LABELS

This appendix is meant to deeply analyze the characteristics of all the diverse milk cartons found in each of the four supermarkets: *Albert Heijn*, *Dirk*, *Mercadona* and *Dia*. The goal of this analysis is to see commonalities and divergences among milk packaging and across supermarkets and countries. Characteristics like fat, energy and proteins, official labels, logos, claims, colors, pictures, material of the pack, shape of the pack, type of milk or heating treatment of the milk are features analyzed in this section for each packaging. In total the analysis contains 64 milk packs, from the four retailers under study. For each label that could be found on these packs there is specific information below of whether it is used just in the Netherlands, Spain or both. The main idea behind this analysis is to discover “how is quality constructed in the package”. For this reason a picture of each of the packages (front, sides, back and bottom) has been taken from each of the milk-samples. Afterwards a full description of what is possible to see (logos, visual elements, texts, size, colour, attitude messages, price...) is been classified. The goal of such exercise is to see the differences and commonalities among the milk cartons. A table for each of the samples is been done, summarizing the information found and its possible meaning.

To be a bit more into context, the new EU rules on food labelling from December 2014 make it obligatory for suppliers of packaged foods, like drinking milk, to make available the details about the nutrition information, ingredients, country of origin, allergens and date of minimum durability³. Therefore the analysis of the labels in the packaging of the diverse milk cartons has to be exhaustive in order to understand what information is given and, specially, whether there is a link between such information and the communication of milk quality.

The milk types analyzed during the study are: whole milk, semi-skimmed milk, skimmed milk, and their variants (organic, pasteurized, sterilized and UHT). In the following section it is possible to see which brands offer such types of milk in each of the four retailers under study.

The labels analyzed will help in the analysis of quality dimensions such as animal welfare, food security or environmental friendly packaging. For this reason the logos have been grouped in four categories depending on whether they are related to animal welfare, or to environmental friendliness, or to food security and/or another company that supports the quality of the product. Some of the logos may be inclusive, however they have been categorized considering its major commitment.

Labels related to animal welfare



Weidemelk: This logo tells that the milk comes from farms where the cows walk outside in the meadow at least 120 days per year for at least 6 hours a day from spring to autumn¹. Thus it guarantees that products are made from pasture milk. This label is just used on the Dutch packs.



Beter Leven: the label Beter Leven goes together with the level of *Dieren bescherming*. In particular Beter Leven is a three stars system that allows the consumer to know how was the life of the animals that produced the products that the consumer is about to buy. The more stars, the better was the life of the animal. This label is part of the *Dieren bescherming* organisation¹. This label is just

³ <http://cyprus-mail.com/2015/02/20/understanding-what-it-says-on-the-label/>



Dieren bescherming: this organisation tries to protect the animals by enhancing their welfare. The focus is on influencing society practices which appear to be the most harmful aspect for the animal's life. *Dieren bescherming* started the practice of the *Beter leven* program as a tool to enhance animal welfare, and together they have a logo¹.

Logos and labels related to food security



Gezondere keuze: products with this logo are made of less saturated fat, sugar and salt. This logo indicates that the product at hand is the best choice within a range of products. It has two forms: the logo with the green circle which means you are choosing the healthier products from the Pyramid (examples: dairy, potatoes, meat, vegetables); and the logo with the blue circle which means you are choosing better products among the whole variety of the same product (examples: soups, sauces, soft drinks, snacks)¹. This label is just used on the Dutch packs



Glutenvrij: this logo informs that the manufacturer or marketers of food adjust the production process in order to make the product gluten free. The Dutch Celiac Association (*Nederlandse Coeliakie Vereniging*) is a licensee of the logo¹. This label appears in the Dutch and Spanish milk cartons.



Organic farming: this logo tells the consumer that the product is organic. The use of the logo and correct labelling is obligatory for all organic pre-packaged food produced within the European Union. The main objective of the European logo is to make organic products easier to be identified by the consumers¹. In the specific case of milk:



Heart Association logo: The Heart Foundation fight against cardiovascular disease by recommending cholesterol-lowering products, products with plant sterols. The partnership with Unilever focuses on product *Becel pro-activ*. This logo promotes healthy lifestyle (especially a healthy diet), especially in the field of cholesterol. This label is just used on the Dutch packs.



FEC: this label indicates that the milk meets the criteria of Fundación Española del Corazón (Heart's Spanish Foundation). It is a Spanish label.



FHOEMO: Hispanic Foundation for Osteoporosis and Metabolic Bone Diseases (FHOEMO), in collaboration with the Leche Pascual Group and Tetra Pak, developed a campaign on the importance of practicing healthy habits to prevent osteoporosis, like taking milk with calcium and vitamin D. It is a Spanish label.



Vegan: the vegan certification signifies that products are vegan, defined as containing no animal ingredients or by-products, using no animal ingredients or by-products in the manufacturing process, and not tested on animals by any company or independent contractor¹. This label is just used on the Dutch packs.



PLS: This label is a guarantee of the Spanish origin of the milk and dairy products and has been engaged in conditions that guarantee the economic sustainability of the Spanish dairy sector. It is a Spanish label.

Logos and labels related to environmental friendly aspects



FSC: this label stands for Forest Stewardship Council. The FSC label provides a guarantee to consumers that the products they buy come from responsible sources which support forest conservation, offer social benefits, and enable the market to provide an incentive for better forest management¹. This label appears in the Dutch and



Este envase al contenedor "X": this is a label that tells the consumer in which recycling container the pack has to go. It is a label that says "the pack into the yellow, blue or green (depending on the packaging material) container". This is a Spanish label.



Punto verde: it ensures that the company is complying with the packaging law. This is a Spanish label.



CSI Cert: this label tells that the carton of milk is made out of recycled plastic. The main goal is packaging products which are as environmentally friendly as possible¹. This label also explains that the supplier must treat both people and animals with respect and dignity, and the environment with respect and consideration¹. This label is just used on the Dutch packs.



Elopak: Elopak is an international supplier of paper based packaging solutions for liquid food. Pure-Pak® cartons are the type of cartons they deliver. The goal of this label is to deliver quality packaging while



Tetra Pak: this is a label corresponding to a manufacturer of the packages in which the milk will be placed. In the specific case of "tetra pak- protects what's good" the label guarantees the safety of the food, minimising the impact on the environment; helping customers worldwide to build their businesses; ensuring a robust, reliable and far-reaching food supply; and improving the health and lifestyles of people across the globe¹. This label appears in the Dutch and Spanish milk cartons. antibiotics are kept out of the milk supply; all cows have a natural protein hormone (bST) that helps them produce milk; dairy farmers maintain proper animal care (with comfortable living conditions, nutritious diets and good medical care) and environmental practices (using only organic fertilizers and pesticides, and not using rbST) on their farms.



EKO: The EKO label indicates that a product has been verified organically and moreover comes from a company that pays extra attention to sustainability¹. This label is just used on the Dutch packs.



Klimaatneutraal: this is a label created for the organisation "GroeneKoe". This organisation makes sure of two things: that all packages are carbon neutral and that they contain more unsaturated fats and omega 3 fatty acids. The company *GroeneKoe* compensates since early 2008 all CO₂ released in making and transporting all packages¹. The parent company of *Groene Koe* is *Friesland Campina*.



Italpack cartons: cartons are light in weight, recyclable, reusable, and highly efficient as an energy source. It is a company that focuses on quality and responsible packaging. This label is just used on the Dutch packs.



SIG: SIG Combibloc is a carton packaging supplier. This packs ensure that the taste, nutrients and vitamins of products are preserved. Likewise, carton packs from SIG Combibloc preserve the environment. This label is used just in Spain.



Recycling symbol: Unlike the other recycling symbols, this symbol is not primarily used to identify materials for separation. Instead, it is commonly known and widely used in the context of public education and outreach for anti-littering efforts (with or without a recycling component). The use of this symbol is not limited to one country and therefore is a good candidate for inclusion in an international

Logos related to other companies which support the product



Unilever: this company does extensive research together with many scientists into the cholesterol-lowering properties of plant sterols. Plant sterols decrease the blood cholesterol and are present in specific milk types like the skimmed milk of *Becel pro-activ*. This label is just used on the Dutch packs.



Friesland Campina: when this logo appears it means that the product is a brand of the product range of the cooperative *Friesland Campina*. An example of it is the products from the brand *Campina*. This label is just used on the Dutch packs.

APPENDIX C: MILK PACKAGING ANALYSIS

In order to establish the standard composition of milk for the technological quality dimension (fat, proteins and energy) the figures from the Dairy council (The Dairy Council, *Dairy Facts and Figures* 2015)

Dia



Dia is a supermarket chain of super discounts. The types of milk analysed are: *entera* (whole), *semidesnatada* (semi-skimmed) and *desnatada* (skimmed), calcium plus and *con omega 3*. The samples for this analysis are from a visit to Mercadona the 16 th of May of 2015 at Puigneulós, 1, 17006 Girona, Spain. The milk brands available at Mercadona are the following:

- Dia (own label of Mercadona)
- Puleva
- Celta
- Flora
- Central lechera asturiana
- Pascual



In order to know whether the Price of the litre of milk is expensive or not, the average Price of all the milk cartons in this specific supermarket was calculated. Prices above the average price have been considered “expensive milk” and prices below the average price have been considered “not expensive”. The average Price of milk in DIA is 0,77€/L.

Milk brand: Dia (own label)

Milk type: whole UHT milk



Photo 1 Photo 2 Photo 3 Photo 4

Photo 6

Milk type: semi-skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Photo 6

Milk type: skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Photo 6

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed
technological	fat	3,6g per 100ml (whole), 1,6g per 100ml (semi-skimmed) and 0,25g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 4,0g, of semi-skimmed is 1,8g and skimmed 0,3g fat per 100ml ⁴ , this specific milk brand has a lower number and thus it has less fat.
	Proteins	3g per 100ml (whole), 3,1g per 100ml (semi-skimmed) and 3,1 g per 100ml (skimmed milk)	This means that if the standard composition of whole milk is of 3,4g of semi-skimmed 3,6g and skimmed 3,6g proteins per 100ml ⁵ , this specific milk brand has a lower number and thus it is less rich in proteins.
	Energy	262Kj (63 Kcal) per 100ml (whole), 195Kj (46Kcal) per 100ml (semi-skimmed) and 142Kj (33kcal) per 100ml (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ⁶ , 47KCal (semi-skimmed) and 35KCal (skimmed) this specific milk brand has a lower number and thus it contains less Kcal.
Hygienic	Cell. Count	Nonexistence of such information on any of the three packs	No comments
	Antibiotic free		
	PH		

⁴ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁵ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁶ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Sustainable	Good for the animal welfare	No official labels regarding this topic. The pack has a drawing of a milk pot in the middle of the grass with flowers and butterflies.	No comments
	Practice of grazing No official label or a drawing regarding this topic	No official label or a drawing regarding this topic	No comments
	Environmental-friendly Packaging	Tetra pak Punto verde	Tetra pak is a pack supplier that helps to minimize the environmental impact and <i>punto verde</i> logo ensures that the company is complying with the packaging law.
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price/L	Relation price/litre	0,59€/L	Not expensive
Written paragraphs on the package	Message front side (photo 1)	Logo dia (white label) Whole milk or semi or skimmed milk (for each case specifically) Drawing of a milk pot in the middle of the grass with flowers and butterflies.	The front of the package (FOP) is very simple, and it has a drawing with green grass and nature colors to remind the consumer of the naturalness of the milk
	Message right side (photo 2)	Tetrapak logo Dia logo Nutritional table Type of UHT milk (whole, semi or skimmed) Keep in a fresh and dry place. Once the pack is open, keep it in the fridge and consume before 3 days. Telephone number for client's service.	The side of the pack is very simple, entirely red, as it is for this brand the color of the whole milk
	Message back side (photo 3)	Type of UHT milk (whole, semi or skimmed) Dia Drawing of a milk pot in the middle of the grass field with flowers and butterflies. Nutritional information per 100ml	Same as in the front of the package

	Message left side(photo 4)	Type of UHT milk (whole, semi or skimmed) Consume preferably before (see date) Processors address 1L Punto verde logo	Basic packaging information that needs to appear on the package by regulation
	Message on the top (photo 5)	Expiring date 1L Type of UHT milk (whole, semi or skimmed)	This information is basic for the consumer to know
	Message on the bottom (photo 6)	Tetra pak	This logo shows environmental friendliness

SUMMARY: this milk carton is very simple because it is entirely red (as it is stipulated for this brand as the color for the UHT whole milk) or blue (color for semi-skimmed milk) or green (color for skimmed milk). It is the white label of the supermarket and thus the cheapest milk of this type. It has no labels or information regarding food safety, animal welfare or grazing practices, but it does have some logos and labels regarding the environmental friendliness of the package (*tetra pak* is the manufacturer and *punto verde* states that the packaging is done according to the Spanish packaging law). It is a rectangular carton shape packaging with a plastic lid that allows the consumer to open and close it as many times wished. According to the nutritional standards, this milk is not rich in proteins.

Milk brand: Dia (own label)

Milk type: whole calcium UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: semi-skimmed calcium UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: skimmed calcium UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
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Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed
Technological components	fat	3,6g per 100ml (whole), 1,6g per 100ml (semi) and 0,2g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ⁷ , 1,8g (semi), and 0,3g fat (skimmed), this specific milk variant (calcium) has a lower number and thus it has less fat.
	Proteins	3,9g per 100ml (whole), 3,9g per 100ml (semi) and 3,9g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 3,4g of semi-skimmed 3,6g and skimmed 3,6g proteins per 100ml ⁸ , this specific milk brand has a higher number and thus it is rich in proteins.
	Energy	293Kj (70Kcal) per 100ml (whole), 219Kj (52Kcal) per 100ml (semi) and 171Kj (40Kcal) per 100ml (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ⁹ , 47KCal (semi-skimmed) and 35KCal (skimmed) this specific milk brand has a higher number and thus it contains more Kcal.
Hygienic components	Cell. Count	Nonexistence of such information on the pack	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No official label or a drawing regarding this topic	No comments

⁷ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁸ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Practice of grazing	No official label or a drawing regarding this topic	No comments
	Environmental-friendly Packaging	SIG packaging logo	SIG is a carton packaging supplier. This packs preserve the environment.
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price/L	Relation price/litre	0,87€/L	Expensive
Written paragraphs on the package	Message front side (photo 1)	<p>Type of UHT milk (whole, semi or skimmed)</p> <p>Nutritional information per 100ml</p> <p>Calcium and protein source and vitamins A, D and E</p> <p>Drawing of a family inside a blue drop of milk (whole)</p> <p>Drawing of a happy family inside a green drop of milk (semi)</p> <p>Drawing of a couple inside a pink drop of milk (skimmed)</p>	The drawing of a family inside a blue drop intends to bring the consumer closer to the idea that milk is healthy for everyone in the family and thus very important to stay good. For the drawing in the semi pack, a parent playing with his kid inside a green drop intends to bring the consumer closer to the idea that milk is healthy for everyone in the family and thus very important to stay good. For the drawing in the skimmed pack, The drawing of a (old) couple inside a pink drop intends to bring the consumer closer to the idea that milk is healthy for everyone, also elderly people, and thus very important to stay good.
	Message right side (photo 2)	<p>Type of UHT milk (whole, semi or skimmed)</p> <p>Consumer preferably before (see date)</p> <p>Contact information of the processor</p> <p>Source of calcium, phosphor and vitamins</p>	This is essential information as well as important to remark the fact that his milk is an extra source of calcium
	Message back side (photo 3)	<p>Type of UHT milk (whole, semi or skimmed)</p> <p>Nutritional information per 100ml</p> <p>Calcium and protein source and vitamins A, D and E</p>	Basic information that needs to appear on the pack.

	Message left side (photo 4)	Nutritional table SIG	Idem
	Message on the top (5)	Type of UHT milk (whole, semi or skimmed) Expiring date	Expiring date is important to know for the consumer
	Message on the bottom (photo 6)	SIG logo	This logo ensures that the pack supplier preserves the nature

SUMMARY: since this is also a milk carton from the white label of the supermarket, it has a very simple design. However this milk is much more expensive since it is a source of extra calcium, vitamins and phosphor. This is a very important differentiation since it clearly targets those consumers who choose milk for its healthiness and because it is an indispensable product for their diets. The design is very simple and it is easy to recognize that is whole milk because for this type of milk, the supplier decided to distinguish whole milk with blue colors, semi-skimmed with green and skimmed with pink (which are also the colors used for other milk types). It has no labels or information regarding food safety, animal welfare or grazing practices, but it does have some logos and labels regarding the environmental friendliness of the package (SIG which is a pack supplier that helps to preserve the nature with its packs). Although there are no official labels regarding food safety, this specific type of milk does claim specific information about the higher nutritive value of the milk it contains: vitamins and calcium. It is a rectangular carton shape packaging with a plastic lid that allows the consumer to open and close it as many times as wished. According to the nutritional standards, this milk is very rich in proteins but it also contains a bit extra calories.

Milk brand: Dia (own label)

Milk type: sterilized whole milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: sterilized semi-skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4

Milk type: sterilized semi-skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4

Quality dimensions	Sub categories into the dimension	Messages	Means
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Heating treat.	<u>Sterilized milk</u>	It goes through a more severe form of heat treatment, which destroys nearly all the bacteria in it.	Change of taste and colour and also slightly less nutritional value of the milk, particularly the B group vitamins and vitamin C. Unopened bottles can be kept for approximately 6 months without the need for refrigeration.
Technological	fat	3,6g per 100ml (whole), 1,6g per 100ml (semi) and 0,3g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ¹⁰ (whole), 1,8g (semi), and 0,3g fat (skimmed), this specific milk variant (sterilized) has a lower number and thus it has less fat.
	Proteins	3.1g per 100ml (whole), 3,2g per 100ml (semi), 3,2g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 3,4g of semi-skimmed 3,6g and skimmed 3,6g proteins per 100ml ¹¹ , this specific milk brand has a lower number and thus it is not rich in proteins.
	Energy	266Kj (64Kcal) per 100ml (whole), 193Kj (46Kcal) per 100ml (semi), 147Kj (35Kcal) per 100ml (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ¹² , 47KCal (semi-skimmed) and 35KCal (skimmed) this specific milk brand has a lower number and thus it contains less Kcal.

¹⁰ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹¹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹² Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Hygienic	Cell. Count	Nonexistence of such information on pack	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No official labels regarding this topic	No comments
	Practice of grazing	No official labels regarding this topic	No comments
	Environmental-friendly Packaging	No official labels regarding this topic	No comments
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price	Relation price/litre	1,08€/1,5L	Not expensive
Written paragraphs on the package	Message front side (photo 1)	Semi-skimmed sterilized milk Dia Drawing of a milk pot in the middle of the green grass with flowers and butterflies around.	This is a plastic bottle with the same design as the carton pack and also using same distinctive colors
	Message right side (photo 2)	Nutritional table	Essential information on the package
	Message back side (photo 3)	Semi-skimmed sterilized milk Dia Drawing of a milk pot in the middle of the green grass with flowers and butterflies around. Expiring date	This is a plastic bottle with the same design as the carton pack and also using same distinctive colors
	Message on the top (photo 4)	No information, just a lit with the same blue color of the label	No comments
	Message on the bottom (photo 5)	Nothing is written in this side of the packaging.	No comments

SUMMARY: since this is also a milk plastic bottle from the white label of the supermarket, it has a very simple design. It actually has the same design and colors as the milk carton. However the materials used for the package are not environmental friendly. Furthermore it has no labels or information regarding food safety, animal welfare or grazing practices. Although there are no official labels regarding food safety, this specific type of milk does claim a specific characteristic: it is sterilized. It is a 1,5L plastic

bottle with a plastic lid that allows the consumer to open and close it as many times wished. As it is usual with Spanish packs, the blue, green and red/pink colors mean different things. In this case blue is semi-skimmed milk. According to the nutritional standards, this milk is not rich in proteins but it also contains more calories than standard semi-skimmed milk.

Milk brand: Celta

Type of milk: UHT skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed
Technological	fat	0,2g per 100ml	This means that if the standard composition of skimmed milk is of 0,3g fat per 100ml ¹³ , this specific milk has a lower number and thus it has less fat.
	Proteins	3,3g per 100ml	This means that if the standard composition of skimmed milk is of 3,6g proteins per 100ml ¹⁴ , this

¹³ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹⁴ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

			specific milk has less and thus it is not rich in proteins
	Energy	145Kj (34Kcal) per 100ml	This means that if the standard composition of skimmed milk is of 35KCal per 100ml ¹⁵ , this specific milk has a slightly lower number of Kcal.
Hygienic	Cell. Count	No information about it on the pack	No information about it on the pack
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No specific label regarding this topic	No comments
	Practice of grazing	No specific label regarding this topic	No comments
	Environmental-friendly Packaging	SIG logo FSC	SIG logo is a carton packaging supplier. This packs preserve the environment. FSC provides a guarantee to consumers that the products they buy come from responsible sources which support forest conservation
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price/L	Relation price/litre	1€/1,5L	Not expensive
Written paragraphs on the package	Message front side (photo 1)	UHT milk Save format 1,5L Skimmed milk Picture of milk (like a brave sea) on a pink background.	This packaging contains the pink color related to skimmed milk. Besides the picture of milk falling like a cascade give an impression of naturalness and tastiness
	Message right side (photo 2)	SIG logo UHT skimmed milk Processors contact information	Useful information for the consumer and also interesting extra

¹⁵ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

		Facebook and twitter logo FSC	communication tools like twitter and facebook profiles
	Message back side (photo 3)	UHT milk Save format 1,5L Skimmed milk	Basic information on the pack
	Message left side (photo 4)	Nutritional table A healthy diet is based on an equilibrated and varied diet in which milk has an important role. Celta comes from one of the best meadows and keeps the nutritional properties of the milk for you. Celta shares everyday with you with its essential taste.	This explanation of the photo 4 pretends to give the consumer the impression that environment, cows and milk are the best they can get.
	Message on the top (photo 5)	1,5L UHT skimmed milk Expiring date	Standard information on the pack
	Message on the bottom (photo 6)	SIG logo	Explained above

SUMMARY: this pack of Celta milk has another design than the other pack of Celta milk. This one is a 1,5L milk carton which uses the red/pink color to distinguish as a skimmed milk. The materials used for the package are environmental friendly (FSC and SIG). Furthermore it has no labels or information regarding food safety, animal welfare or grazing practices however the drawing of the pack together with the explanations on the sides make it possible to interpret. It is a cheap milk although it might be due to a temporary promotion when the sample was taken. It is milk carton with a plastic lid that allows the consumer to open and close it as many times wished. According to the nutritional standards, this milk has less fat, energy and less proteins than normal semi-skimmed milk.

Milk brand: Central lechera asturiana

Milk type: whole UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: semi-skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed
Technological	fat	3,6g per 100ml (whole) and 1,55g per 100ml (semi-skimmed)	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ¹⁶ and of semi of 1,8g, this specific milk has a lower number and thus it has less fat.
	Proteins	3,1g per 100ml (whole) and 3,15g per 100ml (semi)	This means that if the standard composition of whole milk is of 3,4g proteins per 100ml ¹⁷ and for semi-skimmed of 3,6g per 100ml, this specific milk has a lower number thus it is less rich in proteins
	Energy	264Kj (63Kcal) per 100ml (whole) and 190Kj (45Kcal) per 100ml (semi)	This means that if the standard composition of whole milk is of 68KCal per 100ml ¹⁸ and of semi of 47KCal per 100ml, this specific milk contains less Kcal.
Hygienic	Cell.Count	No information about it on the pack	No comments
	Antibiotic free		
	PH		
	Good for the animal welfare	No specific label regarding this topic	No comments

¹⁶ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹⁷ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹⁸ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Sustainable	Practice of grazing	No specific label regarding this topic	No comments
	Environmental-friendly Packaging	FSC label Tetra pak Punto verde logo	Tetra pak logo guarantees the minimization of the impact on the environment FSC provides a guarantee to consumers that the products they buy come from responsible sources which support forest conservation Punto verde: it ensures that the company is complying with the packaging law.
Food safety	Food safety Milk healthiness	PLS logo	This label is a guarantee of the Spanish origin of the milk and dairy products and has been engaged in conditions that guarantee the economic sustainability of the Spanish dairy sector. It is a Spanish label. Nutritional table
Price/L	Relation price/litre	0,79€/1L	Slightly expensive
Written paragraphs on the package	Message front side (photo 1)	PLS logo Asturiana Naturally the best Whole milk or semi Expiring date The front side contains a picture of cows grazing in the middle of a very green meadow with snowed mountains in the background.	The picture that Asturiana uses is the idyllic landscape that people picture cows from the north of Spain in. It also gives the impression that the cows are grazing in very green meadows
	Message right side (photo 2)	Farmer story: I have dedicated my whole life to milk and to Asturiana.. I love working outside, in the nature, with my agrimotor. My son is becoming also a farmer and I am very	The story of the farmer brings a realistic touch to the whole concept of good quality milk and brings proximity to the consumer

		proud of teaching him all I know because one day he can also produce good quality milk. Name of the farmer, age and placement of the farmer.	
	Message back side (photo 3)	Tetra pak Recycle logo Asturiana milk, naturally the best FSC Processor's contact information Drawing of an agrimotor carrying the bar code in the middle of a green meadow with snowed mountains in the background.	FSC provides a guarantee to consumers that the products they buy come from responsible sources which support forest conservation
	Message left side (photo 4)	Nutritional information 1 L Whole or semi UHT milk	Basic information about the milk pack
	Message on the top (photo 5)	Red lid, nothing else and the logo of PLS	The lid is the same color as the pack. PLS guarantees of the Spanish origin of the milk and dairy products and has been engaged in conditions that guarantee the economic sustainability of the Spanish dairy sector. It is a Spanish label.
	Message on the bottom (photo 6)	Tetra pak	Tetra pak logo guarantees the minimization of the impact on the environment

SUMMARY: this pack of Asturiana milk has another design than the other milk packs: its shape is particular although it is still a milk carton. This one is a 1L milk carton which uses the red color to distinguish as a whole milk. This brand uses red color for whole milk and blue color for semi-skimmed milk. The materials used for the package are environmental friendly (FSC, tetra pak and punto verde logo). It is also a milk carton that uses another label regarding food safety (PLS). The first one in this supermarket. However regarding the animal welfare or grazing practices there is no specific label but just a picture of the region of Asturias, known for the green meadows and the mountains. Thus in the picture it is possible to see cows grazing happily in the big green meadows of Asturias with the mountains in the background. This picture brings proximity to the consumer and it also brings the idea that the cows are indeed grazing. It is not an expensive milk although it has a slightly higher price than average. It is milk

carton with a plastic lid that allows the consumer to open and close it as many times wished. According to the nutritional standards, this milk has less fat, energy and less proteins than normal semi-skimmed milk.

Milk brand: Pascual

Milk type: skimmed UHT milk



	Messages	Means
<p>Photo 1 Photo 2 Photo 3 Photo 4 Photo 5</p> <p><u>UHT</u></p> <p>Heating treat.</p>	<p>Milk heated up to a temperature of 135 - 150°C.</p>	<p>Can be kept for about six months without refrigeration until being unsealed</p>
Technological	fat	0,3g per 100ml
	Proteins	3,1g per 100ml
	Energy	149Kj (35Kcal) per 100ml
		<p>This means that if the standard composition of skimmed milk is of 0,3g fat per 100ml¹⁹, this specific milk has the exact number of fat</p> <p>This means that if the standard composition of skimmed milk is of 3,6g proteins per 100ml²⁰, this specific milk has less and thus it is not rich in proteins</p> <p>This means that if the standard composition of skimmed milk is of 35Kcal per 100ml²¹, this specific milk has the exact same number of energy.</p>

¹⁹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

²⁰ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

²¹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Hygienic	Cell. Count	No information about it on the pack	No information about it on the pack
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No label regarding this topic	No comments
	Practice of grazing	No label regarding this topic	No comments
	Environmental-friendly Packaging	No label regarding this topic	No comments
Food safety	Milk healthiness	PLS	<p>This label is a guarantee of the Spanish origin of the milk and dairy products and has been engaged in conditions that guarantee the economic sustainability of the Spanish dairy sector. It is a Spanish label.</p> <p>Nutritional table</p>
Price/L	Relation price/litre	1,24€/1,2L	Expensive
Written paragraphs on the package	Message front side (photo 1)	<p>Pascual milk</p> <p>0% fat</p> <p>Superior taste</p> <p>PLS label</p> <p>Aligned with your healthiness</p> <p>Drawing of a cow grazing on a pink background</p>	Information about the milk although already claiming that it has a superior taste and is healthy.
	Message right side (photo 2)	<p>Expiring date</p> <p>The 4 reasons for quality:</p> <ul style="list-style-type: none"> - It takes care: just with cows treated by the best experts and feed with the best food can give the best milk - It feeds you: by collecting milk daily and processing it directly you can keep the milk nutrients - You like it: due to the processing of Pascual the taste stays very good. 	This claim states 4 clear reasons of why this brand delivers higher quality based on feeding, trustworthiness, careful with the animals and taste. Thus although no specific labels regarding the topic of animal welfare are on the pack, this brand does claim it.

		<ul style="list-style-type: none"> - You can trust it: guarantees a milk control from the beginning to the end. Processors contact information Recycle logo	
	Message back side (photo 3)	Pascual milk 0% fat Superior taste PLS label Aligned with your healthiness Drawing of a cow grazing on a pink background	The pink background is characteristic of the skimmed milk type. The cow is grazing because they want to give the impression their cows have a very healthy life.
	Message left side (photo 4)	Nutritional table PLS label Once opened keep it in the fridge and consume it within 2-3 days Validated for the international taste and quality institute European organization of chefs and sommeliers.	This side of the pack has basic information plus a claim about the quality institute which backs up their claim about highest milk quality
	Message on the top (photos 5)	No information is written on the lid	No comments
	Message on the bottom (photo 6)	No information is written on the lid	No comments

SUMMARY: this pack of Pascual is a plastic bottle which again uses the color pink to emphasize that is skimmed milk. This milk has the drawing of a cow grazing although there is no label which guarantees that is the case. The claims on the side pack state that this is the best milk for four reasons, taste, trustiness, high processing standards and a careful treatment of the cows and what they eat. These are four very specific claims that can give a very relevant message to the consumer. This milk is expensive in comparison to the average price. It claims many times healthiness and premium quality. It is a milk carton with a plastic lid that allows the consumer to open and close it as many times wished. According to the nutritional standards, this milk has the exact same values for the standard composition of fat and energy but a bit less of proteins.

