MASTER THESIS

Master Environmental and Energy Management (MEEM)

University of Twente

Academic Year 2019-2020

The effect of the Dutch Nitrogen crisis on stakeholders' attitude towards sustainable dairy.

Student: Jacobien van Dijk
Track: Environment Management

Date of submission: 20-08-2020

First supervisor: Dr. M. Lordkipanidze
Second supervisor: Dr. V. I. Daskalova

Table of Contents

Acknowledgement

I would like to take this opportunity to thank the people who helped me in any way or form by finalizing this thesis research.

I wish to express my sincere appreciation to my first supervisor, Maia Lordkipanidze. The incredibly quick replies and helpful information are very much appreciated. Although the Corona Crisis hindered us from meeting, I knew you were always available to help.

I also want to thank my second supervisor Victoria Daskalova as well. Your critical thinking helped me focussing on the right and most interesting aspects of the topic.

Lastly, I also wish to acknowledge the emotional support of my family and boyfriend. They helped me by giving different perspectives, providing me a workspace to conduct my online interviews, and distracted me when I needed a break. This research would not have been possible without their input and unconditional support.

List of figures

List of tables

List of graphs

List of abbreviations

DSF: European Dairy Sustainability Framework
SDC: Sustainable Dairy Chain
LTO: Land- en Tuinbouw Organisatie Nederland
NZO: Nederlandse Zuivel Organisatie
PAS: Programma Aanpak Stikstof
FDF: Farmers Defence Force
GHG: Greenhouse Gas
WNB: Wet Natuurbescherming
NGO: Non-governmental organization
AHW: Animal health and welfare
FSQ: Food Safety and Quality
PEB: Protection of environment and biodiversity

Abstract

The aim of this research is to analyse the effect of the Dutch Nitrogen crisis on the stakeholders' attitude towards sustainable dairy. While the Dutch dairy industry already copes with increasing stakeholder attention towards sustainable practices, the Nitrogen Crisis, started in 2019, received unprecedented media coverage and public support. Therefore, this research aims to answer the main question: *How is the Dutch Nitrogen issue affecting the stakeholder attitude towards sustainable dairy?* To answer this question, a literature review was carried out, five interviews with sector experts were conducted, and four self-administered quantitative surveys were held among the Dutch end consumers (N=880), dairy farmers (N=134), government (N=15) and business customers (N=11). The later four mentioned stakeholder groups were identified and discussed based on the literature review and the expert interviews. It was concluded that the end consumer was considered a dependent stakeholder, the dairy farmer a dominant stakeholder, the government a definitive stakeholder, and the business customer a dangerous stakeholder. These four were sent a survey, investigating their attitude towards sustainable dairy. By using a Likert-Scale, it was found that all stakeholder groups indicated a positive attitude towards the topic. The end user was found to be dominantly positive but showed a high standard deviation. The dairy farmers indicated positive attitude towards animal welfare, but neutral to negative towards the aspects of biodiversity and Greenhouse Gasses. The government was almost unanimously positive. The business customer also showed predominantly positive attitude but was the least willing to financially contribute to the realisation of the discussed aspects of sustainable dairy. Based on the survey findings, there was no evidence found that the stakeholders' attitude was significantly changed due to the Nitrogen Issue. This research adds to existing literature on stakeholder identification and attitude, but differentiates itself by researching the current field of the Dutch dairy industry, in relation to the Nitrogen crisis. There has been little research about the current crisis so far. Therefore, this research will be beneficial to understand the attitudes in the dairy industry, in context of the Nitrogen crisis.

1: Introduction

1.1 Background

Sustainability is worldwide known as *"development that meets the needs of the present without compromising the ability of future generations to meet their own needs"* (Brundtland, 1987). A concept which is impossible to be ignored in the 21st century. Not only consumers, but also almost all organisations pay more and more attention to this increasingly important topic. Organisations develop their own sustainability strategy, hire experts, and publicly communicate these efforts. Besides possible intrinsic motivation and beliefs, companies are also being pressured by their own supply chain and end consumers to implement this concept within their businesses (Ingenbeek, & Dentoni, 2016). As a contradictory result, the demand and pressure for sustainable products results in an opposite phenomenon of "greenwashing", that is the practice of purposely misusing sustainability in external communication, in order to meet this demand and increase a competitive advantage (Zhang et al., 2018).

One of the main industries affected by the increasing awareness of sustainability is the Dutch dairy industry (Ingenbeek, & Dentoni, 2016). This sector is known for both its environmental and social relations to sustainable development. Due to continuous changes in regulation, and limited available land, Dutch dairy farmers are forced to invest in efficiency and intensity (Samson, *et al*, 2016; Laurence, *et al*, 2015). Globally, the Netherlands is therefore perceived as one of the industry leaders. In order to maintain this position, a long term, sustainable, transformation is needed (Samson, 2017; Laurence, *et al*, 2015). This resulted, among other initiatives, in the Sustainable Dairy Chain (SDC). This partnership was founded by the Dutch Federation for Agriculture and Horticulture (LTO Nederland) and the Dutch Dairy Organization (NZO). They were able to formulate four clear goals: Climate neutral development, continuously improving animal welfare, preservation of grazing, and protecting biodiversity and the environment. In 2020, the affiliated organisations account for 12.700, out of approximately 16.000, of the Dutch dairy farmers and 98% of the total milk production in the Netherlands (Duurzame Zuivelketen, 2020).

Alongside the social importance of the sector, it also holds great economic value. Representing 1.6 million cows, 53 factories, 7% of the national trade balance, and approximately 50.000 jobs, the dairy industry is a driving sector of the Dutch economy (Nederlandse Zuivel Organisatie, 2020). Up until 2015, the farmers individual milk production was restricted due to the European Union milk quota. In order to meet the globally increasing demand for milk, and adapt to new trade agreements, the quota system was abolished in 2015 (Klootwijk, et al, 2016). This resulted in a significant increase of milk production, lowering the raw milk prices in the EU-27 (Institute for Prospective Technological Studies of the European Commission, 2016). The subsequent introduction of a reformed manure policy and phosphate quota aims to keep the total milk production within sustainable margins. This relates to both the Phosphate and Nitrogen emissions, as well as to the actual number of cattle.

The current Nitrogen crisis received a lot of public attention, making the environmental challenges in the dairy supply chain even more visible for its stakeholders. It occurred after the Dutch Council of State ruled against the active national policy on Nitrogen, Programma Aanpak Stikstof (PAS) in April 2019. Since it was stated to be in conflict with the European Habitat Directive, the instrument could no longer be used in order to grant permits, immobilising thousands of construction and infrastructure projects (Raad van State, 2019). On October fourth 2019, the minister of agriculture presented her proposal on reducing the nitrogen emissions on a short term. One of the measures regarded reduction of Nitrogen emissions in the agriculture sector. The provinces, eventually responsible for the permits,

took the proposal even stricter. This resulted in a situation in which unused Nitrogen permits are taken from the farmers, in order to grant construction and infrastructure permits (Stokstad, 2019).

This event resulted in nationwide strikes, in which farmers claimed to be "robbed" of their permits, limiting their opportunities to expand production once more. The strikes were characterized by civil disobedience in the form of disruptive tractor blockades on the highways, and mass protests on the Malieveld in The Hague. The actions, mostly organized and coordinated by Farmers Defence Force (FDF), received unprecedented media coverage and public support. The organisation was then invited to participate in the negotiations towards an effective Nitrogen Policy. During these discussions, the FDF showed a very intimidating and unilateral attitude. They received several warnings and conditional boycotts from ruling parties; the minister of Agriculture and the prime minister only wanted to proceed the negotiations after an official apology from the farmers. Nevertheless, in November 2019 an initial agreement was presented by the Dutch prime minister. Strikingly, the measures were related to speed limits and superficial topics as the protein ratio in cattle feed. The Minister of Agriculture stressed that there is still no agreement with the agricultural sector, but was positive on the foundation they build in order to proceed the discussion (Rijksoverheid, 2020).

This brief overview of the research context illustrates the current conflict between the involved stakeholders in the Dutch dairy industry. The conflict reached its peak after the changing regulation, and the subsequent public attention.

1.2 Problem Statement

Stakeholder attitudes have great influence on climate adaptation measures in the dairy industry: they can determine the strategy and pace of the adaptations (Hall & Wreford, 2011). It was found that conflicting attitudes between primary stakeholders hinder successful implementations and resource allocation in the agricultural sector (Vanhonacker, *et al,* 2017). Even more threatening than conflicting attitudes, are unclear attitudes. This can lead to ineffective decisions, obstructing the aimed business performance (Ventura, *et al,* 2014; Hall & Wreford, 2011; Sinclair, *et al*, 2017).

In the case of the Dutch dairy industry, there has been little research on stakeholder attitude towards sustainable dairy. First, an inclusive and representative stakeholder overview seems lacking, and secondly, the individual farmer attitude towards this topic is not known/understood. This is especially interesting, due to the so-called Dutch "Nitrogen Crisis". This crisis revealed the excessive pollution drawback of this industry. The subsequent nationwide strikes from the farmers attracted unprecedent media attention, increasing the public's confrontation regarding this topic. However, it is unknown if, and how, this sensitive topic has affected the attitude from farmers, end users, government, and business customers towards sustainable dairy.

Therefore, the problem that is addressed in this research is related to unsustainable practices in the dairy industry, the unknown stakeholder attitude, and how this is affected by the Nitrogen Crisis.

1.3 Research Objective

The objective of this research is to analyse the effect of the Dutch Nitrogen crisis on stakeholders' attitude towards sustainable dairy. In order to look for a possible change in attitude, the four key stakeholders will be identified, and their attitudes and knowledge towards the topics will be researched. Ultimately, the research aims to increase sustainable awareness among stakeholders in the Dutch dairy industry.

The research object of this study is the Dutch dairy industry stakeholder's attitude. Arla Food and FrieslandCampina are the two biggest companies in turnover; together, they account for the total milk

production in the Netherlands. Therefore, only Dutch stakeholders related to either one of these two will be accounted as research object.

The research aims to identify stakeholders, analyse their sustainable attitudes and possible effects of the 2019 Nitrogen Crisis. Therefore, the perspective of this research constitutes a Problem-analysing conceptual framework to determine the possible impact of the Nitrogen crisis on stakeholder's sustainable attitude towards the already vulnerable Dutch dairy industry.

1.4 Research Question and Approach

The main question of this research is:

How is the Dutch Nitrogen issue affecting the stakeholder attitude towards sustainable dairy?

In order to answer the main questions, four sub-research questions are formulated:

1) Who are the current stakeholders of the Dutch dairy industry?
2) What is their attitude towards sustainable dairy?
3) Are the stakeholders aware of the Nitrogen issue?
4) How is this awareness affecting the attitude towards sustainable dairy?

In this research, the Dutch dairy industry is limited to FrieslandCampina and Arla. The stakeholder identification will be based on the Stakeholder Typology by Mitchel (Mitchel, et al, 1997). Sustainable dairy is defined based on a combination of statements from the European Dairy Sustainability Framework (DSF, 2017), the Dutch Sustainable Dairy Chain (SDC, 2019) and literature provided by Van Calker (2005) criteria. The attitude will be researched based on a Likert-Scale.

1.5 Thesis Overview

This first chapter aims to introduce the research topic. By illustrating the background, the problem statement, research objective, and questions and methodology, the context of this thesis is clarified. **The second chapter** of this thesis focusses on the available literature on this topic. This is divided into four sub chapters: sustainable dairy, identifying stakeholders, stakeholder attitude and the Nitrogen crisis. Building on these findings, **the third chapter** will present the research design. This includes the research -methodology, -framework, -questions, and conceptual framework. In this, the data analysis methods of the two different research methods will be elaborated upon as well. **Chapter four** will present the findings. Firstly, results on the stakeholder identification, based on the conducted interviews will be presented. This part will be structured by Mitchells stakeholder Typology, which will be introduced in the literature review. Thereafter, the findings of the attitudes of these identified stakeholders will be presented. This will be structured based on the four aspects of sustainable dairy: animal health and welfare, food safety and quality, protection of the environment, and Greenhouse Gas emissions. Lastly, this chapter will present the findings regarding the Nitrogen issue. **Chapter five** includes the discussion of this thesis. **Chapter six** includes conclusions and recommendations. In there, it is aimed to answer the main question: *How is the Dutch Nitrogen issue affecting the stakeholder attitude towards sustainable dairy?* Lastly, the research implications and recommendations for practitioners and future research will be discussed.

2: Literature Review

In order to establish a structured and coherent Literature Review, the discussed topic is divided into four aspects: sustainable dairy, stakeholder identification, stakeholder attitude, and the Nitrogen Issue. Theories and concepts of these topics will be reviewed in relation with the context of sustainable dairy. Both scientific literature and grey literature will be included, for which corporate reports and market research will be included. The documents are analysed through quantitative content analysis. In this, a broad number of literature was surveyed quickly, in order to gather as much as different perceptions on the same topic (Verschuren, & Doorewaard, 2010).

2.1 Sustainable dairy

The context of this research is related to the Dutch dairy sector. While the key players of this field will be elaborated in paragraph 2.2.1, first, a clear definition on sustainable dairy will be determined. Sustainability is often defined as *"development that meets the needs of the present without compromising the ability of future generations to meet their own needs"* (Brundtland, 1987), and dairy is seen as "*Cows that are used for producing milk, rather than meat, or to foods that are made from milk, such as cream, butter and cheese"* (Cambridge, 2020). However, a clear definition on sustainable dairy seems lacking.

2.1.1 Dutch dairy industry

While the amount of Dutch dairy farmers declined over the last 20 years, the number of animals increased (CBS, 2020). Especially the category of smaller farmers with 50 cows or less, decreased with 75% between 2000 and 2017. 64% of the dairy farms are located in Overijssel, Friesland, Noord-Brabant and Gelderland. The Netherlands has 25 dairy processing companies. 86% of these regard cooperatives. The largest cooperative is FrieslandCampina, who holds 21 of the 53 processing plants (ZuivelNL, 2019). The sector is characterised by associations such as Nederlandse Zuivelorganisatie, Duurzame Zuivelketen and Land- en Tuinbouworganisatie. These organisations play a key role in this sector by setting the policy agenda, deciding on investments in research, and their role as representatives during trade and policy negotiations (Peet, *et al*, 2018).

The raw milk is mostly processed into consumption milk, butter, cheese, or powdered products. About 65% of the dairy is exported, while 35% stays within the domestic market (NZO, 2018). The Dutch citizens are known for their tradition of dairy consumption. Dairy is promoted as important aspect of a healthy and balanced diet, and is part of the daily eating pattern. This resulted in higher than average dairy consumption, compared to other European countries (NZO, 2016). In particular milk, yoghurt and cheese are consumed most. The major sales channel regards the supermarket, covering 75% of the total sales. Ahold Delhaize, Jumbo and Superunie are the largest retail purchasing organisations (WUR, 2019). The remaining quarter is predominantly sold through catering wholesalers (WUR, 2019; Bijman, *et al*, 2003).

2.1.2 Practical sector definitions

The dairy industry is a very dynamic and continuously developing sector, for which the definition of sustainable dairy should also be looked for in non-scientific literature. As described in the chapter 1.1 before, the Dutch dairy industry is converged and highly represented in the Sustainable Dairy Chain. This collaboration translates sustainable dairy into four aspects; *Development towards climate neutrality, continuous improvements in livestock health and welfare, preservation of grazing, protection of biodiversity and the environment* (Duurzame Zuivelketen, 2020). Farmers are free to operationalize measures in order to achieve these goals. Though, by providing specific goals and actions, this collaboration aims to support and motivate the farmers towards a feasible and sustainable business model.

A more international approach is the Dairy Sustainability Framework (DSF), initiated by the Global Dairy Agenda for Action. The framework is applied by big multinationals such as Dairy Asia, Dairy Farmers of America, Nestlé, Danone, and both FrieslandCampina and Arla (Dairy Sustainability Framework, 2019). This Framework established eleven sustainability indicators, relevant to the global dairy industry: *Greenhouse Gas Emissions, Soil Nutrients, Waste, Water, Soil, Biodiversity, Market Development, Rural Economies, Working Conditions, Product Safety & Quality, and Animal Care* (Dairy Sustainability Framework, 2017). The initiative aims for global commitment by aligning national, regional, and local policies. This international approach enables participants to benefit from, and connect with, relevant initiatives throughout the world (Dairy Sustainability Framework, 2019).

2.1.3 Available literature

In Miller & Auestad (2012) sustainable dairy is defined as the process of producing a nutritious end product, in an economic viable, socially responsible and environmentally sound way. Considering this as a right of future generations as well, Miller emphasizes the expected 70% increase in food demand due to the population growth (FAO, 2012). This requires an additional focus on the quality of dairy products, considering nutrient-rich food as crucial aspect of the future population. On top of that, the dairy sector should consider the future energy demand by adapting to renewable energy, implement energy conservation strategies, and secure the carbon capture and storage of the sector.

Several researches (Rigby & Caceres, 2001; Lehman, *et al,* 1993; Rossing, *et al*, 1997; Velten, *et al,* 2015; Calker, *et al*, 2006) agree on the problematic aspect of defining sustainability for the agricultural sector. Mainly due to the involvement of various stakeholders, their perceptions can differ significantly; especially the perceived importance of several aspects such as economy, ecology and society varies (Calker, *et al*, 2008). As an example of this differences, Joosse (2019) interviewed Dutch young dairy farmers. Their perception on sustainable dairy was mainly found in the relationship between the consumers and them, fair regulation, and the desire to be part of a collaboration with relevant stakeholders, for future visions.

Van Calker (2005) stated that by defining clear indicators, the concept of sustainable dairy can be operationalised and monitored more effectively. Two types of sustainability were identified: internal and external. The first regards working conditions throughout the supply chain, while the external sustainability covers societal concern. This concern often relates to sector's impact on the environment, people, and animals. Based on stakeholder perceived importance, quantification possibilities, and the possibility of farmers to actually affect the indicator, Van Calker selected four attributes. These include food safety, animal welfare, animal health, and landscape quality. Nevertheless, the study emphasizes that there is still no set of definitions which can properly represent the various opinions of the involved stakeholders. As an example, grazing is considered to be relatively important, but is not mentioned separately. This is included within the attribute "Animal welfare".

Table 1: Sustainability attributes in dairy farming (Calker, et al, 2005)

Attribute	Selection criteria			
	Relative importance[1,2]		Objectively quantifiable[2]	Sensitivity[2]
Food safety	4.9	✔	✔	✔
Animal welfare	4.6	✔	✔	✔
Animal health	4.4	✔	✔	✔
Landscape quality	4.3	✔	✔	✔
Cattle grazing	4.2	✔	✘	-
Use of GMO	3.5	✔	✘	-
Use of undisputed products	3.3	✔	✘	-
Multi-functionality	3.0	✔	✘	-
Contribution to rural economy	2.7	✘	-	-
Degree of industrialisation	2.4	✘	-	-
Use of by-products	2.4	✘	-	-
Land use in developing countries	2.1	✘	-	-

[1] Relevance scored by experts on a Likert scale from 1 to 5, where 1 = not relevant and 5 = very relevant (Van Calker et al., 2005);
[2] ✔ =selection criteria has been met; ✘=selection criteria has not been met; - =selection criterion has not been considered;

2.2 Identifying Stakeholders

A stakeholder is widely defined by Freeman (1984, p46) as *"any group or individual who can affect or is affected by the achievement of the organization's objectives"*. In order to research the stakeholders' attitudes, a prior step of stakeholder identification in the Dutch dairy industry is needed. However, in environmental issues, it can be difficult to determine who is affected, interested, or impacted by the related issue (Fischer, *et al*, 2014). The difficulty of environmental related companies lays within the aspect of natural systems, which are often interconnected in a complex matter (Colvin, *et al*, 2016).