Mercadona is a Valencian distribution company of food born in 1981. It does medium and large distribution. The types of milk analysed are: *entera* (whole), *semidesnatada* (semi-skimmed) and *desnatada* (skimmed), calcium plus and *con omega 3*. The samples for this analysis are from a visit to Mercadona the 15th of May of 2015 at v. Coronel Estrada, 128, 17450 Hostalric, Girona, Spain. The average €/Lt of milk in this supermarket is XX€. The milk brands available at Mercadona are the following:

- Hacendado (own label of Mercadona)
- Puleva



- Llet nostra
- Flora
- Central lechera asturiana

Milk brand: HACENDADO

Milk type: sterilized whole milk



Photo 1 Photo 2 Photo 3 Photo 4

Milk type: sterilized semi-skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4

Milk type: Sterilized skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	<u>Sterilized</u> milk	It goes through a more severe form of heat treatment, which destroys nearly all the bacteria in it.	Change of taste and colour and also slightly less nutritional value of the milk, particularly the B group vitamins and vitamin C. Unopened bottles can be kept for approximately 6 months without the need for refrigeration.
Technological	fat	3.6 g per glass per 100 ml (whole), 1,5g per 100ml (semi), 0.1 g Per 100ml (skimmed)	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ²² (whole), 1,8g (semi), and 0,3g fat (skimmed), this specific milk variant (sterilized) has a lower number and thus it has less fat.

²² Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Proteins	3g per glass per 100 ml (whole), 3g per 100 ml (semi), 3,1g Per 100ml (skimmed)	This means that if the standard composition of whole milk is of 3,4g of semi-skimmed 3,6g and skimmed 3,6g proteins per 100ml ²³ , this specific milk brand has a lower number and thus it is not rich in proteins.
	Energy	261kJ (62 kcal)per 100ml (whole), 185 kJ (44 kcal) per 100ml (semi), 136 kJ(32 kcal) per 100ml (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ²⁴ , 47KCal (semi-skimmed) and 35KCal (skimmed) this specific milk brand has a lower number and thus it contains less Kcal.
Hygienic	Cell. Count	No information about it on the pack	No information about it on the pack
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No existence of labels or/and messages referring to it.	No information about it on the pack
	Practice of grazing	The only message referring to animal welfare is the drawing of the cows grazing.	The drawing is in blue as it is the color of whole milk for this brand
	Environmental-friendly Packaging	No existence of labels or/and messages referring to it.	No comments
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price	Relation price/litre	1,09€/1,5L	Not expensive
Written paragraphs on the package	Message front side (photo 1)	The brand: Hacendado The type of milk: sterilized whole, semi or skimmed milk A logo that says "easy to open" A drawing in blue, green or pink of grazing cows	This is very simple message from the white label milk. The color blue is because the consumer recognizes the milk as whole milk.

²³ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

²⁴ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Message right side (photo 2)	Cow milk sterilized whole, semi or skimmed milk Nutritional table 1,5L Consume before (See the date)	Standard information that needs to appear on pack
	Message back side (photo 3)	Not to be stored more than 30 or with cleaning or emit strong odors. Once opened, store in the refrigerator and used within three days. Service phone number from brand Processor address. A logo that says “easy to open”	Standard information that needs to appear on pack
	Message left side (photo 4)	The brand: Hacendado The type of milk: sterilized whole, semi or skimmed milk A logo that says “easy to open” A drawing in blue of grazing cows	Standard information that needs to appear on pack
	Message on the top (photos 6 and 7)	Nothing. A blue, green or pink lit.	Blue is the color of this type of milk
	Message on the bottom (photo 5)	Nothing	No comments

SUMMARY: this pack of Hacendado sterilized milk is a plastic bottle which again uses the color blue, green or pink to emphasize the type of milk inside the bottle (blue for whole, green for semi and pink for skimmed milk). This milk has a very simple drawing of a cow grazing although there is no label which guarantees that is the case. No labels guaranteed food safety or sustainability. This milk is not expensive in compare to the average price. According to the nutritional standards, this milk has the lower than the standard composition of fat, proteins and energy.

Milk brand: Hacendado (own brand)

Milk type: whole UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Semi-skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed
Technological	fat	3,6 g per 100ml (whole), 1,5g per 100ml (semi) and 0.3 g Per 100ml (skimmed)	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ²⁵ (whole), 1,8g (semi), and 0,3g fat (skimmed), this specific milk variant (sterilized) has a lower number and thus it has less fat.
	Proteins	3g per 100ml (whole), 3g per 100 ml (semi) and 3,1g Per 100ml (skimmed)	This means that if the standard composition of whole milk is of 3,4g of semi-skimmed 3,6g and skimmed 3,6g proteins per 100ml ²⁶ , this specific milk brand has a lower number and thus it is not rich in proteins.
	Energy	261 kJ (62 kca) per 100ml (whole), 185 kJ (44 kcal) per 100ml (semi) and 144 kJ (34 kcal) per 100ml (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ²⁷ , 47KCal (semi-skimmed) and 35KCal (skimmed) this specific milk brand has a lower number and thus it contains less Kcal.

²⁵ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

²⁶ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

²⁷ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Hygienic	Cell. Count	Nonexistence of such information on the package	Nonexistence of such information on the
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No existence of labels or/and messages referring to it.	No comments
	Practice of grazing	The drawing of grazing cows but non official labels	To give the feeling that cows are nicely grazing and have a good life
	Environmental-friendly Packaging	FSC label Tratra pak logo	guarantee to consumers that the products they buy come from responsible sources
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price/L	Relation price/litre	0,62€/L	Not expensive
Written paragraphs on the package	Message front side (photo 1)	The brand: Hacendado The type of milk: whole, semi or skimmed milk A drawing in blue of grazing cows	The drawing pretends to give the impression that cows are happy living outside in the meadows.
	Message right side (photo 2)	Nutritional information Whole, semi or skimmed Cow milk Recycle by separating	The symbol of recycling teaches the consumer positively
	Message back side (photo 3)	The brand: Hacendado The type of milk: whole, semi or skimmed milk A drawing in blue of grazing cows	Idem photo 1
	Message left side (photo 4)	FSC label Processors contact information Keep in a fresh place, once open keep in the fridge and consume before 3 days.	FSC: guarantee to consumers that the products they buy come from responsible sources
	Message on the top (photos 6 and 7)	Cow milk UHT whole, semi or skimmed Expiring date	Standard info that needs to be on pack
	Message on the bottom (photo 5)	Tetra pak logo	guarantees the safety of the food, minimizing the impact on the environment

SUMMARY: this pack of Hacendado UHT milk is a 1L carton which again uses the color blue, green or pink to emphasize the type of milk inside the bottle (blue for whole, green for semi and pink for skimmed milk). It is the same drawing as for the sterilized version. This milk has a very simple drawing of a cow grazing although there is no label which guarantees that is the case. No labels guaranteed food safety. This milk is not expensive in compare to the average price. According to the nutritional standards, this milk has the lower than the standard composition of fat, proteins and energy.

Milk brand: Hacendado (own brand)

Milk type: pasteurized whole milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ²⁸ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	3.6 g per 100ml	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ²⁹ , this specific milk has a lower number and thus it has less fat.
	Proteins	3g per 100ml	This means that if the standard composition of whole milk is of 3,4g proteins per 100ml ³⁰ , this specific milk has a lower number thus it is less rich in proteins

²⁸ <http://www.albalact.ro/en/about-pasteurised-and-ugt-milk.html>

²⁹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

³⁰ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Energy	261 kJ (62 kcal) per 100ml	This means that if the standard composition of whole milk is of 68KCal per 100ml ³¹ , this specific milk contains less Kcal.
Hygienic	Cell.Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No labels regarding this category	No comments
	Practice of grazing	No labels regarding this category	No comments
	Environmental-friendly Packaging	Recycle logo FSC Tetrapak	FSC & Tetrapak: guarantee to consumers that the products they buy come from responsible sources Recycle logo :promoting sustainability
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price/L	Relation price/litre	0,85€/L	Expensive
Written paragraphs on the package	Message front side (photo 1)	Fresh milk Keep in a refrigerator Whole milk 1 litre Hacendado Blue drawing of the head of a happy cow, inside a bottle of milk	The drawing of the happy cow gives an impression of good animal welfare.
	Message right side (photo 2)	Nutritional information FSC Tetrapak The high pasteurization is one of the heat treatments for milk conservation that better keeps the organoleptic characteristics and quality characteristics of the milk. With this treatment we make the "Hacendado fresh milk" that maintains the freshness, taste, color and smell of milk	This message puts emphasis on the taste and freshness of the pasteurized milk as quality characteristics of the milk that you cannot find in UHT milk.

³¹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Message back side (photo 3)	Fresh milk Keep in a refrigerator Whole milk 1 litre Hacendado Blue drawing of the head of a happy cow, inside a bottle of milk	Idem as photo 1
	Message left side (photo 4)	Nutricional table Keep in a temperature between 2 and 6 grades , once open, consume before 3 days, don't need to boil. Whole cow milk Recycle	Standard info that needs to be on pack
	Message on the top (photos 6 and 7)	Keep it in cold temperature Expiring date Milk with high pasteurization 1 liter.	Standard info that needs to be on pack
	Message on the bottom (photo 5)	Tetra pak	guarantee to consumers that the products they buy come from responsible sources

SUMMARY: this pack of Hacendado pasteurized milk is a 1L carton which uses the drawing of a happy cow inside a bottle of milk to give the impression of good animal welfare, although there is no label which guarantees that is the case. No labels guaranteed food safety. This milk is not expensive in compare to the average price. According to the nutritional standards, this milk has the lower than the standard composition of fat, proteins and energy.

Milk brand: Hacendado (own brand)

Milk type: UHT skimmed milk (with omega 3)



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed
Technological	fat	1,9g per 100ml	This means that if the standard composition of skimmed milk is of 0,3g fat , this specific milk variant (omega 3) has a higher number and thus it has less fat.
	Proteins	3,5g per 100ml	This means that if the standard composition of skimmed is 3,6g proteins per 100ml ³² , this specific milk brand has a almost the right amount
	Energy	218Kj (52Kcal) per 100ml	This means that if the standard composition of skimmed is 35KCal this specific milk brand has a higher number and thus it contains a lot more Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the pack	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No official label regarding this topic	No comments
	Practice of grazing	No official label regarding this topic	No comments
	Environmental -friendly Packaging	FSC Recycle logo	Sustainability labels
Food safety	Milk Healthiness	Without gluten logo	safe for celiac Nutritional table

³² Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Price	Relation price/litre	0,88€/L	Expensive
Written paragraphs on the package	Message front side (photo 1)	Hacendado FSC With Omega 3 40% of acid fat of large chain plus omega 3 in one glass Drawing of a bow and a girl running on a green field who seem to be very healthy The omega 3 is supported by the drawing of a heart	This milk specifies the extra acid fat and omega 3 which is healthy for your body, especially for people who take extra care with what they eat, and thus the drawing of a healthy heart with a green field and healthy people sporting
	Message right side (photo 2)	Nutritional information Processors contact information Separate for recycle	Standard info on pack Promoting sustainability
	Message back side (photo 3)	Hacendado FSC With Omega 3 40% of acid fat of large chain plus omega 3 in one glass Drawing of a bow and a girl running on a green field who seem to be very healthy The omega 3 is supported by the drawing of a heart	Idem as photo 1
	Message left side (photo 4)	Tetra pak FSC Information of the processor	guarantee to consumers that the products they buy come from responsible sources and minimize impact to the environment
	Message on the top (photos 6 and 7)	Expiring date	Standard information on pack
	Message on the bottom (photo 5)	Tetra pak	minimizing the impact on the environment

SUMMARY: this milk carton from the own label has more colors, is more expensive and the images are more target-specific: for people who like to take care of their health. Therefore the drawings contain people sporting, a heart and a green meadow. It is a one L capacity carton. The sustainable labels are present, the gluten-free label is present, still no indication of animal welfare or grazing cows. The fact that the message is so specific and emphasize the extra acid fat of large chain and omega 3, means that the processor knows his consumer, and the consumer knows about his or her nutrition.

Milk brand: Hacendado (own brand)

Milk type: whole UHT milk 100% calcium



Milk type: semi-skimmed UHT milk 100% calcium



Milk type: skimmed UHT milk 100% calcium



Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed
Technological	fat	3.6 g per 100ml (whole), 1.6 g per 100ml (semi), 0.3 g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 4,0g, of semi-skimmed is 1,8g and skimmed 0,3g fat per 100ml ³³ , this specific milk brand has a lower number and thus it has less fat.
	Proteins	3.9 g per 100ml (whole), 3.9 g per 100ml (semi), 3.9 g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 3,4g of semi-skimmed 3,6g and skimmed 3,6g proteins per 100ml ³⁴ , this specific milk brand has a higher number and thus it is rich in proteins.

³³ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

³⁴ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Energy	283 kJ (68 kcal) per 100ml (whole), 214 kJ (51 kcal) per 100ml (semi), 168 kJ (40 kcal) per 100ml (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ³⁵ , 47KCal (semi-skimmed) and 35KCal (skimmed) this specific milk brand has a lower number and thus it contains more Kcal.
Hygienic	Cell. Count	Nonexistence of information about it on the pack	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No labels regarding this topic	No comments
	Practice of grazing	No labels regarding this topic	No comments
	Environmental-friendly Packaging	FSC Recycle logo Separate for recycling	Sustainability message
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price/L	Relation price/litre	0,78€/L	Slightly expensive
	Message right side (photo 2)	Nutritional table Drawing of a drop of milk splashing	The drawing although simple is white elegant since it represents a drop of milk in your organism
	Message back side (photo 3)	Calcium: needed for the maintenance of bones and teeth Phosphor: contributes to the metabolic energy system and the functioning of cellular membranes. Vitamin A: help to good maintain skin and vision and the functioning of the immune system Vitamin D: help to absorb and use of calcium and phosphor Vitamin E: protect the cells against oxidation Folic acid: contributes to the growth of maternal tissues during pregnancy and helps the process of cellular division, to	All this extra information is given in the back of the pack to the consumer so that he or she can value why this specific type of milk with extra proteins and vitamins and 100% calcium is healthier and better than the rest.

³⁵ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

		<p>the formation of blood cells and the normal psychological function.</p> <p>3 daily glasses of whole milk 100% calcium proportionate you with the 100% of the vitamins A,D,E, acid folic and phosphor.</p> <p>A varied and equilibrated diet and a healthy life style help you to stay healthy.</p> <p>Table with the daily recommended dose.</p>	Furthermore a healthy lifestyle and equilibrated diet is recommended next to it.
	Message left side (photo 4)	<p>FSC</p> <p>Recycle logo</p> <p>Tetra pak logo</p> <p>Processor contact information</p> <p>Maintain in a fresh and dry place. Once the pack is open, consume before 3 days.</p> <p>Whole cow milk enriched with calcium and vitamins.</p>	<p>Sustainability message</p> <p>Standard info on pack</p>
	Message on the top (photos 6 and 7)	<p>Expiring date</p> <p>1 lt.</p> <p>Whole cow milk enriched with vitamins and proteins.</p>	Standard info on pack
	Message on the bottom (photo 5)	Tetra pak logo	Sustainable message (minimising the impact on the environment)

SUMMARY: this pack of Hacendado UHT milk is a 1L carton which uses the drawing of a drop of milk splashing. Then again this drop has one of the three colors related to whole, semi or skimmed milk. This milk carton offers a lot of extra explanation of why is so important to buy this specific milk variant called 100% calcium. Therefore and explanation of why calcium Vitamins A, D and E and folic acid are important is given on the back of the pack. It is a sustainable pack since it has the tetrapak and the FSC logos next to the logos promoting sustainability like the recycle logo. The pack makes clear the consumer get the message that this milk is enriched with vitamins and proteins.

Milk brand: Central Lechera Asturiana

Milk type: whole UHT milk



Photo 1 Photo 2 Photo 3 Photo 4

Milk type: semi-skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed
Technological	fat	3,6 g per 100ml (whole) 1,55 g per 100ml (semi)	This means that if the standard composition of whole milk is of 4,0g, and of semi-skimmed is 1,8g this specific milk brand has a lower number and thus it has less fat.
	Proteins	3,1 g per 100ml (whole), 3,15 g per 100ml (Semi)	This means that if the standard composition of whole milk is of 3,4g and of semi-skimmed 3,6g ³⁶ , this specific milk brand has a lower number and thus it is less rich in proteins.
	Energy	63 Kcal (264 KJ) per 100ml (whole), 45 Kcal (190 KJ) per 100ml (semi)	This means that if the standard composition of whole milk is of 68KCal per 100ml ³⁷ and of 47KCal (semi-skimmed) this specific milk brand has a lower number and thus it contains less Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the pack	Nonexistence of such information on the pack
	Antibiotic free		
	PH		
	Good for the animal welfare	No official label about it	No comments

³⁶ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

³⁷ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Sustainable	Practice of grazing	No official label about it just the picture of grazing cows	No comments
	Environmental-friendly Packaging	Logo recycle	Sustainability commitment
Food safety	Milk healthiness	PLS logo	Guarantee of the Spanish origin of the milk and dairy products and has been engaged in conditions that guarantee the economic sustainability of the Spanish dairy sector. Nutritional table
Price/L	Relation price/litre	1,29€/1,5L	Expensive
Written paragraphs on the package	Message front side (photo 1)	Picture of cows in a green meadow with the snowed mountains on the background. The packaging is red instead of the typical blue for whole milk Central lechera Asturiana Whole or semi milk and nothing else Naturally the best	The picture for this pack is a cliché since the region where this milk comes from is known for having green landscapes with cows. However since no official label guarantees that the cows are grazing it is just a way to impress the consumer. Naturally the best refers to its well positioning and the naturalness of the milk
	Message right side (photo 2)	Nutritional information Processor's contact information Expiring date Farmer story (whole): I have dedicated my whole life to milk and to Asturiana.. I love working outside, in the nature, with my agrimotor. My son is becoming also a farmer and I am very proud of teaching him all I know because one day he can also produce good quality milk. Farmer story (semi): Farmer story: I have dedicated my whole life to milk and to Asturiana.. I love working outside, in the nature, with my agrimotor. My son is becoming also a farmer and I am very proud of teaching him all I know because one day he can also produce good quality milk Name of the farmer, age and placement of the farmer.	This brand uses a specific resource which is the storytelling of a real farmer that creates a specific connection with the consumer since they can read a real story from a real person and that creates a link between consumer and processor. For each type of milk a different story

	Message back side(photo 3)	Logo recycle PLS logo	Sustainability commitment PLS is a food safety guarantee
	Message left side(photo 4)	Since it is a bottle there is no fourth side	No comments
	Message on the top (photos 6 and 7)	Brand name	Standard information
	Message on the bottom (photo 5)	No information written on this side of the packaging.	No comments

SUMMARY: this brand has a specific bottle shape, with not 1L but 1,5L capacity. Then again the use of red or blue colors refers back to the type of milk (whole or semi). The marketing of this brand is spectacular since bringing a real story from a farmer to the packaging design brings a lot of personality and creates a big bond. Additionally the bottle does not use a simple drawing but a very characteristic picture of the landscape of the region with the cows grazing. Food safety and environmental friendly labels are present. The price is not cheap.

Milk brand: Llet Nostra

Milk type: whole UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Photo 6

Milk type: semi-skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Photo 6

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed

Technological	fat	3.6 g per 100ml (whole), 1.5 g per 100ml (semi) and 0.3 g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 4,0g, of semi-skimmed is 1,8g and skimmed 0,3g fat per 100ml ³⁸ , this specific milk brand has a lower number and thus it has less fat.
	Proteins	3 g per 100ml (whole), 3 g per 100ml (Semi) and 3.1 g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 3,4g of semi-skimmed 3,6g and skimmed 3,6g proteins per 100ml ³⁹ , this specific milk brand has a lower number and thus it is less rich in proteins.
	Energy	62 kcal (261 kJ) per 100ml (whole), 185 kJ (44 kcal) per 100 ml (semi) and 144 kJ(34 kcal) per 100ml (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ⁴⁰ , 47KCal (semi-skimmed) and 35KCal (skimmed) this specific milk brand has a lower number and thus it contains less Kcal.
Hygienic	Cell.Count	Nonexistence of such information on the pack	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	Non official label	No comments
	Practice of grazing	Non official label	No comments
	Environmental-friendly Packaging	FSC label Recycle logo Teta pak	Environmental friendly commitment

³⁸ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

³⁹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁴⁰ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price/L	Relation price/litre	0,92€/L	Expensive
Written paragraphs on the package	Message front side (photo 1)	Brand's name Milk from Catalan farmers In our house, our milk Drawing of a cow with a calf kissing her, surrounded by green grass. List with all the farmers	This milk processor is a cooperative thus the names of all the farmers appear on pack. Furthermore the drawing on the front of the pack is related to the happiness of the cows. The main message is related to the fact that the milk comes from the region itself and therefore it says "in our homes, our milk".
	Message right side (photo 2)	Nutritional information Sponsored by FCB FSC label Sponsored by blood donors organization Processors contact information	The fact that this milk brand is sponsored by one of the most popular clubs in the country brings extra marketing tools in. Furthermore the blood donors organization brings in the social and touching side to the brand.
	Message back side (photo 3)	Idem as photo 1	Idem as photo 1
	Message left side (photo 4)	FCB logo Brand's name Our Project is a cooperative project in which 215 Catalan farm families have one common objective: keep the Catalan cattle sector and the milk industry alive. These farmers are committed to you and to the territory.	On this side of the pack is possible to read the aim and story behind this cooperative which is a very good marketing tool to create attachment with the consumer
	Message on the top (photos 6 and 7)	Llet nostra (brand) Expiring date UHT whole milk 1 litre	Standard info on pack
	Message on the bottom (photo 5)	Tetra pak	Environmental friendly commitment

SUMMARY: this brand, as well as Central Lechera Asturiana uses very good some marketing tools to create attachment with the consumer. The sponsors for this pack give specific messages like “social concern” or “popularity”. It is a 1L carton capacity. Then again the use of red, green or blue colors refers back to the type of milk (whole, semi or skimmed). It is not a cheap milk. The composition of this milk (fat, proteins and energy) is below the milk composition standards.

Milk brand: Puleva

Milk type: semi-skimmed calcium UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: skimmed calcium UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed
Technological	fat	1.6 g per 100ml (semi) and 0.3 g per 100ml (skimmed)	This means that if the standard composition of semi-skimmed is 1,8g and skimmed 0,3g fat per 100ml ⁴¹ , this specific milk brand has a lower number and thus it has less fat.
	Proteins	3.9 g per 100ml (semi) and 3.9 g per 100ml (skimmed)	This means that if the standard composition of semi-skimmed 3,6g and skimmed 3,6g proteins per 100ml ⁴² , this specific milk brand has a higher number and thus it is rich in proteins.

⁴¹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁴² Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Energy	212 kJ (50 kcal) per 100ml (semi) and 164 kJ (39 kcal) per 100ml (skimmed)	This means that if the standard composition of semi skimmed milk is 47KCal and 35KCal (skimmed) this specific milk brand has a higher number and thus it contains more Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the pack	Nonexistence of such information in the pack
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No specific official label regarding this topic	No comments
	Practice of grazing	No specific official label regarding this topic	No comments
	Environmental-friendly Packaging	Recycle logo Tetra pak	Environmental friendly commitment
Food safety	Food safety	Without gluten label Nutritional table	Safe for celiac
Price/L	Relation price/litre	1,19€/L	Expensive
Written paragraphs on the package	Message front side (photo 1)	Puleva calcium, bones always strong. No other brand fixates better the calcium and vitamins D and K Semi-skimmed milk	Since this is a calcium variety, a lot of information is put on bones and the effect of calcium and vitamins in your body
	Message right side (photo 2)	Did you know that..? more than a half of the calcium you drink is eliminated naturally? Therefore Puleva together with the nutritional institute of Puleva has developed Puleva calcium with Efficium. The new generation of milk that helps you to fixate the calcium better thanks to the combination of Vitamin D, that helps you to absorb better the calcium, and vitamin K, that helps you to maintain the bones strong. Advice of what should be the daily ingest for an adult.	Information about the way human bodies assimilate calcium and the way milk can minimize the loss by giving you extra resources of calcium and vitamins in order to stay healthy.
	Message back side (photo 3)	Puleva calcium, bones always strong. No other brand fixates better the calcium and vitamins D and K Semi-skimmed milk	Emphasis on the healthiness of the milk
		Without gluten label	Standard information on pack

	Message left side (photo 4)	Recycle logo Tetra pak Nutritional table Once open it needs to be stored in the fridge, and consume preferably within 2-3 days. Processors contact information	
	Message on the top (photos 6 and 7)	Semi-skimmed milk Expiring date 1 liter Puleva calcio UHT milk	Standard information on pack
	Message on the bottom (photo5)	Tetra pak	Environmental friendly commitment

SUMMARY: this is a 1L carton pack which is expensive and contains a specific UHT milk variant which is “calcium extra” and therefore a lot of information and claims on pack are related to the healthiness of such milk for your body. Therefore this milk has a higher number of energy and proteins than the standard composition. Then again the cartons use blue, green or pink colors according to the type of milk. The drawing is quite simple since a lot of emphasis is put on claims and nutritional information. The drawing represents the clipart of a human body whose bones are stronger because of this milk.

Milk brand: Flora

Milk type: semi-skimmed Folic B (cholesterol controller) UHT milk



Categories into the	Messages	Means
Photo 1 Photo 2 Photo 3 Photo 4 Photo 5 Heating treat.	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed

Technological	fat	1,7g per 100ml	This means that if the standard composition of semi-skimmed milk is of 1,8g fat per 100ml ⁴³ , this specific milk has a lower number and thus it has less fat.
	Proteins	3,1g pe 100ml	This means that if the standard composition of semi-skimmed milk is of 3,6g proteins per 100ml ⁴⁴ , this specific milk has a little bit less proteins
	Energy	197KJ (47Kcal) per 100ml	This means that if the standard composition of semi-skimmed milk is of 47KCal per 100ml ⁴⁵ , this specific milk has the exact number
Hygienic	Cell. Count	Nonexistence of such information on the pack	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No labels regarding this category	No comments
	Practice of grazing	No labels regarding this category	No comments
	Environmental-friendly Packaging	FSC Recycle logo Tetra pak	Environmental friendly commitment
Food safety	Milk healthiness	Gluten free Nutritional table	Safe for celiac
Price/L	Relation price/litre	1,35€/L	Expensive
Written paragraphs on the package	Message front side (photo 1)	Flora logo, which is a heart Semi-skimmed milk Folic B = folic acid and vitamins B6, B12 and B1 + vitamins A, D, E Help to control cholesterol With the guarantee of Pascual quality	The message puts emphasis on the cholesterol control which is helped by this type of milk with B6, B12 and vitamins A, D and E

⁴³ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁴⁴ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁴⁵ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Message right side (photo 2)	Other varieties of Flora Folic B Processor's contact information Recycle logo	Standard info on pack
	Message back side (photo 3)	Flora logo, which is a heart Semi-skimmed milk Help to control cholesterol Resource of calcium Folic B help you to care about your heart thanks to its contribution of vitamin B1. The vitamin B12 contributes to the normal functioning of the heart. Flora semi-skimmed help to maintain normal cholesterol levels because it substitutes the saturated fats for vegetal oils rich in unsaturated fats. It is recommended the consumption of two daily glasses with a varied and equilibrated diet and a healthy life style.	Idem as photo 1
	Message left side (photo 4)	Tetra pak Nutritional table	Standard information on pack
	Message on the top (photos 6 and 7)	Expiration date 1L	Standard information on pack
	Message on the bottom (photo 5)	Tetra pak	Environmental friendly commitment

SUMMARY: this brand has a 1L carton but it is more luxurious and the bottle shapes is particular (rounded instead of rectangular). It is the most expensive on shelf. The main message is the control of cholesterol thus its target is mainly elderly people. It has some environmental friendly labels, as well as food safety but no reference about animal welfare or grazing is visible. The color of the pack is green which is associated with naturalness. The drawings are also related to nature with green grass. Furthermore the picture of a very tasteful glass of milk is the front of the pack. A lot of space on pack is taken to make nutritional explanations.



Albert Heijn

Albert Heijn is a top-end supermarket chain and the largest in the Netherlands. The types of milk analysed are: volle melk and biologische volle, halfvolle and biologische halfvolle, magere, halfvolle calcium plus, verse volle and verse halfvolle corresponding to whole milk and organic whole milk, semi-skimmed milk and semi-skimmed organic milk, low-fat, low-fat calcium plus, fresh whole and semi-skimmed fresh. The samples for this analysis are from a visit to *Albert Heijn* the 16th of February of 2015 at the Weimarstraat 118 2562 HC 'S-Gravenhage. The milk brands available at *Albert Heijn* are the following:

- Albert Heijn



- Campina
- Arla
- Friesche Vlag
- Becel pro-activ
- De Zaanse Hoeve

Milk brand: ALBERT HEIJN

Milk type: organic whole pasteurized milk



Photo 1 Photo 2 Photo 3 Photo 4

Milk type: organic semi-skimmed pasteurized milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: organic skimmed pasteurized milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurized or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁴⁶ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	3,5g per glass per 100 ml (whole), 0,1g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 4,0g, of semi-skimmed is 1,8g and skimmed 0,3g fat per 100ml ⁴⁷ , this specific milk brand has a lower number and thus it has less fat.