2.2.1 Stakeholders identification approaches

A study conducted in Australia (Colvin, *et al,* 2016) was able to identify processes of identifying stakeholders related to Environmental and Natural Resource Management. By interviewing 20 representatives of the governmental, private, academic and NGO sectors, eight categories of stakeholder identification approaches were identified which are illustrated in Table 2. The first approach relates to the *key informants and snowballing*, in which certain individuals are chosen to influence their network. These persons were able to suggest other stakeholders, increasing the chances of socially acceptable representatives. This iterative approach was used in the most comparable way among the participants. The second approach uses the *media* as tool to identify interested individuals. By screening online search terms, social media and more traditional news, a minority of the participants was able to identify stakeholders.

The third approach is based on *geographical footprint*, which considers all individuals within a certain scope, as stakeholders. The *interest* of stakeholders in the project is the main focus of the fourth identification approach, aiming to mobilise representatives of that specific interest. The fifth approach is more hierarchical, and considers the *influence* as defining criteria. The sixth approach was found in the *intuition* of the participants. Rather than be told how to define the stakeholders, these participants trusted their own intuition. The seventh approach values *past experience* in identifying stakeholders, claiming to learn from previous processes and awareness on relevant groups. Since there is often a benefit, or burden, for certain individuals of groups in the project, the eight, and final, approach is related to *self-selection*.

Table 2: stakeholder identification approaches (Colvin, et al, 2016)

Approach to stakeholder identification			Description
Science	*Seeking*	Key informants & snowballing	Utilise knowledge and networks of stakeholders
		Use of media	Use of a range of media to find evidence of stakeholders
	Creating	Geographical footprint	Determine geographical scope of issue as stakeholder catchment
		Interests	Analysis of interests triggered by issue to identify corresponding stakeholders
		Influence	Analysis of those with power to influence issue and other stakeholders
Art		Intuition	The use of tacit skills and understanding to identify stakeholders
		Past experiences	Reflection on past experiences to inform identification of stakeholders
Phenomenon		Stakeholder self-selection	Stakeholders approach practitioner for engagement in issue

As can be seen in the Table 2 above, the previous mentioned approaches can again be categorized, in to two concepts: *seeking* and *creating*. The first relates to an external oriented approach, in which the researcher looks for stakeholders within the society. *Creating* takes this process closer by only researching the relevant area of the project. While the first five approaches are considered as science, *intuition* and *past experiences* are individual experiences which are not substantiated by science. While the two can complement each other, there is little literature available on the identifying approaches. The inconsistency among the participants of this study, illustrates the need for clear approaches and definitions within a sector.

2.2.3 Stakeholder typology

Various instruments on stakeholder identification are available. The stakeholder typology by Mitchell et al (1997) is widely used and cited in environmental management studies (Palovlita & Luoma-aho, 2010; Parviainen, *et al*, 2018; Gago & Antolín, 2004; Nguyenthi, *et al*, 2018, Sener, *et al*, 2016). Building upon Mitchell's (1984) definition, Mitchell identifies stakeholders as groups or individuals who can directly be linked to the business's core economic practices. After identifying the stakeholders, they can be prioritised based on Mitchells attribute theory as well. The model, as can be seen below, states that based on the three attributes "urgency", "legitimacy", and "power", the relevant stakeholders can be prioritized (Figure 1). Based on the combination of the assigned attributes, the level of engagement can be decided upon.

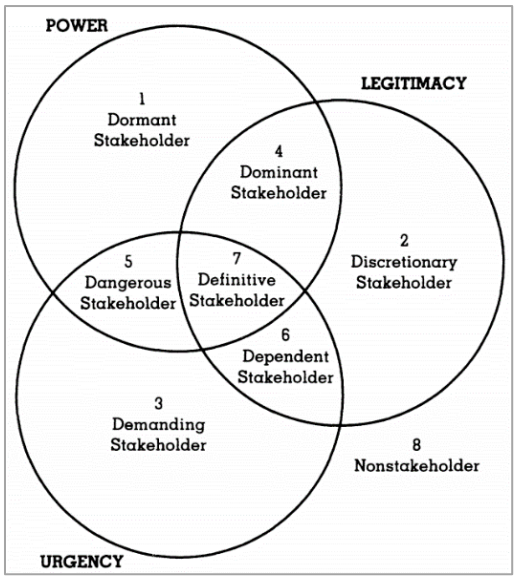


Figure 1: Stakeholder Typology (Mitchel, et al, 1997)

The first attribute, power, is described as a phenomenon that can be difficult to define, but easily recognized. While there are different acknowledged definitions, in corporate stakeholder analysis, power is seen as the capability of achieving a desired outcome. Power itself can also be divided into three subsequent dimensions. Firstly, *coercive* power relates to the physical aspect of violence, restrictions, and force. The second dimension is described as *utilitarian* power. In this, resources relating to finances and materials are accounted. Third, the typology identifies the *normative* power. In there, symbolic resources such as acceptance, prestige and esteem are incorporated.

The second attribute regards legitimacy. While it is often combined with the first attribute, it can also stand alone. A powerful stakeholder without legitimacy has the potential for "dangerous stakeholder". Therefore, the two should be analysed separately. Legitimacy implies that an organisation should strive for a desirable public good. This should be based on a certain construction of norms, values, beliefs, and definitions of their representative group, which often consists of external parties as their customers, communities, suppliers but also internal employees.

The last attribute is urgency. This element was mainly incorporated to illustrate the dynamic of interactions between stakeholders. In here, it implies how urgent a company needs to respond to the stakeholders' claims. Dependant on how a stakeholder is perceived to hold the three attributes, they can be prioritized. If all attributes are considered to be applicable for a stakeholder, it is considered a definitive stakeholder (7), as can be seen in the Figure 1 above. This group requires direct priority and has the highest capacity of influencing the company.

Based on the combination of these three attributes, the stakeholders can then be assigned to a certain typology, according to this theory. Eight groups are identified:

Non-stakeholder: this group or individual does not hold any of the three attributes. However, it is mentioned that this group can also be considered *potential* stakeholder, since there is a possibility that they can retrieve one of the attributes over time. Therefore, it is stated that groups shifting towards an attribute should be monitored, but not directly included in effective stakeholder management.

Dormant stakeholder: these stakeholders hold a certain power to impose their will, but due to a lacking legitimate relationship and urgency, this power remains unused. This does not mean that the group should be neglected. Since a stakeholder can always gain another attribute, the company should always pay attention to these.

Discretionary stakeholder: although managers can choose to have a more active relation with this stakeholder group, they can also choose not to do so. This group is however, considered to be very interesting in a corporate social responsibility context, since they are considered to be eventual recipients of corporate philanthropy.

Demanding stakeholder: these stakeholders have urgent claims, but are not considered to be legitimate, nor do they hold the power to impose their will. Overall, they are not worthy bothering over, and are even considered irritating.

Dominant stakeholder: the influence of this stakeholder is ensured, due to the power and legitimate relation with the company. This often includes a formal type of power, that is somehow documented. According to the theory, they should receive much attention, but should not be the only ones included.

Dependent stakeholder: this stakeholder often needs to rely on other groups, due to the lacking power attribute. However, if they do find the power, they can become a definitive stakeholder.

Dangerous stakeholder: this stakeholder is considered dangerous due to the lack of a legitimate claim. These stakeholders need to be identified, but not always acknowledged, based on sometimes even illegal practices.

Definitive stakeholder: this stakeholder holds all three attributes, which translates to a high stakeholder salience. This means that managers should be highly aware of, and somehow connected with, this stakeholder group. Claims should be answered with highest priority and immediate mandate.

Compared to the previous theory of Colvin (2016), this typology regards a combination of *scientific* approaches. The most obvious resemblance is the *influence* approach of Colvin, and Mitchell's *power* attribute. While the second attribute of *urgency* is not discussed specifically, it is partly covered in Colvin's *influence* approach as well. On top of that, does the *interest* approach by Colvin show similar focus points as the *legitimacy* attribute. In here, the socio-ecological context is considered as leading factor. Mitchell's typology also states that by discussions and interviews with field experts will provide a coherent overview, which is in line with the *key informants & snowballing* approach. In short, it can be stated that the two theories show similar focus points, while Mitchell's typology seems to combine these into one model. However, this model does not explicitly include Colvin's *art* approaches. Moreover, the typology could be enforced by Colvin's view that a top down identification will not always provide a coherent stakeholder overview. Therefore, it is important that the stakeholder identification will be based on a variety of experts and literature, covering multiple layers of society.

2.2.4 Dutch dairy industry

This research defines the dairy industry as corporation who collects, processes, and sells dairy products. Thus, in order to identify the stakeholders of this industry, the key players in this field need to be determined. This is done based on an annual ranking from RaboResearch, which is a department of the Dutch bank. They have several research sectors, among food & agriculture, in which the Dutch dairy sector is researched and monitored. Every year, the so called "Global Dairy top 20", presents the 20 companies with the highest global turnover (RaboResearch, 2020). As can be seen in the Table 3 below, FrieslandCampina and Arla Foods hold position in the top ten. Since the corporation also account for the majority of the Dutch dairy farmers, these two are selected as representatives of the Dutch dairy industry.

Table 3: Global Dairy top 20 (RaboResearch, 2020).

					Dairy turnover, 2018*	
2019		2018	Company	Country of headquarters	USD billion	EUR billion
1		1	**Nestlé**	Switzerland	24.3	20.6
2		2	**Lactalis**	France	20.8	17.6
3		3	**Danone**	France	18.0	15.2
4	▲	5	**Fonterra**	New Zealand	14.3	12.1
5	▲	6	**FrieslandCampina**	Netherlands	13.8	11.6
6	▼	4	**Dairy Farmers of America**	US	13.6	11.5
7		7	**Arla Foods**	Denmark/Sweden	12.4	10.5
8	▲	9	**Yili**	China	11.2	9.5
9	▼	8	**Saputo**	Canada	11.0	9.3
10		10	**Mengniu**	China	10.3	8.7
11		11	**Dean Foods**	US	7.5	6.3
12		12	**Unilever**	Netherlands	6.7†	5.7†
13		13	**DMK**	Germany	6.7	5.6
14		14	**Kraft Heinz**	US	6.0	5.1
15	▲	16	**Sodiaal**	France	6.0	5.0
16	▼	15	**Meiji**	Japan	5.8	4.9
17	▼	16	**Savencia**	France	5.7	4.9
18	▲	19	**Agropur**	Canada	5.2	4.4
19	▲	20	**Schreiber Foods**	US	5.1†	4.3†
20	▼	18	**Müller**	Germany	5.1†	4.3†

Literature on stakeholder identification of these two key players, or Dutch dairy corporations in general, is very limited. However, a study by Mauser (2001), aimed to illustrate the interrelationship between the internal organisational characteristics and the Environmental management performance of the Dutch dairy industry. In this, Mauser was able to identify eleven stakeholders: local communities, media, environmental groups, suppliers, customers, investors, trade associations, regulators, academia, insurance companies and competitors. By observing and analysing the influence of these stakeholders on the environmental performance of the Dutch dairy sector, Mauser prioritized four stakeholders: the regulator, consumers, competitors and participants of the whole supply chain. The study was conducted 20 years ago and might not be representative for this vulnerable, dynamic and transforming industry. However, since the lack of newer literature and plausibility of these stakeholders, the study by Mauser will be taken into account for the stakeholder selection of this research.

2.2.5 Stakeholder shortlist

Based on the previous presented typology, it can be stated that there is no clear answer to who the dairy industry stakeholders are. However, due to time limitations of this research, an initial list of stakeholders and definitions is selected based on six scientific articles, and two corporate reports from Arla and FrieslandCampina. The selection of these documents was based on the relevance to the Dutch dairy industry, and their timeliness. In general, the Stakeholder Typology (Mitchell, *et al,* 1997) will be the leading theory in this part of the research. This includes the stakeholder definition of Freeman (1984, p46): *"any group or individual who can affect or is affected by the achievement of the organization's objectives".*

The relevant literature, Corporate Social Responsibility (CSR) reports from Arla and FrieslandCampina (2019), and additional scientific literature that used the stakeholder Typology (Mitchell, *et al*, 1997), lead to the following stakeholder selection:

Table 4: Stakeholder shortlist (own table)

	Customers	Employees	Suppliers	Shareholders	Governments	NGO	Society	Media	Competitors
(Sener, *et al* , 2016)	X	X	X	X	X	X	X	X	X
(Polvlita, 2010)	X		X		X		X		
(Clifton & Amran, 2010)	X	X		X	X		X		
(Freeman, *et al*, 2007)	X	X	X	X	X		X	X	X
(Steurer, *et al*, 2005)	X	X	X	X		X	X		
(Mauser, 2001)	X	X			X				X
Arla (CSR report 2019)	X		X	X			X		
FrieslandCampina (2019)	X	X	X		X	X	X		

In Table 4, it can be seen that all used literature agreed on customers to be a key stakeholder. Followed by society, which was also mentioned as "the general public". Suppliers were also acknowledged by a majority of the used literature. Since this group was mentioned by both Arla and FrieslandCampina as well, it is selected as the third key stakeholder for this research. Closing the top four, the government is also included. While Steurer (2005) and Arla (2019) did not mention the national government in specific, they did refer to regulatory stakeholders. These four groups represent the most important stakeholders of the Dutch dairy industry, and will be used for this research. This selection was tested by experts, who did all agree on this selection to provide a diverse but representative overview. This will be further discussed in chapter 4.1.

Stakeholder specification, based on a combination of attributes from the literature provided in the table, and made relevant to the Dutch dairy industry:

Customers: A contracted company that purchases the processed dairy products from the dairy corporations on a regular basis. Limited to supermarkets and wholesalers.

Suppliers: A company that provides products that the dairy company needs in order to produce and offer their range of products. Limited to dairy farmers.

Government: A group of people that is legally appointed to control and regulate a country. Limited to people who are involved in the policy making regarding sustainable development and agriculture, on national or provincial level.

Society: The general public, interacting within the same territory with shared level of authority and culture. Limited to Dutch consumers older than 18 years old, who buy dairy products on a regular basis.

2.3 Stakeholder attitude

After identifying the stakeholders as the first step, the second aspect of this research is to investigate the current attitude of the identified stakeholders, towards sustainable dairy. However, there are various definitions of the concept *attitude*. While it was previously known to be related to cognitive relationships, more evidence is found on the relation between an attitude and behaviour. Therefore, it is mostly seen as "*a predisposition to behave in a particular way"* (Proctor, 2001), and *"the evaluation of a specific object, quality, or behaviour as good or bad, positive or negative."* (Leiserowitz, *et al*, 2006, p414).

2.3.1 Attitude versus behaviour

Although attitude is considered to predict behaviour, this is less prominent when it comes to sustainability issues (Vermeir & Verbeke, 2006). As an example, a study among 400 young consumers showed that despite positive attitude towards sustainable dairy products, the purchase intention of the consumer was not always corresponding (Vermeir & Verbeke, 2006). While there is a growing interest to these products, the purchase percentages remain low (Hughner, 2007; Greenindex, 2012). This phenomenon is also known as the *attitude-behaviour gap* (Young, 2004). The reason of this gap is not widely studied yet, though a plausible theory regards the social desirability of respondents in surveys (Carrington, *et al*, 2010; Terlau & Hirsch, 2015). Moreover, it is found that a recurring list of barriers, including price, availability and low involvement on food products hinder the translation of attitude into purchasing behaviour (Young, *et al*, 2010; Balderjahn, 2013; Ahaus, *et al*, 2011).

Nevertheless, there is also large evidence that stakeholders are increasingly motivated to purchase more sustainable (Schröberl, 2012; Wagner, *et al*, 2008; Ellen, *et al*, 2006). There have been numerous studies proving the relation between attitudes and sustainable purchase intentions (Kolkailah, *et al,* 2012; Rahim, *et al,* 2001; Mohr, *et al,* 2001). In complete isolation, a positive attitude towards sustainable dairy may lead to green purchasing behaviour. However, if the attitude is considered in the broader context of purchasing decisions, this reflection cannot be blindly assumed (Vermeir & Verbeke, 2006; Van 't Erve, 2013). Nevertheless, a positive attitude towards sustainable dairy is a good starting point to stimulate subsequent green behaviour (Vermeir & Verbeke, 2006).

2.3.2 Effect of stakeholder attitude towards sustainability issues

Numerous researches emphasize the importance of stakeholders' attitudes, and their potential effect on an organisation or industry (Tanner & Kast, 2003; Chan, 2001; Bourne, 2005; Heleski, *et al*, 2006). L. Bourne (2015) stated that in general, stakeholder attitude determines successful project delivery. By assessing the current attitudes, an organisation can decide upon adequate communication strategies, in order to receive the wanted support. When it comes to social issues, Heleski et al (2006) illustrate that negative stakeholder attitude will even undermine the business or project progress significantly. Moreover, a study in the United Kingdom (Brammer & Millington, 2003) showed that a rising movement regarding corporate social responsibility, forced companies to provide information about their social performance. It was also found that stakeholder attitude can affect management behaviour and attention to environmental issues and practices (Cordano, *et al*, 2004).

Looking more specifically into the context of sustainability, Hall & Wreford (2011) state that successful implementation of climate change adaptation measures in organizations highly depends on stakeholder attitudes and views. As an example, Heleski (et al, 2006) illustrated that for several decades, the topic of animal welfare is a shared point of discussion among the United States public. However, despite public pressure and increasing scientific evidence, relevant implementations lacked behind. One of the main reasons of this slow development was found in the conflicting attitudes of primary stakeholders in the agricultural sector. A similar Belgian case showed that citizens perceived

animal welfare to be problematic in their country, while the farmers were in fact satisfied with the current processes (Vanhonacker, *et al*, 2017). Certain situations can even lead to ineffective resource allocation, hindering the performance of the aimed project or business. In this case, resources will be allocated based on the priority of conflicts between stakeholders. In that way, desired stakeholder engagement for the aimed project is facilitated, but not effective (Bahadorestani, *et al*, 2020).

While these studies showed that conflicting attitudes can have negative effects on project performances, the attitudes are often unclear to begin with (Shams, *et al*, 2019). This can possibly lead to disagreement and frustrations between the industry and stakeholders, hampering sustainable implementations (Ventura, *et al,* 2014). On top of that, clarifying stakeholder attitudes can unravel unexpected insights. As an example, over the last years, the West-European dairy market faced a decline. After research, it was found that concerns regarding animal rights affected the stakeholders' attitude towards dairy, and the subsequent buying behaviour. Thus, by unravelling the stakeholder attitude towards sustainable dairy, the industry's managers are enabled to concentrate on relevant and influential stakeholders more specifically (Cargill, 2018). Moreover, a better understanding of these stakeholder attitudes and motivations, can potentially initiate specific and effective implementations regarding sustainability in every stakeholder group (Sinclair, *et al,* 2017).

2.3.3 Stakeholder attitude in the dairy industry

The concept of sustainable dairy is considered complex, for which several stakeholders can have different types of influence on the industry. This is especially due to the nature of this industry, which requires considerably many interactions throughout the production process (Van der Lee, *et al*, 2014; Schaarsberg, 2016). The government is seen as the steering actor of the industry, while the consumers and their perception, are dominating the dairy industry (Schaarsberg, 2016). But also less expected stakeholders can have great influence: industry peers tend to consider each other as rivals, for which big changes such as management change towards sustainability, can be obstructed. Due to this rivalry, companies do not acknowledge or realize that in the end, they are dependent on the same resources (Glavas & Fitzgerald, 2020). Regardless of the potential promising sustainability measures an organization wants to implement, they will not be effective if it is not socially accepted by these industry's stakeholders (Johnsson, *et al,* 2009). Therefore, if the dairy industry wants to transition towards a more economically, socially and environmentally viable sector, key stakeholders need to be understood and involved (Klerkx & Nettle, 2013).