⁴⁶ <http://www.albalact.ro/en/about-pasteurised-and-ugt-milk.html>

⁴⁷ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Proteins	3,5g per glass per 100 ml (whole), 3,5g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 3,4g of semi-skimmed 3,6g and skimmed 3,6g proteins per 100ml ⁴⁸ , this specific milk brand has a lower number and thus it is less rich in proteins.
	Energy	260KJ/63Kcal per 100ml (whole), 33Kcal (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ⁴⁹ , 47KCal (semi-skimmed) and 35KCal (skimmed) this specific milk brand has a lower number and thus it contains less Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	Beter leven logo (3 stars) Organic label	Walk outside at least 210 days for 12 hours. Calves stay 6 months with their mother ⁵⁰
	Practice of grazing	The packaging has a green (nature colour) and white (purity feeling) drawing with a cow grazing. But there is not label that certifies it. However the label of "Beter leven" has 3 stars and that means that they do walk outside 210 days 12 hours per day ⁵¹ .	The label of <i>Beter Leven</i> with 3 stars is a clear sign of animal welfare. Together with the colors of the packaging which add a natural and pure perception of the milk.
		CSI-CERT label FSC label	These labels are all related to environmental friendly practices and

⁴⁸ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁴⁹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁵⁰ <http://beterleven.dierenbescherming.nl/>

⁵¹ <http://beterleven.dierenbescherming.nl/>

	Environmental-friendly Packaging	Italpack label Recycling symbol Organic label	therefore are a clear sign of the effort done by the processor to help the environment.
Food safety	Milk healthiness	Gluten free label Organic label Gezondere keuze label EKO logo Nutritional table	The gluten-free gives the security to those people who can't ingest gluten that it is a save product to buy for them. The organic logo helps to interpret the manners and philosophy behind the producers and the processors by guaranteeing the standards under which such product has been manufactured. The EKO logo has the same connotation and the <i>Gezondere keuze</i> is a label that allows the client to be sure that this is the best choice (in terms of healthiness) among all possible products that he or she could buy.
Price/L	Relation price/litre	1,09€/1Lt (whole), 1,01€/1Lt (semi),	Expensive
Written paragraphs on the package	Message front side (photo 1)	<i>Biologische volle melk</i> (Biological whole milk and it is also written in French and German) <i>Albert Heijn</i> logo Beter leven label, organic label and gezondere keuze label Drawing in green and white colours of a cow grazing. A glass full of milk The Kcal and KJ per glass of milk (200ml) and per 100ml, which are 125Kcal and 63Kcal respectively	The message is clear, the milk is biological and refers to farm management practices, not to the milk itself ⁵² . The <i>Albert Heijn</i> logo is green which adds some meaning to the definition of "biological" milk. The same for the green and white drawings. The glass of milk is there to show how shiny and healthy the milk seems to be.

⁵² National dairy council. http://www.nationaldairycouncil.org/SiteCollectionDocuments/child_nutrition/parenting_nutrition/OrganicMilkFAQ.pdf

			The standard Kcal per 100ml of whole milk are 68Kcal ⁵³ and thus this milk has less.
	Message right side (photo 2)	<p>1Liter 5 portions (200 ml) Allergy and nutritional information Gluten free label Best used before the: see top (photo 7), if kept refrigerated (max 7 °). After opening a limited shelf life AH Quality Are you not satisfied, take the product and the sales receipt to the store and get the refund. <i>Albert Heijn</i> address Semi (skimmed): All organic dairy products at <i>Albert Heijn</i> start at organic dairy farms, the cows of these farms are much outside, grazing on pastures all with significant natural resources are treated and are fed easiness of mostly organic ingredients. The care of the cows and the environment proof you and the pure character of tasteful dairy.</p>	<p>Quantity Food safety factor and milk healthiness How to store the milk for its best quality This sentences shows the retailer commitment to Customer Satisfaction</p> <p>Semi skimmed: This paragraph gives extra attention to the organic label and therefore an explanation of organic farming with its attributed: grazing, natural resources, environment and animal care and tasty milk</p>
	Message back side (photo 3)	<p><i>Albert Heijn</i> green logo. EKO and organic labels Green drawing of flowers and an insect. Biological (green big letters) followed by the text: live it and enjoy the best that nature has to offer. Of course all our organic products are independently verified and therefore deserve the European label. Biological <i>Albert Heijn</i> that tastes like more!</p> <p>A colored drawing of cows being brought to a nice meadow with the text: you see a meadow: full of flowers and bees? A big chance exists that you are watching a biological farms as is Koos van der Laan Kamerik. The cows of these farms are outside a lot. Graze on meadows that all are treated with natural resources and are fed organic. That does not feel good at all. That tastes good!</p>	<p>EKO and organic labels have a clear link with environmental friendly practices. The color the drawing chosen for this packaging as well. This message emphasizes the commitment of the retailer in guaranteeing top products with the best quality, in this case expressed in terms of naturalness of the milk because it is biological, and the taste.</p> <p>This text tells the story of happy cows grazing and how good this is for them and the nature that surrounds them. Moreover the importance of</p>

⁵³ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

		<p>More about organic food? visit our website ah.nl/biologisch</p>	<p>the farmers they trust for such task and how this then leads to better taste and feeling for the milk.</p> <p>This is a clear informative link to the retailer's webpage to know more about this biological or organic process.</p>
	Message left side (photo 4)	<p><i>Gepasteuriseerde volle melk</i> (pasteurised milk). <i>Van biologische oorsprong</i> (of biological origin) Allergy information: it is gluten-free and it has milk protein. Best used before the: see top (photo 7), if kept refrigerated (max 7 °). After opening a limited shelf life.</p> <p>Nutritional value per 100ml and 200ml (photo 4). Salt is only derived from naturally occurring sodium Percentage of the daily calcium is 15% = 120mg. Reference intake of an average adult is 8400 KJ / 2000 Kcal per day. AH quality guarantee: if you are not satisfied with this article take it together with the receipt to the store and get the money back. Albert Heijn B.V. Provincialeweg 11, 1505MA Zaandam, Nederland www.ah.nl Barcode</p> <p>Semi (skimmed): AH Pure & Honest products are produced, grown & purchased with extra care for people, animals, nature and the environment. Animals have a happier life by taking into account their natural needs. EU logo is your guarantee of organic products. www.ah.nl</p>	<p>The milk is pasteurised and not UHT</p> <p>Informs allergic people to gluten and warn for those allergic to lactose.</p> <p>Information about the expiring date and the T^a in which it needs to be kept</p> <p>As the EU mandates it is necessary to write all the nutritional values of the product. The processor uses just natural products According to the standards of whole milk, the % of calcium should be of 122mg a day and therefore this milk provides almost the exact necessary amount which is important because calcium helps to build strong bones and teeth It shows the retailer commitment for customer's satisfaction Address of the retailer Webpage of the retailer where it is possible to find more information Semi skimmed: The adjectives used in this paragraph are "pure" and "honest" and this is a gamma from</p>

			<i>Albert Heijn</i> of organic products and it pretends to emphasize the organic quality factor with its animal welfare and environmental friendliness
	Message on the top (photos 6 and 7)	Open sideflaps completely push FSC label <i>Albert Heijn</i> logo in Green colours Biological whole milk Expire date and time when it was processed.	Easy to open This carton of milk is designed within some standards of environmental friendly packaging.
	Message on the bottom (photo 5)	CSI-FOOD contact label	Shows environmental friendliness

SUMMARY: This milk packaging has four colours: white, blue, brown and green. Besides there is the picture of a glass full of white pure milk. The white implies pure milk; blue corporate Albert Heijn color; brown and green are the colours of the ground and the Earth. This is the organic version of the white label of the supermarket. It is relatively expensive. The packaging uses sustainable labels related to environmental friendliness, grazing and animal welfare, as well as labels related to food safety (Gluten free label, Organic label and Gezondere keuze label). The font on the pack tries to be simple and in the same line as the grass drawn on the side of the pack. According to standard milk composition this milk has

Milk brand: Albert Heijn

Milk type: pasteurized whole milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: pasteurized semi-skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: pasteurized skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
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Heating treat.	Pasteurised or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁵⁴ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	3,5g per glass per 100 ml(whole), 1,5g per 100 ml (semi), and 0g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 4,0g, of semi-skimmed is 1,8g and skimmed 0,3g fat per 100ml ⁵⁵ , this specific milk brand has a lower number and thus it has less fat.
	Proteins	3,5g per glass per 100 ml(whole), 3,5g per 100 ml (semi) and 3,0g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 3,4g of semi-skimmed 3,6g and skimmed 3,6g proteins per 100ml ⁵⁶ , this specific milk brand has a lower number and thus it is less rich in proteins.
	Energy	270Kj/65Kcal per 100ml (whole), 205KJ/49Kcal per 100ml (semi) and 135Kj/ 32Kcal per 100 ml (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ⁵⁷ , 47KCal (semi-skimmed) and 35KCal (skimmed) this specific milk brand has a lower number and thus it contains less Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		

⁵⁴ <http://www.albalact.ro/en/about-pasteurised-and-uht-milk.html>

⁵⁵ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁵⁶ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁵⁷ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Sustainable	Good for the animal welfare	No label referring to animal welfare	No comments
	Practice of grazing	<i>Weidemelk</i> label	milk comes from farms where the cows walk outside
	Environmental-friendly Packaging	FSC label Recycling symbol Elopak logo	guarantee to consumers that the products they buy come from responsible sources
Food safety	Milk Healthiness	Gluten free label Nutritional table	Safe for celiac
Price/L	Relation price/litre	0,97€	Standard price for milk
Written paragraphs on the package	Message front side (photo 1)	<i>Albert Heijn</i> Fresh whole, semi or skimmed milk <i>Weide melk</i> label Natural source of calcium Every day delicious Per glass (200ml) 130Kcal or 540KJ Per 100ml 65Kcal or 270KJ, 205KJ/49Kcal per 100ml (semi) and	Type of milk Grazing factor related to animal welfare which is considered a good indicator of quality Nutritional value Very tasty milk Milk energy
	Message right side (photo 2)	Pasteurised whole milk from grazing cows. This message is written with the corporate blue color of <i>Albert Heijn</i> in the background Gluten free label Recycling symbol Allergy information: it is gluten-free and it has milk protein. Best used before the: see top (photo 7), if kept refrigerated (max 7 °). After opening a limited shelf life. Nutritional value per 100ml and 200ml	This message refers again to the grazing factor Food safety factor Environmental friendliness Food safety factor and healthiness for the consumer How to store the milk to keep it with its best quality Nutritional value for healthiness
	Message back side (photo 3)	<i>Weidemelk</i> : <i>Albert Heijn</i> milk comes from cows that at least 120 days per year 6 hours per day in the meadow walk. Grazing cows gives them more freedom of movement which improves their welfare. And so you can continue to enjoy the characteristic scenery with cows in the pasture. From Dutch soil:	This paragraph is a clear explanation for what it means to produce milk from grazing cows and how beneficial is that for the cows. This has to do with the “naturalness” of the milk

		<p>natural fresh dairy cows from Dutch soil. To enjoy delicious on time.</p> <p>FSC label</p> <p>This milk carton side has the corporative blue color of <i>Albert Heijn</i> in the background.</p>	Shows environmental friendliness
	Message left side(photo 4)	<p>This side of the packaging is white, like milk, and connotes milk freshness since drops of mil are visible. The natural nutrients of milk. Milk naturally contains nutrients for the body. As milk is rich in protein. Proteins' support includes building strength and muscle. By milk every day to drink the daily amount of protein is completed. This contributes to the maintenance of muscle mass and muscle recovery after exercise. Besides milk protein it also contains calcium. Calcium contributes to the maintenance of normal bone and is necessary for the instant attitude of normal teeth. For an optimal result AH whole milk in combination with a balanced and varied diet with plenty of fruits and vegetables (2 ounces of vegetables, 2 pieces of fruit).</p>	<p>The fact that the milk cartons use the corporate colour of <i>Albert Heijn</i> (blue) makes it easy to identify in the shelf</p> <p>This paragraph supports the idea of milk as a very healthy product and intends to explain the important of milk in your diet.</p>
	Message on the bottom (photo 5)	<p>Easy to open and easy to close</p> <p>Expire date and time when it was processed.</p> <p>Fresh whole, semi or skimmed milk</p>	<p>Packaging structure</p> <p>The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.</p> <p>Milk type</p>
	Message on the top (photo 6)	No message is written on the bottom	No comments

SUMMARY: according to the standard composition of milk this type is rich in energy and proteins and low in fat. This is the private label carton. Efforts are trying to explain the healthiness of the milk. The carton has an overall drawing of tasty milk. The pack is environmental friendly and its milk comes from grazing cows. Taste is a remarkable claim on pack.

Milk brand: Albert Heijn

Milk type: pasteurized semi-skimmed extra calcium milk



Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁵⁸ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	1,0g per 100ml milk	This means that if the standard composition of skimmed milk is of 0,3g fat per 100ml ⁵⁹ , this specific milk has a higher number and thus it has more fat.
	Proteins	3,5 g per 100ml milk	This means that if the standard composition of skimmed milk is of 3,6g proteins per 100ml ⁶⁰ , this specific milk has a little bit less but still rich enough.
	Energy	205KJ/49Kcal	This means that if the standard composition of skimmed milk is of 35Kcal per 100ml ⁶¹ , this specific milk has the same number of Kcal.
Hygienic	Cell. Count	Non-existence of such information on the packaging	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No labels related to this quality category	No comments
	Practice of grazing	100% <i>weidemelk</i> (no label)	Although it is written there is no presence of the official label

⁵⁸ <http://www.albalact.ro/en/about-pasteurised-and-uht-milk.html>

⁵⁹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁶⁰ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁶¹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Environmental-friendly Packaging	Recycling logo FSC label Pure-pak ^R	These 3 labels make it clear that the packaging is environmental friendly
Food safety	Milk healthiness	<i>Gezonderekeuze</i> label Gluten free label Extra calcium Nutritional table	This milk has an extra attribute and that is “extra calcium”
Price/L	Relation price/litre	1,05€/Lt	Expensive
Written paragraphs on the package	Message front side (photo 1)	<i>Albert Heijn</i> Fresh semi-skimmed milk calcium 100% <i>weidemelk</i> <i>GezondereKeuze</i> label The packaging has a cow on the meadow and the background pretends to simulate milk. The extra calcium is remarked with yellow colours	Retailer's name Type of milk Milk with extra calcium which will help prevent osteoporosis (weakening of bones). Milk comes from farms where the cows walk outside in the meadow at least 120 days per year for at least 6 hours a day from spring to autumn Milk made of less saturated fat, sugar and salt This packaging wants to keep attention to the fact that it has extra calcium and that it is very natural milk coming from grazing cows
	Message right side (photo 2)	Pasteurised semi-skimmed milk with extra calcium This message is written with the corporate blue color of <i>Albert Heijn</i> in the background Allergy information: it is gluten-free and it has milk protein. Best used before the: see top (photo 7), if kept refrigerated (max 7 °). After opening a limited shelf life. Nutritional value per 100ml and 200ml Gluten free label Recycling symbol	Type of milk and again that it is with extra calcium Food safety and healthiness factor How to store the milk to keep it with its best quality Referring to food safety and environmental friendliness

	Message back side (photo 3)	<p>FSC label</p> <p>From Dutch soil: natural fresh milk from cows and Dutch soil. At any time to sit and enjoy.</p> <p>100% pasture milk</p> <p><i>Albert Heijn</i> dairy is 100% derived from cows at least 120 days a year, six hours a day in the meadow walk.</p> <p>The grazing cows give more room to move that improves the welfare of the cows. And so you can continue to enjoy the characteristic landscape with cows in the pasture.</p>	(explained above)
	Message left side (photo 4)	<p>The natural nutrients of milk. Milk naturally contains nutrients for the body. Thus milk rich in protein include building support and strength of muscles. By every day to drink milk is the daily amount of protein added. This contributes to the maintenance of muscle mass and allows for muscle recovery after exercise. Besides proteins, milk also contains calcium. Calcium contributes to the maintenance of normal bones and is necessary for the maintenance of normal teeth. For optimal results AH semi-skimmed milk with added calcium in combination with a balanced and varied diet with plenty of fruits and vegetables (2 ounces of vegetables, 2 pieces of fruit).</p>	<p>The adjectives and descriptions used in this paragraph are: natural nutrients, explanation of benefits for the body, benefits of calcium, healthy diet. In general the whole paragraph transmits knowledge about the important properties of milk for healthiness.</p>
	Message on the bottom (photo 5)	Expiration date	The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.
	Message on the top (photo 6)	Nothing is written on this side of the packaging	No comments

SUMMARY: This milk packaging has two colours: white, blue. Besides the whole packaging is an image of milk, white pure milk. The white implies pure milk; blue corporate Albert Heijn color. This is the semi-skimmed version of the white label of the supermarket. It is not expensive. The packaging uses sustainable labels related to environmental friendliness, grazing and animal welfare, as well as labels related to food safety (Gluten free label and Gezondere keuze label). The font on the pack tries to be simple and in the same line as the whole milk pack. According to standard milk composition this milk is rich in fat.

Milk brand: Becel

Milk type: pasteurized skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁶² .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	<0,5g per 100ml (with the exception of plant sterols)	This means that if the standard composition of skimmed milk is of 0,3g fat per 100ml ⁶³ , this specific milk has a higher number and thus it has more fat.
	Proteins	3,5g per 100ml	This means that if the standard composition of skimmed milk is of 3,6g proteins per 100ml ⁶⁴ , this specific milk has a little bit less but still rich enough.
	Energy	150KJ/35Kcal	This means that if the standard composition of skimmed milk is of 35Kcal per 100ml ⁶⁵ , this specific milk has the same number of Kcal.

⁶² <http://www.albalact.ro/en/about-pasteurised-and-uht-milk.html>

⁶³ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁶⁴ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁶⁵ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Hygienic	Cell. Count	Non-existence of such information on the packaging	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No label referring to such quality category	No comments
	Practice of grazing	No label referring to such quality category	No comments
	Environmental-friendly Packaging	Elopak logo	Commitment to the environment
Food safety	Milk healthiness	Heart Association logo Nutritional table Gezonderekeuze label Unilever Vegan logo	Recommending cholesterol-lowering products, products with plant sterols Milk made of less saturated fat, sugar and salt. Extensive research together with many scientists into the cholesterol-lowering properties of plant sterols
Price/L	Relation price/litre	1,74€/L	Expensive
Written paragraphs on the package	Message front side (photo 1)	Becel pro-activ lowers cholesterol active scientifically proven skim milk with added plant sterols logo gezondere keuze Heart Association logo	This milk bring the power of science and logo such Unilever or the heart association to back up their tested extra healthiness and effect against cholesterol.
	Message right side (photo 2)	Flora pro activ is not meant for people who do not have to keep under management Checking their blood cholesterol levels. It is important to use Becel proactiv as indivisible healthy vooding with enough fruit and vegetables and a healthy lifestyle. Users of cholesterol-lowering medications should consult with their physician before using Becel Proactiv. This product is nutritionally fashion them not suitable roof racks pregnant and lactating women and children under five. Flora pro activ contains plant sterols. It has been shown that plant sterols decrease	The consumer of this milk is very specific: elderly people who want to reduce or take extra care about their cholesterol. Therefore a lot of effort is put on explaining what are the plant sterols and their exact effect to your body. A very scientific explanation.

		the blood cholesterol. A high level of cholesterol is a risk factor for the development of coronary heart disease. For this are multiple risk factors and altering one of these risk factors may or may not already have a beneficial effect. The intake of 1,5-2,4g plant sterols per day can reduce cholesterol by 7 to 10% after 2 to 3 weeks as part of a healthy diet with plenty of fruits and vegetables and a healthy lifestyle.	
	Message back side (photo 3)	Idem photo 1	Idem photo 1
	Message left side (photo 4)	Unilever Nutritional table Vegan logo	Standard information on pack
	Message on the bottom (photo 5)	Expiring date Elopak	Standard information on pack
	Message on the top (photo 6)	No information written on the pack	No comments

SUMMARY: This milk packaging has white and green as main colors. White implies pure milk; green healthiness. This is a very expensive brand very much related to heart health due to its cholesterol lowering effect. The packaging uses sustainable labels related to environmental friendliness, and many labels related to food safety (Gluten free label, vegan, heart association logo and Gezondere keuze label). The design is simple with a big arrow indicating the cholesterol lowering effect. According to standard milk composition this milk contains plant sterols which helps to lower the cholesterol.

Brand: Friesche Vlag

Milk type: UHT whole milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: UHT semi skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Milk type: UHT skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
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Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed ⁶⁶
Technological	Fat	3,6g per 100 ml (whole), 1,5g per 100 ml(semi) and 0g per 100ml (Skimmed)	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ⁶⁷ , of semi 1,8g fat and of skimmed 0,3g, this specific milk has a lower number and thus it has less fat.
	Protein	3,6g per glass (100 ml), 3,7g per100 ml (semi) and 3,7g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 3,4g proteins per 100ml ⁶⁸ , of semi 3,6g and for skimmed milk 3,6g, this specific milk has a higher number and thus it is rich enough in proteins which is good because it helps to build and repair muscle tissue.
	Energy	281KJ/67Kcal per 100ml (whole), 204kj (48Kcal) per 100ml (semi) and 157Kj (37Kcal) per 100ml (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ⁶⁹ , of semi is 47KCal and of skimmed milk is 35Kcal, this specific milk has a lower number and thus it contains a bit more Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No label regarding this topic	No comments
	Practice of grazing	Weidemelk label	milk comes from farms where the cows walk outside in the meadow
	Environmental-friendly Packaging	FSC label Tetrapack logo	minimizing the impact on the environment

⁶⁶ <http://www.albalact.ro/en/about-pasteurised-and-uht-milk.html>

⁶⁷ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁶⁸ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁶⁹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Food safety	Milk healthiness	Gezonderekeuze label (for semi and skimmed version) Nutritional table	made of less saturated fat, sugar and salt
Price	Relation price/litre	1,11€	Expensive
Written paragraphs on the package	Message front side (photo 1)	Brand name long nice New lit, easier to open The drawing is the same in all three packs: the colored drawing of a hand holding a glass of milk in which a big amount of milk is being filled. The only difference is the blue in the background, the less lighter the milk the lighter the blue color.	This message is because it is UHT and thus has longer life.
	Message right side (photo 2)	Frieslandcamp. logo Nutritional table Best used before the: see top (photo 7), if kept refrigerated (max 7 °). After opening a limited shelf life. Do you still have questions? Call gratis the client service of Friesland Campina	Standard information on pack
	Message back side (photo 3)	Idem photo 1	Idem photo 1
	Message left side (photo 4)	This cartoon is renewable The cardboard from our packaging carries the FSC label that stands for sustainable forestry. Wood is a renewable resource because trees used to be constantly replaced. So the source will always remain. That makes our cartons a responsible choice.	
	Message on the bottom (photo 5)	Expiring date New lit	Standard information on pack
	Message on the top (photo 6)	Tetra pak logo	Environmental friendliness commitment

SUMMARY: This milk packaging is UHT and it has a very simple design which is shared by the three types of milk: skimmed, semi and whole. The colours are: white, blue. Besides there is the picture of a glass full of white pure milk. The white implies pure milk. The packaging uses sustainable labels related to environmental friendliness, grazing and animal welfare, as well as labels related to food safety (Gezondere keuze label). It is a simple design. According to standard milk composition this milk is rich in proteins.

Milk brand: campina

Type of milk: organic whole milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	<u>Pasteurised</u> or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁷⁰ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	Fat	3,6g per glass (100 ml)	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ⁷¹ , this specific milk has a lower number and thus it has less fat.
	Protein	3,4g per glass (100 ml)	This means that if the standard composition of whole milk is of 3,4g proteins per 100ml ⁷² , this specific milk has the exact number and thus it is rich enough in proteins which is good

⁷⁰ <http://www.albalact.ro/en/about-pasteurised-and-ugt-milk.html>

⁷¹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁷² Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

			because it helps to build and repair muscle tissue.
	Energy	271KJ/65Kcal per 100ml	This means that if the standard composition of whole milk is of 68KCal per 100ml ⁷³ , this specific milk has a lower number and thus it contains less Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	Organic label Weidemelk label EKO	Antibiotics are kept out of the milk supply; all cows have a natural protein hormone (bST) that helps them produce milk; dairy farmers maintain proper animal care (with comfortable living conditions, nutritious diets and good medical care) and environmental practices (using only organic fertilizers and pesticides, and not using rbST) on their farms.
	Practice of grazing	Weidemelk label	milk comes from farms where the cows walk outside in the meadow at least 120 days per year for at least 6 hours a day from spring to autumn
	Environmental-friendly Packaging	FSC EKO Klimaatneutraal	a guarantee to consumers that the products they buy come from responsible sources which support forest conservation. Klimaat neutral guarantees packages are carbon neutral and that they contain more unsaturated fats and omega 3 fatty acids
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price	Relation price/litre	1,25€	Expensive

⁷³ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Written paragraphs on the package	Message front side (photo 1)	Campina boer en land Natural and biological whole milk Organic label Weidemelk label Drawing of cows grazing on the Green meadows and a glass of milk on a picnic towel covered by grass & a bird is next to the milk variant name	This packaging has a lot of images and elaboration since it is organic milk and the drawing wants to bring as many elements on the front of the pack as possible that remind of this naturalness and freshness of the milk
	Message right side (photo 2)	Our 140 farmer families give love and space to our nature. And then you prove it in our rich, pure biologic dairy that with dedication and passion is made. Know more about the stories behind our biological farms on our website and facebook.	This claim remains of the proximity of this milk and also about the dedication of the farmers that work for campina to produce the best milk. Furthermore there is the option of connecting with the social net facebook
	Message back side (photo 3)	Campina boer en land Natural and biological whole milk Organic label Weidemelk label	Important labels for the organic product
	Message left side (photo 4)	Nutritional table Organic label EKO label FSC label Weidemelk label Frieslandcamp. Logo Good to know: explanation of what is weidemelk	Standard info on pack plus all the labels guaranteeing what this type of milk claims.
	Message on the bottom (photo 5)	Expiring date Biological whole milk	Standard info on pack
	Message on the top (photo 6)	No information written on this side of the pack	No comments

SUMMARY: This milk packaging has four colours: white, blue and green. Besides there is the picture of cows grazing and a glass full of tasty milk (2 of the most used elements on pack). The white implies pure milk; blue corporate campina color; and green are the colors of the ground and the Earth. This is the organic version of Campina. It is relatively expensive. The packaging uses sustainable labels related to environmental friendliness (FSC EKO, klimaatneutral), grazing (weidemelk) and animal welfare (organic), as well as labels related to food safety (Gluten free label, Organic label and Gezondere keuze label). The font on the pack tries to be simple and in the same line as the grass drawn on the side of the pack. According to standard milk composition this milk is rich in proteins and low in fat and energy.

Milk brand: campina

Type of milk: semi-skimmed pasteurized milk



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	<u>Pasteurised</u> or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁷⁴ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	1,5g per 100ml	This means that if the standard composition of semi-skimmed milk is of 1,8g fat per 100ml ⁷⁵ , this specific milk has a lower number and thus it has less fat.
	Proteins	3,6g per 100ml	This means that if the standard composition of semi-skimmed milk is of 3,6g proteins per 100ml ⁷⁶ , this specific milk has the exact number and thus it is rich enough in proteins which is good because it helps to build and repair muscle tissue.
	Energy	48Kcal per 100ml	This means that if the standard composition of semi-skimmed milk is of 47Kcal per 100ml ⁷⁷ , this specific milk has a little bit more and thus it contains less Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No labels regarding this topic	No comments
	Practice of grazing	Weidemelk label	the cows walk outside in the meadow
	Environmental-friendly Packaging	No labels regarding this topic	No comments
Food safety	Healthiness	Gezondere keuze label Nutritional table	made of less saturated fat, sugar and salt.
Price	Relation price/2,4 Lt litre	2,36€	Expensive

⁷⁴ <http://www.albalact.ro/en/about-pasteurised-and-uht-milk.html>

⁷⁵ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁷⁶ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁷⁷ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Written paragraphs on the package	Message front side (photo 1)	Weidemelk label Campina semi-skimmed Promotion Dutch flag Glass of fresh milk on the grass Gezondere keuze	This pack is a 2,4L pack and thus it has the shape of a carafe. The Dutch flag gives emphasis to the fact that it comes from Dutch cows. The glass on the grass gives this freshness feeling.
	Message right side (photo 2)	Explanation of what is weidemelk Nutritional table	Standard information on pack
	Message back side (photo 3)	Bar code	
	Message left side (photo 4)	Expiring date	Standard information on pack
	Message on the bottom (photo 5)	No information written on this part of the pack	No comments

SUMMARY: This milk packaging has the images used always by Campina, a picture of cows grazing and a glass full of tasty milk (2 of the most used elements on pack). The white implies pure milk; blue corporate campina color; and green is the color of the ground and the Earth. This is the 2,4L capacity carafe thus a special pack for milk. It is relatively expensive. The packaging does not use sustainable labels related to environmental friendliness (and it is the only exception from Campina), but it does use the grazing (weidemelk) label, as well as labels related to food safety (Gezondere keuze label). According to standard milk composition this milk is rich in proteins and low in fat and energy.

Milk brand: campina

Type of milk: semi-skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or <u>UHT</u>	Milk heated up to a temperature of 135 - 150°C.	Can be kept for about six months without refrigeration until being unsealed
Technological	fat	1,5 g per 100ml	This means that if the standard composition of semi-skimmed milk is of 1,8g fat per 100ml ⁷⁸ , this specific milk has a lower number and thus it has less fat.
	Proteins	3,6 g per 100ml	This means that if the standard composition of semi-skimmed milk is of 3,6g proteins per 100ml ⁷⁹ , this specific milk has the exact number of proteins
	Energy	48 kcal (201 kJ) per 100ml	This means that if the standard composition of semi-skimmed milk is of 47Kcal per 100ml ⁸⁰ , this specific milk has a higher number of Kcal
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No labels regarding this topic	No comments
	Practice of grazing	No labels regarding this topic	No comments
	Environmental-friendly Packaging	FSC Tetrapak	guarantee to consumers that the products they buy come from responsible sources
Food safety	Healthiness	Gezondere keuze Nutritional table	made of less saturated fat, sugar and salt
Price/L	Relation price/litre	1,04€	Expensive

⁷⁸ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁷⁹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁸⁰ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Written paragraphs on the package	Message front side (photo 1)	with all the goodness of fresh milk	They compare UHT with pasteurized milk claiming to be the same
	Message right side (photo 2)	Did you know that our Campina life milk contains all the goodness of fresh milk? In order to make this milk Campina a longer shelf life, we have the fresh milk is heated briefly high. We add nothing to it. So pure milk, with healthy fresh milk, but unopened or nice long fresh. Campina semi-skimmed milk is naturally rich in protein and a source of calcium and vitamins B2 and B12. Calcium is important for strong bones and teeth empire.	This explanation has a clear focus on explaining the consumer that there is not much difference between pasteurized milk and UHT milk but that it lasts longer on shelf if it is not opened. It highlights the vitamins that contains and what are they good for in order to make sure the consumer understands how healthy it is.
	Message back side (photo 3)	Campina Logo Nutritional address	product range of the cooperative <i>Friesland Campina</i>
	Message left side (photo 4)	FSC Promotion prize Tetrapak Barcode	Environmental friendly commitment
	Message on the bottom (photo 5)	Promotion code Expiring dateline	Standard info on pack
	Message on the top (photo 6)	Tetra pak	minimising the impact on the environment

SUMMARY: This milk packaging has the images used always by Campina, a picture of cows grazing and a glass full of tasty milk (2 of the most used elements on pack). The white implies pure milk; blue corporate campina color; and green is the color of the ground and the Earth. This is the 1L capacity carton. It is relatively expensive. The packaging uses sustainable labels related to environmental friendliness (FSC and tetrapak), but it does use the grazing (weidemelk) label, as well as labels related to food safety (Gezondere keuze label). According to standard milk composition this milk is rich in energy.