Looking specifically to the Netherlands, there are various sector opinions on which groups are considered to be the Dairy industry's stakeholders. Less data is available on their current attitude towards sustainable dairy is. The two dominating dairy organisations FrieslandCampina and Arla only include international primary stakeholders in their materiality analysis, while sustainable development can cover a much more complex field of stakeholders, as described in chapter 2.1. Moreover, a Materiality Analysis aims for a priority list of environmental, social, and economic issues. It focusses less on the attitude of individual stakeholders, but rather on shared topics that are perceived important, and can be crucial to the business performance in the future. Detailed and specified results of the materiality analysis are not publicly available (FrieslandCampina, 2019; Arla, 2018).

Scientific literature including multiple stakeholder attitude in the Dutch dairy industry is also considerably limited. The literature often delineates to one or two stakeholders, instead of subjecting multiple stakeholders to the same attitude research. In 2015, a research on the opinions regarding Sustainable Dairy Chain of Dutch farmers and their advisors was conducted in Brabant (Lauwere, *et al, 2015*). This study illustrated that the combination of a positive attitude, and the lack of knowledge and tools hindered the successful implementation of the project. Boogaard et al (2008) researched Dutch citizens conceptualization of a sustainable dairy farm. In this, it was stated that the citizens' attitude in

fact influenced the definition of sustainable agriculture. This is supported by a research of Calker (2008), who quantified sustainable dairy systems through consulting Dutch producers, consumers, and policy makers.

Referring to the first stakeholder group chosen in paragraph 2.2.5, the attitude of society can evidently impact the dairy industry through the possible effect on their subsequent consumer buying behaviour (Jensen & Kesavn, 1993; Vermeir & Verbeke, 2006). An example regards the negative attitude of European citizens towards genetic modification in dairy products. Due to this strongly negative attitude, the consumers ignored the benefits of this technology, and the purchase intentions were extremely low (Grunert, *et al,* 2000). In 2010, a public debate regarding grazing raised, due to action groups. Despite the beneficial effects on the milk composition, it was predominantly the sentimental aspect of this topic that triggered public debate. After much public and political discussion, a major Dutch dairy company changed its grazing policy (Elgersma, A., 2012). Another research by Pieper et al (2016) in Germany showed that the geographical differences of dairy industry presence, affected the attitude towards the dairy industry. It was found that people who did not personally know a farmer, tended to have a more negative attitude. It was therefore concluded that a negative attitude towards dairy products could also negatively affect the industry's corporate image (Pieper, *et al*, 2016).

The discussion regarding grazing also affected the retailers, who reacted by changing their own labelled dairy products with grass-fed cow milk (Elgersma, A., 2012). Glover et al (2014) Found that the majority of the dairy supply chain actors identify retailers as the dominant player. Based on qualitative interviews with 60 supermarket managers, the same research found that their attitude towards sustainable products was closely related to costs. Nonetheless, retailers also aim for a socially responsible corporate image and hold the power to implement sustainable practices throughout the supply chain. The power that supermarkets hold is an interesting item when it is considered that attitude can indirectly influence behaviour. This behaviour can result in abuse of power, as was widely discussed in 2016 in Australia (Australian Competition and Consumer Commission, 2018). During this time, it came to light that the two supermarkets, holding 80% of the national market share, competed by dropping the milk prices lower and lower. This resulted in milk prices below production cost, leading the farmers into further debt (Neal, J., 2017).

The third stakeholder involved in this research regards the government. This stakeholder defines and ultimately decides on sector regulation, including the dairy industry. In this sector, the regulation predominantly regards minimum standards, such as animal welfare policy or manure management, and food safety (Calker, 2005). They hold the power to grant permits, including the Nitrogen related ones, which will be further discussed in chapter 2.4. In order to reach sustainable development, the government needs to hold a flexible attitude, which enables the actor to reformulate and implement policies. The Dutch government plays an essential role by including all stakeholders, which is crucial for sustainable development (Scholl, *et al,* 2010). Over the last decade, the government's attitude changed from regulating towards facilitating. This attitude allows the dairy industry to innovate, while governmental support such as subsidies are available (PBL, 2010).

Due to their essential role in rural economy and food safety, the dairy farmer holds the central stakeholder role in this industry (O'Leary, *et al*, 2018). In 2013, right after the public discussion about grazing, and before the abolishment of the milk quota, it was found that Dutch farmers were predominantly positive towards sustainable dairy. Especially the topics antibiotics, grazing and animal lifespan were considered to be important. The same study also stated that despite the willingness, the farmers often felt obstructed due to the large investments in both money and time (Lauwere, *et al*, 2014). Strikingly, another research in Great Britain showed a relation between farmers attitude and the business performance, stating that the right insights on sustainable agriculture improves the

performance (O'Leary, 2018). This is supported by Wageningen University and Research (2019) who presented annual Dutch market results, illustrating that 25% of the dairy farms considered *most sustainable* realised higher financial results than the remaining 75%.

However, there have been little research published regarding the Dutch dairy industry, in general, after November 2019. Aiming at the Nitrogen crisis, it is not known if and how this has affected the stakeholders' attitude towards sustainable dairy. Van Der Ploeg (2020) conducted interesting research regarding the underlying reasons of the international farmers' fury, subsequent strikes, and how populism was related to this. It was found that the Dutch situation impressed many people throughout the country. However, it also led to confusion, since it was not completely clear what the farmers were actually protesting about (Van der Ploeg, 2020). These unclear attitudes regarding sustainable dairy can possibly be caused by different understanding of the concept of sustainability and the Nitrogen crisis. A majority of the Dutch dairy industry is provided with a sustainability framework from European sustainability collaborations such as the Dairy Sustainability Framework. However, external stakeholders who are less aware of these initiatives, might have a different understanding and perception of these topics (Calker, 2005).

2.4 Nitrogen Issue

After literature review on sustainable dairy, stakeholder identification and attitude, the last aspect of this research will focus on the Nitrogen Issue. This research aims to illustrate if, and how, the current Nitrogen Issue is affecting the stakeholder's attitude towards sustainable dairy. In order to do so, the Nitrogen Issue needs to be framed. First, the legal background of this issue will be illustrated. Secondly, the public timeline of the Nitrogen Issue will be explained.

2.4.1 Legal background

The opinion document of Advocate General Kokott (2018) is used to provide a deeper knowledge on the legal cause and background of the involved Nitrogen Issue. The document describes that Natura 2000 areas are often victims of Nitrogen emissions, even stating that 73% of the total Natura 2000 areas was overloaded by this element, agriculture being the most important source of it. The specific discussed issue relates to the fact that the Netherlands has a national programme plan (PAS), while the individual deposition of farmers is not assessed in relation to specific Natura 2000 areas.

This issue relates to Article 6, 1 to 4, from the European Habitats Directive. In summary, this obligates European Member States to take measures for the specific sites, which are in line with an extensive provided list of ecological requirements per habitat type. The Netherlands, in this case, must also take measures related to avoiding deterioration and the disturbance of these habitats and its' assigned species. Every project that is not related to the site, but can have potential impact needs to be assessed on its possible impact on the involved area. If this assessment has a negative result, and the State still wants to proceed the project due to overriding economic or social interest, it should take the maximum amount of remaining measures to protect the Natura 2000 area. On top of that, Member States are obligated to inform the European Commission on this project and the arguments. The Dutch law writes in Article 2.4 from Wet Natuurbescherming (WNB), that the Province in which the area is located, should provide all available information on the related project to the national government. All restoration measures need to be taken by the responsible person or department, otherwise the project can be ceased.

The Dutch Nitrogen issue relates to these two levels of laws, and the Dutch PAS programme. It is questioned whether permits granted through the PAS, instead of individual nitrogen deposition assessment, is in line with the described sixth article of the Habitat Directive. The second topic questions whether the PAS is able to determine the actual nitrogen emission reduction, discussing it could possibly neglect other sources. It was not sure if the set value limits of the PAS projects were in line with the Directive. Kokott (2018) finds that an overall programme such as the PAS can be permitted by the Directive. However, it is stated that the assessments need to be conducted in a very detailed manner, in which there should be no scientific hesitation about the deposition and its effect. It was left to the national court to decide whether PAS meets these criteria. It was concluded that the PAS is a promising approach, but considers it unlikely to be in line with the Habitats Directive.

As a result, the Dutch national Council of State ruled in May 2019, that the PAS is in fact in breach with the European Law. It ruled that the basis on which the permits are given is not in line with the Habitat Directive. Especially the prior given agreement to a project of which the emissions can be scientifically doubted, was found to be contradicting the European law. The measures taken to reduce the emissions, should be proven better before the actual implementation of the project (Raad van State, 2019).

2.4.2 Timeline

This ruling on May 29th, 2019 resulted in permit suspension of almost 18.000 construction and infrastructure projects (Raad van State, 2019). The government needed to find short term solutions, and they found potential Nitrogen emission reduction in the agricultural sector. The provinces decided that Nitrogen permits appointed to the agriculture, which were considered unused, were taken from the farmers, and shifted towards the construction and infrastructure sector (Stokstad, 2019). Some politicians even argued the possibility of halving the livestock population.

While Nitrogen is crucial for plant and crop growth, potential run-off into waters results in biodiversity losses. On top of that, it can cause soil acidification. Nitric oxide (NOx) and ammonia (NH3) are the most concerning forms of Nitrogen, considered Greenhouse Gases (GHG), and potential health risk. NH3 is mostly supplied by livestock farming, releasing over 95,000 tonnes in 2017. Dutch farmers are forced towards these very intensive dairy practices since market prices are very low and land prices high. Despite the sensitive nature of the topic, livestock reduction seems to be the most effective measure to reduce these emissions (Metabolic, 2019).

The first governmental proposals regarding new Nitrogen legislation in October 2019, lead to a vigorous reaction from the farmers. This reaction in the fall of 2019 is what makes this issue unique. The nationwide strikes of disruptive tractor blockades on highways and the Malieveld in The Hague, received unprecedented media coverage and public support. Since the strikes were mostly organized by the newly founded Farmers Defence Fore (FDF), the initiative was invited to participate in subsequent negotiations regarding a new and suitable Nitrogen approach. However, their attitude was experienced as childish and ruling parties objected to work with the initiative without any apologies (NOS, 2020; RTLNieuws, 2020; AD, 2020). The first official governmental announcement of the aimed Nitrogen measures was, surprisingly, related to speed limits and other superficial topics as the protein ratio in cattle feed (Rijksoverheid, 2019; AD, 2019; NOS, 2019a). Minister Schouten (Agriculture, Nature and Food quality) stated that there was still no agreement with the agricultural sector (Rijksoverheid,2020).

2.4.3 Confusion

The protests were not limited to one strike. In fact, there were several strikes throughout the month of November and December 2019. Van der Ploeg (2020) confirmed that the actions impressed the Dutch people. However, there was also some unclarity about the protests. There were many different slogans, which lead to confusion about what the farmers actually wanted (NOS, 2019b; de Volkskrant, 2019; Kien, 2020). Besides general claims of respect, ending of *farmer bashing,* and unequal treatment, there were no specific demands. Nevertheless, the farmers shared a deeply rooted anger and discontent. Due to this focus, Van der Ploeg considers the movement to be regressive populistic; people from different sectors in agriculture united, without trying to compromise the various stakes.

While there is little literature available on the Dutch Nitrogen crisis, it seems evident that this issue holds two faces. The first aspect relates to the legal background and factual information about Nitrogen deposition and Natura 2000 areas. The second aspect focusses on the shared feeling of anger and discontent among the agricultural sector, resulting in several strikes. For the purpose of this research, the Nitrogen issue will be researched on both these aspects. Due to the possibility that stakeholders might be aware of the strikes, but not the legal background or vice versa.

2.4.4 Attitude change due to social protests

While the Dutch protests were certainly remarkable, they are not unique. Especially in the late nineties, comparable rural issues occurred one after another. While the protests manifested somewhat differently, the protesters all experienced threat to their culture and rural lifestyle (Woods, 2003). Moreover, it is also widely researched that these mass protests are a key instrument to engage the public and change, or shape, the public opinion. By doing so, it is aimed to eventually change the public policy (McCarthy & McPhail, 2006; Soule & Olzak, 2004). However, it is also found that extreme protests, considered to be obstructive of everyday life, faces a dilemma when it comes to influence the public opinion and policy. Research (Willer & Kovacheff, 2020) showed that these types of protests can in fact increase awareness, and pressure on the involved institutions. On the other hand, the public support for the movement and its central cause, reduces. Due to the extreme nature of the protests, observers perceive the actions to be immoral.

A Malaysian case study is one of the few that specifically illustrated possible attitude change due to such social protest. The study among 500 respondents showed that people who felt empowered due to protests, were more likely to support the desired social change. On the other hand, people who felt threatened by the movement, showed oppositional behaviour, even after the protests (Selvanathan & Lickel, 2018). Moreover, the growing social media platforms can possibly play an important role in the protest experience by the audience nowadays. It is stated that due to this communication channel, people continuously receive updates about the protests, enabling them to react or even take part in the online debate. Whereas someone might not physically be part of the collective action, they are now still considered to be psychologically engaged (Smith, *et al,* 2015).

2.5 Conclusion of Chapter

The purpose of this literature review was to provide an overview of recent literature regarding sustainable dairy, stakeholder identification and attitude, and the Nitrogen Crisis. The first aspect could be defined based on grey and scientific literature, for which sustainable dairy is defined by four aspects: *Food Safety and Quality, Animal Health and Welfare, Protection of Environment and Biodiversity*, and *Greenhouse Gas Emissions*. When it comes to stakeholder identification, the Stakeholder Typology by Mitchell is broadly used in sustainability issues, for which it was chosen as leading theory for this research. Supported by additional literature, it is aimed to identify a *dominant, dependent, dangerous,* and *definitive* stakeholder in order to provide a comprehensive overview of different stakeholders in this industry. Based on an analysis of scientific and grey literature, four dairy stakeholders were selected for this research: customers, suppliers, government, and society.

The next aspect of this research regards stakeholder attitude. Study show an *attitude-behaviour gap* when it comes to sustainable issues. Nevertheless, more and more proof is found on a positive relation between attitude and behaviour as well. In sustainability issues, it is found that conflicting stakeholder attitude can influence successful climate adaptation measures. The attitude of society can affect the industry by subsequent buying behaviour, but also corporate image and even changing policies. Retailers on the other hand are known for their dominant attitude, which is closely related with cost perspective of sustainable initiatives. The Dutch government shifted towards a more facilitating and supportive attitude towards sustainability, which enables the industry to innovate. Lastly, the dairy farmers are considered to hold a positive attitude towards sustainable dairy. While results show the economical effectiveness of sustainable dairy farming, there is still a dominant hesitant attitude when it comes to time and money investment.

The dairy industry is now influenced by the Nitrogen Issue of 2019. This event occurred after the Dutch national Council of State ruled that the PAS is in breach with the European Law. The government

needed to find short term solutions, and they found potential Nitrogen emission reduction in the agricultural sector. The subsequent strikes received unprecedented media coverage and public support. However, there was confusion about the protests' aim among the public. It was found that mass protests as the tractor blockades aim to increase awareness, and influence policy. However, literature showed that extreme strikes reduces public support, even considering the strikes to be immoral. A specific case study illustrated that people who felt empowered showed supporting attitudes, while people who felt threatened showed opposite behaviour.

The context of Dutch sustainable dairy is very dynamic and complex. Based on the literature review, it became clear that stakeholder attitude can affect the industry significantly. Moreover, the stakeholder attitude can again be affected by the farmers strikes. However, there is no specific research aiming to study the effect of the Nitrogen Crisis on multiple Dutch stakeholder attitude towards sustainable dairy. By including the stakeholders considered as *definitive, dangerous, dependent* and *dominant* (Mitchel, *et al*, 1997) this research can contribute a more comprehensive overview of the stakeholder attitude in the Dutch dairy industry. Equally important, this overview will then be based on the industry's own, and current, perspective.

3: Methodology

This chapter presents the research methodology of this thesis. For this, the structure of "Designing a Research Project" by Verschuren and Doorewaard (2010) will be consulted. First, the research framework is developed, after which the concepts definitions will be elaborated. Thereafter, the research strategy is presented. This part is divided into the selection of the research unit, and the boundary of this research. Then, the material and accessing methods will be discussed and decided upon, followed by the data analysis. This will again be divided in method and validation, and lastly the analytical framework.

3.1 Research Framework

The first step of designing the research, includes a schematic and visualised illustration on which steps to take in order to achieve the research objective (Verschuren & Doorewaard 2010).

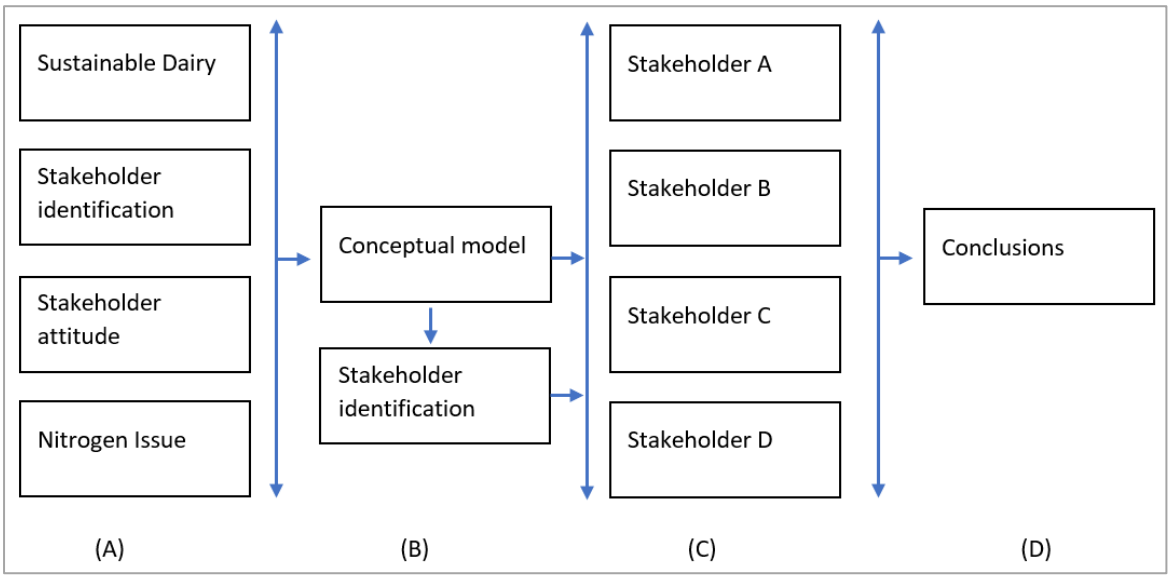


Figure 2: Schematic representation of Research Framework

An analysis (A) on literature regarding sustainable dairy, stakeholder, identification and attitude, and the Nitrogen Issue resulted in the research object of the conceptual model (B). Through stakeholder identification (B) four types of stakeholders were determined, and individually assessed to the chosen criteria (C), of which the findings are confronted into the conclusions (D).

After conducting the research, the research framework did not need iteration. The interviewees agreed upon the chosen stakeholder theory and the four initiated stakeholders.

3.2 Defining Concepts

In order to construct the research perspective, scientific literature is analysed. On top of that, official documents from Arla (2019) and FrieslandCampina (2019), Duurzame Zuivelketen (2020), are discussed in chapter 2.1, 2.2.5 and 2.3.3. Documents from the European Union (Kokott, 2018) and the Dutch government (Raad van Staate, 2019) are also presented in the literature review, primarily in chapter 2.4 regarding the Nitrogen Issue. An overview of the document division per key concept is illustrated in Table 5.

Table 5: Research perspective sources

Key concepts	Theories and documentation
Sustainable dairy	Official documentation from Governmental/NGO collaborations, public corporate documents, scientific literature on sustainable development in agriculture .
Stakeholder identification	Scientific theory on corporate stakeholder definitions and identification approaches, public corporate documents
Stakeholder attitude	Scientific theory on identifying attitudes, sustainable statements and attributes
Nitrogen Crisis	Documents from farmers representatives as Duurzame Zuivelketen, scientific literature on the Dutch Nitrogen Issue, and effects of public confrontation to sustainable attitude

Based on the found information, the four chosen key concepts were defined:

Sustainable Dairy: There is no clear singular definition on sustainable dairy. In order to define this concept, the criteria of the Sustainable Dairy Chain (SDC), Dairy Sustainability Framework (SDF) and Calker (2005), presented in chapter 2.1, are combined in to four relevant topics:

- Food Safety and Quality
- Animal Health and Welfare
- Protection of Environment and Biodiversity
- Greenhouse Gas Emissions

Stakeholder Identification: A process, aiming to identify groups or individuals who can directly be linked to the business's core economic practices. The attributes Power, Legitimacy and Urgency can provide prioritization of the identified stakeholders (Mitchel, *et al*, 1997).

Stakeholder Attitude: Inspired by Leiserowitz (2006) and Proctor (2001), this can be defined as the evaluation by a stakeholder, on a topic, as positive or negative, which is a predisposition of subsequent behaviour. This can be measured by a Likert-scale or the Semantic Differential Scale.

Nitrogen Issue: Relates to the national strikes by farmers in October 2019, which attracted unprecedent media attention. The strikes were a reaction to the Dutch high court ruling, which immobilized the prevailing Nitrogen policy. Stating that it is in conflict with the European Habitat Directive, the instrument was not allowed to be used anymore, per immediate effect. Resulting in an estimated 18.000 suspended construction and infrastructure permits, a short-term policy was presented by the government. The significant Nitrogen Issue in the agricultural sector became centre of attention. This resulted that Nitrogen permits from farmers, which are considered unused, are transferred towards the construction sector. As described and motivated in the literature review, will the Nitrogen issue be divided in to two aspects:

- Legal background about the ruling of the European Union and Dutch High Court, and the factual information about the Nitrogen deposition in the agriculture sector.
- The farmers' strikes. Limited to the highway blockades and protest on the Malieveld in November and October 2019.

3.3 Research Strategy

This study regards a breadth research, for which a range of topics and stakeholders are researched, instead of an in-depth research about a very specific area or stakeholder. The research is of contemplative and empirical nature. Arla and FrieslandCampina are the two largest companies dominating the dairy processing sector in the Netherlands, representing over 80% of the dairy farmers (Duurzame Zuivelketen, 2020). Therefore, it was chosen to conduct a case study on the dairy processing sector. By combining interviews with literature research, attitudes and motivations can be investigated more deeply. However, since the delineation of FrieslandCampina and Arla covers most of the Dutch dairy Industry, a broader approach is needed. In that case, we can consider this research to be a cross-sectional survey research. Therefore, a broad overview of the stakeholders' perceptions can in the end be processed and analysed (Verschuren & Doorewaard 2010).

This following sub paragraphs will present the different aspects of the research strategy, including the research unit, interviews and survey. These will be elaborated upon unit selection, validity, and data analysis. A transparent Data Analysis enables others, such as the supervisor, interviewees, or respondents, to understand the eventual findings and conclusions. It limits the possibility of bias or other personal interference.

3.3.1 Research Unit

The main research units are FrieslandCampina and Arla. Based on interviews and literature review, considering the available time, a maximum of four stakeholders are identified as individual research units, whose attitudes were investigated. These stakeholders regard Dutch end users, dairy farmers, government and business customers.

3.3.2 Interviews

In order to achieve the first important step of the research, stakeholder identification, semi-structured interviews will be conducted with experts. These experts are frontrunners in their field, for which up-to-date and sector-relevant information is expected. The signed forms of consent and transcripts can be found in the Appendix B. The following informants were interviewed:

- Representative FrieslandCampina (FC)
- Representative Arla Foods
- Management employee of the Netherlands Agricultural and Horticultural Association: Land- en Tuinbouworganisatie Nederland (LTO)
- Management employee of the Dutch Dairy Organisation: Nederlandse Zuivel Organisatie (NZO)
- Researcher at Wageningen University & Research (WUR)

This selection was carefully made, to ensure that different industry perspectives will be included. Therefore, it was chosen to interview the two main cooperatives, the two associations responsible for the Sustainable Dairy Chain, and Wageningen University and Research, specialised in agriculture.

Through the interviews, it was aimed to test whether the previously presented stakeholders would provide a coherent overview of the industry. After that, the interviewees were asked about these groups separately. The Stakeholder Typology (Mitchell, 1997) was operationalised through interview questions regarding *power, legitimacy,* and *urgency*. On top of that, the interviewees were also asked about their perception on the stakeholders' attitude towards sustainable dairy and Nitrogen crisis.

3.3.2.1 Validity and data analysis

The interviewees were asked pre-structured questions, which were sent in advance. Due to Covid-19, the interviews were all conducted online, through a platform that the interviewee preferred. The interviewees agreed upon recording the conversation, for which the interviewer was able to focus on the questions, answers, and interesting discussions. The recording was transcribed afterwards and was send back to the interviewee for approval. After the approvals were received, the transcripts were qualitatively analysed through comparing and categorizing answers.

Interviews face conceptual or construct validity, internal and external validity. To ensure the construct validity, the semi structured interview questions were read by two students, the first supervisor, and an expert in qualitative market research. This was to ensure that different people interpreted the question the same. Based on the retrieved feedback, small adaptations were made to the questions. Internal validity was aimed through 3.4.3 survey After the conducted interviews, the four selected and determined stakeholders were questioned on their attitude through a quantitative survey. When it comes to measuring attitudes, two methods are commonly used (Thurston, 1928). The first concerns the Likert Scale. In this case, the topic of sustainable dairy would be translated to a set of statements. The respondents can then show their attitude by indicating their level of agreement or disagreement of these statements. These answers are then translated into ratings, which gathers scores that represent the attitude. This tool is especially useful when the study regards a complex issue, since it enables questioning different aspects of the topic (Cross, 2005).

A second approach is the Semantic Differential Scale. This approach uses a rating scale, divided into seven points. These points are positioned between two bipolar, and commonly understood, adjectives. Such as “good _ _ _ _ _ _ _ bad” and “Cheap _ _ _ _ _ _ _ Expensive”. Studies from several countries showed that especially evaluative questions were able to represent the people’s overall attitude of the topic (Rosenberg, & Navarro, 2017). In comparison with the Likert-Scale, this approach is more able to reduce bias in the questions. However, it requires more cognitive knowledge of the respondents (Friborg, *et al,* 2006).

Due to the complexity of sustainable dairy and the Nitrogen Issue, it was chosen to use a Likert Scale. Based on literature of Calker (2005), the Sustainable Dairy Chain, and the European Dairy Sustainability Framework, every aspect of sustainable dairy was translated and operationalized into three items. The survey questions, including information page and consent, can be found in the Appendix A.

3.3.2.2 Sample size and selection

The Slovin’s formula was used to determine the sample size of the stakeholder groups *end user,* and *dairy farmers*. It was decided to apply a 95% confidence level, translating to a 0.05 error margin.

$n = N / (1+Ne^2)$
n = Number of samples
N = Total population
E = Allowed Error level = 0.05

End users: In 2019, there were 13.924.418 Dutch citizens that were 18 years or older (CBS, 2020). Anyone in this group could do the survey, however it was stated that the respondent was required to have bought dairy products in the last month. Therefore, it is ensured that the respondent is also a dairy customer, and therefore end user. For this stakeholder group, the formula resulted in a desired number of 376 respondents, in order to provide a representative result. After closing the survey and cleaning the data, 880 people fully completed the survey. Suppliers: In this thesis the supplier is limited to the dairy farmers. In 2019, there were 16.000 operational dairy organisations (Duurzame Zuivelketen, 2019). According to the formula, 345 dairy farmers would have been a representable a

reliable sample of this stakeholder group. It was required that the respondent hold at least a management position in the dairy farm. After closing this survey, it was found that in total 134 dairy farmers completed the questionnaire.

Slovin's formula is mostly used when the survey regards large sample sizes. This was not the case for the stakeholder groups government or business customer. Therefore, more demographic factors were used in selection and representativeness.

Government: since this topic regards both national as regional level, it was aimed to receive response from every province and at least three respondents working on national level. After intensive networking, the survey was completed by nine out of the three provinces, including the four provinces who hold the most dairy farms. Moreover, three people working on agricultural policies on national level completed the survey.

Customers: for this stakeholder, it was chosen to aim for representative amount in numbers of market share. The respondents hold positions as senior dairy buyer, sustainability manager and category manager in either a supermarket or catering wholesaler. Based on the survey results and market data (The Nielsen Company, 2019) it was concluded that the 11 respondents in fact represented a clear majority of the market share.

3.3.2.3 Validity and data analysis

By using different items per scale, the validity of the scale can be ensured. The survey included general questions about sustainability and the nitrogen issue, which are quantitatively analysed through statistical tests in SPSS 27. The survey also included statements on a Likert-Scale. These were needed to analyse the attitudes among the stakeholders, which was also done quantitively. In the end, this was measured by the statistic test called *Cronbach's Alpha*. The outcome of this test determined if the items were actually related, and measuring the aimed scale topic. Therefore, the test needed to have a Cronbach's Alpha of at least 0,7 and preferably higher (University of Twente, 2020). This outcome will be further discussed in Chapter 5.1.

The survey was sent to the four stakeholders through social media platforms Facebook, Instagram and Linkedin, and by using key informants and their networks. Randomised selection then decided who would be included in the research. This eliminated the possible inequal selection based on various characteristics. By using this approach, a representative illustration of the research unit was pursued even more extensively. In addition, this type of data analysis also required the pre reading of others, to ensure the singular interpretation of the questions. For the stakeholder groups *dairy farmers* and *end users*, Slovin's Formula was used to determine whether the respondent amount is representable. As discussed, did the dairy farmers not meet the aimed amount. However, the size of the respondent farms, measured in cows, predominantly considered larger organisations. On the other hand, the end users exceeded the desired number. This result supports the generalisation of the results.

3.3.3 Research Boundaries

This research is conducted between a set period of time. It started on 20 April 2020 and finalised in August 2020. While the Nitrogen Issue is an ongoing event, only public actions between this period of time were taken into consideration. The topic is very dynamic, for which the issue might evolve after this research. Since the main research objective regards two multinationals, due to the time restriction, only Dutch stakeholders were identified and selected. As discussed before, due to the same reason, it is chosen to limit the stakeholders to a total amount of four. Also, the rather broad definition of sustainable dairy is based on extensive literature review limited to four aspects, mainly focussing on the environmental aspect of sustainability. Other aspects are not covered. Lastly, this research was conducted during the Corona crisis. Therefore, interviews were conducted online, through video calling or phone calls.

3.4 Research Material and Accessing Method

The following paragraph discusses the required and desired research material, in order to answer the research questions. This research uses various types of data and information, mainly because it regards to a practice-oriented industry. To gather all relevant information, besides scientific literature and theories, primary sources as interviews and a survey were held.

Table 6 presents an overview of the desired information, source and data accessing method per research question.

Table 6: Research Material and Accessing Method

Research Question	Desired information	Sources*	Accessing Method
Who are the current stakeholders of the Dutch dairy industry?	Different perspectives on dairy industry	Documents (S): Scientific Literature	Content Analysis
	Overview, based on the Stakeholder Typology	People (P): FC, Arla, LTO, WUR, NZO	Questioning Interview
What is their attitude towards sustainability, in relation to the Dutch dairy industry?	Clearly identified level of (dis)agreement on the topic per stakeholder	People (P): Identified stakeholder A, B, C, D.	Questioning Likert-Scale Survey
What do the stakeholders know about the nitrogen issue?	Stakeholder awareness and knowledge about the topic	People (P): Identified stakeholder A, B, C, D.	Questioning Survey
How is this understanding affecting their attitude towards the Dutch dairy industry?	Effect of Nitrogen issue on stakeholder attitude	People (P): Identified stakeholder A, B, C, D.	Likert-Scale Survey

**P = Primary Data, S = Secondary Data.*

3.5 Analytical Framework

The previous explained research design is now combined and translated into a clear analytical framework. This framework illustrates the concepts and terms used in the research, and explains the steps of data analysis that were needed to answer the Research Questions.

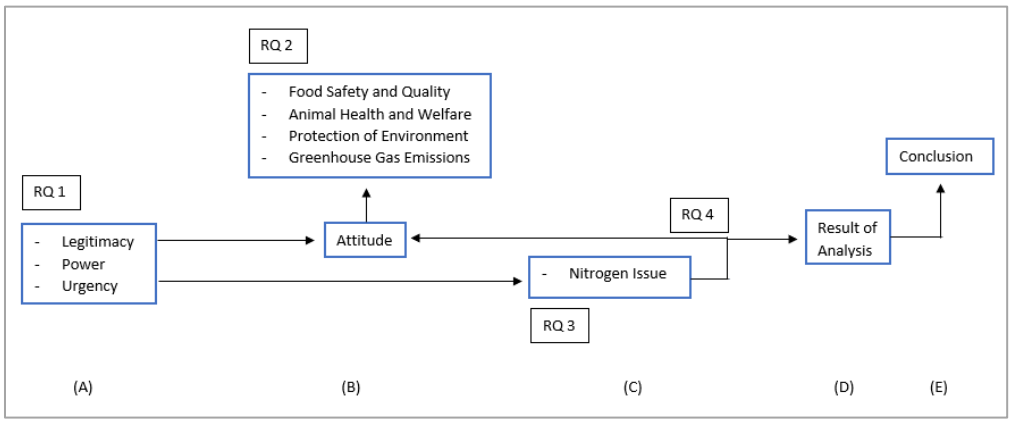


Figure 3: Schematic Representation Analytical Framework

As presented in the figure above, the data analysis is divided into four steps, developing towards the conclusion.

(A) The first data analysis is derived in the step of stakeholder identification. In here, interviews with Arla, FrieslandCampina, Dutch Dairy Organisation, Wageningen University and Research, and Netherlands Agricultural and Horticultural Association are analysed in order to determine the four key stakeholders, and their position in the Stakeholder Typology (Mitchell, 1997).
(B) After the selection of the four key stakeholders, the second step included the analysis of the distributed survey. The survey questioned the stakeholders' attitude towards sustainable dairy. By using the Likert-Scale, the results were able to illustrate the attitudes, answering the second research question.
(C) The third phase of the data analysis regarded the Nitrogen Issue, which was also asked in the quantative survey. At this point, the knowledge and awareness of the stakeholders on the Nitrogen Issue (research question 3), was analysed. With supporting literature, the effect of this knowledge on the attitude towards Sustainable dairy industry was then researched. By combining survey data, statistical tests and relevant literature, the fourth research question was answered.
(D) This step of the data analysis combined the data derived in the previous steps, in order to provide an overview per aspect of sustainable dairy, and per stakeholder.
(E) The results of step D was the starting point of this research conclusion, answering the main research question: How is the Dutch Nitrogen issue affecting the stakeholder attitude towards sustainable dairy products?

3.6 Ethics

In order to ensure that this research is in line with the ethical conditions of the University of Twente, several procedures were implemented. First, every research at the University of Twente needs to be reviewed on ethical issues. This includes an extensive form, explaining research methods and the responsible handling of data. With no concerns, the research was approved on May 11th, 2020. Request number: 200635.

Second, every interviewee will be asked was asked to agree, orally or written, on a Form of Consent, in which is clarified how the data will be collected, analysed and stored. Interviews only took place after this form is signed. Some of the interviewees preferred to remain anonymous by name, but the company could be mentioned. The survey respondents were not asked for personal information, for which their participation was anonymous to begin with. Thirdly, this research took place during the Covid-19 pandemic, for which the interviews took place through online platforms or phone calls.

The survey was designed in a way that every respondent firstly needed to read the information page, pointing out the rights of the respondent, and how the data will be handled and stored. Together with a contact address and reference to the University of Twente Ethics Committee, the respondents agreed by participating and use of the data, by clicking in the continue button. This information page can also be found in the appendix A.

4: Findings

4.1 Stakeholder identification

This chapter will present stakeholder identification findings, based on the conducted interviews. The interviews aimed to determine the four stakeholders, to be used as research units in the subsequent surveys. On top of that, it was also aimed to categorise the stakeholders into the Stakeholder Typology Model (Mitchell, 1997), as presented in the literature review. By both categorising the stakeholders, as well as researching their attitude, a coherent overview of the current stakeholder field in sustainable dairy is desired. This chapter will firstly present the testing of the identified stakeholders as key players in this field. Thereafter, the stakeholders will be discussed based on the individual attributes *power, legitimacy,* and *urgency.* As a summary, the stakeholders will then be assigned to a stakeholder category, according to the model.

As described in chapter 3.4.2, are the five interviewees representatives of Wageningen University and Research, the Netherlands Agricultural and Horticultural Association (LTO), Dutch Dairy Organisation (NZO), Arla, and FrieslandCampina. Hereafter, these will be referred to R1, R2, R3, R4, and R5 respectively. The corresponding transcripts can be found in the Appendix.

4.1.1 Stakeholder selection

First, it needed to be tested whether the researcher and interviewees had the same understanding of the concept "stakeholder". Therefore, the own interpretation of the experts was asked, after which it was discussed if this was in line with the used stakeholder definition: *"an organisation is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives"* (Freeman, 1984, p46). All interviewees could agree with this definition. However, R1, R2, R3, R4 stated that it does not necessarily need to be an organisation. It can also be an individual representing a certain interest held by a group. Or someone who has considerable influence and power within an organisation. R2 illustrated that it is therefore more of "*an organic whole, including temporary movements".* Nevertheless, all agreed on the influence aspect of this definition, and were comfortable with proceeding the interview with this definition in mind.

As can be found in Chapter 2.2.5 of the literature review, the four key stakeholders were identified as: Business customers, society, government, and suppliers. Thereby, it was chosen to delineate the customers to businesses, including supermarkets and catering wholesalers. The government was limited to national and regional level, and the suppliers to dairy farmers. Society was restricted to Dutch consumers older than 18, who bought a dairy product in the last month.

All interviewees agreed on the government to be a key stakeholder, with emphasize that this player is active on European, national, and regional levels. There was also unanimous agreement on the farmer as key supplier and stakeholder. R2 illustrates that in the end, everything of this sector will find its way back to the farm, being the motor of the industry. However, it was noticed by R1 and R5 that this regards a bit of a special stakeholder relation, since the farmers are often members of one of the two large cooperatives, FrieslandCampina or Arla, in the Netherlands. Therefore, in this context, the dairy farmer should be considered not only supplier, but also member of the cooperative. Moreover, the business customer was also considered to be a key stakeholder by the interviewees. R4 said that this stakeholder is the key player between the dairy industry and the end consumer. They decide what will be offered on the shelves, and if the products are bought.

There was more reluctance regarding the identified group of "consumers". The distinction between consumers and citizens seems to be a lively discussion. R1 and R2 illustrated that a person can have a strong opinion on something as citizen, but that this does not always translates into the consumer

behaviour. R2 stated that the term of "end user" would be better suitable. In here you can include both the personal believes as citizens, as well as the consumer behaviour. Based on this insight, it was chosen to rename *society* to *end users* for the proceeding of this research. However, this was not the only discussion. It was very noticeable that every expert brought up the NGO to be of important influence on this stakeholder group.