Milk brand: Arla

Type of milk: organic semi-skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	<u>Pasteurised</u> or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁸¹ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	1,5g per 100ml	This means that if the standard composition of semi-skimmed milk is of 1,8g fat per 100ml ⁸² , this specific milk has a lower number and thus it has less fat.
	Proteins	3,5g per 100ml	This means that if the standard composition of semi-skimmed milk is of 3,6g proteins per 100ml ⁸³ , this specific milk has a lower number and thus it misses (barely) proteins
	Energy	197KJ/47Kcal	This means that if the standard composition of semi-skimmed milk is of 47Kcal per 100ml ⁸⁴ , this specific milk has the specific number of Kcal
Hygienic	Cell. Count	Nonexistence of such information on the pack	No comments
	Antibiotic free		

⁸¹ <http://www.albalact.ro/en/about-pasteurised-and-uht-milk.html>

⁸² Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁸³ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁸⁴ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	PH		
Sustainable	Good for the animal welfare	Organic label	Antibiotics are kept out of the milk supply; all cows have a natural protein hormone (bST) that helps them produce milk; dairy farmers maintain proper animal care (with comfortable living conditions, nutritious diets and good medical care) and environmental practices (using only organic fertilizers and pesticides, and not using rbST) on their farms.
	Practice of grazing	Organic label	
	Environmental-friendly Packaging	Organic label FCS label Recycling label <i>Elopak</i> logo	The fact that there are some many labels referring to the environmental friendliness puts Arla in a very high position in this quality aspect
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price/L	Relation price/litre	1,13€/Lt	Expensive
Written paragraphs on the package	Message front side (photo 1)	<i>Arla</i> organic semi-skimmed milk Delicious creamy taste Delicious from a pasture full of cows birds and butterflies	Type of milk two suitable adjectives to describe milk It gives the impression that the meadow is very green and healthy full of nature. On the packaging there is the drawing of a cow, yellow flowers and a blue

			butterfly. The carton is entire white like milk.
	Message right side (photo 2)	<p>FSC label Recycling logo Organic label Organic semi-skimmed milk high pasteurized 1 litre Nutritional value information 100% natural Best used before the: see top (photo 6), if kept refrigerated (max 7 °). After opening a limited shelf life. You have questions or comments, please call or write free to <i>Arla Foods Consumer Service</i> (Address) or email us at (email). Drawing of a cow</p>	<p>These labels show the commitment with the environment and animal welfare Type of milk Quantity Information about healthiness factor Remarks the naturalness of the milk Practical information about how to store the milk the best way Shows responsibility for consumer, a good customer service The cow is on a meadow and this is related to grazing</p>
	Message back side (photo 3)	<p><i>Arla</i> makes 100% natural dairy. Without artificial additives. So pure cow without hassle. And it tastes good! And as a real aficionado, we bring you now like literally immersed in nature. Follow the <i>klompenpad</i>! We have the 100 most beautiful trails sorted out. Throughout the Netherlands. Along ditches, fences and through real pastures. Where you can just wander through. As free and happy as the cows in the pasture. Backpack on a go! All those green hiking trails. Discover you klompenpaden.nl/arla. Even those in your area. So good on the road, alone or together. <i>Arla</i> with 100% enjoy real adventures in the real nature!</p>	<p>This message is a clear reference to the naturalness and purity of <i>Arla</i> milk.</p> <p>This is a marketing action that pretends to bring the customer to the experience of being a grazing cow in the meadow. This has a clear link with animal welfare and grazing cows. Besides it invites to do such activity with the family.</p>
	Message left side (photo 4)	<p>What is organic semi-skimmed milk? Our semi-skimmed milk is made purely natural. By cows, if possible many nice walk outside. To graze on pastures where mild grass and flowers. Where birds and butterflies fluttering dab canals.</p>	<p>This is a clear message referring to the organic process of the milk and also referring to what specifically the cows from <i>Arla</i> eat and drink. Such information is about the purity,</p>

		<p>And from which we can only get some fresh milk fat. What remain are milk with mild and 100% pure flavour. Hmmm, yummy.</p> <p>What eat our cows?</p> <p>The cows that make our organic milk, food & drink himself 100% organic. As a grazing cow on a summer day or about 60 pounds of fresh grass and flowers. And drink about 80 litres of water. And there she is, then, quietly ruminating about 20 litres of delicious organic milk!</p>	<p>naturalness and freshness of the feeding for cows and how later on it effects positively on the milk they produce. It is a very short explanatory text about the importance of grazing and feeding the cows.</p>
	Message on the bottom (photo 5)	No message written on it.	No comments
	Message on the top (photo 6)	<p>Expiration date</p> <p>100%naturalness</p>	<p>The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.</p> <p>The sentence 100% naturalness remarks the organic approach to this milk.</p>

SUMMARY: This milk packaging is all white, like the milk. It uses the drawing of the *siluete* of a cow and the drawing of a butterfly. The white implies pure milk, the butterfly is related to nature. It is a 1L capacity carton. It is relatively expensive. The packaging uses sustainable labels related to environmental friendliness (FSC, elopak, recycling symbol), it uses the grazing (organic) label. The claims on pack put a lot of effort on explaining where the milk comes from and how the cows are treated. The fact that it is organic milk is embraced by the text. According to standard milk composition this milk is low in fat.

Milk brand: De Haanse Hoeve

Type of milk: whole pasteurized milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁸⁵ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	3,5 g per 100ml	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ⁸⁶ , this specific milk has a lower number and thus it has less fat.
	Proteins	3,5g per 100ml	This means that if the standard composition of whole milk is of 3,4g proteins per 100ml ⁸⁷ , this specific milk has a higher number and thus it is rich enough in proteins which is good because it helps to build and repair muscle tissue.
	Energy	275Kj/65KCal	This means that if the standard composition of whole milk is of 68KCal per 100ml ⁸⁸ , this specific milk has a lower number and thus it contains less Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the packaging	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No label related to this quality category	No comments
	Practice of grazing	No label related to this quality category	No comments
	Environmental-friendly Packaging	FSC label Elopak logo	The FSC label provides a guarantee to consumers that the products they buy come from responsible sources

⁸⁵ <http://www.albalact.ro/en/about-pasteurised-and-uht-milk.html>

⁸⁶ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁸⁷ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁸⁸ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

			Pure-Pak® cartons are the type of cartons deliver by <i>Elopak</i>
Food safety	Milk healthiness	Gluten free label Nutritional table	Gluten free means that the manufacturer or marketers of this milk adjust the production process in order to make the product gluten free.
Price	Relation price/litre	0,69€	Not expensive
Written paragraphs on the package	Message front side (photo 1)	<i>De Zaanse Hoeve</i> Whole milk 1 litre Kcal per 100ml and 200ml milk	General information about the type of milk, quantity and energy (Kcal). The packaging is entirely blue which is the corporate colour of <i>Albert Heijn</i>
	Message right side (photo 2)	Pasteurised whole milk Best used before the: see top (photo 5), if kept refrigerated (max 7 °). After opening a limited shelf life. FSC label Nutritional information Gluten free label AH Quality Are you not satisfied, take the product and the sales receipt to the store and get the refund. <i>Albert Heijn</i> address	This information is also for the consumer to know how to keep the milk in its best quality Important value for the healthiness factor Gluten free means that the manufacturer or marketers of this milk adjust the production process in order to make the product gluten free. This sentences shows the retailer commitment to Customer Satisfaction
	Message back side (photo 3)	<i>De Zaanse Hoeve</i> Whole milk 1 litre Kcal per 100ml and 200ml milk	The front side, right side and the back side have the same information.
	Message left side (photo 4)	<i>De Zaanse Hoeve</i> Semi-skimmed milk 2liters	<i>De Zaanse Hoeve</i> is a private-label product provided by <i>Albert Heijn</i> . Type of milk Quantity
	Message on the top (photo 5)	Expiration date Whole milk 1 litre	The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.

	Message on the bottom (photo 6)	No message written on the bottom	No comments
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SUMMARY: This milk packaging has no images or drawings but just the name of the brand and the type of milk. This brand is also a private label from Albert Heijn but it is a bit more expensive. It uses the color blue as a corporate color. It is a 1L capacity milk carton. Not expensive. The packaging does use sustainable labels related to environmental friendliness (FSC), but it does not use the grazing or animal welfare labels, however it does have labels related to food safety (gluten free label). According to standard milk composition this milk is rich in proteins

Milk brand: De Haanse Hoeve

Type of milk: semi skimmed pasteurized milk



Photo 1	Photo 2	Photo 3	Photo 4	Photo 5	Messages into the dimension	Messages	Means
Heating treat.					<u>Pasteurised</u> or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁸⁹ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological					fat	1,5g per glass (100 ml)	This means that if the standard composition of semi-skimmed milk is of 1,8g fat per 100ml ⁹⁰ , this specific milk has a lower number and thus it has less fat.

⁸⁹ <http://www.albalact.ro/en/about-pasteurised-and-ugt-milk.html>

⁹⁰ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Proteins	3,5g per glass (100 ml)	This means that if the standard composition of semi-skimmed milk is of 3,6g proteins per 100ml ⁹¹ , this specific milk has a bit less but still enough proteins which is good because it helps to build and repair muscle tissue.
	Energy	200KJ/48Kcal	This means that if the standard composition of semi-skimmed milk is of 47KCal per 100ml ⁹² , this specific milk has a higher number and thus it contains more Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No label related to such category	No comments
	Practice of grazing	No label related to such category	No comments
	Environmental-friendly Packaging	No label related to such category	No comments
Food safety	Milk healthiness	Gezondere keuze logo Gluten-free label Nutritional table	Gezondere keuze means that the milk is made of less saturated fat, sugar and salt. It indicates that the product at hand is the best choice within a range of products. Gluten free means that the manufacturer or marketers of this milk adjust the production process in order to make the product gluten free.
Price	Relation price/2litre	1,15	Not expensive
Written paragraphs on the package	Message front side (photo 1)	No message is written in this side	No comments
	Message right side (photo 2)	No message is written in this side	No comments
	Message back side (photo 3)	No message is written in this side	No comments
	Message left side (photo 4)	De Zaanse Hoeve Gezondere keuze label Semi-skimmed milk	De Zaanse Hoeve is a private-label product provided by Albert Heijn. Food safety information

⁹¹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁹² Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>








		2liters Pasteurised semi-skimmed milk Best used before the: see top (photo 6), if kept refrigerated (max 7 °). After opening a limited shelf life. Nutritional value per 100ml AH Quality Are you not satisfied, take the product and the sales receipt to the store and get the refund. <i>Albert Heijn</i> address	Type of milk Quantity This information is also for the consumer to know how to keep the milk in its best quality Important value for the healthiness factor This sentences shows the retailer commitment to Customer Satisfaction
	Message on the top (photos 6)	No message is written in this side	No comments
	Message on the bottom (photo 5)	Expiration date	The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.

SUMMARY: This milk packaging has no images just the blue corporate color. This is the 2L capacity carafe thus a special pack for milk. It not expensive. The packaging does not use sustainable, animal welfare or grazing labels just labels related to food safety (Gezondere keuze and gluten free labels). According to standard milk composition this milk is rich in proteins and low in fat and energy.

Dirk Van Den Broek

Dirk

Dirk is a Dutch supermarket chain. Dirk focuses on low price of the products and less on comprehensive service. Dirk is affiliated with the purchasing organization Superunie. The samples for this analysis are from a visit to *Dirk Van Den Broek* the 25th of May of 2015 at the Burgemeester Sweenslaan 15, 2262 BN Leidschendam. The milk brands available at *Dirk Van Den Broek* are the following:

- Melkan 
- Arla  (instead of a pasteurized version a UHT one)
- Melkunie 
- Friesche Vlag  (same as in *Albert Heijn* and thus no need to analyze it again)
- Dreefsigt 
- Vecozuivel 
- Landhof 

Milk brand: Superunie (Dirk Van Den Broek supplier)

Type of milk: whole pasteurized milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Type of milk: semi-skimmed pasteurized milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Type of milk: skimmed pasteurized milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	<u>Pasteurised</u> or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁹³ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	3,6g per glass 100 ml (whole), 1,6g per 100 ml (semi) and 0,1g per 100 ml (skimmed)	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ⁹⁴ , of semi of 1,8g, and skimmed 0,3g this specific milk has a lower number and thus it has less fat.
	Proteins	3,5 g per glass 100 ml (whole), 3,6g per 100ml (semi) and 3,7g per 100ml (skimmed)	This means that if the standard composition of whole milk is of 3,4g proteins per 100ml ⁹⁵ and for semi-skimmed and skimmed of 3,6g per 100ml, this specific milk has a lower number thus it is less rich in proteins

⁹³ <http://www.albalact.ro/en/about-pasteurised-and-ugt-milk.html>

⁹⁴ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁹⁵ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Energy	271Kj (65Kcal) per 100ml (whole), 200Kj (48Kcal) per 100ml (semi) and 148Kj (35Kcal) per 100ml (skimmed)	This means that if the standard composition of whole milk is of 68KCal per 100ml ⁹⁶ and of semi of 47KCal and skimmed milk 35KCal , this specific milk contains less Kcal.
Hygienic	Cell .Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No label related to such category	No comments
	Practice of grazing	No label related to such category	No comments
	Environmental-friendly Packaging	FSC label Elopak	guarantee to consumers that the products they buy come from responsible sources
Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price	Relation price/litre	0,69€/L	Not expensive
Written paragraphs on the package	Message front side (photo 1)	Whole milk 1 litre	Standard information on pack
	Message right side (photo 2)	Pasteurised whole milk Nutritional table Explanation of the materials of the pack and their environmental friendliness Best used before the: see top (photo 7), if kept refrigerated (max 7 °). After opening a limited shelf life FSC label	Standard information on pack
	Message back side (photo 3)	No message is written in this side	No comments
	Message left side (photo 4)	Whole milk	Standard information on pack
	Message on the bottom (photo 6)	Whole milk	Standard information on pack

⁹⁶ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Message on the top (photos 5)	Expiration date	The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.
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SUMMARY: This milk packaging is very simple. It is a 1L capacity carton blue color. For each variety it uses a different blue, the lighter the version the lighter the blue. . The packaging uses sustainable labels related to environmental friendliness (FSC and elopak), but it does use the grazing (weidemelk) label, as well as labels related to food safety (Gezondere keuze label) or animal welfare. According to standard milk composition this milk is rich in proteins.

Milk brand: Arla

Type of milk: UHT semi-skimmed milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	<u>Pasteurised</u> or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ⁹⁷ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	per glass (100 ml)	This means that if the standard composition of semi-skimmed milk is of

⁹⁷ <http://www.albalact.ro/en/about-pasteurised-and-ugt-milk.html>

			1,8g fat per 100ml ⁹⁸ , this specific milk has a lower number and thus it has less fat.
	Proteins		This means that if the standard composition of semi-skimmed milk is of 3,6g proteins per 100ml ⁹⁹ , this specific milk has a bit less but still enough proteins which is good because it helps to build and repair muscle tissue.
	Energy		This means that if the standard composition of semi-skimmed milk is of 47Kcal per 100ml ¹⁰⁰ , this specific milk has a higher number and thus it contains more Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No label related to such category	No comments
	Practice of grazing	No label related to such category	No comments
	Environmental-friendly Packaging	No label related to such category	No comments
Food safety	Milk healthiness	Gezondere keuze logo Gluten-free label Nutritional table	Gezondere keuze means that the milk is made of less saturated fat, sugar and salt. It indicates that the product at hand is the best choice within a range of products. Gluten free means that the manufacturer or marketers of this milk adjust the production process in order to make the product gluten free.
Price	Relation price/litre		Not expensive

⁹⁸ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

⁹⁹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹⁰⁰ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Written paragraphs on the package	Message front side (photo 1)	No message is written in this side	No comments
	Message right side (photo 2)	No message is written in this side	No comments
	Message back side (photo 3)	No message is written in this side	No comments
	Message left side (photo 4)		
	Message on the top (photos 6)	No message is written in this side	No comments
	Message on the bottom (photo 5)	Expiration date	The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.

SUMMARY: This milk packaging is a 1L capacity milk carton. It is the UHT version and thus it uses other colors and images than the pasteurized version. Thus instead of white the carton is fully blue. The image is one of the typical ones used in packs: a glass of milk. Unlike the pasteurized version this one it does not have many messages on pack. The packaging does not use any sustainable, grazing or animal friendly label but just labels related to food safety (Gezondere keuze label). According to standard milk composition this milk is rich in energy and proteins.

Milk brand: Melkunie

Type of milk: semi-skimmed pasteurized milk with calcium



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
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Heating treat.	Pasteurised or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ¹⁰¹ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	1,5g per glass (100 ml)	This means that if the standard composition of semi-skimmed milk is of 1,8g fat per 100ml ¹⁰² , this specific milk has a lower number and thus it has less fat.
	Proteins	3,5g per glass (100ml)	This means that if the standard composition of semi-skimmed milk is of 3,6g proteins per 100ml ¹⁰³ , this specific milk has a bit less but still enough proteins which is good because it helps to build and repair muscle tissue.
	Energy	204KJ (49Kcal)	This means that if the standard composition of semi-skimmed milk is of 47KCal per 100ml ¹⁰⁴ , this specific milk has a higher number and thus it contains more Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No label related to such category	No comments
	Practice of grazing	No label related to such category	No comments
	Environmental-friendly Packaging	PAK DOP FSC	Commitment with the environment

¹⁰¹ <http://www.albalact.ro/en/about-pasteurised-and-ugt-milk.html>

¹⁰² Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹⁰³ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹⁰⁴ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Food safety	Milk healthiness	Gezondere keuze logo Gluten-free label Nutritional table	Gezondere keuze means that the milk is made of less saturated fat, sugar and salt. It indicates that the product at hand is the best choice within a range of products. Gluten free means that the manufacturer or marketers of this milk adjust the production process in order to make the product gluten free.
Price	Relation price/litre		
Litres	2Lt		
Written paragraphs on the package	Message front side (photo 1)	No message is written in this side	No comments
	Message right side (photo 2)	No message is written in this side	No comments
	Message back side (photo 3)	No message is written in this side	No comments
	Message left side (photo 4)		
	Message on the top (photos 6)	No message is written in this side	No comments
	Message on the bottom (photo 5)	Expiration date	The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.

SUMMARY: This milk packaging has the image of a glass of milk, like many other packs. It is a 1L capacity pack. It uses the color blue as main color on pack. There are not many messages written on pack. The packaging uses sustainable labels related to environmental friendliness (FSC) and to food safety (Gezondere keuze label). According to standard milk composition this milk is rich in energy and proteins.

Milk brand: Dreefstigt

Type of milk: whole pasteurized milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Type of milk: semi-skimmed pasteurized milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	Pasteurised or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ¹⁰⁵ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	3,6g per glass per 100 ml (wole) and 1,6g per 100 ml (semi)	This means that if the standard composition of whole milk is 4g per 100ml and of semi-skimmed milk is of 1,8g fat per 100ml ¹⁰⁶ , this specific milk has a lower number and thus it has less fat.
	Proteins	3,5g per glass per 100ml (whole) and 3,6g per 100ml (semi)	This means that if the standard composition of whole milk is 3,4g per 100ml and of semi-skimmed milk is of 3,6g proteins per 100ml ¹⁰⁷ , this specific milk is rich proteins which is good because it helps to build and repair muscle tissue.
	Energy	271KJ (65Kcal) per 100ml (whole) and 200KJ (48Kcal) per 100ml (semi)	This means that if the standard composition of whole milk is of 68KCal per 100ml and for semi-skimmed milk is of 47KCal per 100ml ¹⁰⁸ , this specific milk has almost the same numbers and thus it contains enough Kcal.

¹⁰⁵ <http://www.albalact.ro/en/about-pasteurised-and-uht-milk.html>

¹⁰⁶ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹⁰⁷ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹⁰⁸ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No label related to such category	No comments
	Practice of grazing	Weidemelk label	cows walk outside in the meadow at least 120 days per year for at least 6 hours a day from spring to autumn
	Environmental-friendly Packaging	FSC Elopak	guarantee to consumers that the products they buy come from responsible sources which support forest conservation
Food safety	Milk healthiness	Just for the semi-skimmed version: <i>Gezondere keuze</i> logo Nutritional table	<i>Gezondere keuze</i> means that the milk is made of less saturated fat, sugar and salt. It indicates that the product at hand is the best choice within a range of products. Gluten free means that the manufacturer or marketers of this milk adjust the production process in order to make the product gluten free.
Price	Relation price/litre		
Written paragraphs on the package	Message front side (photo 1)	Dreefstigt Whole or semi-skimmed milk The best of Dutch dairy pasture Grass picture on the bottom of the front pack and a glass of milk with a ray milk falling inside	
	Message right side (photo 2)	Nutritional table FSC Elopak Dreefstigt Dutch milk comes from cows that from spring to autumn at least 120 days per year, Minimal 6 hours per day in the meadow walk. Therefore, this dairy product has the pasture milk guarantee seal	
	Message back side (photo 3)	Idem as photo 1	No comments
	Message left side (photo 4)	Idem as photo 2	

	Message on the top (photos 6)	No message is written in this side	No comments
	Message on the bottom (photo 5)	Expiration date	The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.

SUMMARY: This milk packaging is a 1L capacity milk carton which shares the exact same design for both versions (whole and pasteurized). The image used on pack is a glass of milk and green grass which implies tasty milk and the grass is related to grazing practices (this milk has the label weidemelk).. The packaging uses sustainable labels related to environmental friendliness (FSC and elopak), grazing (weidemelk) label, as well as labels related to food safety (Gezondere keuze label). According to standard milk composition this milk is rich in proteins.

Milk brand: Vecozuivel

Type of milk: organic whole pasteurized milk



Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	<u>Pasteurised</u> or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ¹⁰⁹ .	Expiration date is shorter and it needs to be refrigerated the whole time.
Technological	fat	3,5g per glass (100 ml)	This means that if the standard composition of whole milk is of 4,0g fat per 100ml ¹¹⁰ , this specific milk has a lower number and thus it has less fat.

¹⁰⁹ <http://www.albalact.ro/en/about-pasteurised-and-ugt-milk.html>

¹¹⁰ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

	Proteins	3,3g per 100ml	This means that if the standard composition of whole milk is of 3,4g proteins per 100ml ¹¹¹ , this specific milk has almost the same number and thus it is rich enough in proteins which is good because it helps to build and repair muscle tissue.
	Energy	262Kj (63Kcal) per 100ml	This means that if the standard composition of whole milk is of 68KCal per 100ml ¹¹² , this specific milk has a lower number and thus it contains less Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	Organic farming label Beter Leven	Antibiotics are kept out of the milk supply; all cows have a natural protein hormone (bST) that helps them produce milk; dairy farmers maintain proper animal care (with comfortable living conditions, nutritious diets and good medical care)
	Practice of grazing	Organic farming label	All livestock must have access to the outdoors, and ruminants must have access to pasture during the growing season
	Environmental-friendly Packaging	Organic farming label EKO CSI CERT Italcartons	using only organic fertilizers and pesticides, and not using rbST product has been verified organically and moreover comes from a company that pays extra attention to sustainability. carton of milk is made out of recycled plastic

¹¹¹ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹¹² Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

Food safety	Milk healthiness	Nutritional table	Amount of minerals, carbohydrates, vitamins...
Price	Relation price/litre		
Written paragraphs on the package	Message front side (photo 1)	Whole milk organic The picture of the head of a cow framed (like an ID card). The clipart of a piece of grass Beter Leven and EKO labels	The little grass branch and the picture of a cow are to give this grazing cows feeling.
	Message right side (photo 2)	Picture of a farmer with cows grazing as a background with his name and where his farm is located Pure organic dairy: made 100% natural way, without the use of chemical fertilizers and pesticides. With great passion and attention to animal welfare. Nature: cows a good life, they run as much as possible outside. Nature as nature intended. 100% taste: the cows enjoy an unsprayed pasture full of tender grass, clovers and fragrant flowers. This gives our dairy delicious and honest taste.	The image used in the side of the pack is a very good marketing tool to create attachment with the consumer and to make it personal. These messages put emphasis in taste, no use of fertilizers or pesticides and the naturalness of a meadow where cows can happily graze.
	Message back side (photo 3)	Nutritional table FSC label Organic farming label	Environmental and animal friendly commitment
	Message left side (photo 4)	Choose organic dairy is a responsible choice in the biologic dairy chain, from feed to farmers, is not using chemicals (fertilizers and/or pesticides) and the cows are not preventively treated with antibiotics also contributes our concern for animal and environment to choose a better environment for biologic is choosing (h) delicious flavor and pure nature	This is an explanation of why to choose organic and what does organic exactly mean when related to dairy.
	Message on the top (photos 6)	CSI CERT logo	the carton of milk is made out of recycled plastic

	Message on the bottom (photo 5)	Expiration date	The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.
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SUMMARY: according to the milk composition standards this milk is rich in proteins and low in fat and energy. The use of official labels regarding the sustainability is very high (environmental friendly labels, animal welfare and grazing...). This carton is a 1L capacity one that puts a lot of emphasis in telling the meaning of organic milk and what is its added value. Furthermore the use of a farmer's picture with his name and farm address makes it easier for consumer to empathize with the milk. The use of cows grazing or a branch of a grass as images emphasize the naturalness of this type of milk.

Milk brand: Landhof

Type of milk: semi-skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Type of milk: skimmed UHT milk



Photo 1 Photo 2 Photo 3 Photo 4 Photo 5

Quality dimensions	Sub categories into the dimension	Messages	Means
Heating treat.	<u>Pasteurised</u> or UHT	Milk heated up to a temperature of 72-75° C. Validity of 5-15 days if refrigerated accordingly during transport and distribution ¹¹³ .	Expiration date is shorter and it needs to be refrigerated the whole time.

¹¹³ <http://www.albalact.ro/en/about-pasteurised-and-ugt-milk.html>

Technological	fat	1,6g per glass per 100 ml (semi) and 0,1g per 100ml (skimmed)	This means that if the standard composition of semi-skimmed milk is of 1,8g fat per 100ml ¹¹⁴ and of skimmed milk 0,3g fat per 100ml , this specific milk has a higher number and thus it has less fat
	Proteins	3,5g per 100ml (semi) and 3,5g per 100ml (skimmed)	This means that if the standard composition of semi-skimmed milk is of 3,6g proteins per 100ml ¹¹⁵ and for skimmed milk 3,6g proteins per 100ml this specific milk has a little bit less but still rich enough.
	Energy	198Kj (47Kcal) per 100ml (semi) and 145Kj (34 Kcal) per 100ml (skimmed)	This means that if the standard composition of semi-skimmed milk is of 47KCal per 100ml ¹¹⁶ and of skimmed milk 35KCal per 100ml , this specific milk has the same number of Kcal.
Hygienic	Cell. Count	Nonexistence of such information on the package	No comments
	Antibiotic free		
	PH		
Sustainable	Good for the animal welfare	No label regarding this topic	No comments
	Practice of grazing	No label regarding this topic	No comments
	Environmental-friendly Packaging	Recycling label FSC Tetrapak	minimising the impact on the environment

¹¹⁴ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹¹⁵ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

¹¹⁶ Dairy council. <http://www.milk.co.uk/page.aspx?intpageid=327>

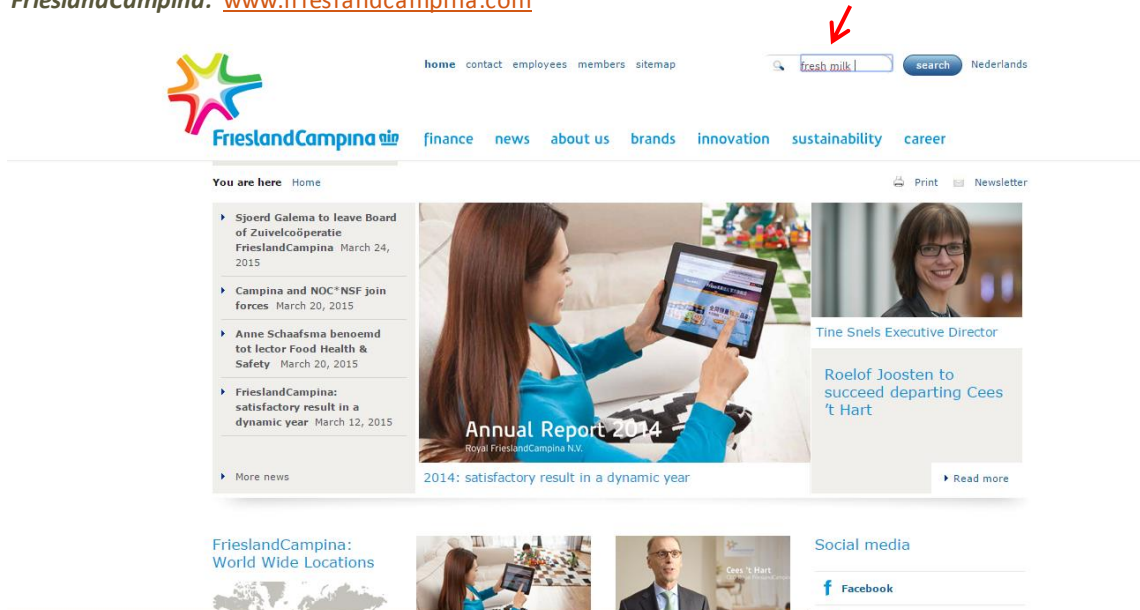
Food safety	Healthiness	Gezondere keuze logo Nutritional table	Gezondere keuze means that the milk is made of less saturated fat, sugar and salt. It indicates that the product at hand is the best choice within a range of products. Gluten free means that the manufacturer or marketers of this milk adjust the production process in order to make the product gluten free.
Price	Relation price/litre	0,95€/L	slightly expensive
Written paragraphs on the package	Message front side (photo 1)	Landhof Semi or skimmed milk Drawing of a happy cow chewing a branch of grass Gezondere keuze logo	
	Message right side (photo 2)	Same drawing as in the front of the pack Tetra pak Nutritional table Processors contact info Advice of how to keep in the fridge	
	Message back side (photo 3)	Idem as photo 1	Idem as photo 1
	Message left side (photo 4)	FSC Bar code Drawing of the cow	
	Message on the top (photos 6)	Tetra pak	Environmental friendly commitment
	Message on the bottom (photo 5)	Expiration date Landhof Type of milk	The date past which the milk must be sold or removed from availability because it is no longer expected to be fresh or effective.