R3 questioned whether the NGO such as Wakkerdier can be considered to be an end user, or separate stakeholder. But not only consumers can be influenced by this group according to R2, stating that "*Supermarkets are really sensitive for this group as well. The NGO is able to create an image, to push companies to have 1/2/3 certification stars. If you score lower, you can almost not afford offering this in the shelves".* However, he simultaneously projected that active NGO campaigns can also have the opposite, referring to an example in the chicken industry. R1 added that in the end, consumer behaviour can be influenced by both an NGO and the dairy industry itself.

Based on the following discussions, it was chosen not to include the NGO in the stakeholder selection for this thesis. This was based on the argument that the eventual purpose of this thesis is to research the stakeholder attitude towards sustainable dairy. The attitude of the NGO is considerably predictable, and sometimes even leaning towards activism. It is also assumed that the remaining four stakeholders are more difficult to reach by the industry. By giving them a more prominent voice in this research, it is aimed to provide a more diverse insight in dairy stakeholder attitudes.= Nevertheless, this does not imply that the attitude of the NGO should be neglected in this industry. However, this issue regards such comprehensive research, that due to time limitations, it could not be researched extensively enough. Moreover, additional research on NGO influence on the dairy industry will help reach a better understanding of this thesis results

4.1.2 Business customer

The first stakeholder held against the Typology attributes, is the business customer. As described in the literature review, this includes a contracted company that purchases the processed dairy products from the dairy corporations on a regular basis. For delineating purposes, the group is limited to supermarkets and catering wholesalers. The latter includes large wholesalers like Hanos, which are main selling points for Dutch hospitality industry.

4.1.2.1 Power

All interviewees acknowledged that the customer has a very significant utilitarian power. This group decides whether your product will be available in the stores, or will be placed on the menu, and for what price. R1 points out that there are customers even bigger than a multinational as FrieslandCampina. If these large-scale customers decide on certain actions or discounts, the dairy industry needs to pay the difference. R1 even states that *"this is simultaneously one of the reasons of the major scaling-up from the last years. By doing so, companies can keep up with these types of situations".* R3 and R4 also recognise this power when it comes to sustainability initiatives. When a programme is initiated, the customer might not want to pay for possible additional expenses, or agree on putting the logo on the packaging. Nevertheless, R2 notices a shift when it regards a specific demand from the consumers. Stating that *"When the customer has the impression that the end users will not come to their store anymore, there is a reason to shift. But it will still be the dairy industry's responsibility to translate this demand".* This illustrates the definitive power of this stakeholder, but also it's dependency on the dairy industry as supplier of their consumers' demands. Nevertheless, the dominant and financial power hold by this stakeholder remains leading in this relationship.

4.1.2.2 Legitimacy

Whether this stakeholder holds a legitimate position, was more divided among the experts. R1 considers it to be legitimate since a supermarket acts as a representative of the end user. According to this expert, it is a commercial consideration. This is emphasized by R5, who points out that dairy cooperatives perform extensive scans whether a newly contracted customer meets the ethical standards. R3 questions the level of representation since a consumer has very little say in the store or menus selection. On top of that, bigger suppliers have more resources to buy a place in the shelf, contrary to a small local business. R4 is a bit in the middle, since this expert also points out the fairness regarding available resources of suppliers. However, this expert does not consider it to be completely unfair, and rather a healthy business relation. R2 also emphasizes that this group aims for long term contracts, which stimulates sincerity, despite different motives. In the proceeding of the interviews, three out of five experts stated that this stakeholder holds least legitimacy compared to the other stakeholder groups. While this stakeholder relation essentially regards a commercial consideration, its' legitimacy in the dairy industry is perceived questionable. Especially referring to the store-level product selection, based on end user representativeness and fair possibilities for suppliers is therefore not considered legitimate.

4.1.2.3 Urgency

When it regards urgency, the experts lean towards direct action regarding this stakeholder group. However, when it includes a food safety situation, it is of course obvious, also through law, that direct action is obliged. The dairy industry is closely monitored by the Dutch Dairy inspection institute which operates under the Dutch Warenwet (Commodities law). When a product is recalled, the dairy industry is then responsible to trace back the involved dairy (COKZ, 2020). When it comes to more general demands, R3 states that *"It is the question whether you can directly comply with the demands, but you should stay in a conversation. Otherwise you have a risk that your part of the shelve will be given to another company. With larger cooperation, there is some mutual power. But not every organisation holds this scale, including a variety of products".* Moreover, R4 stresses that all claims and demands from this stakeholder are playing in the context of a long-term contract. R1 and R5 both refer to a mutual benefit between these parties, for which they need each other in the end to realise the claim.

4.1.3 End user

The second stakeholder regards the end user. This group includes the general public, who are interacting within the same territory with shared level of authority and culture. For delineating purposes, the group is limited to Dutch consumers older than 18 years old, who buy dairy products on a regular basis. By including the latter, it is ensured that both citizens as consumers are involved.

4.1.3.1 Power

The end user decides if a product is bought, so all experts agree on the so called "power of the wallet" of the consumers that directly purchase their consumed dairy products. They are however more divided on what type of power, and to what extent. Utilitarian and symbolic power are equally mentioned. R1 considers the power of the end user to be indirect and limited. R5 aligns with this, stating that the expert does not consider this to be a direct power, unless it regards a quality issue. According to R3 this power is more considerable, stating that the dairy industry has two main activities: monitoring milk quality, and consumer behaviour. While R4 also considers this group to have some power this respondent notes that "*it is difficult to make your voice hearable as an individual consumer*". Both R2 and R4 support this argument, by stating that this group can hold great power, but does not utilize it to its potential. Nonetheless, this can possibly be changed through social media. This platform is mentioned by both R1 and R2, who see this as a tool to increase the end users' power. They state that this can be done through public attention and visibility of possible complaints, but the platforms

also enable end users to unite and form a larger group for which they can exercise more power on the industry. Therefore, it can be stated that the end user does not hold power yet, but should be monitored on their increasing possibility of acquiring this attribute.

4.1.3.2 Legitimacy

R2 questions the legitimacy of the end user towards the dairy industry. Stating that the end user can choose a product based on nice colours or emotional connection, the sincere connection with the dairy industry seems lacking. Moreover, R4 thinks that the legitimate relationship is disturbed by the power of the intermediate supermarket or wholesaler. According to R5, this stakeholder can be considered legitimate, illustrating that *"The end user makes a conscious choice with healthy nutrition, in which dairy plays an important role. So, I think they are sincere in this".* R3 and R1 consider the relation to be legitimate as well, based on the simple fact that the end user just expects a decent product. It can be stated that the end user acts under socially acceptable norms and believes. Moreover, according to the experts, does this stakeholder has neutral to positive claims on the dairy industry, dependent on the different nutritional and cultural aspects of the product.

4.1.3.3 Urgency

Here again a distinction is made by R1 when it comes to a certain demand or trend, or a claim regarding food safety. This expert state that the dairy industry should pay close attention to trends, but do not need to realise them overnight. When it comes to sustainability claims, R2 illustrates that it can be top priority, once the end user develops serious demands. *"When an end user will start to ask questions, you are already too late".* Therefore, R2 considers this to be a more of a diffuse urgency. R3 also emphasizes this, by concluding that the industry should always be a step ahead. There should be no uncertainty regarding important topics. The social media aspect is now mentioned by R4 and R5, who stresses the danger of viral posts, especially when interest groups get involved. In that case, the dairy industry needs to manage that right away.

4.1.4 Government

The third stakeholder includes the government. This is defined in the literature review as a group of people that is legally appointed to control and regulate a country. In this case, this includes the European Union, National government, and the twelve provinces.

4.1.4.1 Power

As expected, this stakeholder holds great power when it comes to legislation. According to R1, in there *"is a large amount reserved for food safety, and the second part is mostly focused on production method. The latter regards the environmental part, including animal welfare. In this, the government holds a facilitating and supporting role".* R3 and R5 illustrate that the dairy industry is in fact closely observed when it comes to permits and safety; they hold the power to shut down a factory. R2 emphasizes the deciding role of the European Union, who can have great impact by using stimulating subsidies for example. However, it is not only a one-way direction. If the dairy industry plays its cards right, they can have influence in the policy making. But despite the outcome, R4 stresses that once a law is in force, the industry has no other option than to comply.

4.1.4.2 Legitimacy

Regarding this topic, R3 stresses the importance that this stakeholder should include and consider everyone's interests, fairly weighing them. While this expert does not see this happening in the dairy industry yet, R4 states that the current governmental approach within the agriculture does not always holds a complete overview of the different aspects involved in an agricultural issues.. Comparing to the previous stakeholder (end user), R3 and R5 find that the government's legitimacy is less questionable. This is due to the fact that a democratic government is obliged to gather broad support

and ensure a fair share between the involved parties. This statement is supported by R1, who states that *"This is generally perceived to be legitimate. You don't just have a government; it is there for a reason. Especially if you look at food safety".* However, when it comes to sustainability related topics, there might be more disagreement between the many involved parties. But especially in that case, only this stakeholder can make the ultimate decision. R5 summarizes this vision as *"In the basis, this stakeholder is legitimate. However, some practical issues can be a bit deviating".*

4.1.4.3 Urgency

Following the answers related to the power attribute, all interviewees agree that the industry needs to act urgently once a law is enforced. R3 illustrates the current Nitrogen Crisis as an example *"…with what the dairy industry is not happy with. But in the end, it will become the new legislation"*. However, before the law is enforced there is the possibility to have a say in the policy making, according to R1 and R3. Since it often regards long-term processes, the democracy lends itself for mutual consultation. In this case of a consultation process, the dairy industry needs to act urgent when they desire to have a say in the policy making. Additional to the inevitable urgency of implemented laws, it can be stated that the experts unanimously agreed on the attribute urgency for this stakeholder.

4.1.5 Dairy farmers

The last stakeholder in place is the supplier, defined as a company that provides products that the dairy company needs in order to produce and offer their range of products. In the context of this research, and for delineating purposes, this is limited to the Dutch dairy farmers.

4.1.5.1 Power

R1 describes the power of this stakeholder as follows: *"In theory they have a significant power, but simultaneously you need to consider that there are 17.000 dairy farmers in the Netherlands. An individual farmer does not have a big say. An individual representing a bigger group, can have a power. But on individual level this is very limited".* When considering the cooperative structures of the Dutch dairy industry, R2 and R5 point out that farmers can have a significant say. Nonetheless, this expert also emphasizes that this is dependent on the scale of the cooperative; *"the influence increases once the scale is smaller".* This vision is shared by R3, but emphasizes together with R4 and R5 that they in fact have the ultimate power, as key milk supplier. R5 illustrates the important role of this stakeholder by stating that *"Despite the organisation, everyone wants to work with high quality and sustainable dairy. Our customers are also very critical on this aspect, so we need to be too".* The farmers hold an unique stakeholder position since they are both key suppliers, and member of the two dairy cooperatives involved in this research. Based on this combination, the farmers are considered to hold the power attribute.

4.1.5.2 Legitimacy

Due to the cooperative structure, this is a bit of a difficult relation, as mentioned in paragraph 4.1. However, R3 discusses the fairness of this relation, but from the other side around. A large cooperative makes use of certain averages, which are based on many dairy farmers, who are increasingly upscaling over the last few years. Smaller dairy farmers cannot always keep up with these averages, predominantly influenced by large scale farms. R2 noticed that the dairy industry is in fact becoming more loyal and social; "*The dairy industry is not a place in which the farmer is distrustful in advance".* R5 also emphasizes the fact that in the end, the dairy farmer wants to sell his product. Based on analysing the different answers, the experts' opinion on legitimacy can be summarised in the vision of R1, which states that *"the majority is legitimate. The farmer can supply his product, and the organisation purchases it. And in the basis, a cooperative is very legitimate in his nature".*

4.1.5.3 Urgency

This attribute also relates to the cooperative nature of this stakeholder. According to R4, claims originated in the board of directors, needs to be handled with great urgency. However, an individual claim for a farmer will not be handled immediately. R3 states that the farmer needs to sell his milk, but that a claim shared by multiple farmers can become more urgent. R2, R1 and R5 both state that a claim from this stakeholder is considered to be less urgent, compared to the previous discussed groups.

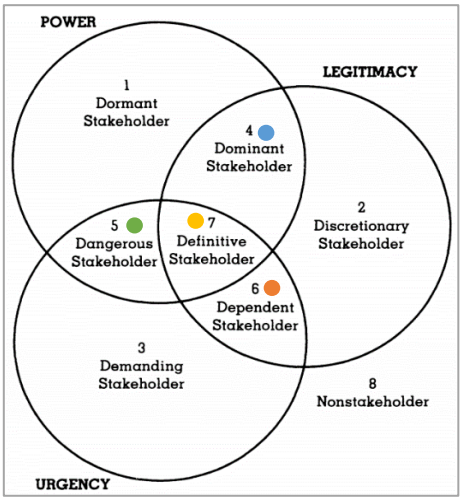
4.1.6 Summary

Based on the previous findings, the stakeholders are now assigned attributes, which will determine their positioning in the Stakeholder Typology visualised Model (Mitchell, 1997). For this, per stakeholder was considered whether the attributes were applicable. The outcomes are summarized in Table 7 below.

Table 7: Stakeholder Typology ranking

	Customer	End User	Government	Dairy farmers
Power	++	-	++	+
Legitimacy	-	++	++	++
Urgency	+	+	++	-

Figure 4: Stakeholder Typology ranking (Mitchell, 1997)



Customer: the experts unanimously decided that this stakeholder holds significant power, both utilitarian as financial. Despite the sometimes mutual dependency on the dairy industry, this stakeholder's power is leading in the relationship (++). The legitimacy on the other hand was considered to be lowest, compared to the other stakeholders. Due to questionable representativeness of the end users demand, and fair supplier possibilities, this stakeholder was not considered legitimate (-). Although the experts illustrated the need to react urgently on claims from this stakeholder, it was also stated that this often plays in the context of a long-term contract (+). In Figure 4, it can be seen that therefore, the business customer is positioned as dangerous stakeholder.

End user: despite the increasingly potential of the attribute power through social media, the experts do not consider this group to have explicit power on the Dutch dairy industry yet (-). The experts do perceive the end users to have a legitimate claim in the dairy industry, acting in social norms and with sincere interest in different aspects of dairy products (++). Through different examples, experts show the urgency of claims from this stakeholder group. Especially when it comes to sustainability issues or trends, the dairy industry is required to act urgently (+). This attribute allocation results in a dependent stakeholder role.

Government: through inevitable legislation regarding food safety and permits, it is stated by all experts that this stakeholder holds significant power (++). The legitimacy of the government is also considered to be prominent. Due to the democratic government, this stakeholder is obligated to include multiple stakeholders, fairly weighing the interests for the public good (++). Both during policy making and implementation, the experts all stated that the industry should react urgently to these claims (++). Due

to the clear and shared agreement about the positive attribute allocation, the government is positioned to be the definitive stakeholder.

Dairy farmers: this stakeholder relation is considered unique due to the fact that the dairy farmers are both the key suppliers, as member of the researched dairy cooperatives. As individual farmer, the power is not as big, but once they unite or are heard in the cooperative, they can hold significant power (+). A cooperative is very legitimate in nature, considering that the farmer has a say in the corporate agenda, and is ensured that the milk is sold and processed. All experts refer to a healthy business relationship (++). Compared to the previous groups, the dairy farmers were considered least urgent, due to the strong mutual dependency and large-scale cooperatives, the dairy industry can react less urgent (-). By holding the two attributes power and legitimacy, this stakeholder is therefore considered dominant in the dairy industry.

4.2 Stakeholder attitude

After the four stakeholders are selected in chapter 4, these will now be researched on their attitude towards sustainable dairy. This was conducted through quantitative surveys, which can be found in the appendix B. First, the general overview of the surveys will be presented including the reliability tests. After that, the results will be presented per sustainable dairy aspect derived from the literature review: animal health and welfare, food safety and quality, protection of environment and biodiversity, and greenhouse gas emissions. In these subchapters, the results per stakeholder survey will be presented and interlinked.

4.2.1 Survey results overview

During the period of May and June 2020, the four surveys were distributed to the key stakeholders through specifically targeted channels. This included Facebook groups, LinkedIn pages and agricultural related forums such as Prikkebord and Veeteeltforum. A general overview of some respondent characteristics per stakeholder group are presented in the Tables 8 9 10 11 below. Due to preferred anonymity on function or location, the governmental and business customer groups cannot be specified any further.

Table 8/9/10/11: respondent specification suppliers, government, end users, business customer.

Dairy farmers (N=134)					
	Amount of dairy cows				
	1-50	**51-100**	**101-200**	**201-300**	**301+**
Province					
Overijssel	1	13	7	1	-
Gelderland	2	14	7	-	-
Noord-Holland	-	5	4	-	-
Zuid-Holland	1	2	9	1	-
Zeeland	-	2	-	1	-
Noord-Brabant	-	3	9	-	3
Utrecht	2	2	-	-	-
Flevoland	-	-	-	1	2
Friesland	3	3	9	3	1
Groningen	-	4	6	1	-
Drenthe	1	2	5	1	-
Limburg	-	2	2	1	-
Total	10	52	56	10	6

Government (N=15)		
	Authority level	
	National	**Province**
Province		
Overijssel	1	3
Gelderland	-	1
Noord-Holland	-	1
Zuid-Holland	2	-
Zeeland	-	1
Noord-Brabant	-	-
Utrecht	-	1
Flevoland	-	1
Friesland	-	2
Groningen	-	1
Drenthe	-	1
Limburg	-	-
Total	3	12

End users (N=880)		
	Gender	
	Female	**Male**
Age		
18-25	114	27
26-35	156	35
36-45	131	27
46-55	157	41
56-65	123	18
66+	31	20
Education		
High school	96	17
MBO	323	70
HBO	226	65
University	54	13
Other	13	3
Total	712	168

Business Customer (N=11)	
Employees	
0-10.000	8
10.000-50.000	1
50.000-100.000	1
100.000-200.000	1
Total	11

Looking at the dairy farmers sample composition, it was successfully aimed to gather respondents from every province. Moreover, they were also asked about the size of their farms, expressed by the number of cows. The government is also specified per province, in which it can be found that Limburg and Noord-Brabant are not represented. Nevertheless, the provinces holding the most dairy cows are included. Moreover, three employees on national level completed the survey.

Looking at Table 10, it can be found that 880 end users completed the survey. While a representative division of age and educational level was obtained, the distribution female / male is less balanced with a successively ratio from 8:2. The business customers are characterised based on their number of employees. Based on the last category 100.000-200.000, it was found that a representative of the biggest Dutch supermarket chain completed the survey.

In the research design, the Cronbach Alpha was introduced. This statistical test represents the internal reliability of the different items. It tests whether the three selected items represent the attitude on the desired scale topic. All items and stakeholders are tested, which resulted in the following values presented in Table 12. As can be seen, the items *animal health and welfare* in the government survey, and the *food safety and quality* in the farmer survey do not meet the desired 0.700 standard. However, it is assumed that a value between 0.6 and 0.7 is still considered to be acceptable. On top of the high combined values, it was therefore chosen to keep this data.

Table 12: Cronbach Alpha per scale and stakeholder group

	Stakeholder			
Scale topic	**End user**	**Dairy farmer**	**Customer**	**Government**
Animal health and welfare	0.748	0.702	0.705	0.684
Food safety and quality	0.714	0.689	0.871	0.843
Protection of environment and biodiversity	0.777	0.714	0.771	0.864
Greenhouse gas emissions	0.851	0.800	0.889	0.705
Combined	0.882	0.760	0.922	0.885

4.2.2 Animal health and welfare

The first topic of sustainable dairy includes animal health and welfare. This topic was translated into three items, on which the respondents were asked to specify their agreement. Below you can find the table that provides an overview of the means per item and scale, per stakeholder group. In this, 1 represents "strongly disagree" and 5 "strongly agree". Only respondents that either *agreed* or *strongly agreed* on one of the scale items, were asked the last item question regarding a financial consequence. For end users this meant a higher product price, for dairy farmers this meant higher production expenses, for government this meant creating more funds in the form of subsidies, and business customer were asked about a higher purchasing price.