SUMMARY: this is a carton pack made of recycle material as 90% of the milk packs in the Netherlands. The drawing is very simple a happy cow chewing a piece of grass to give this sensation of grazing cows although no official label corroborates it. The design is quite vintage, probably because it gives certain added value. The composition is rich in proteins and energy and low in fat. The semi skimmed version has a darker blue and the skimmed version, as many "light" products has a light blue. The only official labels are regarding environmental friendliness and food safety (healthiness) but nothing about animal welfare or grazing cows.

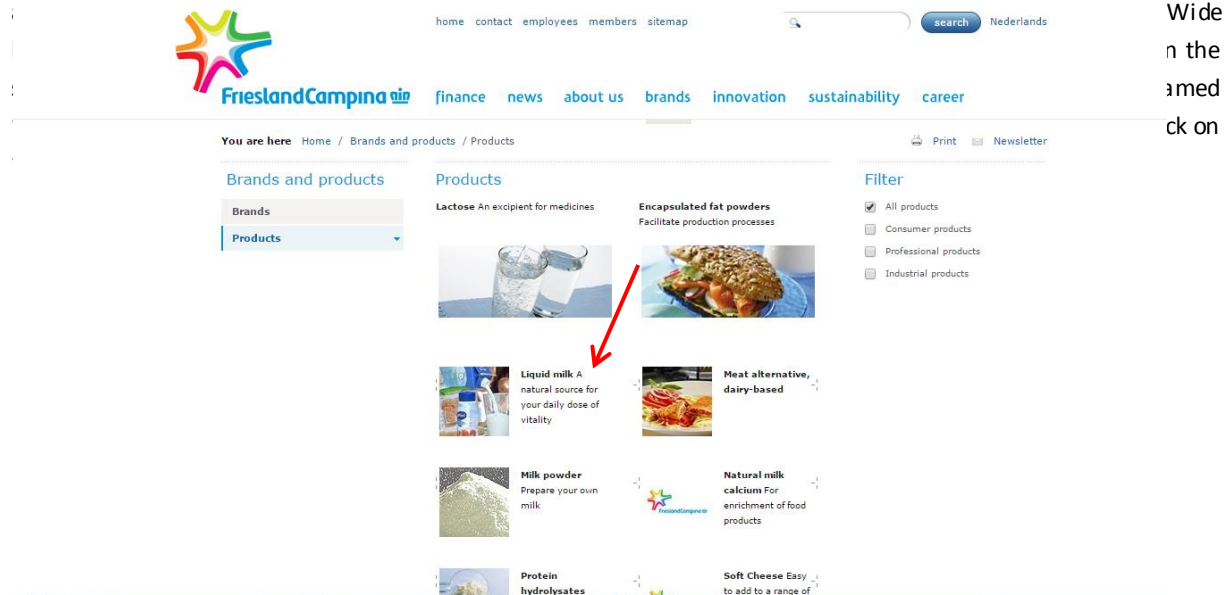
APPENDIX D: INTERNET-BASED ANALYSIS

The Netherlands

FrieslandCampina: www.frieslandcampina.com



In the homepage of the company it is possible to find various sections like: financial news, information (mission and philosophy) about the company, brands, innovation, sustainability and career. Furthermore there is a central



The name of the product section is called "Liquid milk, A natural source for your daily dose of vitality". If we click on it we find the following screen:

The screenshot shows the FrieslandCampina website. The header includes the logo, navigation links (home, contact, employees, members, sitemap), a search bar, and a language selector (Nederlands). The main content area features an article titled "Liquid milk, a natural source for your daily dose of vitality" with a sub-header "Brands and products". The article text states: "Milk is a pure natural product with extraordinary nutritional value. Few foods contain as many vital nutrients as milk. If you buy milk from one of our brands, you know that our employees and our dairy farmers are behind it. In many of the countries where our milk is sold, our brands are the top sellers – such as Campina in the Netherlands and Belgium and Dutch Lady in Malaysia." Below the text is a photo of children drinking milk. To the right, there is a sidebar with a link "The difference starts at the farm gate" and a photo of a child drinking milk. A red arrow points to this link. Below the sidebar, there is a "Related news" section with two articles: "Campina and NOC*NSF join forces" and "Campina in second place most sold A-brand in the Netherlands".

This screen shows an article named “Liquid milk, a natural source for your daily dose of vitality. Messages such “Milk is a pure natural product with extraordinary nutritional value” or “our brands are the top sellers –such as Campina in the Netherlands” give the impression that milk from *FrieslandCampina* is the best. However there is not yet specific reference to milk quality. Therefore now we try to click on the article situated in the right side of the picture named “The difference starts at the farm gate” but nothing happens. Back to the homepage we click on “sustainability”. The screen shows the following:

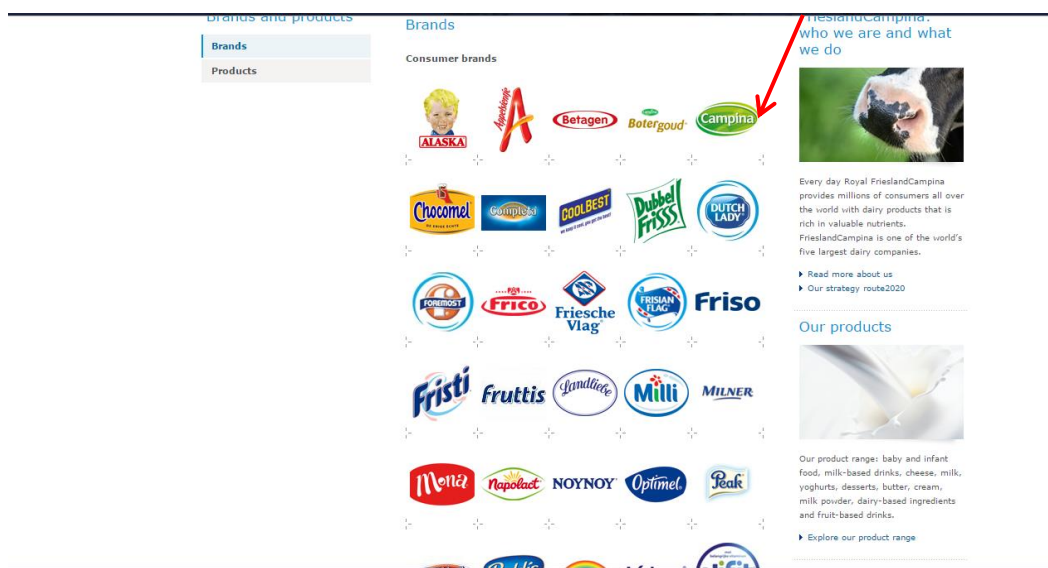
The screenshot shows the FrieslandCampina website's sustainability page. The left sidebar contains a menu with links: Dairy Farming Development, Efficient Production Chains, Sustainable Dairy Farming, Focus planet, Employee involvement, Stakeholder involvement, ISO 26000, CSR Reports, and Cases. The main content area features a video titled "FrieslandCampina's approach to CSR" with a red arrow pointing to it. Below the video is a diagram of the CSR framework. The diagram is a house-like structure with a yellow roof labeled "CSR". The roof is supported by four pillars: "Health & Nutrition", "Sustainable Value Chains", "Dairy Development", and "Responsible Dairy Farming". Below the pillars is a green bar labeled "CSR Governance Board – Four CSR implementation teams". Below the green bar is a yellow bar labeled "CSR Performance Measurement – Reporting – Stakeholder dialogue – Partnerships". Below the yellow bar is a green bar labeled "Employee and member dairy farmer engagement – CSR training programmes – Annual CSR Team Award". Below the green bar is a yellow bar labeled "Sustainability practices for suppliers – Code of Conduct – Focus quality control system – Policy & Position papers".

This screen shows the commitment of *FrieslandCampina* with sustainability and health, which are two of the main categories related to quality. Furthermore there is a short video of the “Corporate Strategy Route 2020” in which it is clear the position of *FrieslandCampina* towards seeking to achieve climate-neutral growth throughout the entire chain, from cow to consumer.

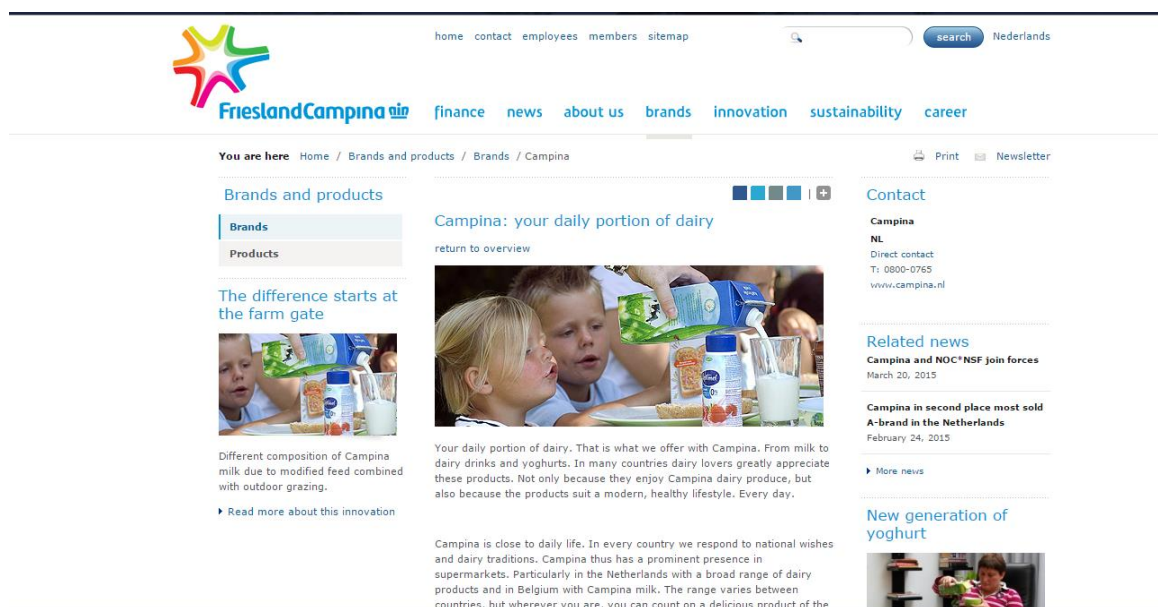
Besides if we click on the “health and nutrition” box a lot of information about two goals of the company: sufficient world’s food resources and reduce the growing number of people who are overweight. And as it is stated in this section “*FrieslandCampina* is doing this by improving the composition of its products, disseminating information about healthy eating and lifestyle and by making the healthy selection of food easier for the

consumer”. Another box you can click on is the box named “Efficient and Sustainable Production Chains”. In this section there is a lot of information related to the goal of climate-neutral by 2020 and this means more production but without consequences for the emission of greenhouse gasses. This section talks about “sustainable dairy farming” (there is a specific link to the “responsible dairy farming” box that contains some specific concepts like: lowest possible impact on the environment, animal friendly, boosting public support for dairy farming, reducing energy consumption, improving the mineral cycle, reducing the use of anti biotics); this section also talks about sustainable (agricultural) raw materials and the use of renewable energy. Another box you can click on is “Dairy development”. In this section it is possible to read about the great opportunities offered by the Dairy Development Programme which is based on knowledge-sharing, training courses, exchange programmes and the establishment of local milk distribution systems.

If in the section of “Brands and products” we click on “brands” instead of clicking on “products”.



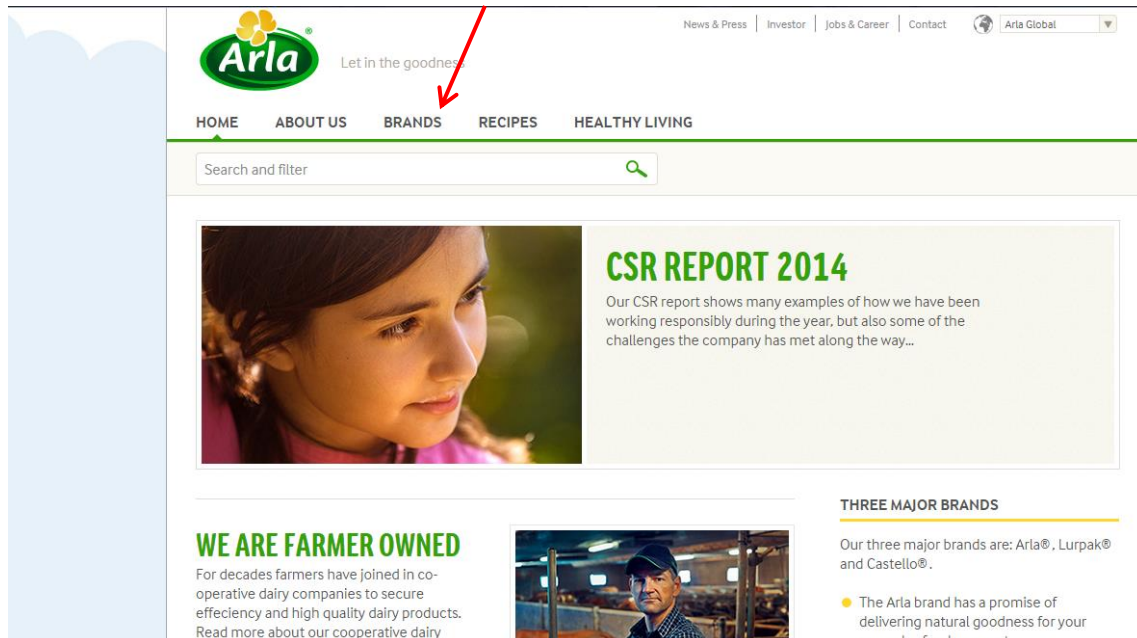
In this case we click on “campina”, which is the brand for drinking milk. Then again we are linked to the following screen:



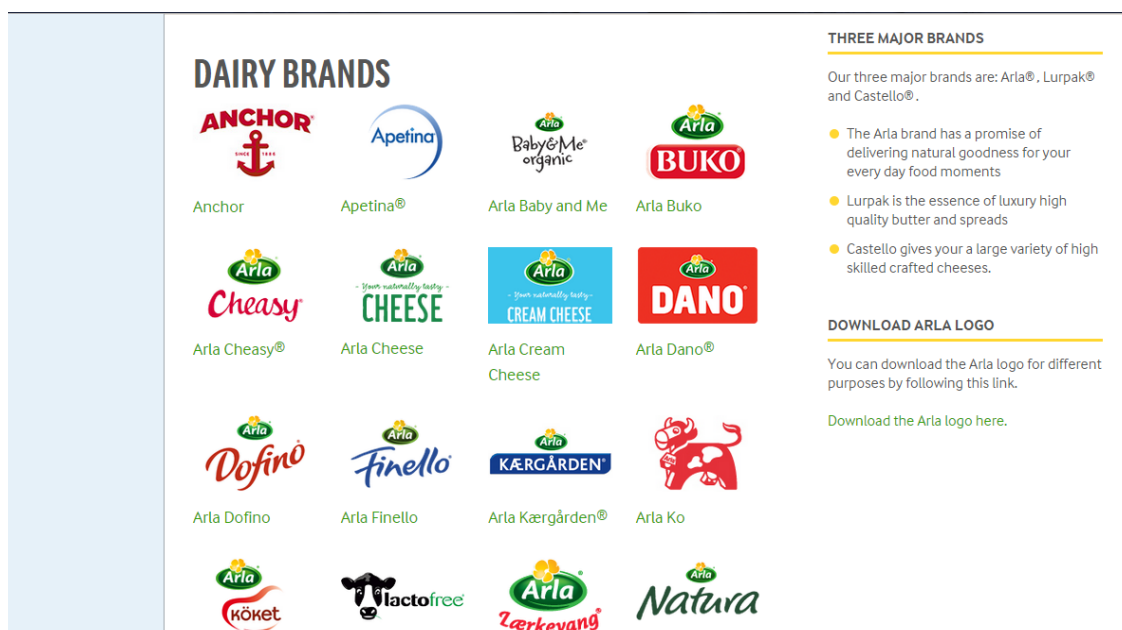
In conclusion, the website of this processor does not treat the subject of quality in specific because it is mentioned indirectly all over the site.

Arla: www.arla.com

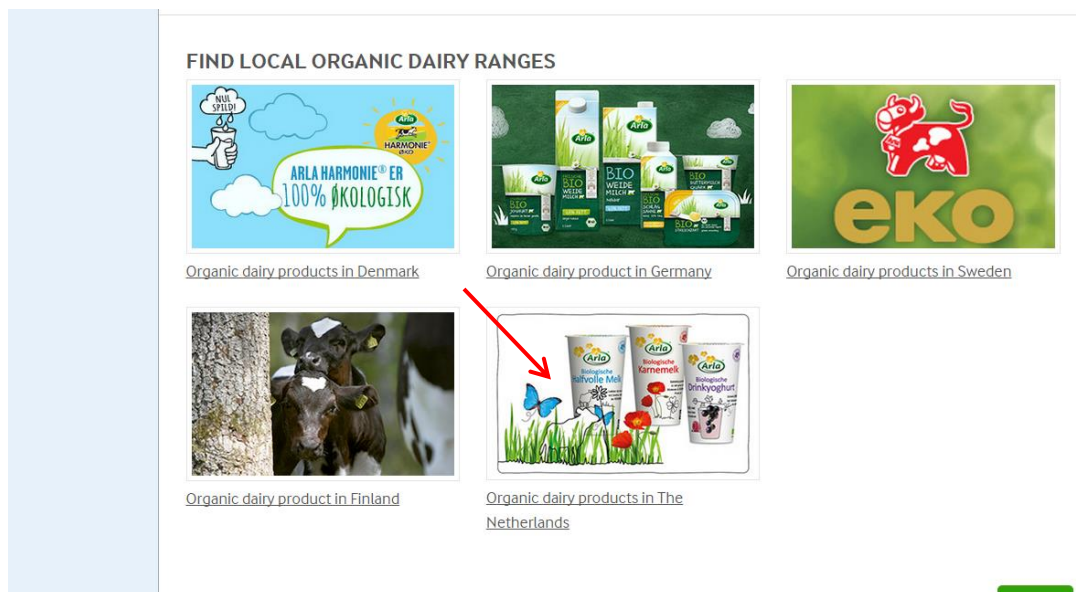
Homepage:



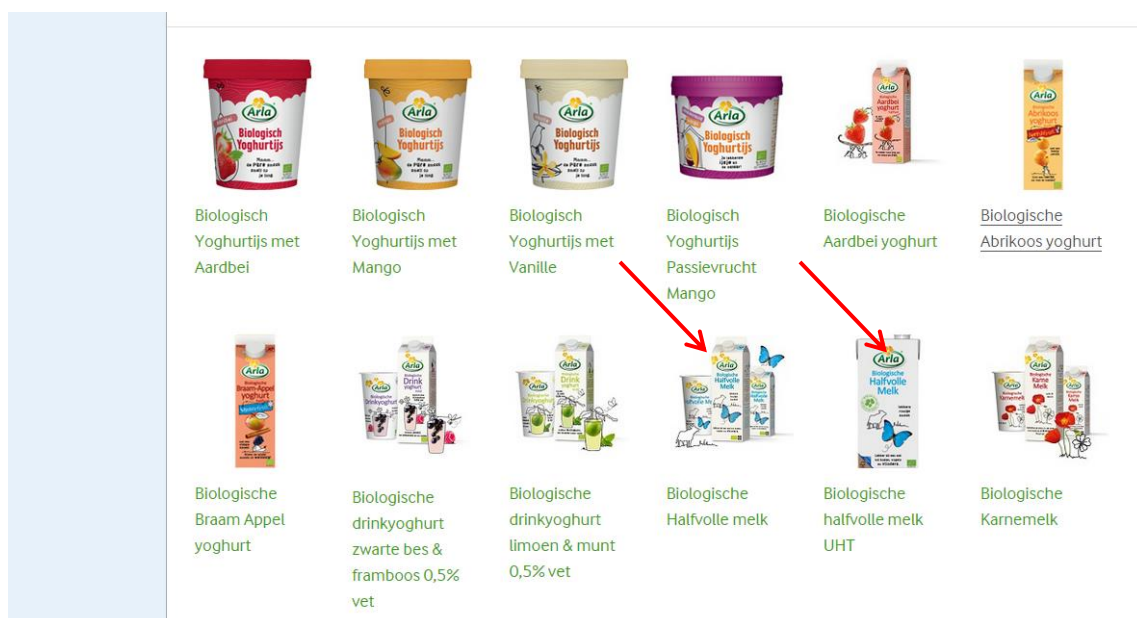
The homepage of Arla has five headings: home, about us, brands, recipes and healthy living. If we click on “brands” a screen with all the brands from Arla pop-up.



Here we click, for example, on “Arla Organic” and then we get a new screen: ARLA ORGANIC DAIRY BRANDS. Afterwards we can click on local organic ranges. In this case we click on “Organic dairy products in the Netherlands”.

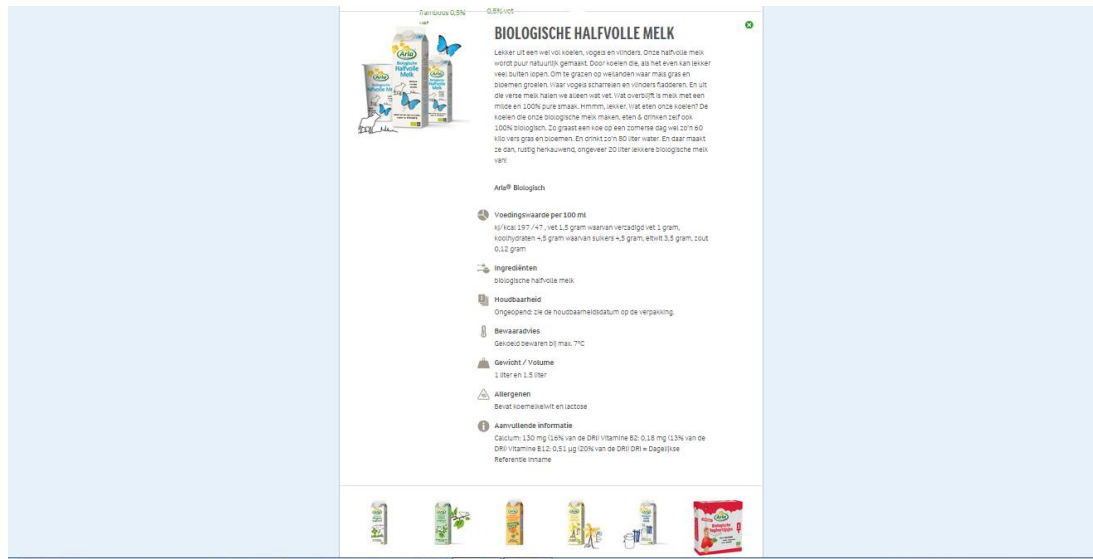


Once we have clicked on “organic dairy products in the Netherlands” we are redirected to “ARLA® BIOLOGISCH”. On this screen there is a lot of information about how important are the natural products given to the cows and also about how their grazing activities. It also contains information about how the fruit in our products is grown without chemical or synthetic pesticides, and without fertilizer. Afterwards if we scroll down we can see all the organic products from Arla and amongst them the consumption milk.

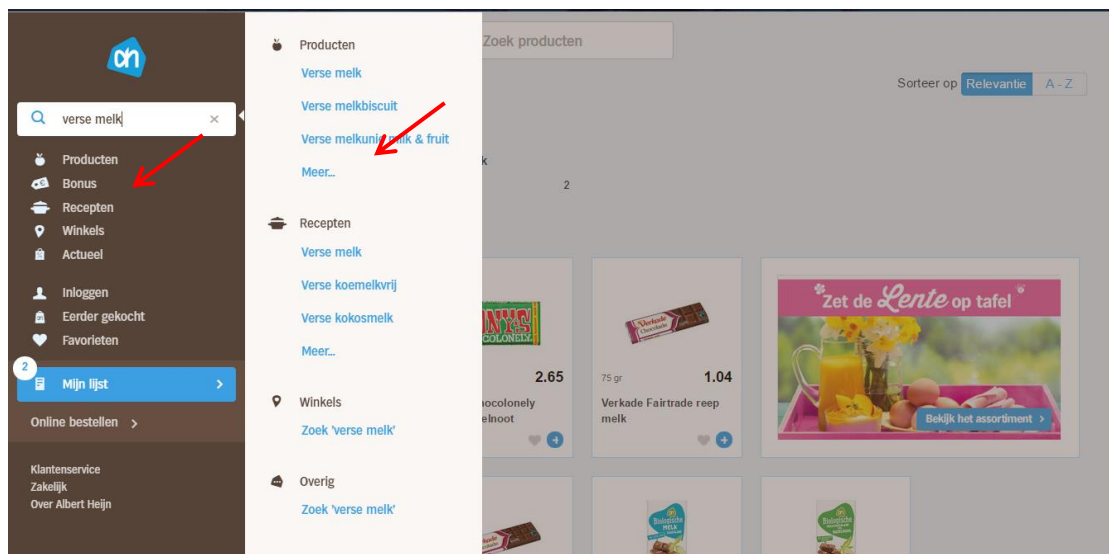


Now we click on “BIOLOGISCHE HALFVOLLE MELK”. A banner expands and it is possible to read more information about the specific product with messages like “from a pasture full of cows”, “made purely natural”, “graze on pastures where tender grass and flowers grow”, “fresh milk fat”, “100% pure flavor”, “100% organic”.

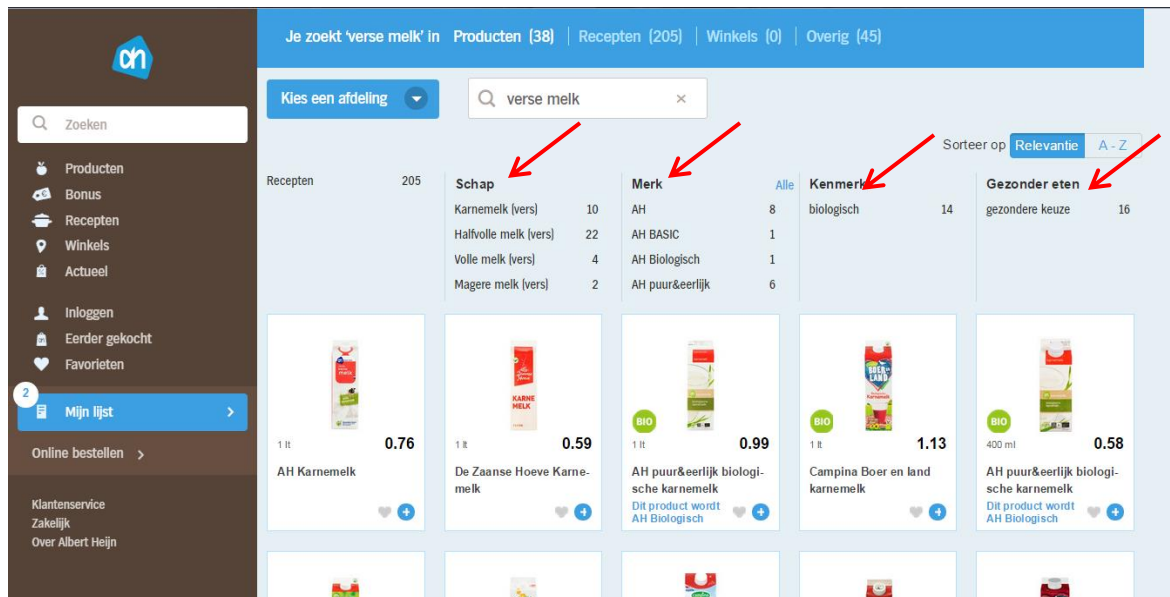
After such description of the organic semi-skimmed milk nutritional information, shelf life, storage advice, allergens and ingredients appears. Thus giving clear insight about its healthiness, safety and sustainability.