Table 13: results animal welfare.

I/my organisation find(s) it important that…	**End user**			**Dairy farmer**			**Government**			**Business customer**		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD
cows can go grazing.	880	4.46	0.902	137	3.88	1.176	15	4.53	0.516	11	4.27	0.786
animal harm is actively prevented.	880	4.35	0.812	137	4.58	0.564	15	4.27	0.704	11	4.18	0.751
cows can show natural animal behaviour.	880	4.40	0.759	137	4.21	0.669	15	4.33	0.488	11	4.09	0.944
Scale mean	880	4.40	0.674	137	4.22	0.528	15	4.37	0.451	11	4.18	0.621
I don't care that in this case, dairy (products/production/subsidy) will become more expensive.	861	3.75	0.941	136	3.87	0.735	15	3.73	1.033	11	3.45	0.688

In general, it can be stated that the scale mean is high, with a small maximum difference of 0.22 between the stakeholders. The highest overall scoring item regards animal harm. This is in line with Calker's findings (2005), stating that the public is increasingly concerned about this topic. The dairy farmers are the only one that showed a topic mean below 4, on the statement of grazing. This topic simultaneously has a considerably large standard deviation, referring to bigger difference among the dairy farmer respondents. Despite the positive topic and scale means, the mean on financial consequence is less pronounced. While the dairy farmer is the most willing to financially contribute to realise the scale topic, the business customer leans more towards a neutral attitude with a 3.45 mean. The latter is not as surprising, considering their dominant financial attitude discussed in both literature review as Chapter 4.1.2. It was also found that grazing is a much-discussed topic among farmers for many years. This discussion might explain the lower farmer attitude, while end users are known for their sentimental attitude towards animal welfare. This does not imply that farmers care less about the sentimental aspect but are also including operational consequences in their consideration.

4.2.3 Food safety and quality

Table 14: results food safety and quality.

I/my organisation find(s) it important that…	**End user**			**Dairy farmer**			**Government**			**Business customer**		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD
The dairy industry acts transparent regarding the production processes.	880	4.16	0.728	137	4.09	0.775	15	4.13	0.640	11	4.55	0.522
The milk quality is monitored and researched continuously.	880	4.20	0.684	137	4.14	0.729	15	3.93	0.704	11	4.36	0.674
Use of antibiotics is handled responsibly.	880	4.37	0.709	137	4.34	0.645	15	4.27	0.799	11	4.36	0.674
Scale mean	880	4.24	0.564	137	4.19	0.564	15	4.11	0.625	11	4.42	0.560
I don't care that in this case, dairy (products/production/subsidy) will become more expensive.	862	3.74	0.934	134	3.71	0.812	14	3.21	0.802	11	2.73	0.786

This scale aspect of sustainable dairy again scored considerably high with means of 4.24, 4.19, 4.11, and 4.42. Noteworthy is the business customer who scores the highest means per topic, and scale. However, the willingness to pay a higher price in order to realise this, is leaning towards a negative attitude, matching their identified attitude that the dairy industry is responsible for these types of commodities. The government also indicates a more neutral perspective when it comes to subsidies for this topic. This might have to do with the idea that the government is shifting towards a more facilitating attitude, for which certain issues are also considered to be a prerequisite of the product, and this is a case of minimal complying with food safety laws. The end users and dairy farmers both scored high on all scale items, indicating most agreement on responsible antibiotic use. It can be assumed that end users can understand the rather specific example of antibiotic use better, also considering it to be a publicly discussed topic over the last years. This can lead to perceived threat to personal health, for which the considerably high financial willingness can be explained.

4.2.4 Protection of environment and biodiversity

Table 15: results protection of environment and biodiversity.

	End user			**Dairy farmer**			**Government**			**Business customer**		
I/my organisation find(s) it important that…	N	M	SD	N	M	SD	N	M	SD	N	M	SD
if soy is used as cattle feed, attention is given to the quantity and ethical origin.	880	3.71	0.977	137	3.22	0.976	15	4.00	0.845	11	3.45	0.934
the dairy industry has a plan to preserve, restore and improve biodiversity.	880	3.85	0.942	137	2.95	0.980	15	4.07	0.704	11	3.82	0.751
the water use is measured throughout the dairy chain.	880	3.46	0.977	137	2.70	0.894	15	3.87	0.834	11	3.55	1.036
Scale mean	880	3.67	0.803	137	2.96	0.708	15	3.98	0.707	11	3.61	0.757
I don't care that in this case, dairy (products/production/subsidy) will become more expensive.	725	3.64	0.939	82	3.22	0.903	14	3.43	0.756	10	2.70	0.949

The third aspect of sustainable dairy regards the protection of environment and biodiversity. At a glance, it can be found that this aspect scored lower than the previous two discussed. For the first time, a scale mean even scored below 3 in the dairy farmer category. On average, this stakeholder responded either neutral attitude or slight disagreement. This might have to do with the attitude perceived in the interviews, which stated that due to the Nitrogen Issue, farmers are getting increasingly tired of this topic. The neutral attitude was also found among the business customer. They scored highest on the presence of a biodiversity plan, which is in line with their ethical screening of suppliers, and desire for a more sustainable corporate image. Nevertheless, they are again the least willing to financially contribute to the realisation of these statements. Overall, the end user's attitude varied between neutral and agreement. This group was the most willing to financially contribute. This willingness is a positive starting point, considering the discussed *attitude-behaviour gap*. The government scored highest on this scale, especially on the second item of a biodiversity plan, which is not surprising considering their actual responsibility on European level to improve this aspect in the agricultural sector. Due to the complexity and long history of this issue, it is expected that the government is aware of the financial and operational consequences for the farmers, for which the willingness to financially contribute through subsidies can be explained.

4.2.5 Greenhouse Gasses

Table 16: results greenhouse gasses.

I/my organisation find(s) it important that…	End user			Dairy farmer			Government			Business customer		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD
The dairy industry aims for Greenhouse Gas Emissions reduction.	880	3.60	1.067	137	3.03	0.822	15	4.47	0.516	11	4.09	0.539
The dairy industry only grows, if this can be done climate neutral.	880	3.34	1.058	137	2.74	0.902	15	3.87	1.060	11	3.09	1.044
The dairy I buy, is produced with use of renewable energy.	880	3.33	1.018	137	2.89	0.921	15	3.93	0.884	11	3.27	1.191
Scale mean	880	3.42	0.920	137	2.89	0.762	15	4.08	0.635	11	3.48	0.874
I don't care that in this case, dairy (products/production/subsidy) will become more expensive.	627	3.72	0.931	59	3.32	0.840	15	3.80	0.676	10	2.80	0.789

Greenhouse gas emissions is the last aspect defining sustainable dairy. In general, this aspect was scored the lowest. Surprisingly it did not score lowest on the financial consequence which can be a result of possible increasing awareness that this topic is inevitable for future development of the sector. The first item of Greenhouse gas reduction scored highest among all groups, with a 1.44 item mean difference between the dairy farmers and the government. Overall, the government again showed most agreement on this scale, and was also showed the most willingness to financially contribute to this. This result is not surprising, considering that the government has set goals regarding these topics. The farmers scale mean is the lowest of all four aspects discussed. While predominantly neutral, the second and third item lean towards a more negative attitude.

The end users scored neutral to slightly agreement on the items. However, the standard deviation of the three scale items are all above 1 within this stakeholder group. This possibly indicates more disagreement among the end users or lack of knowledge about this topic. The business customer agreed on the reduction the most, with a low standard deviation. Nevertheless, they simultaneously showed the smallest mean at willingness for financial contribution. It can be stated that the end users and dairy farmers hold a neutral attitude towards this aspect of sustainable dairy, while the government and business customer, who face set goals regarding this topic, perceive this scale to be more important.

4.3 Nitrogen crisis

After the attitudes towards sustainable dairy was researched, the respondents were also asked about their knowledge and attitude towards the Nitrogen crisis as described in chapter 2.4. After operationalizing the literature into scale items, the respondents were again asked to specify their level of agreement.

4.3.1 Knowledge legal aspect

The Nitrogen issue covers a large and complex situation of legal and social disagreements. Therefore, before researching the effect, it was aimed to identify the knowledge of the respondents on this topic first. This was tested by the following three items:

1. I understand what the Nitrogen crisis entails, regarding the environmental aspect, such as the nitrogen deposition on Natura 2000 areas;
2. I understand that the Nitrogen crisis is a result of the ruling from the Dutch Council of state;
3. I understand that due to the Nitrogen crisis, thousands of construction and infrastructure projects came to a sudden halt.

The first item was predominantly answered with agreement. In fact, the governmental respondents solely answered with either *agree* or *strongly agree* (N=15). In the business customer results, it was found that 18% (N=11) of the reactions answered neutral. This was also the case in the end user survey results, in which 30,4% (N=880) of the people considered themselves neutral. However, still 53% agreed with the item statement. The dairy farmers showed the most diverse response, since 34,3% disagreed, 26% was neutral, and 39% agreed (N=137).

The second statement regarding the ruling, is better understood by the end users. 60% showed their understanding. Almost the exact percentage of understanding was showed by the dairy farmers, while still 23% did not agree. The government results remained full understanding, and the business customer showed similar results compared to the previous statement. This includes a majority of 51% agreement.

With 24,4% disagreement and 26,6% neutrality, the end user understood the least of the third item regarding construction permits. Nonetheless, it was the lowest *neutral* result, and still a majority of 56,8% agreed. Most of the farmers again showed understanding, while the disagreement is accountable for a modest 36,5%. One respondent from the governmental survey answered *neutral* while the remaining answers still showed understanding. And lastly, did the business customer gave the exact same answer as the first item. Meaning 63% of the respondents showed understanding.

4.3.2 Effect attitude

Now that the understanding was clarified, it was then aimed to research this topic in relation to the attitude towards sustainable dairy. Therefore, every respondent that showed understanding received additional questions. These questions asked the attitude towards sustainable dairy, before and after the Nitrogen crisis. This was translated into the two statements:

1. Before the Nitrogen crisis, my attitude towards sustainable dairy was …
2. After the Nitrogen crisis, my attitude towards sustainable dairy is …

The results are now presented per stakeholder group, based on tables and graphs. The graph illustrates an overview of the before and after situation in percentages, while the table will provide supporting data about the possible shifts.

4.3.2.1 End user

Graph 1: End user overview attitude effect legal aspect in% N=685

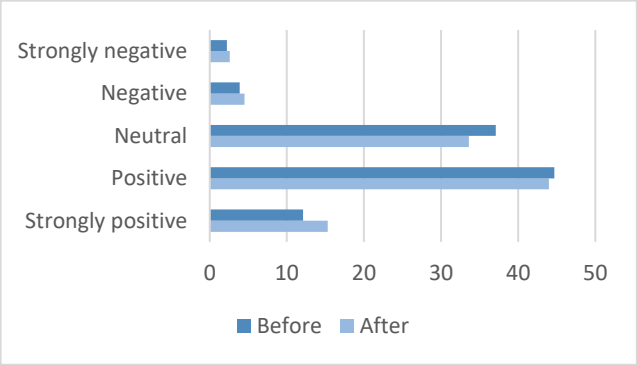


Table 17: End user overview change attitude

Change	Frequency	Percentage
-2	3	0.43%
-1	41	5.99%
0	568	82,91%
1	64	9,34%
2	9	1.31%

The graph above illustrates that a majority of the end users had, and continue to have, an overall positive attitude towards the dairy industry both before and after the Nitrogen Crisis. However, it can also be seen that the category *strongly positive* increased after the Nitrogen crisis while *neutral* and *positive* declined. The table to the right indicates that almost 83% answered that the crisis did not affect their attitude, while 6,42% felt more negative, and 10,64% shifted towards a more positve attitude. The end users who indicated a negative change, had a noteworthy neutral attitude towards the aspects of biodiversity and Greenhouse Gasses. Respondents who showed a positive change, showed allmost unanimous strong agreement on the aspect of food safety.

4.3.2.2 Dairy farmers

Graph 2: Dairy farmer overview attitude effect legal aspect in % N=95

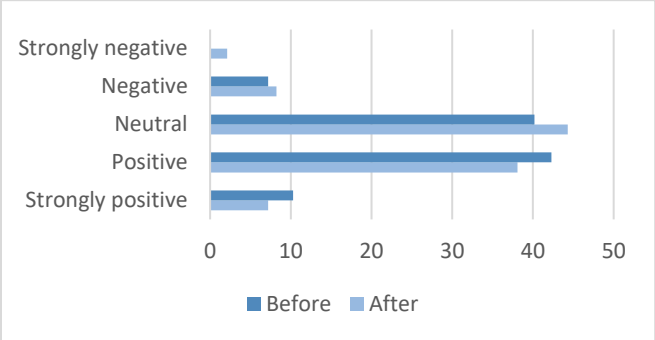
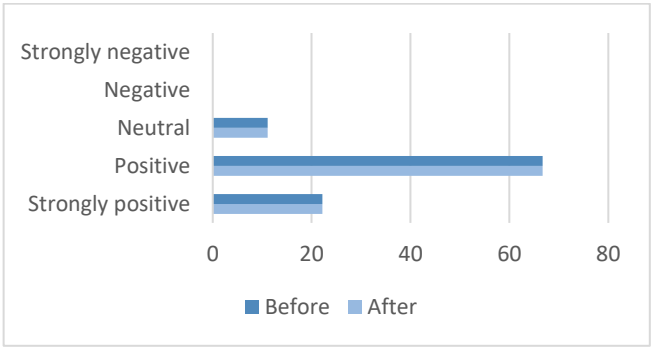


Table 18: Dairy farmers overview change attitude

Change	Frequency	Percentage
-2	3	3.16%
-1	10	10.53%
0	79	83.16%
1	3	3.16%
2	0	0%

While before the crisis no dairy farmer considered themselves as having a strongly negative attitude towards sustainable dairy, this increased afterwards. Comparable to the end users, did 83.16% indicate that their attitude was not affected. However, 13.69% experienced a negative shift, against 3.16% of the dairy farmers who felt more positive. Thus, the change that did happen, was more negative in this stakeholder group. This negative change was predicted considering the protests and perceived emotion of this group. However, the amount is therefore less than was expected. This can possibly be explained by different interpretation of sustainable dairy. Moreover, based on retrieved reactions on the survey through the comment section, it can also be assumed that farmers are convinced that they are already operating according to sustainable standards. Therefore, their emotion is possibly aimed more towards regulation in general.

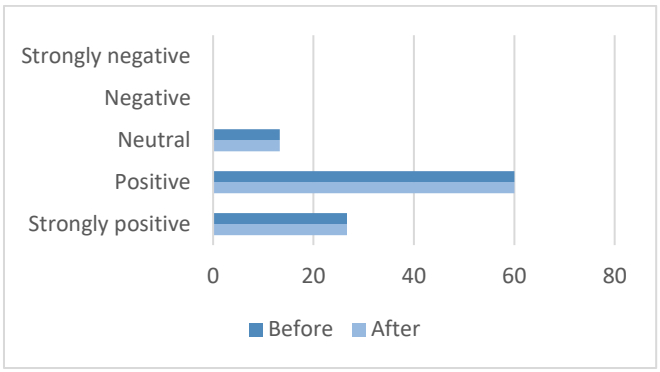
4.3.2.3 Business customer



Graph 3: Business customer overview attitude effect legal aspect in % N=11

The business customers did not consider their attitude towards sustainable dairy to be negative, both before and after the Nitrogen crisis. While the majority holds a positive attitude, they indicated no change due to the crisis. This is in line with the expectations based on the interviews and literature review. In there, it was found that although this stakeholder holds a positive attitude, they perceive the realisation as the responsibility of the dairy industry.

4.3.2.4 Government



Graph 4: Government overview attitude effect legal aspect in % N=15

The government results are almost identical to those of the bustiness customers. However, there was a slightly higher percentage on *neutral* and *strongly positive* attitude. Nonetheless, this stakeholder group also did not experience any change due to the Nitrogen crisis. While it is expected that this topic got increasingly more attention, it has always been on the agenda of the government. With the attitude being positive, the crisis might have even enabled the government to implement desired measures which were withheld before.

4.3.3 Knowledge protests

As discussed in the literature review, the concept of the Dutch Nitrogen crisis not only includes the legal aspect, but also the strikes held by the farmers in fall 2019. Therefore, three items were formulated to test the knowledge on this side of the crisis:

1. I have experienced, read about, or seen the farmers' strikes in the fall 2019;
2. I understand that these protests were related to the Nitrogen deposition of the agricultural sector;
3. I support these actions and protests.

The first item illustrates the extraordinary attention that the protests received, nationwide. 95% of the end users (N=880) stated that they agreed with this statement. This is followed by 98% of the farmers (N=137), of which 64% stated that they actively participated in the protests. 90% (N=11) of the business customers was also aware, and on governmental level this percentage was 100 (N=15).

The second statement was less pronounced but showed predominantly understanding of this topic. Of the end users, 93% stated that they understood the presented relation. While 86% of the farmers also answered positively, 73% of the business customers were aware. Lastly, the government again showed 100% agreement with the topic.

The last statement of this aspect is more subjective and was expected to be a sensitive statement for governmental and business respondents. The results showed that more end users shifted towards a *neutral* opinion, but 72% gave their support. 89% of the farmers agreed with the protests, while 8% was neutral. 63% of the business customers answered neutral, while 27% showed support, and 9% disagreed. The government reacted surprisingly more outspoken on this statement: 40% of the respondents answered *neutral*, 46% disagreed with the actions, and 13,3% even strongly. It is not surprising that the two main actors in the protests, namely the government and dairy farmers, hold the most dominant and differing attitudes regarding this topic. However, the support of the end users is more surprising, due to their role as audience. However, it was also found that dairy industry holds a prominent and traditional role in this country, for which support might be granted sooner.

4.3.4 Effect attitude

Similar to the previous paragraph, the respondents were asked next about their attitude towards sustainable dairy. However, now they were asked whether the strikes affected this attitude, based on the following statements:

1. Before the strikes held by the farmers, was my attitude towards sustainable dairy…
2. After the strikes held by the farmers, is my attitude towards sustainable dairy…

The results are now again presented per stakeholder group, based on tables and graphs. The graph illustrates an overview of the before and after situation in percentages, while the table will provide supporting data about the possible shifts.

4.3.4.1 End users

Graph 5: End user overview attitude effect strikes in % N=855

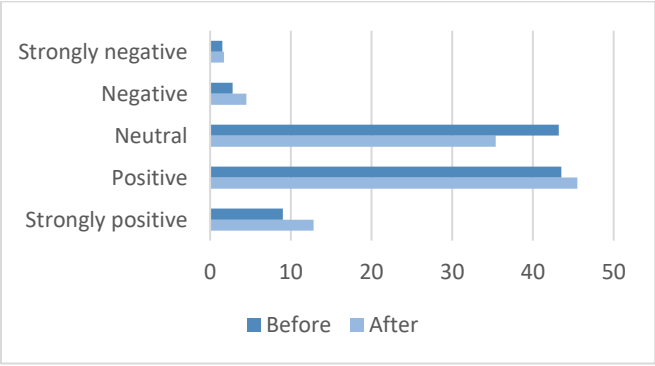


Table 19: End user overview change attitude

Change	Frequency	Percentage
-2	3	0.35%
-1	44	5.15%
0	702	82.11%
1	96	11.23%
2	10	1.17%

Looking at the graph above, it can be found that a majority of the respondents was either *neutral, positive* or *strongly positive.* However, it can also be found that less respondents considered a neutral attitude. This possibly can indicate that the farmers' strikes created more awareness about the topic. Still, 82% of the respondents answered that their attitude was not affected. However, this time 12.4% shifted towards a more positive attitude. These respondents were predominantly in strong agreement with the topic of animal welfare and health. 47 people, accountable for 5.45%, mentioned a negative change. People who indicated a negative change, were remarkably negative towards the topic of Greenhouse Gasses.