Homepage: *Albert Heijn*: www.ah.nl

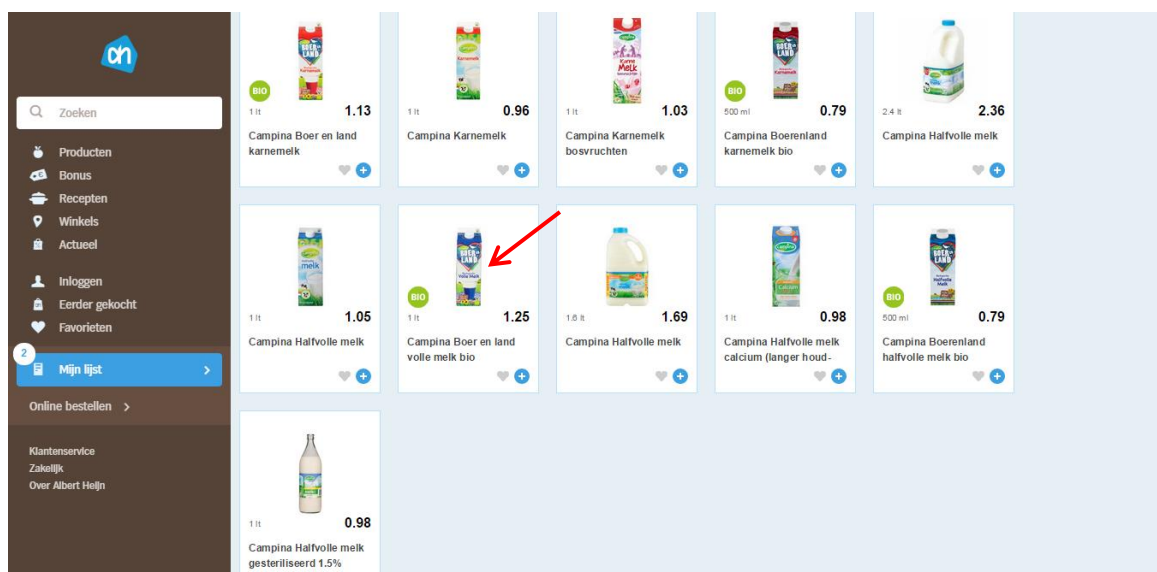


The homepage of *Albert Heijn* has a very clear outline to find the product you are looking. In this case we type the Dutch words for fresh milk, “verse melk”. On the right side of it a new column with four options appears. It is possible to choose what you want to know about the product milk. The options are: products related to fresh milk, milk cooking recipes, shops in which fresh milk is available and other which contains in this case milk powder and milk bonuses of the day. If we click in the option “producten: verse melk”, another window opens.



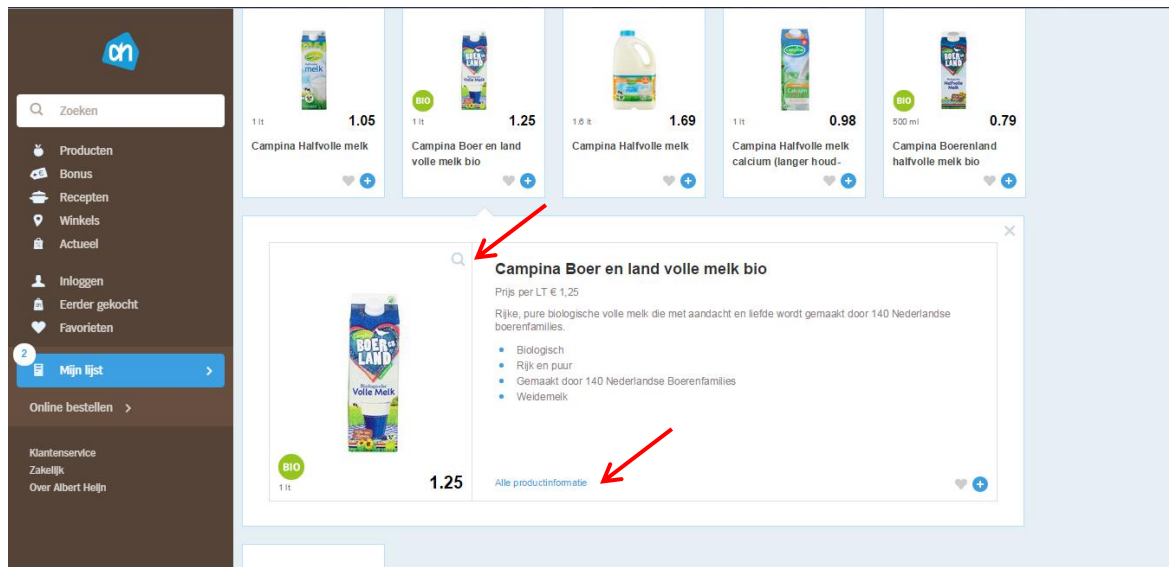
Now a new sort of information is available which is divided in four columns: shelf (Buttermilk, Semi-skimmed milk, Whole milk, Skimmed milk), brand (AH, AH BASIC, AH Organic, AH pure & honest), characteristics (organic) and finally the column of healthier eating which contains all the milk products which contain the label “gezondere keuze”.

From this first classification it is possible to distinguish four possible ways to choose a fresh milk product: based on the milk characteristics (shelf column) which has a clear link with the consumer predisposition to buy milk based on the nutrition and food information, healthiness and organoleptic features of the milk; or based on the label “gezondere keuze” which has a clear link with food safety and consumer predisposition for products which are healthy; or based on an environmental friendly and animal welfare decision, as well as origin of the product and then the consumer can click on “organic”; or finally based on the brand. If we click on the column “brand” the following list of brands appears: *AH, AH BASIC, AH Biologisch, AH puur&eerlijk, Arla, Campina, De Zaanse Hoeve, Den Eelder and Melkunie*. The list appears with the specific number of products from each of the brands. This could be useful for people who choose their milk based on the brand for certain reasons. If we choose to click, for example, *Campina* (from *FrieslandCampina*) the following pops up:

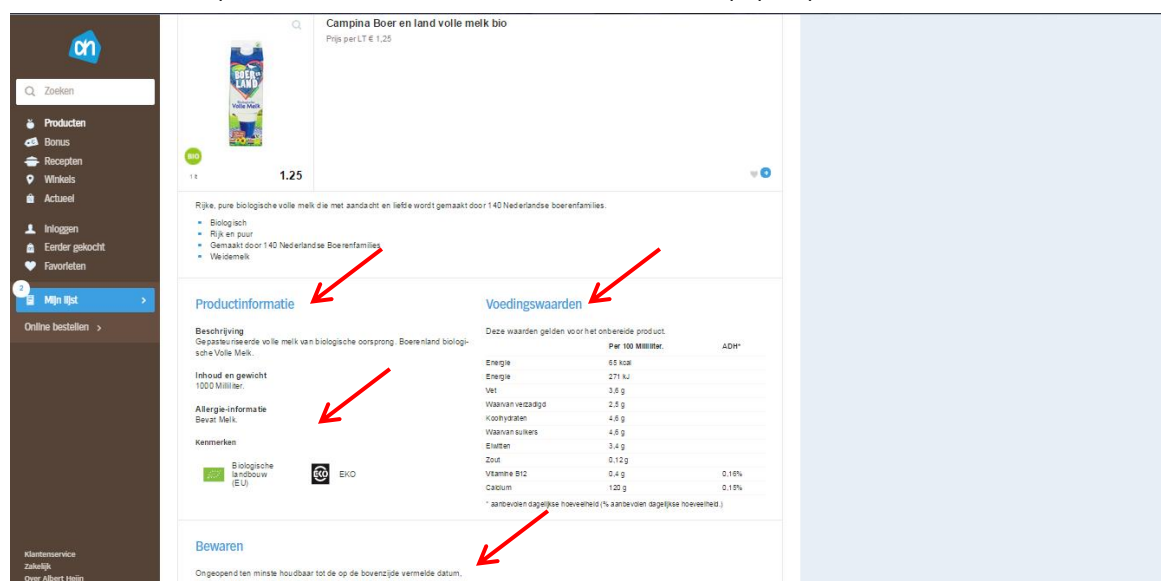


The information given in this screen is: whether it is organic or not (the green BIO symbol indicates it); the price (which can be useful for people who seek quality considering the price, the higher the price the better the quality).

of the milk); whether it is whole, semi-skimmed or skimmed (this information has to do with the % of fat and nutrients and it can be related to the healthiness of the milk); the quantity of milk in the packaging; whether it is pasteurised or UHT milk (the pasteurised has a better quality due to its better processing of the milk). Still no information about whether the milk comes from grazing cows, or if the packaging is done in an environmental friendly way is not possible to see. For that we need to click one of the pictures of milk cartons. We do it and the following pops-up:



In this case a clearer picture of the milk carton and information about the specific milk is available. If we use the magnifying glass icon the packaging becomes bigger. In this specific case we have a milk carton from *Campina*. The milk carton contains a message saying “Rich and creamy”. The label of “weidemelk” in reference to grazing cows and thus promoting animal welfare is present on the packaging. Another label is the official EU “organic” milk label. This already gives a lot of information about the production and processing of the milk, done under certain standards. A nice drawing of a cow grazing together with a big glass of milk are also on the packaging. A small text on the right side of the picture says “Rich, pure organic whole milk is made with love and attention by 140 Dutch farmer families”. The message is that the milk has been done with “love and attention” (this might give the impression that the processing phase of this milk is very accurate). “made by 140 Dutch farmer families” (this means that it is local, coming from the Netherlands). Yet, from the information given we cannot see any label related to an environmental friendly packaging or nutritional information. However we can click once more at the blue link “all product information” and then another screen pops-up:



And then again more information is available. First a description of the product. In this case, the information is that the milk is pasteurized whole milk of biological origin. This is not new but what it is new is the “Allergy Information” which specifies that it contains lactose. This could be useful for a consumer to be sure of the healthiness and product safety in case is intolerant to lactose. Afterwards there is a section with the labels related to this specific milk. In this case we have the Organic farming (EU) and EKO. This two labels can help to communicate quality from a sustainable point of view: animal welfare and environmental friendliness (from the production, processing and packaging). What is also new is the section with the “nutritional values” also with its recommended daily allowance (% GDA) and Per 100 milliliter. Finally information about the storing “unopened best before the date indicated on the top, if kept refrigerated (max.7 ° C). After opening a limited shelf life”. At the end of the screen a message saying “At Albert Heijn, we do everything we can to ensure that the pricing and product information of the products we sell is as accurate as possible. However, because products are regularly improved, can product such as ingredients, nutritional, dietary or allergy information regularly change. We therefore recommend that you to always read the packaging before consuming the product.” This message can be related to the consumer responsibility by the retailer.

Organoleptic feat.

Product safety

Healthiness

Brand

Price

Product origin

Packaging design

Packaging material

Labels

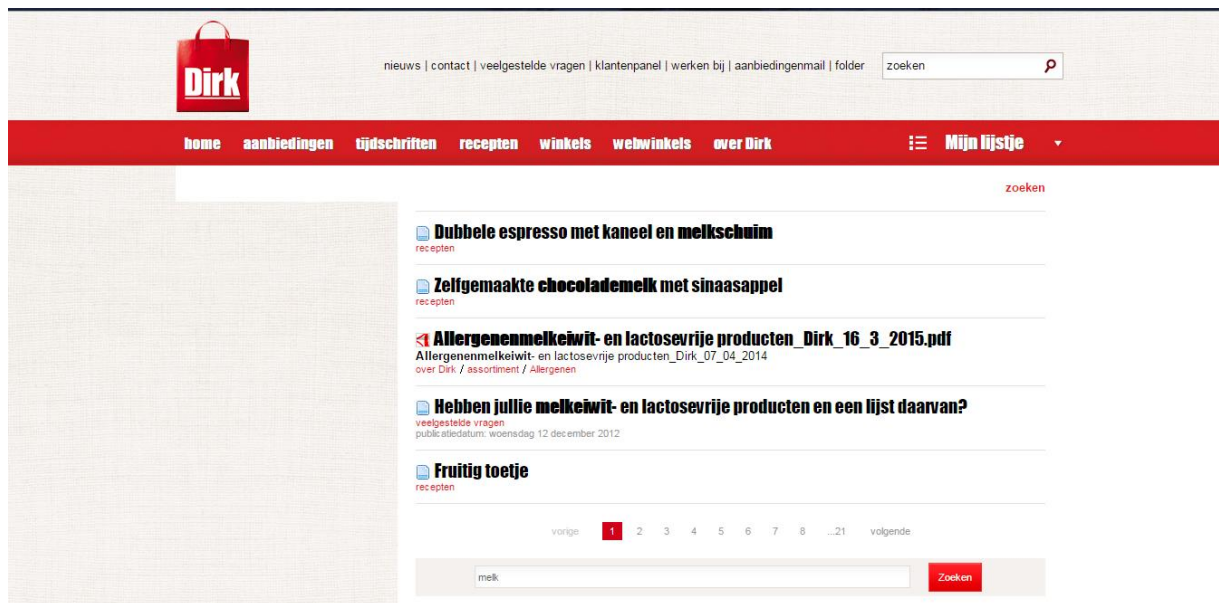
Other:

Dirk van den broek: www.dirk.nl

Homepage:

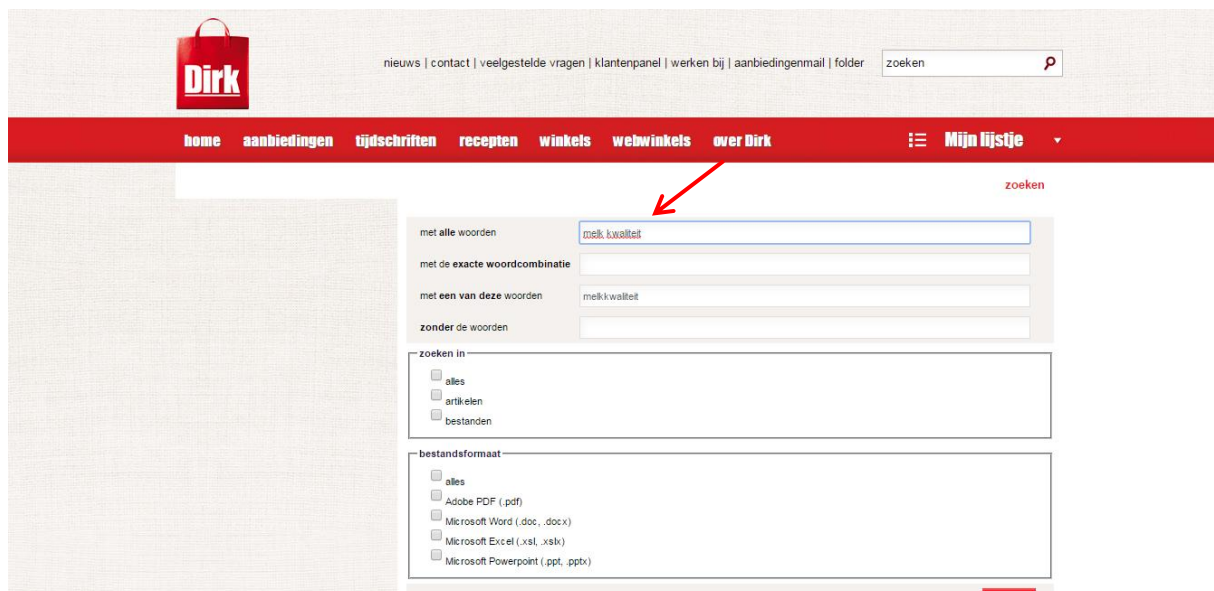


When looking at the homepage of “dirk van den broek” it is possible to distinguish seven heading sections: home, offers, magazines, recipes, shops webshops and the section about the company called “about Dirk”. If we use the tool “search” and we type down in Dutch “melk” the result is the following:

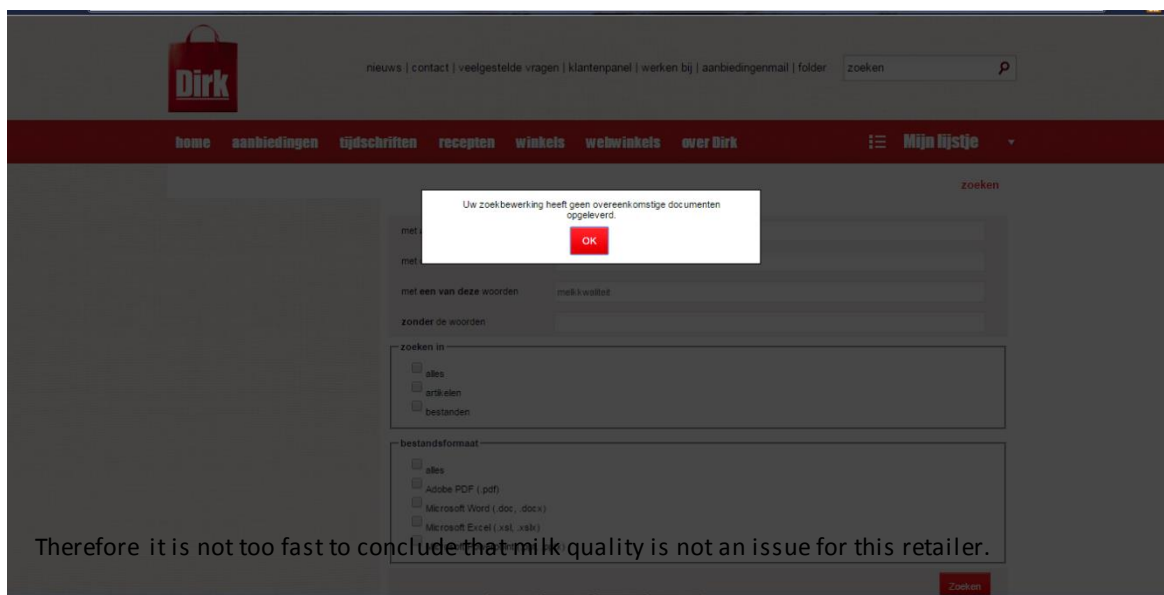


Thus we need to look for something more specific. The first step is to try with any of the other sections to see whether it is possible to find information about “drinking milk” but the results are unsatisfactory. None of the webpages links and neither the supermarket information provide knowledge about “drinking milk” or any dairy products.

If we try to use the tool “specific research” and we type down “melk kwaliteit”:



The results are conclusive: “you search operation does not match any page”

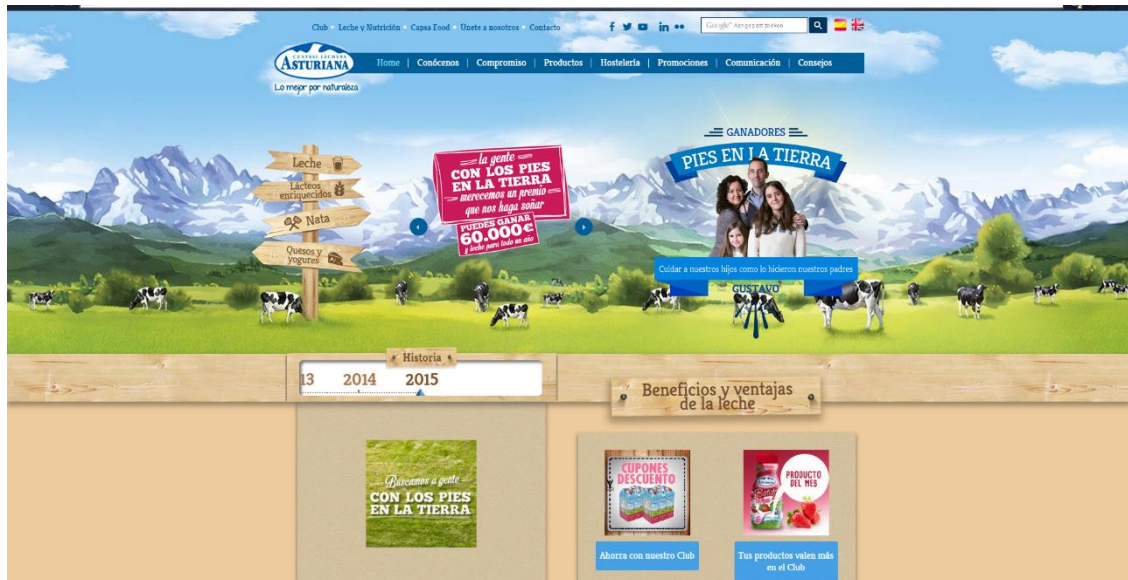


Therefore it is not too fast to conclude that milk quality is not an issue for this retailer.

SPAIN

Central Lechera Asturiana: www.centrallecheraasturiana.es

Homepage



In the homepage of the company it is possible to find various sections like: About us (mission and philosophy), commitment (contribution to the development of Spain), products, catering, promotions, communication (photos and spots TV) and advice. Furthermore there is a chronological bar dedicated to all the actions the company has taken to improve itself, or the planet, or the milk or Spain. Other sections are the social media channels they have: facebook, twitter, youtube, pinterest and linkedin. If we type, as well as it was done with the Dutch webpages, “fresh milk” (leche fresca in Spanish) in the search tool no much information about milk quality pops-up. Instead a lot of information about powder milk, new form the company and skimmed milk appears.



If instead we click on the section named “productos” (products) another screen appears with the possibility to choose between all the assortments of products that the processor has. You may choose from milk products, vegetable milk, smoothies, butter, cheese, Yoghurts and desserts, and Ice cream. If we click on milk the following screen appears:



The options are pretty much health related (gluten free milk, with extra calico, fiber, for lactose free) and related to different processed milks (UHT, condensed milk and powder milk) In this case it is possible to see a very specific type of milk “condensed milk” which is milk from which water has been extracted and added sugar, resulting in a thick product and a sweet taste. If we click on “clasica en Botella” we see the following screen:

LECHE EN BOTELLA ENTERA

Leche en Botella Entera
1,5L

Leche clásica UHT que cuida a todos los miembros de la familia con un sabor único y conservando todos los valores nutricionales necesarios. Perfecta para todos aquellos que no quieren renunciar a la leche más natural con todo su valor energético y proteínico. Una bebida de siempre en una moderna botella con tapón de rosca que permite un fácil vertido y sin goteo. Se presenta en pack de seis unidades para adaptarse a las necesidades del consumidor.

Información nutricional por cada 250ml		Datos logísticos	
Valor Energético	63 Kcal (264 KJ)	Producto	Leche en Botella Entera
Grasas	3,6 g	Código interno	10079
Grasas saturadas	2,4 g	Unidad de venta	10079
Hidratos de Carbono	4,6 g	Código EAN	8430291002000
de los cuales azúcares	4,6 g	Código EAN caja	8430291007773
Proteínas	3,1 g	Código EAN envase	3843029100774
		Peso Neto Ud. Venta	1,542g
		Medidas Ud. De Venta (Pack)	25,38x8,58x10,95

On the upper bar, it is possible to see the different types of this milk (whole, semi-skimmed and skimmed, which is written as entera, semidesnatada y desnatada). Then we see an image of the bottle with a green environment background which is very attractive. Then we see a message that translated says: “Classical UHT milk caring for all members of the family with a unique taste and preserving all nutritional requirements. Perfect for those who do not want to give the most natural milk with all its energy and protein value. A beverage bottle always in a modern screw cap that allows easy pouring without dripping. It comes in packs of six units to suit customer needs”. This message tells all the advantages of the milk the consumer is looking at. Afterwards three tables with nutritional information, logistic information and per 250ml ration information is given. At the end you can even download a file with all the information given.

If Instead of typing milk in the search tool, we type “calidad”, which means quality.

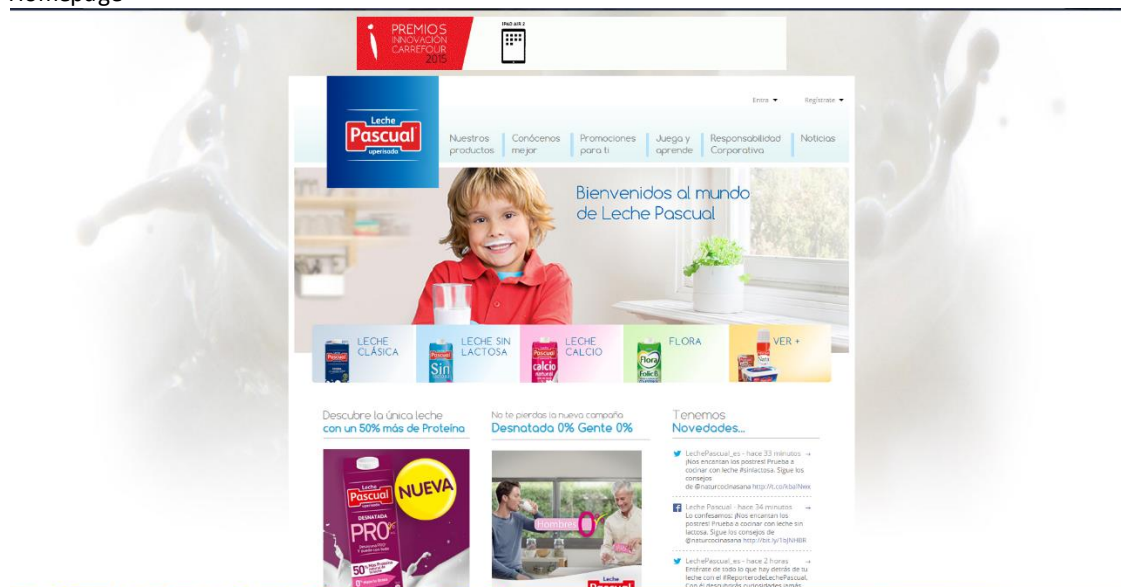


There is not a direct link to milk quality but rather to different links to topics related to quality like: prizes, nutritional quality, and quality in terms of economic development, environmental protection and social responsibility.

In conclusion, as well as it is the case of FrieslandCampina, the website of Central Lechera Asturiana does not treat the subject of quality in specific because it is mentioned indirectly all over the site. The second Spanish milk processor website under analysis is Pascual.

Pascual: www.lechepascual.es

Homepage

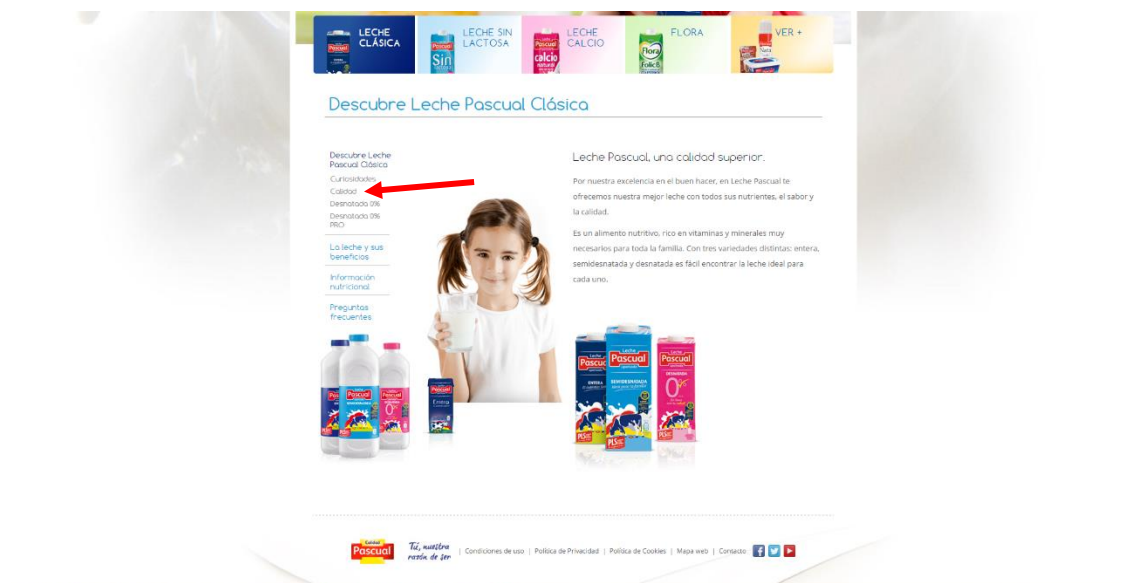


On
the

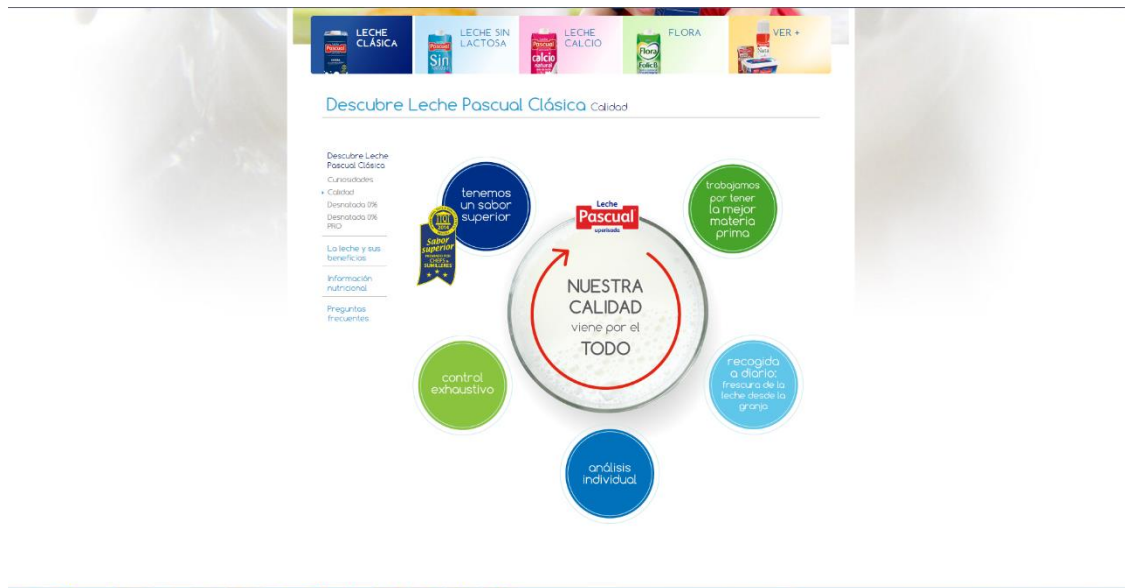
homepage the upper bar give information about: Pascual products, the mission and vision of the company, promotions, games, social Responsibility and Corporate News. The background of the homepage is with the image of very tasty milk and the slider or carrousel is a kid that looks very happy and healthy drinking milk. There is not such a tool like “search” so we click directly on “nuestros productos” and the following screen appears:



In this screen is possible to see the whole range of products going from the regular milk, to milk with calcium, without lactose, flora (heart health), smoothies and butter. The difference between the assortment from Pascual and from Central Lechera Asturiana is non-existent. Both processors have products very much related to health (lactose intolerance, extra calcium and heart health) and both processors produce other dairy products besides milk. If then we click on “leche clasica” we see the following screen:



The screen shows a clear message referring to the higher quality performance of Pascual, but not yet a clear explanation of such quality. However, in this case, if we look at the menu on the left side we will see that there is an entrance clearly referring to the topic of quality (calidad in Spanish).



This screen shows a clear understanding of what for Pascual, as a processor, milk quality means. In this case, quality is understood as: superior taste, best raw materials, fresh milk due to daily pick-up at the farm, individual analysis and exhaustive control. Then it is possible to click one by one these different quality aspects.