4.3.4.2 Dairy farmers

Graph 6: Dairy farmers overview attitude effect strikes in % N=134

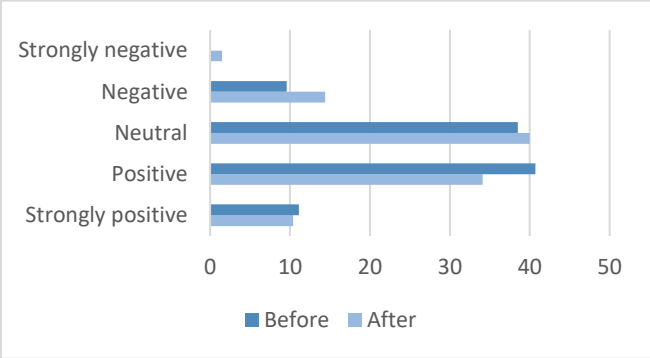
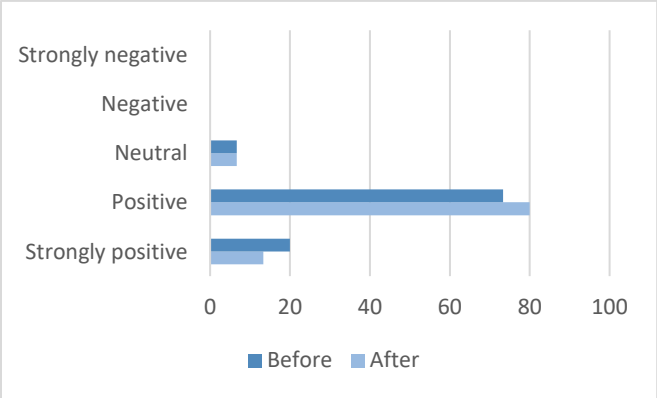


Table 20: Dairy farmers overview change attitude

Change	Frequency	Percentage
-2	5	3.73%
-1	11	8.21%
0	116	86.57%
1	2	1.49%
2	0	0%

While the farmers showed similar levels of *neutral* attitude, there was a more pronounced change in the *negative* category. This can also be found in the supporting table to the right, that presents that 11.94% actually shifted towards a more negative attitude. Maybe even more noteworthy is the very limited increase of attitude by 1.49% of the farmers. Still 86% stated not to be affected by the strikes. These results are in line with the attitude change based on the legal aspect, for which no significant changes between these two aspects were found.

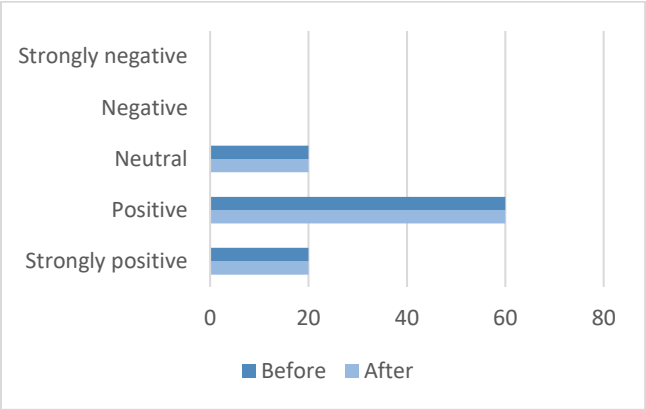
4.3.4.3 Business customers



Graph 7: Business customer overview attitude effect strikes in % N=11

The change of the third stakeholder group seem to be limited. However, if this graph is compared to the one presented in 4.3.2.3, it can be found that the results on the *before* statement, were already more neutral to begin with. The respondents answered differently about their starting position, which might indicate a less conscious effect. The majority now stated to be positive. Moreover, one respondent shifted from *strongly positive* towards *positive.*

4.3.4.4 Government



Graph 8: Government overview attitude effect strikes in % N=15

The results from this stakeholder group indicates a similar situation as the one of the business customers. The initial attitude was now answered to be more positive. More respondents answered a *neutral* attitude, while the *strongly positive* category decreased. Regarding the before and after situation, no changes were found indicating an effect on the attitude. The more positive starting attitude can be explained by the context and questioning in the survey. While the government was more neutral towards sustainable dairy regarding regulation, they hold more positive attitudes when the dairy farmers are included in the questioning.

4.3.5 Interview findings

During the interviews, the experts were asked about their opinion on this topic as well. This included whether they thought that the Nitrogen crisis affected the stakeholder attitude towards sustainable dairy.

R1 stated that there might have been a change among the farmers. The argument lays in the idea that farmers might question what sustainable dairy is actually about. Despite numerous investments, they are still burdened with the occurring problems in this crisis. R4 supports this, stating that a certain tiredness is expected when it comes to this topic now. This discomfort was also acknowledged by R2, who added that the internal discussion in the protests group simultaneously illustrated the disagreement between farmers. R3 focusses more on the individual struggle of the farmers, in which they are starting to question themselves, and what they find important.

R4 and R1 did not expect much change on the attitude of the business customer. Which was supported by R3, but who did point out that the latter might became more aware of the scale of this crisis, and how many people are affected by it. Regarding the government, none of the experts could answer the question, stating to have no valid knowledge or experience with this group.

When it comes to the end users, the experts seemed to have a better image. First, it was expected by R1 that the end users do not link the Nitrogen crisis with sustainable dairy. R4 thought that this issue relates more to the citizens, instead of the consumers. R2 focussed on the confusion, as discussed in 2.4.3. Stating that the first two strikes received a lot of support, but decreased once it became unclear what the farmers were actually protesting for. R3 adds to this by stating that the end user might start to question the authenticity of dairy, and if all the accusations are true.

It can be stated that the experts expected a negative change in the attitude of dairy farmers, but also stressed that there is lots of internal discussion and uncertainty regarding the topic. This might also explain the high standard deviations in the attitudes researched in Chapter 4.2. Considering the end users, the experts did not expect a significant change. Due to confusion and lack of knowledge, it is

expected that there will be no relation between the Nitrogen Issue and attitude towards sustainable dairy. Moreover, there was little change expected among the business customer, although it possibly could provide a reality check of the scale of this supply chain.

4.3.6 Research limitations

The findings of this study need to be considered in the light of some limitations. Regarding the quantitative survey, it was discussed that the sample size of dairy farmers did not meet the desired amount in order to reliably generalise the results. The second limitation regards the possible oversimplification of reality, by translating sustainable dairy into three topics per aspect. Although the statements were chosen based on multiple sources, due to their pre-selection, they can be considered biased. Moreover, due to time constraints of the survey, it was chosen to only use three topics per sustainable dairy aspect. Therefore, some aspects could not be included, but it did improve the sample size. For the third limitation, it needs to be acknowledged that results provided from a Likert Scale might be influenced by social desirability, as in many surveys. Although this was aimed to be prevented by emphasized anonymous participation, this phenomenon should be considered. Lastly, the questions regarding the attitude *before* and *after* the Nitrogen Issue, is vulnerable for personal interpretation. There was no baseline measurement available, for which the change was explicitly asked in this manner. Despite that this question did allow the respondents to critically consider their attitude, the results of this question should solely be considered a possible indicator of attitude change.

When it comes to the interviews, the limitations mainly lay in time constraints and subjectivity. First, only five representatives were able to be interviewed. Although this was according to the initial planning, more insights could have provided a more diverse perspective on the issue. The second limitation regards the interpretation of the data, since qualitative interviews regard subjective research. In addition, is the data analysis subsequently effected by the researcher's knowledge and experience. In order to minimize subjective interpretation, were the interviews recorded, transcribed, and approved by the interviewees, before used.

5: Discussion

5.1 Stakeholder identification

Through the expert interviews, it was found that the four stakeholders *business customer, end user, government* and *dairy farmers* were perceived to provide a coherent stakeholder overview for the purpose of this research. Therefore, the analysis confirms the previously found stakeholder shortlist, based on both scientific (Sener, *et al,* 2016; Polvlita, 2010; Clifton & Amran, 2010; Freeman, *et* al, 2007; Streure, *et al,* 2005; Mauser, 2001) as grey literature (FrieslandCampina, 2019; Arla, 2019). However, this study regards a unique situation in which the dairy farmer is considered both key supplier, as member of the cooperative. Whereas this situation provided even more reason to include this stakeholder, their stakeholder position in this industry was expected to be more complex.

In order to determine this position in Mitchell's Typology (1997), the experts were questioned whether they considered the individual stakeholders to hold the attributes *power, legitimacy,* and *urgency.* Although there was no literature found on this identification in the Dutch dairy industry, the retrieved data through expert interviews suggested the following typology:

- Business customer: dangerous stakeholder (power + urgency).
- End user: dependent stakeholder (urgency + legitimacy).
- Government: definitive stakeholder (power + urgency + legitimacy).
- Dairy farmer: dominant stakeholder (power + legitimacy).

While there is no previous theory to build upon, these findings did not come unexpected. Especially based on subsequent research on attitudes, the power attribute of business customers was perceived very strongly. Moreover, it was found that the end users do not hold power yet, but that this potential was increasing due to social media. The found data contributes to a clearer understanding of the role of the Dutch dairy farmer. It was found that due to their membership of the cooperatives, the attribute *power* was also appointed next to the more obvious *legitimacy*.

5.2 Stakeholder attitude

Sustainable dairy was conceptualised into four aspects: animal health and welfare (AHW), food safety and quality (FSQ), protection of environment and biodiversity (PEB), and greenhouse gasses (GHG). Through the quantitative survey, the attitude of the four stakeholders regarding this topic was analysed. The retrieved data suggests that business customers are predominantly positive towards these aspects, in particular FSQ. However, it was also very notable that this stakeholder group was the least willing to financially contribute to the realisation of these aspects. This is however in line with existing literature on this stakeholder, claiming that their attitude is often related to costs.

The end user was expected to hold a positive attitude towards more sentimental aspects such as animal health and welfare. This prediction was confirmed by the survey results, in which they scored highest on this category. They were more neutral on GHG and PEB topics, but still considerably positive. Regarding the financial contribution, this group was either neutral or positive, but not very outspoken. It was evident that although scale means were high, the willingness to pay always was always lower. This is also a much-discussed phenomenon when it regards the *attitude-behaviour gap,* for which this result matched the expectations.

It was expected that the government was supportive of the operationalized concepts of sustainable dairy. Especially their predominant positive attitude regarding GHG and PEB did not come surprisingly, considering the governmental political goals that need to be met. Particularly their willingness to offer more subsidies on the GHG scale was very clear. Holding these findings alongside the found literature, it fitted the vision that the government is shifting towards a more facilitating attitude.

Although expert interviews referred to possible tiredness of dairy farmers about these topics, it still was quite unexpected that this stakeholder group scored negatively on PEB and GHG. Literature hinted towards positive attitudes towards "cow-related" issues, which was confirmed by their positive attitude on AHW. Nevertheless, the outcome on the specific topic of grazing was surprisingly negative. This might have been the result of the public discussion regarding this topic, but also the literature findings that state that farmers' attitude is still hindered by perceptions of large investments.

5.3 Nitrogen Issue knowledge and effect

This research is conducted in the context of the Nitrogen Issue in Dutch agriculture. Especially since literature considers mass protests to change public opinion, it was expected that the farmers protest would somehow have influence the stakeholders' attitude towards sustainable dairy. To begin with, the data gathered from the survey illustrated that the majority of all four stakeholders were aware of the Nitrogen Issue. The legal, environmental, and social aspects were all predominantly understood.

However, the gathered data implied that the attitude of both government and business customers was not significantly affected. This was surprising, considering the fact that the governmental respondents were very opinionated about the strikes: not one respondent supported them. Based on the case study by Selvanathan (2018), people who felt threatened often showed oppositional attitudes towards the issue after the event occurred. Considering that the Nitrogen Crisis is still up to debate, the timing of the survey might have been too soon. Moreover, another interesting finding regards the fact that both these stakeholders held a more positive *before* attitude when they were asked about the strikes. So, while the government was more neutral towards sustainable dairy regarding regulation, they hold more positive attitudes when the dairy farmers are included in the questioning. This finding cannot be supported by other analysed data, for which it can be an interesting addition in future research.

Around ten percent of the end users responded that their attitude towards sustainable dairy changed for the better. On the contrary, around 13 percent of the dairy farmers stated to have negatively changed. This was predicted considering the protests and perceived emotion of this group. However, the amount is therefore less than was expected. Although this study cannot clarify this, based on retrieved reactions on the survey through the comment section, one of the plausible explanations regards the vision that farmers are convinced that they are already operating according to sustainable standards. Therefore, their emotion and attitude is possibly aimed more towards regulation in general.

6: Conclusion and recommendations

This final chapter aims to answer the main research question:

How is the Dutch Nitrogen issue affecting the stakeholder attitude towards sustainable dairy?

6.1 Conclusion

Based on the previous discussed sub questions in this chapter, it was firstly researched who the stakeholders are, and how they are positioned in the Typology. After this, their attitude towards sustainable dairy was analysed. Table 21 was created to provide a supporting overview of these topics.

Table 21: supporting overview conclusion

Stakeholder	**Typology**	**Attitude**
End user	Dependent stakeholder	Positive, but high standard deviation
Dairy farmer	Dominant stakeholder	Depending on aspect, both positive and negative
Business customer	Dangerous stakeholder	Positive
Government	Definitive stakeholder	Positive, but least willing to pay

End user: the end user was positioned to be a dependent stakeholder of the dairy industry, for which it holds both attributes legitimacy and urgency. Their attitude towards sustainable dairy was overall considered positive, especially when it regarded sentimental issues as animal health and welfare. However, the high standard deviation might refer to differences between this group. Moreover, the willingness to pay was also noticeable in this stakeholder group. Due to the potential *attitude-behaviour gap* this attitude might not directly result in sustainable purchasing behaviour. However, if they do act more according to their attitudes, they can have significant influence on the dairy industry. This might be considered conflicting, considering that as dependent stakeholder, this group does not hold this power yet. Nevertheless, once a subgroup of people unite through emerging social media channels, they can quickly promote to definitive stakeholder.

Dairy farmer: as member of the dairy cooperatives, the dairy farmers hold an uniquely ensured and legal power. Due to their legitimate and sincere interest in the sector, this stakeholder is also considered the motor of the dairy industry. However, the stakeholder showed very differing attitudes to the four aspects of sustainable dairy, which were mostly negative regarding biodiversity and Greenhouse Gasses. As dominant stakeholder, this attitude can translate into unexpected situations. When these situations are supported by public opinion, considering their legitimacy, and is combined with their power, they can have large and unexpected influence on the industry.

Business customer: the third stakeholder was categorised as dangerous, with a very dominant level of power. This dominancy is also illustrated in their attitude towards sustainable dairy, for which they are initially positive towards sustainable dairy, but are the least willing to pay the additional price. Their main interest lays in the food safety and quality aspect, which is also of great concern for their own organisation. The positive attitude is a hopeful indicator for sustainable development in the dairy industry. However, due to their power and “hands-off” mentality, they can also undermine successful implementation of sustainable initiatives.

Government: this regulating stakeholder holds a positive attitude towards sustainable dairy, and is especially willing to financially contribute on the aspects of Greenhouse Gasses and Biodiversity. Due to their own national and European targets, this stakeholder is determined in the agricultural policy making. Their positive attitude, in combination with definitive stakeholder position, will provide a hopeful basis for future sustainable development.

Moreover, this research aimed to study the possible influence of the Nitrogen Issue on the stakeholders' attitudes. It was found that despite clear knowledge of the topic, both governmental and business customer did not acknowledge any change in attitude towards sustainable dairy. However, a difference in formulation indicated that these stakeholder groups were more positive when the dairy farmers were included in the context. Considering the end users, it was found that a minority claimed to have become more positive towards sustainable dairy. A comparable number of dairy farmers said that their attitude has negatively changed. In conclusion, there were no significant changes found that could reliably indicate that the Nitrogen Issue affected the stakeholders' attitude towards sustainable dairy. However, research shows that this effect can also occur after the event happened. Considering that the Dutch Nitrogen Issue will be up to debate for the coming years, it will remain a very interesting topic of research.

6.1.1 Research implications

The results of this research have implications for both practitioners and science. Firstly, this research contributes to the understanding of the complex stakeholder field in the Dutch dairy industry. By identifying and positioning them into one model, a better understanding of the different relations between the players of this field is supported. Moreover, this is one of the first studies that researched the dairy industry in the context of the Nitrogen Issue, which enables other researchers to compare future findings. While there was no significant influence found, the measurements of the attitudes can

This research is mostly useful for practitioners and policy makers. The Nitrogen Issue caused uncertainty in the Dutch dairy industry, for which this research might provide preliminary answers to their concerns. Moreover, sustainability is increasingly high on corporate agendas. By providing insights on attitudes of four different stakeholders, based on quantitative surveys and expert interviews, these results can influence policies. In combination with the found stakeholder positions, especially communication policies can benefit from these insights.

6.2 Recommendations

This final section will present recommendations for both practitioners as future research.

For practitioners in the dairy industry

- Closely monitor the end users on increasing power, and ensure to meet the expectations regarding their positive, but differing, attitude.
- Provide the dairy farmers with extensive top management attention, to prevent unexpected situations such as the protests. Do not underestimate their power as cooperative member.
- Pay close attention to the business customers' demands, but also feel obliged and enabled to consider whether the demand is legitimate.
- be highly aware of agricultural policy developments, preferably even be involved in the policy making.

For future research

Firstly, it should be considered that the Nitrogen crisis is a very recent event; it started in the fall of 2019 and still continues. While there was no significant influence found of this event on stakeholders' attitude, literature showed that this can possibly occur on a later moment of time. Therefore, future research on the developed stakeholder attitude is needed. Moreover, research in general on the social effect of the Nitrogen Crisis will add to the context of this research.

Secondly, additional research on the relation between the found attitude and stakeholder typology is desired. Especially in the communication science, it is valuable to know how these dairy industry stakeholders should be approached or managed, based on their typology and attitude.

Thirdly, this study was not able to gather a representative sample size in the dairy farmer stakeholder group. Therefore, additional research including a larger number of dairy farmers, will add to the findings presented in this thesis.

Lastly, due to time constraints of this research, only four stakeholders could be researched. During the interviews, other groups such as employees and media were also mentioned but could not be included. On top of that was it chosen not to include the discussed NGO influence on the stakeholder groups. Therefore, to better understand the implications of the found results, this influence needs to be addressed per stakeholder, as well as the additional stakeholder groups' attitude.