Superior taste= this statement is backed up by the chefs and sommeliers from prestigious international cooking schools.

Best raw materials= with a very skilled group of veterinarians that work hand-to-hand with the farmers to guarantee farm hygiene, animal welfare and an equilibrated diet for the animals.

Fresh milk due to daily pick-up at the farm= this statement claims that their milk is pick-up everyday fresh from the farm and that therefore it can be processed very quickly after milking the cow and that guarantees that all milk nutrients will be kept.

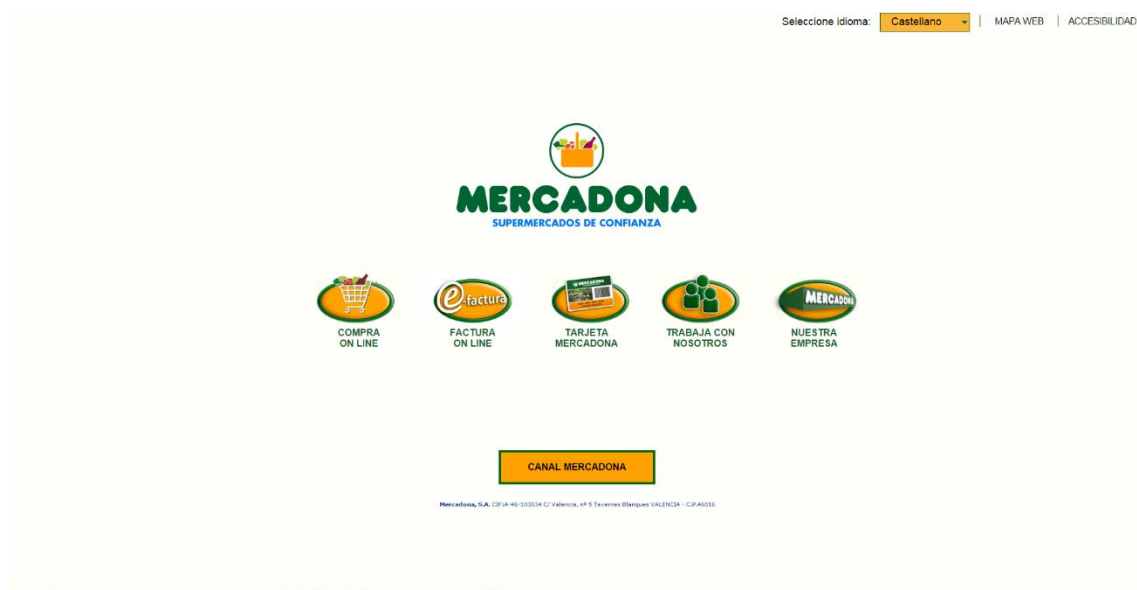
Individual analysis= the milk is analysed individually and it is rejected if it does not match with the rules and standards of Pascual quality policy. Furthermore when processing the milk they always keep all the taste of the milk.

Exhaustive control= triple quality controls to guarantee quality from the beginning to the end.

Therefore here there are five statements that explain what quality for Pascual means and they are somehow related to taste, animal welfare, strict policy about milk analysis and big quality control checks. Here the difference between Pascual and Cnetral Lechera Asturiana is evident since the first one does treat the topic of quality independently and it deserves a whole sections. Furthermore you find such quality section with just 2 clicks.

Mercadona: www.mercadona.es (retailer)

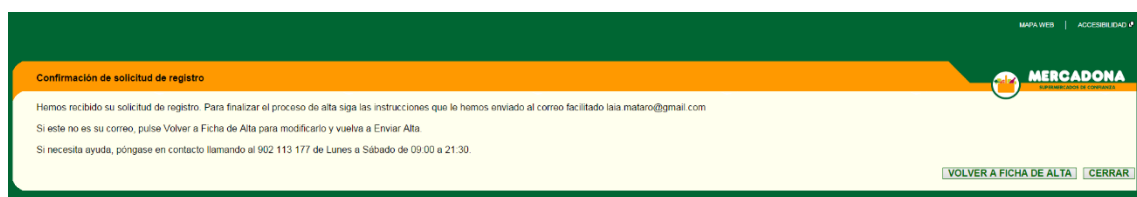
Homepage:



In this first homepage the consumer can choose between “buy online”, “bill online”, “mercadona membership card”, “work with Mercadona” and “our company”. Below there is a box which says “Mercadona channel”. This last one links you to a portal with all type of news related to the company and its services and products. Moreover it offers you the possibility to follow them on their social networks. If we go to “buy online” we cannot go any further because we are no costumers of Mercadona (see screen below):



register:



Now it is possible to see what products are there to buy. We click on “lacteos y bebidas” (dairy) and we select “leches” (milks). And from there we can select bwetween basic, calcium, condensed, almond milk, specialties,

MERCADONA

Inicio | Donde Estamos | Seguridad | Condiciones generales | Modificar Datos | Transmite de entrega | Modificar Pedido

Rosario Pedrito - Calle SOT DEL PALAU, 13,, ARBUCLES, 17401, GIRONA

DESNATADA

5 productos seleccionados.

Descripción	Detalle del producto	Euros <small>(IVA incluido)</small>	Cantidad	Incluye
LECHE DESNATADA "MAGGI AROMATIZADO" HACENDADO BRICK P/DOX 12 X 1 L - TL	Ver detalle del producto	0,84 1 LITRO 1,57 Euros	<input type="text"/> + <input type="text"/>	
LECHE DESNATADA HACENDADO BRICK 1 L	Ver detalle del producto	0,80	<input type="text"/> + <input type="text"/>	
LECHE DESNATADA HACENDADO BRICK P/DOX 8 X 1 L - FL	Ver detalle del producto	0,84 1 LITRO 0,89 Euros	<input type="text"/> + <input type="text"/>	
LECHE DESNATADA LLETJOSTRA BRICK 1 L	Ver detalle del producto	0,80	<input type="text"/> + <input type="text"/>	
LECHE DESNATADA LLETJOSTRA BRICK P/DOX 8 X 1 L - FL	Ver detalle del producto	0,80 1 LITRO 1,50 Euros	<input type="text"/> + <input type="text"/>	

Tarjetas de Servicio: 7,71 €
Total: 0 Pts. 0,00 €

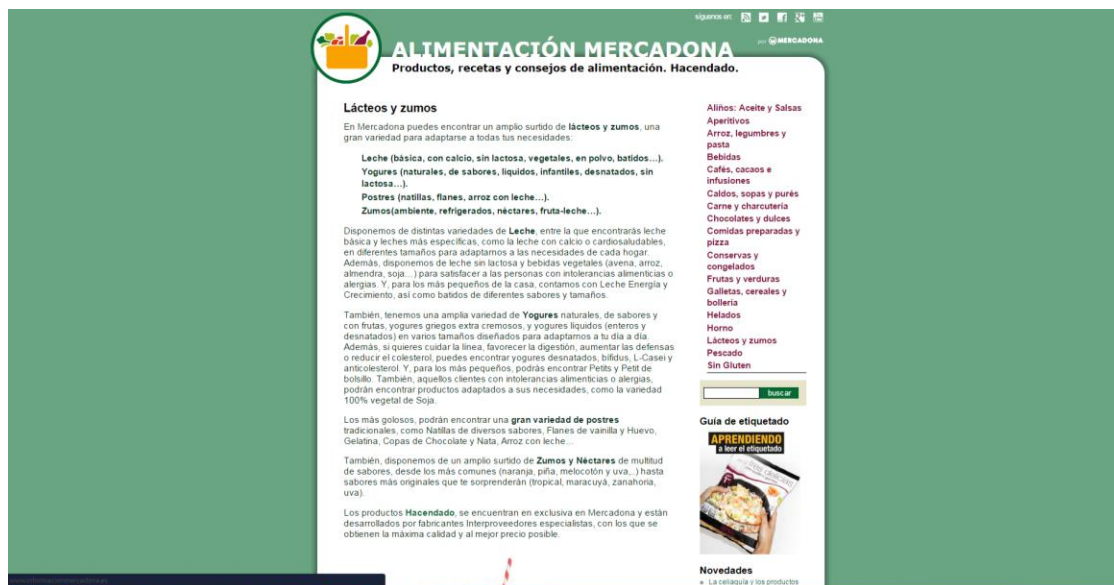
[Carrocería](#) [Ayuda](#) [Contacto](#)

Compy

SIN SIEMPRE PRECIOS BAJOS

Punto operacional: 8410981000005 EAN: 8480000108487	
Identificador del Proveedor:	8410981000005
Nombre del Proveedor:	Ipariat
Código EAN Producto:	0848000108487
País Objetivo:	España
Marca:	Hacendado
Descripción:	Leche UHT desnatada Hacendado 1L (envase unitario caja 6x1L)
Nombre Alimento:	Leche de vaca UHT desnatada
Lista Ingredientes:	Leche de vaca desnatada
Cantidad Neta:	1 LT
Nombre Proveedor Alimentario:	Ipariat, S.A., Lactiber León y S.C.A. Ganadera del Valle de los Pedroches (COVAP)
Dirección Proveedor Alimentario:	Polígono Industrial Erratzu, s/n - 20130 Urnieta (Gipuzkoa), Ctra. Trabajo del Cerecedo, s/n - 24192 León (León) y c/ Mayor, 56 - 14400 Pozoblanco (Córdoba)
País Origen:	España
Descripción Ración:	Tamaño de referencia para 100 ml
Tamaño Ración:	100 ML
Estado Preparación:	Preparado
Tipo de Componente:	Valor energético (Kilojulios)
Precisión:	Aproximadamente
Cantidad:	144 kJ
Tipo de Componente:	Valor energético (Kilojulios)
Precisión:	Aproximadamente
Cantidad:	34 kcal
Tipo de Componente:	Grasas
Precisión:	Aproximadamente
Cantidad:	0.3 g
Tipo de Componente:	Ácidos grasos saturados
Precisión:	Aproximadamente
Cantidad:	0.2 g
Tipo de Componente:	Hidratos de carbono

136



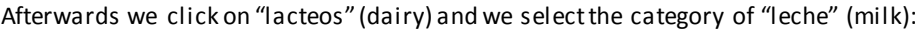
However none of the news items are related to milk or milk quality specifically. Therefore, in conclusion, this webpage has no search tool and definitely any link related to milk quality.

Dia: www.dia.es

Homepage:



If we click on “compra online” (buy online) we get to this screen:



On this screen it is possible to see the whole range of milk, but still nothing related to quality. If we click on “celta desnatada” which is skimmed milk from the brand “celta”, we end up on page with nutritional information about the milk and the price information:

CELTA leche desnatada briq 1,5 lt
1,17 €
(0,78 €/l)

★★★★★
Escribe una opinión para CELTA leche desnatada briq 1,5 lt

Añadir

Información Nutricional Opiniones

Información Adicional
LECHE LÍQUIDA DESNATADA

Ingredientes
LECHE DESNATADA

Condiciones de conservación
CONSERVAR EN UN LUGAR FRESCO Y SECO. UNA VEZ ABIERTO EL ENVASE, CONSERVAR EN EL FRIGORÍFICO. SE ACONSEJA SU CONSUMO EN 2-3 DÍAS SIGUIENTES.

Información Nutricional
Ingesta de referencia
IR DE UN ADULTO MEDIO (8400KJ/2000KCAL)

Valor	100 ml		250 ml	
	Cantidad Unidad	IR / VRN	Cantidad Unidad	IR / VRN
valor energético	34 Kcal		85 Kcal	4%
valor energético	145 kJ		363 kJ	4%
grasas	0,2 g		0,5 g	1%
ácidos grasos saturados	0,13 g		0,32 g	2%
hidratos de carbono	4,8 g		12 g	5%
fibra alimentaria	0 g		0 g	0%
azúcares	4,8 g		12 g	13%
proteínas	3,3 g		8,3 g	17%
sal	0,13 g		0,3 g	5%

Yet,
if we
type

“calidad” (quality) on the search bar for products, there is no content available:

DIA

Acceder a Mi cuenta Registrarme

COMPRA ONLINE OPORTUNIDADES DIA CLUB DIA TU TENDA

Catálogo de Productos ▼ Leche, amosc... (Escribe lo que buscas, separado por comas)

Últimas compras 0,00€

Volver

No se han encontrado resultados

Lo sentimos, no hemos podido encontrar lo que estás buscando

Sugerencias:

Puedes haber introducido la palabra incorrectamente - por favor, comprueba que no haya errores ortográficos.
Puedes haber sido demasiado específico - por favor, amplía tu búsqueda usando menos palabras.
Navega por nuestros productos seleccionando una categoría de la barra superior.

Puede que te interese alguno de estos productos

Añadir	Añadir	Añadir	Añadir	Añadir	Añadir

Aviso legal y política de cookies | Cómo comprar online

Atención al cliente: 902 453 453 Compra online: 902 550 751

DIA

Trabaja en DIA | demo@corporate.dia.es | DIA corporate.es | Franquicias DIA

Dairy Campus is the place where all parties from the Dutch dairy chain come together. Governments, teaching institutes, the business sector and cattle farmers are all working together on Dairy Campus to secure a better position for the Dutch dairy sector on the global market. Dairy Campus has set up an Innovation Fund to promote innovation towards more sustainable and efficient ways of producing dairy products. Furthermore, Dairy Campus plays an important part in training and educating prospective dairy farmers and other professionals in the dairy chain¹¹⁷.

What are the most important developments in the milk industry? Compared to 5 years ago, what are the most important changes? If you look 5 years ahead, into the future, what are the expectations and changes?

Quality nowadays it is not a one specific thing but the way things are done in the milk industry. The definition of quality was, in the past, the components (fat, proteins, lactose..), hygiene issues (low cell count and bacteria). Nowadays quality has a much broader definition and it involves other things like whether the cow is well-treated. In the earlier years (20 years ago) the only important and measurable thing that could serve as a definition of quality was the technological components of the milk (fat, protein, lactose..). Afterwards it was also added the hygienic value, also understood of part of the milk quality. Afterwards the food safety was an important quality aspect. And nowadays a new and broader definition includes the former ones plus the animal welfare (are the cows well treated?), grazing, no antibiotic...

In the Netherlands nowadays 80% of the farmers apply grazing and that gives them the “premium” quality of their milk. This can be seen by consumer on the packaging of the milk carton by looking at the label “weidemelk”.

What was the most important concept/idea in building this organisation? The idea behind the company was to create a one common centre of research, innovation and knowledge. Specially the goal was to create a place in which the ultimate objective would be to focus on innovation, not just research. Earlier there were many farms dedicated to research but they decided to become one single one with all the resources and knowledge evoked in it.

Does this organisation have any influence in quality in the milk industry?

Yes, back to the 50' and 60' the farms were focused on producing just paying attention to technological and hygienic standards. In the recent years the concept of “quality” is introduced “all over the chain”. And for this reason it is necessary to introduce a new concept about quality in the dairy chain and that is “sustainability”. A sustainable chain that takes into consideration new perceptions and considerations about what quality is for the rest of stakeholders (i.e.: consumers). But the problem is how do you demonstrate that a farmer has produced his milk taking into account such considerations (i.e: the cows had proper grazing, the manure produces less or no CH₄...).

How has the industry's competitiveness affected the quality of the milk? Do you think that a better competitiveness of the milk consumption, increased by better quality, can help to raise drinking milk consumption and/or its price?

The higher the competitiveness the better the quality. Nowadays information goes public very easily and we are in an open market in which you all the companies focus mostly in food safety because any mistake on that will go public and harm very hard the company.

However, companies in the Netherlands (FrieslandCampina, Arla, Danone) they all focus on food safety and also sustainability and they have their own “programmes”, but there is not much difference between them. What they do differ upon is the specialized products they produce out of the milk.

¹¹⁷ [www.dairycampus.nl](http://www.dairycampus.nl/en/Home/Expertises-Dairy-Campus/Development.htm). Available at: <http://www.dairycampus.nl/en/Home/Expertises-Dairy-Campus/Development.htm> [accessed 16-01-2015]

At the farm level nowadays there is also a focus on sustainability: health of the animals for instance. Animal protection organisations are very hard on the way cows are treated and how important is that they graze so that afterwards the milk consumers buy is milk from happy grazing cows. And this shows the new feeling in society towards the dairy industry.

A consumer does not want to pay more for his milk just because the milk is processed considering some sustainability standards. That is because he or she already expects such things to be done.

Can this “better quality” (more competitiveness) be applicable to all the actors in the chain or just to some specific ones?

Nowadays there is this idea of controlling quality “all over the chain” which apparently is the only way of having good quality milk. Among all actors you really need to look what happens in the farm (hygiene, components and sustainability).

Have you ever experienced that quality means different things for different actors?

Yes.

Are earlier notions of quality just discarded? Did the notion of quality change over time? What could be expected for the notion of quality in the future?

No, just that they are not enough. Now it is not just about the technological aspects of the milk or its hygienic aspects, now is also about the sustainable ones. It is this plus this plus this and it will get broader.

For me the technological aspects, the no antibiotic measures, the hygiene are already good tested measures that could make a good definition of quality. Those measures can be tested. However, nowadays, the quality is not yet understood without the sustainability component. But the problem is that this sustainability aspect is very hard to demonstrate and test. People want to know: how is this milk produced? Was this done in a sustainable way? And you need all three aspects (hygiene, technological and sustainability) to define quality.

In the Netherlands the aspects related to technology components and hygienic components are already assumed and figured out. We go further and now we think off sustainability aspects. That is why our milk has already a big quality in comparison to other countries which are still looking at those earlier aspects.

If you compare it with Spain, where would you position the quality of the milk?

Well in Spain they produce mostly UHT. This is another way to process the milk. You kill all the bacteria and thus you make sure that the milk is ready for processing into other products. However that does not mean that the milk has good quality. In the Netherlands we like to drink pasteurised milk. The milk does not receive an ultra-high temperature treatment but we make sure by all means that the milk will be good and of great quality after the process (technological and hygienic aspects). Because this issue is already solved we can concentrate in other aspects like the sustainability and quality all over the chain.

It is true that the factors related to life-shelf are different taking into account the aspect about the climate in each country. The Netherlands does not reach the higher temperatures that exist in Spain. However I do think that in the north of Spain they could produce milk like we do. Maybe not in the South, but in north they could. However, as I was saying, when a country produces the pasteurised milk it means that the basic milk quality is perfect, no need to kill all the bacteria.

What is your opinion about cooperatives and their modus operandi in relation to promoting quality?

In the Netherlands many cooperatives reward the grazing practices by giving some extra money for the milk as well as labelling the milk as premium. This is good if you want farmers to produce milk at their best means.

Quality is a very broad term. What is your personal idea about milk quality? And the idea of this organisation?

(Already answered)

To what extent quality is communicated? Who needs to know the quality of milk?

The dairy industry is really about linking and that is because if something goes wrong at any stage during the “cold chain” or at the retailers you can use the “track and trace” system.

I would say for farmers it is important to know the quality of their milk for two reasons: to know if they are producing milk considering the technological (fat and protein) and hygienic (cell count, bacterial count, PH) basic standards in order to prove that everything is done in a good way. And second, to get a proper retribution for it. Get paid.

For the processors it is important to know the quality thanks to the feedback from Qlip so that they know which suppliers are best and they know whether they can process the milk into their specific products which is just possible if since the first stage the milk is produced up to high quality standards.

How is the notion of quality related to price mechanisms? What is the “story” behind a higher price? Is there a lot of discussion in relation to quality and pricing?

If you lose the confidence of the consumers (i.e.: melamine in China) it will cost you a lot of money. Therefore the better the quality the higher the price.

APPENDIX D: HEIN VAN VALENBERG (ASSISTANT PROFESSOR DAIRY)

Professor Hein van Valenberg has expertise in Food Technology and Food Sciences and Technology. He works for the subdivision of Food Quality and Design in Wageningen University. Wageningen University focuses specifically on the theme 'healthy food and living environment'.

In your opinion, how would you define quality?

It is not about number of bacteria or this kind of criteria anymore. This is not an added value anymore. It should advertise other things that it is healthy, for example. But the price should not be too high.

Would you agree with Kees de Koning that nowadays quality is also related to animal welfare and sustainability?

Yes, I agree with that. But the price should not be higher because of that.

What is the relation between price and quality?

Companies are always busy with cost reduction which is most of the time related to product development. Thus you improve the product in order to reduce the price. For example Arla. It has a new packaging that allows the milk to have a longer life in the fridge by applying membrane filtration to get more bacteria out. And then they have a campaign saying "you can store the milk longer" and the concept behind it was "less food spoilage". People are aware that too much food is thrown away and then Arla says "less spoilage because our products last longer".

Talking about price: who decides the price of the milk at the store?

Milk prices of consumption milk are a very small part of the overall income. I am not sure but I think that they have to come to an agreement, together of the price that will be given to the milk between processor and retailer. And it is not only milk what they buy, they buy a complete package of products they will afterwards sell at the store.

What are the most important developments in the Dutch milk industry compared to 5 years ago?

In my opinions such "developments" have always been very slowly and nowadays we have a new one which is the milk quota. This will increase the milk production which will still be limited –we cannot produce unlimited–, there will be regulations taking care of it. Thus there is more milking coming and consequently more processors (companies) are coming: Fonterra is merging with another company, yi-li is a Chinese company coming... Milk is still "booming" and I don't know exactly where they earn the money in the process, but probably not from the milk but the whey proteins as a by-product of cheese production. This brings a lot of business to business transactions.

If you have milk there is 4.3% fat, 3.4% proteins (the proteins can be divided in caseins and whey proteins) and 4.6% lactose. To make cheese you need fat and caseins and then from the cheese produced you obtain left overs of whey with whey proteins and lactose. And you can use the whey proteins for all sorts of products like infant food. And with the lactose you can make tablet-pills or to make oligosucrose which can also be used to make infant food. The farmer is paid for each Kg of fat, protein and lactose. The most attractive for a farmer is to deliver milk with a high content in protein because this is the component that makes the milk price higher. Thus if you have Dutch milk with a lot of protein in it the processor has to pay a lot for it, for the protein, to the farmer. But the price of the consumption milk is independent than the protein content and therefore although the producer paid more for the milk, the price of the final product is not higher. Therefore *Frieslandcampina* produces a lot of pasteurised milk coming from Belgium so they have to pay less for the milk they get from the

farmers, because in Belgium the protein content is lower. Producers don't make money with butter or cheese, but with the additional fractions of the milk and then they sell them. For example the casein and the fat are sold to make cheese, the whey protein as sold for food (infant food) or other applications... So probably it is not really attractive (profitable) to sell milk for processors but still, retailers want to sell milk to their costumers so they buy "packages" and they say "I will buy you cheese and yoghurt and other products if you also put milk into the package of things I will buy". But this is just my suggestion.

How has the industry's competitiveness affect quality?

Nowadays milk has to compete with a lot of other milk types: almond milk, goat's milk, flavoured milk... What you see nowadays is a lot of flavoured milks like this popular dairy brand *Vifit* with a lot of vitamins.

To what extent quality is communicated? Who needs to know the quality of the milk?

It is difficult to answer since the definition of quality is not that simple. I think important are farmers, consumers and processors. And the tricky thing is: how to communicate that indeed the milk is healthy, sustainable and good for the animal welfare? And it that sense universities have an important role since processors like to work with universities as a way to filtrate such information (i.e.: *FrieslandCampina*). And there are many labels on the milk cartons that communicate but I think it is too difficult, too many.

"Consumer food habits and diets have changed". How important have been such changes? Do you think that milk quality is different as a consequence of their new food habits or the opposite way around?

Lots of people are not willing to drink milk anymore and I don't know what will happen in 10 years. In the past milk was part of a regular diet and it was good. Nowadays milk is still good but people want to know what is really good and consumers have become very critical.

How do you think this has happened? Are people more acknowledged?

I really don't know why or how people are now so much more concern about food. People know more, they think they are experts but they don't really know what they know. And so much labels in a package don't help.

APPENDIX E: PETER DE JONG (PROFESSOR OF DAIRY PROCESS TECHNOLOGY AND PROCESS ENGINEER AT NIZO FOOD RESEARCH)

Peter de Jong has expertise in food safety, food processing and food application & production. The main industries he works on are food ingredients, food & beverages and dairy.

If you look at five years ago, what are the most important developments in the milk industry?

I think automation which is constantly in development. At the first place they try to control all the conditions related to the milk processing. I think that there are not that many developments with respect to quality. If you talk about microbial quality then they have implemented more membrane systems that they help to reduce the amount of micros in raw milk before you start processing. This brings better quality milk before you start with pasteurisation. So that's very important. You can define milk quality in many terms but you see nowadays that they look at quality from the point of view of sustainability. They try to find ways to quantify such sustainability of their product. Actually three years ago they started to calculate the CO₂ footprint. But there is no clear definition of how to calculate it but when you just say that the feed of the grass has a certain contribution to CO₂ footprint and you can compare how this is different between different processes. That is one way, for example. And the Carbon footprint of the farm is just one way to look at it.

As a researcher from NIZO, what is the most important concept in building this organisation that later on has had impact in milk quality for the dairy chain?

Maybe the way of working. You can make marvellous products but if they cost a lot of money then people don't want to buy them. What we do in NIZO is combine product quality with processing costs. We use computer models in which we have the entire production chain with all the different factors related to cost and also related to quality. So that then we optimise the process in such a way, we integrate it in such a way that you end up with a process with better quality and less costs. Although quality itself most of the times is defined by the specs of the company. In other words, a company finds several specs and then you know for example you have to obtain 8 log reductions which determines you have a safe product. And from a processing point of view you try to optimise the process in order to meet such specs.

Do you think agree with the idea that sometimes product development equals cost production?

If you talk about product development you want to create more value out of milk. You have to reach a specific market and you try to increase the value of such product by producing other kind of products (yoghurts, ice-cream..) that will increase the value of milk and its turnover. Thus product development is not cost reduction. But, if you talk about process development then yes, you try to minimise costs all the time. At the end you want to earn money with both but with product development you really seek for extra value. And when you can charge for this extra value then you make more money than if you lower the costs of the processing.

How do you think that industry's competitiveness affected milk quality? For instance, milk consumption gives the least profit but it gets a lot of attention when it comes to deliver good quality consumption milk.

Worldwide a lot of dairy is consumed and it is increasing. When life standards are going up, the consumption of dairy also goes up. For example in China you see more people is earning more money there and then you see the dairy consumption rises. Maybe because in the Netherlands we are on the top with milk production and processing then it is more difficult to improve or raise its consumption. The nasty thing about quality is that if one person drinks milk that was not safe that has a great impact. Like it happened with the Chinese milk. So quality it is very important. I would say it also limits innovation somehow because it introduces risk in the chain. For example at the farm level. The concentration of the milk using membrane systems. Because when you

concentrate the milk at the farm, to certain extent, you have less transportation costs because a lot of water is already gone. But then the dairy company can say that you are introducing new technology at the farm and then you can introduce a new risk. And quality is by far the main thing in the dairy industry. You want to be the company with no problems at all with quality in relation to food safety (that you don't get sick, that there is microbial safety, no spoilage). The point is that as a company you cannot advertise "buy this milk because it is safe" because the consumer assumes that this is implicit.

How would you define quality? From which perspective? Using which indicators? Are earlier notions of quality discarded or are new additions to the old definition?

I have a mathematical definition. But that is the way we use it sometimes for optimisation of processing. And we say:

$$\text{Objective} = \sum_{i=0}^n \{ X_{\text{spec}i} - X_{\text{actual}i} \}^2 + \beta \cdot \text{costs} + \gamma \text{CO}_2$$

The lower the final equation result (objective), the higher the quality. This would be quality maximisation. The X_{spec} is the expected value you want, and the X_{actual} is the real one that you have. You can do that with a lot of specs. And then you have the costs, which need a weight quality (for balance). You can give a very low number to it so that the costs are not ruin the whole thing. And then you can add another factor like carbon footprint, which could be related to the sustainability aspect. For this reason I think that nowadays the idea of quality is more and more quantified in terms that they do more analysis of the quality part of the equation. It is becoming more rational. Quality itself it has more and more components. It is not just the bacterial part or the flavour part. There is much more differentiation in quality and consumers are more sensitive to changes in their products.

I've heard a lot of people in the industry talking about the importance of milk cooperatives, like *FrieslandCampina*. For example, a farmer I visited said that "the cooperative give us incentives to better practices like, for example, grazing". What is your opinion about cooperative and their modus operandi? Do the milk cooperatives have the same importance in other countries as in the Netherlands?

Well the first question is of course: does it increase the quality of the milk? I know there are some studies going on about it. If you look at the label it does not say it is better milk, it just says it comes from grazing cows. Personally I like to see grazing cows. I think it is a good way of doing it. When you compare it with pigs that they don't come outside you can see that the feeling of the consumer is more positive to cows and dairy than to the meat of pigs. I think it is very important so yes, it is a good thing that they reward grazing, especially for a marketing point of view.

To what direction do you think quality is moving? How do you expect quality changing?

From the processing point of view I think "origin" of the milk will be very important. Tracking and tracing so that you almost know from which cow the milk comes from. Because you get more and more a global market so it is important to know where products come from so if there are problems you know where to look. As a consumer you want to buy the right product and know that it is not coming from where they have a production process at that point. And also for the future I think differentiation will be very important. The dairy companies will focus on differentiation because they will get more and more data from the production. Innovation on itself will be not that big, but automation companies will make it easier for companies to get big data from the processing. And also sustainability will become more and more important for quality. For food in general, quality is more and more personalised. What is good for me it is not good for you, so to speak. For example some people need lactose free milk, so then you get more personalised food and then it also means more differentiated.

To what extent quality is communicated? Who needs to know the quality of milk?

Each actors of the chain has its own responsibility of knowing what a good definition of quality is. For example a farmer a farmer has to know when is his raw milk of good quality. But also the producer needs to know that and they also need to agree on that. From a communication perspective I think it would be very good if every actor in the chain communicates quality in its own way. For example you have the open days for farmer from *FrieslandCampina* in which farmers show what they do and they can communicate they do a good product this would help consumer to buy their milk. Of course the producer of milk products will say “this is good for you” but this is not the most powerful message, because it is already expected to be good and healthy. So I expect the NGO and agencies that they know when milk is a good quality. There is this debate about whether milk is healthy or not. Some people argue that it is not. And I know that NZO (Dutch dairy organisation) does a lot of effort to prove that milk it is indeed healthy. I also think it is healthy because it is very complete in its nutrients, compare to other products. Communication should come for all different stakeholder of the dairy production chain.

And all these actors of the dairy chain should communicate quality to the end-consumer or to the next actor in the chain?

Both. Starting for feed producers I would be great if they would communicate that they do research that they produce feed that will allow cow to produce milk with the best composition of fat and amino acids, for example. And of course ending with the consumers who will always have complains to the processors not t the farmer.

Do you think that the definition of quality can be a combination of all the different stakeholder’s definitions and indicators?

Yes.

Doing some research I defined 4 categories which are not exclusive but I distributed the actors among those categories. Actors can be part of more than one category. The four categories are: technological components, hygienic components, food safety and sustainability. Do you think this can serve to categorise the different levels that quality can be understood? Would you add or delete one?

The technological components could be also name functionality, quality in terms of functionality. For example if you have milk you expect certain feature and functionalities (i.e.: viscose) that if you a have yoghurt. However I think it is a quite reasonable categorisation.

Do you agree with the sentence “consumer food habits have changed to the point of changing production processes”? How important are these new food habits for milk quality? Has quality improved because consumers demanded it or the opposite way around?

Well. I think that if you go through the 4 categories you made, food safety is improved because consumers are more and more aware whether something goes wrong with a dairy product, it does not matter where, within an hour everyone knows it. Also the focus on differentiation and the choices for products has also to do with awareness of the consumers about food and quality. You have to choose so you need to know why you have to choose for product one, two or three.

For some people the price helps to choose the milk. The relation is: the higher the price the better the quality. Do you agree with this association?

Well you have to, however when you for example put a lot of marketing money on it, you can manipulate this as a processor. You can even sell the basic milk as a premium product, because a lot of times consumers don’t know the difference. On the other hand, in the dairy case a lot of processors try to make communication and marketing efforts to explain where the extra quality is and why the price is higher. So in this case the higher the price it is indeed the better the quality. One clear thing between low budget yoghurt and *Campina* yogurt then you see

that Campina is much better and this has to do with the complexity of the yoghurt and to make it a constant product.

A have a very nice example for milk pricing. I gave a lecture lately and I compare milk with Coca-Cola. Thus, when you have milk the raw materials are like 0'30 cents and *coca-cola* is less than 10 cents. The difficulty to make *coca-cola* is very low, as well as its processing costs and to process milk is much more difficult and expensive. And if you look at the nutrients *coca-cola* is not even considered a healthy product. At the end the price at the supermarket for a premium milk is around 90 cents and for a bottle of *coca-cola* is 1'50 €. So where does it come from? Where is quality here? Well the difference in price has a lot to do with marketing. But, besides, milk has a drinkability aspect because after one glass your mouth has a milk code that says "it is ok" that you are full of milk and this is not the case for *coca-cola*.

APPENDIX F: WIBOUT BOUMA (FRYSLAND CAMPINA FARMER)

Background questions

What are the most important developments in the milk industry?

That has mostly to do with the export towards China. We export a lot towards China, because of the request for baby milk (powder). The reason for this are some scandals within the milk powder industry in China, which made the Chinese consumers lose the trust in their own milk powder.

What is the role and position of “farmers” in the milk industry?

We deliver to Friesland Campina. Friesland Campina is a cooperation which is founded by farmers and the leaders of the cooperation have the responsibility of bringing the milk to the (European and global) market.

Would you say that farmers are one of the most important ones in the Milk Chain?

Yes I think so.

Friesland Campina gives rewards to farmers who leave the cows outside from spring until autumn. How do you see this kind of rewards? Do you, as a farmer, think this is nice and important or would let the cows graze anyways even without this reward that Friesland Campina gives for the milk of farmers who let cows graze?

If Friesland Campina would not give ‘Weidegang’ bonus we would still let the Cows graze outside. We think that the cows belong outside in the summer. This is healthy for the cows because they can move. Nevertheless also the nice, modern stables you have nowadays are also very good for the cows. So it's not that cows are always better off outside: inside the stable the cows are not influenced by the weather circumstances like rain and strong winds. Furthermore inside there is always good food for the cows, while outside the quality of the grass is not always good.

Would you consider yourself a farmer who looks after animal welfare of the cows?

Yes we take good care of the welfare of the cows. If animals get sick this also has financial consequences. Therefore if you take good care this will be paid back by the contribution an animal gives to the farm.

You are working on a family farm. Do you know if in the past it was also very important to take good care of the welfare of the cows or whether this or this has been more recently a way of managing your farm?

(A family farm is always a bit smaller which has positive influence on the welfare of the farm. If you have a large farm with managers there is less attention to the welfare of the farm than a family farm). → In the past the farmers only knew how they had to milk a cow and give it food, but nowadays you are almost half a vet when being a farmer. You can do many courses to become better in taking good care of the animals. It is important to understand the signals a cow gives in order to see what is the problem or what the cow wants or needs. This becomes more and more important throughout the years, and I think will become even more important in the future.

There are some figures about the milk industry. And as a final product, drinking milk does not give a lot of profit. Would you say that the more the competitiveness between the processors in this case (Arla, FrieslandCampina, Melkunie) the better the quality of the milk?

Absolutely, the competitiveness keeps you focused. Everyone wants to export, and therefore the competition is always busy to take your spot. Therefore it is important to deliver good quality to keep the good reputation of Friesland Campina.

Quality is a very broad term. What is your personal idea about milk quality? And the idea of this organisation?

Milk with a good relation between fat, proteins and glucose and which is clean. If I deliver good quality I get paid for that quality, which is my income. Therefore we don't want to deliver milk with a low(er) quality because then we can get a supply stop from Friesland Campina/

Did the notion of quality change over time? What could be expected for the notion of quality in the future?

To meet new norms of quality Friesland Campina has put the bar higher throughout the years. For example before the cell count could not be more than 400 while now this has been lowered to 200.

As a farmer from Friesland Campina, what has brought you to join this cooperative? Was it the return price, or because of the standards of the cooperative.

Long ago my father became a member of Friesland Campina, which was possible at that time. Now you cannot become a member of Friesland Campina easily: this goes from father to son, or you have to buy yourself in as an entrée fee between 200.000 and 300.000 euro's. This makes it really difficult for outsiders to join the cooperative. This has as a consequence that the club becomes smaller. My father was first a member of the small milk factory Coberco, which fused with Friesland Foods which on its turn fused with Campina. As a consequence of all the fuses around 40 milk factories together became Friesland Campina. So we did not choose specifically for Friesland Campina, it was more due to the circumstances.

To what extent quality is communicated? Who needs to know the quality of milk?

Friesland campina communicates the quality mainly via radio, tv commercials and commercials which is visible outside. But I think that, in the long run, more needs to happen in order to keep the market share. The communication of quality to the consumers is important in order to keep the trust of the consumer in the way our milk is produced. Therefore the cows on and the statements of quality on the packaging is important, and could be even larger in order to increase the effect. That important because people want to see cows, and if they see cows they see milk.

How is the notion of quality related to price mechanisms? What is the "story" behind a higher price? Is there a lot of discussion in relation to quality and pricing?

Every month the milk price is announced, and this price depends on the export. Now we for example have had the boycott from Russia which had a negative impact on the milk price (it became lower). The same happens if for example in China there is a large scandal with our milk powder, because we lose the export market. Friesland Campina decides the price every month) I think that the higher price of our quality milk right because we make a lot of effort to produce the milk. Besides higher price is also because the management of Friesland Campina needs to needs to sell the product on the market. (Nevertheless, in the factories of Friesland Campina more could be automatised in of using employees.)

On the other hand, also the milk of the "huismerk" is also produced by using strict norms. So the quality of that milk is also very high. The more expensive milk is often more biological or 'weidemelk' which is more costly to produce. Me myself I do not really taste the difference between the different kinds of milk.

Do you think that each actor in the milk industry can have a different definition of quality milk, but that they can altogether become one definition of quality?

I prefer the differences between the different actors because this keeps each other focused which as a consequence gives us the possibility to ask a better price for our products. It is important to have different

definitions of quality because this resistance from different actors has positive influence on the product we deliver.

Are the terms “less environmental impact”, “food security”, and “animal welfare” new possible ways to distinguish the new different ways to build quality?


Sometimes the rules for animal welfare is too strict for us. We export to a global market, which makes it important to have high standards in this regard. Animals have already a good life because if the animal welfare is not good they do not produce. “Environmental impact” plays a role in quality, but not as much as you hear in the media.

“Consumer food habits and diets have changed”. How important have been such changes?

People are more eager to change their habits, this makes it really difficult to sell the products to the people. This makes it very important to develop new dairy products on a regular basis. Otherwise the people will step away from the dairy products

If I have additional questions in the future, can I reach out to you again?

Yes, sure.



APPENDIX G: SERGIO CALSAMIGLIA (ANIMAL AND DAIRY SCIENCES PROFESSOR AT AUTONOMOUS UNIVERSITY OF BARCELONA)

What are the most important developments in the Spanish milk industry? Compared to 5 years ago, what are the most important changes? If you look 5 years ahead, into the future, what are the expectations and changes?

I believe that this new quota system brings a new landscape in Spain which makes it very rough for dairy farmers. Last year we lost already 10% of the farms, in one year, in the last 10 year we have lost 35% of the farms which means that the industry is getting smaller in number of farms. Slightly less number of cows, and that means that our farms are getting bigger (more cows per farm) and production is going up. So I think that it is going very intensive. The bigger farms are getting bigger faster and the small farms are growing very slowly which I think they will tend to disappear. The last five year the size of the big farms has increased a lot, and they are a lot more intensive.

Furthermore from the processor point of view there is been a big impact on the way they try to make milk: with more omega 3, more calcium.... From the retailers I would say that the white label or owned label has very important role. A lot of supermarkets sell their own brand and they have gained 50% of the market.

What was the most important concept/idea in building your organisation? What is the role and position of “university research” in the milk industry?

Our role as researchers is very limited in Spain. Most of our research is founded by multinational companies. My perceptions is that Spain is not a big dairy country, and companies do not invest a lot in research in Spain but they do research in Spain as part of a whole market. Our role from the university is more communication, for professionals: doing training programs, conferences, keep up to date with researches from all over the world. We are used as a tool to transfer this information to veterinarians and nutritionists. There is limited representation and that shows that dairy it is indeed a limited market. But, for those who research dairy in Spain I would say that the research tend to be very specific.

Do you think that the higher the competitiveness between milk processors the better the milk quality? Do you see this “better quality” for more competitiveness as a whole concept applicable to all the actors in the chain or just to some specific ones?

I am not sure that is true for the dairy industry. The quality milk in Spain, in general terms, is good. It is much better today than 10 years ago. The problem in Spain is that we import 40% of our production. In any situation like that this would require a higher price, since we have to import a lot to match our demand, but that is not the case. I think that the way the market works is very complicated and one of the reasons I think it works this way is because milk is used by big supermarkets as a prize to get the attention of the consumer. Everyone knows the price of milk, but not the price of rice for example. Marketers know in Spain that the consumer knows the price of bread, the price of milk and the price of olive oil. Those are the three products that are used to call the attention of the consumer. So many supermarkets are willing to not win money selling milk because they know that the consumer who goes into the supermarket to buy milk will also buy potatoes, tomatoes and many other products. The consumer has a very difficult time defining the quality of milk. I personally taste it and I say, this is good but if you mix milk with coffee and chocolate you cannot perceive this anymore. Here in Spain the consumption of white milk is very uncommon. People drink milk with coffee or with chocolate if you are too young for the coffee. Therefore the consumer does not have the opportunity to taste whether the milk has better or different taste than another. And therefore the only solution that milk companies have to convince the consumer about their product is designing a nice pack or doing a nice commercial on TV. Some claim that they are very cheap, others that they are healthier... It is all about the image of the company. In Spain “Pascual” milk

is often perceived as very good and this is just because the company has a commercial on TV in which they say they are best.

So do I think that competition brings a better milk? I doubt it. I think competition in Spain is about spending money for marketing. Because I don't think the consumer is able to notice any difference in taste.

Do you believe the idea that milk in the Netherlands is better because it is pasteurized and not UHT like in Spain?

I think that the milk quality in Spain is very good. We are good in the standards of the EU in terms of health, somatic cell count... Whether this is good to indicate quality. In Spain the most drank milk is skimmed milk, thus regardless of anything the end product has this 2% fat. I think that quality is related to technological and hygienic components and another measure of quality is taste. And then I agree that pasteurized milk has better nutritional and taste quality probably related to some vitamins. So I don't agree that the Netherlands milk is better but I do think that pasteurized milk has a better taste. And the problems are two in Spain: one is as I told you, we don't drink white milk and the second problem is that we are lazy. We don't have the tradition to go and buy milk every day. There is some social behavior data that says that consumers buy milk for the next two weeks. And is very difficult to change this pattern of behaviors. A few years ago they put those dispensers that would make available for people to go there and have access to fresh, local milk. They sold a reasonable amount of milk for the first week, because it was a novelty. But they have completely disappeared nowadays from the market.

Could this social behavior be related to the fact that UHT milk has a longer shelf-life than pasteurized milk?

Yes, of course.

Have you ever experienced that quality means different things for different actors?

Yes for sure. If you talk to a farmer, in Spain, for them quality means "fresh", and low somatic cell count. For a processor like Danone who needs milk with very low somatic cell count and bacteria to produce yogurt, they need very "clean" milk, but then you go to a cheese farm and for them quality means high fat and high proteins. Consumer will have opinions based on perception about the marketing. Leche asturiana has this commercial about cows grazing in the green meadows of the North of Spain. I tell you there is not a single cow from leche central asturiana grazing there. People have the perception that milk from the north of Spain because is green cows there are grazing, but I am sure grazing cows account for no more than 5% of the production.

In some countries it is very important that official labels show whether the milk comes from grazing cows, is that the case in Spain?

No.

I've heard a lot of people in the industry talking about the importance of milk cooperatives. Cooperatives give incentives to farmers for better practices like, for example, grazing". What is your opinion about cooperatives and their modus operandi in relation to promoting quality?

In Spain there are cooperatives, farmers working together and then those farmers sell the milk to big cooperatives and then these cooperatives sell the milk to processors. The cooperative is one step in between which role is to collect milk and sell it to processors.

What is your idea as a scientist about milk quality?

Quality for me means hygienic quality, reasonable numbers of somatic cell count and bacteria. Taste for me is important. And for me the fatty acid profile (the saturated acids).

To what extent quality is communicated? Who needs to know the quality of milk?

Somatic cell count and bacteria people, in general, does not know what it is. It does not come in the communication. Fat and protein either. In Spain the image of a green farm in the north Spain and I think packaging is very important for that. Another way is to tell people that they take care of the cows, like leche Pascual did in one of its campaigns, claiming that they had the best veterinarians and cows had the best treatments.

How is the notion of quality related to price mechanisms? What is the “story” behind a higher price? Is there a lot of discussion in relation to quality and pricing?

There is a sort of perception in general that the more expensive the better quality. And this is not true for milk.

In the Netherlands the farmer turnover is very low and the milk price does not have a fair price. Is that the case in Spain as well?

Yes.

Do you think that each definition of quality is addable to the previous one or the next one? (Like added value from each stakeholder).

I think that everybody would agree that quality milk means low somatic cell count and low bacteria. But I don't think that everybody would agree that grazing is better than not grazing. For companies which produce drinking milk high fat would be a problem since they mostly produce skimmed milk, whereas for a cheese maker high fat is good. Nowadays you get more or less money according to the level of fat of the milk but I don't think this has to do with quality since you can change this with processing. Compare to Northern Europe farmers in Spain are less concerns about grazing and animal welfare.

Are the terms “less environmental impact”, “food security”, and “animal welfare” new possible ways to distinguish the new different ways to build quality?

I think that this is a lot less of a thing in Spain than in the Netherlands. I think that there might be some perception when looking a commercial that if it is grazing the milk is better. But since it was not true the authorities advised the processor to take the commercial out. The environmental issues and animal welfare issues are less important than in the North of Europe. We don't have that many cows. The Netherlands probably is over populated with dairy cows.

This does not mean that there aren't governmental regulation about environmental and animal welfare aspects but I don't think this is a priority for consumers. Consumers in Spain buy a lot the white label which means they look for cheap milk as a first buying criteria.

In a blind test that I did, people would identify two milks that were very bad, two that were very good but most of the people would agree that the bad ones were the bad ones but not everyone would agree which were the good ones, because they were all very similar.

“Consumer food habits and diets have changed”. How important have been such changes?

I think that have changes have impacted the milk consumption. In the past years have come the alternative milks (flavored, soya, almonds..) and this is a questionable evidence that the food habits have changed and that milk is not perceived as earlier and the impact has not been precisely positive.

APPENDIX H: PEDRO VALENTÍN-GAMAZO DE CÁRDENAS (SUBDIRECTOR AT NATIONAL FEDERATION OF DAIRY INDUSTRIES, FENIL)

What are the most important developments in the Spanish milk industry? Compared to 5 years ago, what are the most important changes?

Industrial concentration as a result of the acquisition of several companies by LACTALIS and a Spanish company (Leche Celta), currently constituting both the first and the second company for milk collection from the Iberian Peninsula.

If you look 5 years ahead, into the future, what are the expectations and changes?

There is currently a great concern about developments in the Spanish dairy sector in a scenario without quotas. Decrease in the number of farms and relocation of production.

Necessarily a concentration of Spanish dairy industry must occur to achieve more competitive dimensions. It seems to be mainly due to acquisitions made although there could be a merger.

Possibly more milk will go toward making cheeses and industrial products and it would be a greater diversification of products at the expense of declining milk consumption.

What was the most important concept/idea in building your organisation?

Initially it was the defense of the interests of member companies and their representation at national and EU authorities. At the time of its formation there were other objectives as they could be at that time improving the safety and quality of milk and dairy products. Currently there are objectives such as communication about the goodness of dairy products and their nutritional value, encouraging consumption, the sustainability of the sector, etc.

What is the role and position of “FENIL” in the milk industry?

The National Federation of Dairy Industries integrates 70 companies, representing more than 85% of the national production of dairy. With this Federation there are represented most liquid manufacturers of drinking milk, cheese, milk powder, yogurt, butter and dairy desserts operating in Spain. Our overall mission is to represent the Spanish dairy industry in front of the different administrations (European, national and regional) and organizations related to the dairy issue. Furthermore we work to defend the common interests of the sector.

Do you think that the higher the competitiveness between milk processors the better the milk quality?

I think that depends on the type of product in question. For example in milk consumption (particularly UHT very majority in Spain), the quality is very standardized and competition among enterprises is done by types of packaging, enriched milks, price, etc. more than quality.

I think the improvement of quality in terms of competition shows more in yogurts and dairy desserts and especially cheese.

Do you see this “better quality” for more competitiveness as a whole concept applicable to all the actors in the chain or just to some specific ones?

The financial margin on liquid milk consumption is very small. Many industries are limited to comply with the rules and do not go beyond the quality, especially in milk brand "distributor" or "white" brand, which currently accounts for over 60% of the market.

Have you ever experienced that quality means different things for different actors?

Quality is a very subjective question so that different operators may have different concepts of quality. We have developed protocols for self-management quality and have tried to establish more stringent than those imposed by the relevant parameters, however some operators reject and want to control the legal requirements only.

I've heard a lot of people in the industry talking about the importance of milk cooperatives. Cooperatives give incentives to farmers for better practices like, for example, grazing". What is your opinion about cooperatives and their modus operandi in relation to promoting quality?

In some cooperatives the need for "quality schemes" externally certified, as a tool for product differentiation and also as a collateral strategy for professionalization of producer and control over production.

In some cooperatives they are beginning to incentivize measures for environmental improvement, lower energy footprint and water. Also it is analyzed the possibility of marketing a type of milk in which it is advertised that cows eat grass in situ.

How does the new common agricultural policy (CAP) affect the Spanish dairy industry?

It is too early to make an accurate assessment, but in principle the new CAP is favorable for farming purposes, they will receive a greater volume of aid. We believe that the abolition of production quotas is beneficial overall for the livestock sector, but in some cases can be harmful -especially on small farms, less competitive or in remote areas of the location points of the processing industries-.

For the processing industry, in a first evaluation the effect of the new CAP seems fairly neutral, this could be positive to the extent that it can benefit from rural development funds to finance the above mentioned investments.

Quality is a very broad term. What is your personal idea about milk quality? And the idea of this organisation?

Quality must integrate several aspects: compliance in the broadest sense of the word, food safety, presentation and organoleptic characteristics that satisfy the consumer. Unfortunately, our organization has not set a specific idea or consensus on quality.

Did the notion of quality change over time? What could be expected for the notion of quality in the future?

I think in the future the concept of quality give greater importance to customer satisfaction and product external aspects related to sustainability.

To what extend quality is communicated? Who needs to know the quality of milk?

If we speak about the government and other entities quality is communicated almost continuously. There is the Spanish Quality Association which is very active in this field. The normalization body AENOR indirectly makes reference constantly to quality. Figures quality "differentiated" is encouraged, etc.

For their part, operators, both manufacturers and distributors communicate enough "quality". For example the company Leche Pascual has recently changed its name to "Pascual Quality" and its motto has always been "quality our reason for being." Meanwhile the German chain Lidl used the following slogan: "Quality is not expensive."

First, I think that the organizations themselves should be more active in the promotion, communication, assurance and self-control of quality, aimed specifically at small and medium enterprises, which have the greatest need to internalize the concept of quality actions.

Of course the consumer needs to know the quality of milk, although the first moving shopping reason is not quality.

How is the notion of quality related to price mechanisms? What is the “story” behind a higher price? Is there a lot of discussion in relation to quality and pricing?

There is a majority perception in the sense that a higher milk price is good and low price is bad.

In comparative studies and self-monitoring we have been able to verify that this is generally not true. I said earlier that in general the UHT milk brands sold are very similar, although some differences can be detected in terms of qualitative aspects.

The price on these products, with some exceptions, is not related to quality.

What do you think is the idea of quality for the actors in the industry?

The concept of quality is evolving towards other directions more related to the environment (water or carbon footprint) and animal welfare. There is a differentiating concept of quality understood as "food security" that is related to the security that producers must fulfill. Other aspects are “organic products” which are a mark of quality with a way to produce with its peculiarities, yet operating in other level.

Do you think that each definition of quality is addable to the previous one or the next one? (Like added value from each stakeholder).

The quality has to be achieved, assessed and ensure along the whole chain. If we do not depart from a source of good milk quality, it will be difficult to develop a good drinking milk.

The quality requirements are headed "upstream" in the dairy chain. Each operator demands its provider to reach the desired quality, starting with the supply of raw materials to feed dairy cattle.

Do you think that each actor can communicate its “quality” the same way?

It should be the case, but it happens. It should be possible to differentiate the communication about quality done by companies than the generic quality communication from interprofessional organizations.

Are the terms “less environmental impact”, “food security”, and “animal welfare” new possible ways to distinguish the new different ways to build quality?

I am totally convinced it will, aspects like “food security” will lose validity. More emphasis on health aspects, for groups with health problems, elderly ... etc. will increase.

What are the most important developments in the Spanish milk industry? Compared to 5 years ago, what are the most important changes?

Basically performance in packaging and incorporate treatments like delactosed or adding components to incorporate functional features

Compared with five years ago, what are the major changes?

Virtually the entire industry is in the hands of *Tetrapack* as a producer of packaging machines and is incorporating new formats and new lines of higher yields.

If you look at five years ahead, what are the expectations for change?

Packs will not evolve much and neither the processes. The trend is that big processors will increase and dominate the market and affect the industry and reduce the overall innovation capacity. The objective is to lower production costs.

Do you think the consumption of milk per capita in Spain is high or low? Why? Do you think that greater competitiveness in the market better quality of milk?

In Spain more liquid milk than dairy products is consumed. This is because of the lower income relative to other EU countries. Additionally alternatives such as olive oil and vegetable fats are very much present in the market. The tendency is to reduce the consumption of liquid milk for derivatives even though this trend has been reduced by the crisis.

How do you think the competition among milk processors affects the quality of milk?

In Spain the quality message is given by the milk brand. In recent years there's only one brand that has preserved this quality claim as a center of communication because the rest of brand have preferred to compete on price. The differentiation in the market is very small and milk processors are becoming less than 40% of the market due to the big role of white labels. The milk brands compete with each other but they are not more than 5 to 7 players per geographic area. Brands locally produced still allow to retain some brands.

Today the concept of "milk quality" is interpreted in the same way as before, or has it changed?

The consumer has assumed that milk is worse because it "does not taste as before." But this is a deceptive memory because if it gets to the consumer milk direct from the farm where flavors are not lost by not eliminate somatic cells and other aromas, in general would be rejected as too strong milk taste. The tendency is to consume a neutral product and if low in fat better. Milk fat should not have a major impact on consumption. Fat also improves the organoleptic characteristics but the consumer, as in the rest of Europe, tends to consume increasingly less whole milk and more semi skimmed milk. .

Therefore, in Spain, with low consumption of plain milk and almost always mixed with other flavors (cocoa, coffee), organoleptic characteristics have little role to play. People talk about milk quality as in terms of stable milk, with a not too dark color because of the temperature, good taste and good smell.

Fresh milk consumption is below 5% of liquid milk (Except European tourists) and for logistical reasons and performance the milk characteristic have been changed so that it has a shelf life of 21-days instead of 7. However such readjustments of fresh milk are not good for the milk quality.

Have you ever experienced that quality milk mean different things to different players in the dairy industry?

As mentioned above the consumer does not appreciate the intrinsic quality of the milk because the consumer knows not enough elements to value it. When the consumer has to choose milk the decision is based on the brand. The brand gives consumers more trust than anything else and, secondly, the proximity.

For processors milk quality depends on the pressure of other countries production. Processors focus on low protein and low fat from which they can make profit. Just cow cheese processors (a minority in Spain) and the producers of other dairy products value milk rich in protein and protein

For producers, what matters is the final price they will get for the milk they produce and, as the situation in the Spanish sector is not good, processors don't have a particular interest in enhancing the quality of the milk because it will not be accompanied by an improvement in the financial value of milk. For the rest, the regulations are the ones that brought Spanish milk to improve its hygienic quality.

I've heard a lot of people in the industry talking about the importance of cooperatives of milk, still in Spain there are not many cooperatives. What is your opinion about cooperatives and their modus operandi in relation to the promotion of quality milk?

In Spain, the industry has always had the strength on the livestock and farmer side. However nowadays distribution is the strength of the industry and the farmer is the weakest link in the chain. That is why the institutions are promoting producer organizations to make a better relationship between them and the producers and that is why the new trend with growing cooperatives which are incorporating more farmers and trying to promote minimum standards of production and then negotiate with processors. I believe that where processor cooperatives are present it is better for the whole industry and its quality.

Milk quality is a broad term. What is your personal opinion about the quality of milk? And the opinion of your company?

From a business standpoint, milk as a living and very variable product needs to have a quality that carries a composition rich in dry matter, a sanitary quality and a very low level (more difficult to achieve in countries with warmer climates) somatic cells. From the organoleptic point of view, milk will have better features as long as the animal can graze and also when the animal is following a better diet. These factors cannot always be achieved in the whole territory of Spain.

Keep in mind that what most interests the company in addition to the minimum fat and protein, is the hygienic quality, because a higher quality in this area always provides greater stability in heat treatment and the possibility of reduce their intensity (which is better for organoleptic and nutritional improvement).

¿Ha cambiado la definición de "leche de calidad" con el tiempo? ¿Qué se podría esperar de la noción de leche de calidad en el futuro?

I believe that in Spain the concept of quality is more closely linked to trust in a brand by the consumer than a real quality differentiation between brands. This fact is what makes the consumer will finally choose an undifferentiated way for the price

Do you think the term "milk quality" duly communicates? Who should be the recipient of this communication?

Only one company has tried to explain (and apply) and is currently not at its best because the consumer does not understand what is the differential value of milk quality.

I think that what is at stake now in Spain is growing body of opinion that milk is harmful to health than the quality of the product itself.

Spain has most intensive areas of production and consumption of milk as the Cantabrian coast, and less intensive areas such as the south and the east. These consumers are different but even the consumer from areas with better climate conditions are not great appreciators of milk quality as demonstrated by the fact that there is a habit of very low consumption of fresh milk.

Do you think there is a relationship between milk quality and its price? What is the "story" behind the higher prices per liter of milk?

Of course behind a low price there is also a low price for farmers, and following this argument is difficult to promote quality in the farm. It is also true that some argue that economies of scale allow a lower price for consumers but this is only part of reality. Promote a certain quality feature is done for those who need to make certain types of dairy products.

To promote a higher price we need to appeal to the emotions, the proximity of the milk, the respect for the production process and the life of the cows, but quality does not speak for itself would be very difficult to explain to consumers

How do you think the following actors in the industry define the term "milk quality"?

- Farmer: higher fat and protein content, low somatic cells and low microbiology
- State regulators: basically product hygiene and respect of labeling
- Processors: milk with high resilience to thermal treatments especially
- Distributors: Grand rotation linear
- Consumers: the only factor that can differentiate (and not always) is the taste, which in Spain depends primarily on the treatment system.

Do you think there is a definition of "quality milk" or more definitions (depending on which actor you ask) think? If there is more than one definition, do you think that those definitions are exclusive or inclusive?

For farmers milk quality is related to nutritional and hygienic.

For processor milk quality is related to how good the milk is ready to withstand the treatments as well as a long life as a packaged product.

For the retailer milk quality is based on what gives good returns and a low incidence of problems

For the consumer milk quality is the milk which is reliable, and has good taste

Do you think that every player in the industry can communicate the quality of milk in the same way?

If you defend quality you must be consistent and not competing on price. All competing by price (most) do not talk about quality directly

Are the terms "reduced environmental impact", "food security" and "animal welfare" possible new ways to distinguish or define "quality milk"?

These concepts are beginning to be echoed in the Spanish society but with delay in relation to other European countries.

"Eating habits and diets have changed." Do you think these changes have been important?

In milk they are not important unless we look at the milk consumption of younger generations which has decreased