References

1. ACCC (2018). Australian Competition & Consumer Commission. Dairy Inquiry – final report.
2. AD (2019). *Dit zijn de maatregelen van het kabinet tegen de stikstofcrisis*. AD.nl. Retrieved at July 28 2020, from https://www.ad.nl/politiek/dit-zijn-de-maatregelen-van-het-kabinet-tegen-de-stikstofcrisis~a8e87de9/
3. Ahaus, B., Heidbrink, L., Schmidt, I. (2011). Der Verantwortliche Konsument – Wie Verbraucher Mehr Verantwortung für ihren Alltagskonsum Übernehmen Können. Working Papers des CRR No. 10.
4. Arla (2019). Corporate responsibility report 2019. Retrieved 17 May 2020, from https://www.arla.com/company/responsibility/csr-reports/
5. Bahadorestani, A., Naderpajouh, N., & Sadiq, R. (2020). Planning for sustainable stakeholder engagement based on the assessment of conflicting interests in projects. *Journal of Cleaner Production*, *242*, 118402. https://doi.org/10.1016/j.jclepro.2019.118402
6. Balderjahn, I., Peyer, M. (2012a). Das Bewusstsein für Fairen Konsum: Konzeptualisierung, Messung und Wirkung. DBW. Die Betriebswirtschaft, 04, pp 343 - 364.
7. Biasutti, M., & Frate, S. (2017). A validity and reliability study of the Attitudes toward Sustainable Development scale. *Environmental Education Research*, *23*(2), 214–230. https://doi.org/10.1080/13504622.2016.1146660
8. Bijman, J., Pronk, B., de Graaff, R., (2003). Wie voedt Nederland? Consumenten en aanbieders van voedingsmiddelen 2003. *LEI,* Den Haag.
9. Boogaard, B. K., Oosting, S. J., & Bock, B. B. (2008). Defining sustainability as a socio-cultural concept: Citizen panels visiting dairy farms in the Netherlands. *Livestock Science*, *117*(1), 24–33. https://doi.org/10.1016/j.livsci.2007.11.004
10. Bourne, L., (2015). Series on Effective Stakeholder Engagement; Asses Your Stakeholders' Attitudes. Series Article. PM World Journal, Vol. IV, Issue VII.
11. Brammer, S., & Millington, A. (2003). The Effect of Stakeholder Preferences, Organizational Structure and Industry Type on Corporate Community Involvement. 14.
12. Brundtland, G. (1987). Report of the World Commission on Environment and Development: Our Common Future. United Nations General Assembly document A/42/427.
13. Cambridge (2020). *DAIRY | meaning in the Cambridge English Dictionary*. (n.d.). Retrieved 3 April 2020, from https://dictionary.cambridge.org/dictionary/english/dairy
14. Camie R. Heleski, Angela G. Mertig & Adroaldo J. Zanella (2006) Stakeholder attitudes toward farm animal welfare, Anthrozoös, 19:4, 290-307, DOI: 10.2752/089279306785415439
15. Cargill (2018). The shifting global dairy market: ushering in a new era of dairy products. Proprietary Research. Retrieved from: www.cargill.com
16. CBS (2020). *StatLine—Bevolking; geslacht, leeftijd en burgerlijke staat, 1 januari*. Retrieved April 26 2020, from https://opendata.cbs.nl/statline/#/CBS/nl/dataset/7461BEV/table?fromstatweb
17. Chan, R. Y. K. (2001), ''Determinants of Chinese Consumers' Green Purchase Behavior,'' Psychology and Marketing 18(4), pp. 389–413.
18. Clifton, D., & Amran, A. (2011). The Stakeholder Approach: A Sustainability Perspective. *Journal of Business Ethics*, *98*(1), 121–136. https://doi.org/10.1007/s10551-010-0538-6
19. Colvin, R. M., Witt, G. B., & Lacey, J. (2016). Approaches to identifying stakeholders in environmental management: Insights from practitioners to go beyond the 'usual suspects'. *Land Use Policy*, *52*, 266–276. https://doi.org/10.1016/j.landusepol.2015.12.032
20. Cordano, M., Frieze, I. H., Ellis, K. M, (2004). Entangled Affiliations and Attitudes: An Analysis of the Influences on Environmental Policy Stakeholders' Behavioral Intentions. Journal of Business Ethics. Kluwer Academic Publishers. 49: 27–40, 2004

21. Cross, R. M. (2005). Exploring attitudes: The case for Q methodology. *Health Education Research*, *20*(2), 206–213. https://doi.org/10.1093/her/cyg121
22. Dairy Sustainability Framework (2017). *DSF Indicator Report 101017*. Retrieved 26 March 2020, from:https://dairysustainabilityframework.org/wpcontent/uploads/2017/10/DSF_Indicator_Report_101017.pdf
23. Dairy Sustainability Framework (2019). Global Criteria. Retrieved 26 March 2020, from https://dairysustainabilityframework.org/dsf-membership/global-criteria/
24. De Nederlandse Zuivel Organisatie, (NZO), (2020). Facts & Figures . Retrieved 5 March 2020, from https://www.nzo.nl/en/facts-figures/
25. Duurzame Zuivelketen (2020). *Vision objectives and approach.* Retrieved 26 March 2020, from https://www.duurzamezuivelketen.nl/resources/uploads/2017/12/vision-objectives-and-approach.pdf
26. Elgersma, A. (2012). New developments in The Netherlands: Dairies reward grazing because of public perception. In: Grassland - a European resource? 17.
27. Ellen, P. S., Webb, D. J., & Mohr, L. A. (2006). Building corporate associations: Consumer attributions for corporate socially responsible programs. Journal of the Academy of Marketing Science, 34(2), 147–157
28. Feinberg, M., Willer, R., & Kovacheff, C. (2020). The activist's dilemma: Extreme protest actions reduce popular support for social movements. *Journal of Personality and Social Psychology.* Advance online publication. https://doi.org/10.1037/pspi0000230
29. Fernández Gago, R., & Nieto Antolín, M. (2004). Stakeholder salience in corporate environmental strategy. *Corporate Governance: The International Journal of Business in Society*, *4*(3), 65–76. https://doi.org/10.1108/14720700410547512
30. Fischer, A., Wentholt, M., Rowe, G., Frewer, J (2014). *Expert involvement in policy development: A systematic review of current practice | Science and Public Policy | Oxford Academic*. Retrieved 24 March 2020, from https://academic.oup.com/spp/article/41/3/332/1632782
31. Food and Agriculture Organization of the United Nations (FAO) (2012). World agriculture towards 2030/2050: the 2012 revision, p. 1. ESA Working paper No. 12-03. Rome.
32. Freeman, R. E. (1984) *Strategic Management: A Stakeholder Approach*, p46, Boston, MA: Pitman, latest edition.
33. Friborg, O., Martinussen, M., & Rosenvinge, J. H. (2006). Likert-based vs. semantic differential-based scorings of positive psychological constructs: A psychometric comparison of two versions of a scale measuring resilience. *Personality and Individual Differences*, *40*(5), 873–884. https://doi.org/10.1016/j.paid.2005.08.015
34. Friesland Campina (2019) *Financial and sustainability reports* | Retrieved 26 May 2020, from https://www.frieslandcampina.com/about-frieslandcampina/financials/financial-and-sustainability-reports/
35. Glavas, A., & Fitzgerald, E. (2020). The process of voluntary radical change for corporate social responsibility: The case of the dairy industry. *Journal of Business Research*, *110*, 184–201. https://doi.org/10.1016/j.jbusres.2020.01.021
36. Glover, J. L., Champion, D., Daniels, K. J., & Dainty, A. J. D. (2014). An Institutional Theory perspective on sustainable practices across the dairy supply chain. *International Journal of Production Economics*, *152*, 102–111. https://doi.org/10.1016/j.ijpe.2013.12.027
37. Greenindex (2012). Consumer Choice and the Environment – A Worldwide Tracking Survey http://images.nationalgeographic.com/wpf/mediacontent/file/GS_NGS_2012GreendexHighlights_10July-cb1341934186.pdf

38. Grunert, K. G., Bech-Larsen, T., & Bredahl, L. (2000). Three issues in consumer quality perception and acceptance of dairy products. *International Dairy Journal*, *10*(8), 575–584. https://doi.org/10.1016/S0958-6946(00)00085-6
39. Hall, C., & Wreford, A. (2011). Adaptation to climate change: The attitudes of stakeholders in the livestock industry. *Mitigation and Adaptation Strategies for Global Change*, *17*(2), 207–222. https://doi.org/10.1007/s11027-011-9321-y
40. Heleski, C. R., Mertig, A. G., & Zanella, A. J. (2006). Stakeholder attitudes toward farm animal welfare. *Anthrozoös*, *19*(4), 290–307. https://doi.org/10.2752/089279306785415439
41. Hughner, R. S., McDonagh, P., Prothero, A., Shultz, C. J., & Stanton, J. (2007). Who are organic food consumers? A compilation and review of why people purchase organic food. Journal of consumer behaviour, 6(2-3), 94-110
42. Ingenbleek, P. T. M., Dentoni, D., (2016). Learning from Stakeholders Pressure and Embeddedness: The Roles of Absorptive Capacity in the Corporate Social Responsibility of Dutch Agribusinesses. Sustainability, 8 (10).
43. Institute for Prospective Technological Studies, of the European Commission (ITPS), (2016). Economic Impact of the Abolition of the Milk Quota Regime. Regional Analysis of the Milk Production in the EU. Retrieved 22 March 2020, from https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/evaluation-policy-measures
44. Jensen, H. H., Kesavan, T., (1993). Sources of Information, Consumer Attitudes on Nutrition, and Consumption of Dairy Products. *The Journal of Consumer Affairs*, *27*(2), 357–376. JSTOR.
45. Johnsson, F., Reiner, D., Itaoka, K., & Herzog, H. (2009). Stakeholder attitudes on carbon capture and storage—An international comparison. *Energy Procedia*, *1*(1), 4819–4826. https://doi.org/10.1016/j.egypro.2009.02.309
46. Joosse (2019). Towards sustainable agriculture in Noord-Brabant. Exploring the view of young dairy farmers on the transition. Radboud University, Nijmegen.
47. Kien (2020). Draagvlakmeting demonstraties boeren. Kien Onderzoek.
48. Klerkx, L., & Nettle, R. (2013). Achievements and challenges of innovation co-production support initiatives in the Australian and Dutch dairy sectors: A comparative study. *Food Policy*, *40*, 74–89. https://doi.org/10.1016/j.foodpol.2013.02.004
49. Klootwijk, C. W., Van Middelaar, C. E., Berentsen, P. B. M., & de Boer, I. J. M. (2016). Dutch dairy farms after milk quota abolition: Economic and environmental consequences of a new manure policy. *Journal of Dairy Science*, *99*(10), 8384–8396. https://doi.org/10.3168/jds.2015-10781
50. Kokott, J., (2018). Opinion joined cases C-293/17 and C-249/17. Retrieved 16 April 2020, from http://curia.europa.eu/juris/document/document.jsf?text=&docid=204409&pageIndex=0&doclang=EN&mode=req&dir=&occ=first&part=1&cid=5668209
51. Kolkailah, S.K., Aish, E.A., & Bassiouny, N. (2012). The impact of corporate social responsibility initiatives on consumers' behavioural intentions. International Journal of Consumer Studies, 2, 19-35
52. Lauwere, C. C. D., Beldman, A. C. G., Reijs, J. W., Doornewaard, G. J., Ham, A. V. D., Hoes, A. C., & Philipsen, A. P. (2015). Towards a sustainable dairy chain in the Netherlands—The opinion of dairy farmers and their advisors. *Know Your Food*, 114–119. https://doi.org/10.3920/978-90-8686-813-1_16
53. Lauwere, C. C., Beldman, A., Reijs, J., Doornewaard, G. J., Ham, A., Hoes, A. C., & Philipsen, A. P. (2015). Towards a sustainable dairy chain in the Netherlands—The opinion of dairy farmers and their advisors. In *Know Your Food* (pp. 114–120). https://doi.org/10.3920/978-90-8686-813-1_16
54. Lauwere, C., Hoes, A. C., Beldman, A., Reijs, J., Doornewaard, G., Philipsen, B., (2014). Melkveehouders over verduurzaming in de zuivelketen. LEI. Wageningen University and Research.

55. Lehman, H., Clark, E. A., & Weise, S. F. (1993). Clarifying the definition ofSustainable agriculture. *Journal of Agricultural and Environmental Ethics*, *6*(2), 127–143. https://doi.org/10.1007/BF01965480
56. Leiserowitz, A. A., Kates, R. W., & Parris, T. M. (2006). Sustainability Values, Attitudes, and Behaviors: A Review of Multinational and Global Trends. *Annual Review of Environment and Resources*, *31*(1), 413–444. https://doi.org/10.1146/annurev.energy.31.102505.133552
57. Lyon, C., (2020). *Five pillars for stakeholder analyses in sustainability transformations_ The global case of phosphorus | Elsevier Enhanced Reader*. https://doi.org/10.1016/j.envsci.2020.02.019
58. Mauser, A. M., (2001). The greening of business. Environmental management and performance evaluation: an empirical study of the Dutch dairy industry. Delft: Eburon.
59. Mccarthy, J., McPhail, C., (2006). Places of protest: The public forum in principle and practice. Mobilization: An International Quarterly (2006) 11 (2): 229–247
60. Miller, G. D., & Auestad, N. (2013). Towards a sustainable dairy sector: Leadership in sustainable nutrition. *International Journal of Dairy Technology*, *66*(3), 307–316. https://doi.org/10.1111/1471-0307.12067
61. Mitchell, R. K., Agle, R., B., Wood, D., J., (1997). Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts. The Academy of Management Review vol 22 (4).
62. Mohr, L. A., Webb, D. J., & Harris, K. E. (2001). Do consumers expect companies to be socially responsible? The impact of corporate social responsibility on buying behavior. Journal of Consumer Affairs, 35(1), 45–72.
63. Neal, J., (2017). Dairy Inquiry – submissions – Misuse of market power in the Australian Dairy industry.
64. Nguyenthi, Q., Young, T., Johnson, P., & Wearing, S. (2019). Conceptualising networks in sustainable tourism development. *Tourism Management Perspectives*, *32*. https://doi.org/10.1016/j.tmp.2019.100575Get
65. NOS (2019a). *Stikstofplannen bekend, Rutte noemt snelheidsverlaging 'als VVD'er verschrikkelijk'*. Retrieved July 28 2020, from https://nos.nl/l/2310241
66. NOS (2019b). *Weer protestacties door boeren, waarom gingen ze nu de straat op?* Retrieved at 28 July 2020, from https://nos.nl/artikel/2315333-weer-protestacties-door-boeren-waarom-gingen-ze-nu-de-straat-op.htmlDe Volkskrant (2019). *Dit boerenprotest is chaotisch en ongericht: het is ieder voor zich.* Retrieved at july 29 2020, from https://www.volkskrant.nl/nieuws-achtergrond/dit-boerenprotest-is-chaotisch-en-ongericht-het-is-ieder-voor-zich~b3f59104/
67. NOS (2020). Farmers Defence Force maakt toch excuses 'voor verkeerde woorden'. Retrieved at July 21 2020, at https://nos.nl/collectie/13799/artikel/2321775-farmers-defence-force-maakt-toch-excuses-voor-verkeerde-woorden
68. NZO (2018). De kracht van Zuivel. Retrieved 27 July 2020, from https://www.nzo.nl/media/uploads/2018/12/NZO-De-kracht-van-zuivel.pdf
69. Palovita, A., & Luoma-aho, V. (2010). Recognizing definitive stakeholders in corporate environmental management. *Management Research Review*, *33*, 306–316. https://doi.org/10.1108/01409171011030435
70. Parviainen, T., Lehikoinen, A., Kuikka, S., & Haapasaari, P. (2018). How can stakeholders promote environmental and social responsibility in the shipping industry? *WMU Journal of Maritime Affairs*, *17*(1), 49–70. https://doi.org/10.1007/s13437-017-0134-z
71. PBL (2010). Netherlands Environmental Assessment Agency (PBL) Roles of Governments in Multi-Actor Sustainable Supply Chain Governance Systems and the effectiveness of their interventions. The Hague.

72. Peet, G. Van Der, Leenstra, F., Vermeij, I., Bondt, N., & Puister, L. (2018). Feiten en cijfers over de Nederlandse veehouderijsectoren 2018.
73. Pieper, L., Doherr, M. G., & Heuwieser, W. (2016). Consumers' attitudes about milk quality and fertilization methods in dairy cows in Germany. *Journal of Dairy Science*, *99*(4), 3162–3170. https://doi.org/10.3168/jds.2015-10169
74. Ploeg, J. D. van der. (2020). Farmers' upheaval, climate crisis and populism. *The Journal of Peasant Studies*, *0*(0), 1–17. https://doi.org/10.1080/03066150.2020.1725490
75. Proctor, M. (2001) Measuring attitudes. In Gilbert, N. (ed.), Researching Social Life, 2nd edn. Sage, London, pp. 105–122
76. Raad van State, (2020). *Programma Aanpak Stikstof* [Overzichtspagina]. Raad van State. Retrieved 3 March 2020, from https://www.raadvanstate.nl/programma-aanpak/
77. RaboResearch (2020). *Global Dairy Top 20 2019*. Retrieved 25 March 2020, from https://research.rabobank.com/far/en/sectors/dairy/Dairy_top_20_2019.html
78. Rahim, R., Waheeda, J., & Tajuddin, K. (2011). The importance of corporate social responsibility on consumer behaviour in Malaysia. Asian Academy of Management Journal, 16(1), 119–139
79. Rigby, D., & Cáceres, D. (2001). Organic farming and the sustainability of agricultural systems. *Agricultural Systems*, *68*(1), 21–40. https://doi.org/10.1016/S0308-521X(00)00060-3
80. Rijksoverheid (2019). *Maatregelen om stikstofprobleem op te lossen—Aanpak stikstof—Rijksoverheid.nl*. Ministerie van Algemene Zaken. Retrieved at July 28 2020, from https://www.rijksoverheid.nl/onderwerpen/aanpak-stikstof/maatregelen-om-stikstofprobleem-op-te-lossen
81. Rijksoverheid (2020). Ministerie van Landbouw, Natuur en Voedselkwaliteit: Beantwoorden vragen inzake (principe)stikstofakkoord van het kabinet met dertien land- en tuinbouworganisaties. Rijksoverheid.
82. Rossing, W. A. H., Zander, P., Josien, W., Groot, J. C. J., Meyer, B. C., Knierim, A., (1997). Integrative modelling approches for analysis of impact of multifunctional agriculture: a review for France, Germany and The Netherlands. Agriculture Ecosystems and Environment 120: 41-57.
83. RTLNieuws (2020). Farmers Defence Force biedt toch excuses aan voor dreigende teksten. Retrieved at July 21 2020, from https://www.rtlnieuws.nl/nieuws/politiek/artikel/5011751/farmers-defence-force-biedt-toch-excuses-voor-dreigende-teksten
84. Schaarsberg, L. (2016). Een analyse van de zuivelketen en de keus voor boter. University of Twente, Enschede.
85. Schöberl, S. (2012). Verbraucherverhalten bei Bio-Lebensmitteln: Analyse des Zusammenhangs zwischen Einstellungen, Moralischen Normen, Verhaltensabsichten und tatsächlichem Kaufverhalten. Doctoral disseration, Technische Universität München, 1-247.
86. Scholl, G., Rubik, F., Kalimo, H., Biedenkopf, K., Söebech O. (2010). Policies to promote sustainable consumption: Innovative approaches in Europe. Natural Resources Forum 34: 39–50
87. Selvanathan, H. P., & Lickel, B. (2019). Empowerment and threat in response to mass protest shape public support for a social movement and social change: A panel study in the context of the Bersih movement in Malaysia. *European Journal of Social Psychology*, *49*(2), 230–243. https://doi.org/10.1002/ejsp.2502
88. Şener, İ., Varoğlu, A., & Karapolatgil, A. A. (2016). *Sustainability Reports Disclosures: Who are the Most Salient Stakeholders?* http://earsiv.cankaya.edu.tr:8080/xmlui/handle/20.500.12416/3137
89. Shams, S. M. R., Vrontis, D., Weber, Y., Tsoukatos, E., & Galati, A. (2019). *Stakeholder Engagement and Sustainability*. Routledge.

90. Sinclair, M., Zito, S., & Phillips, C. (2017). The Impact of Stakeholders' Roles within the Livestock Industry on Their Attitudes to Livestock Welfare in Southeast and East Asia. *Animals*, *7*, 6. https://doi.org/10.3390/ani7020006
91. Smith, Brian G., Rita Linjuan Men, and Reham Al-Sinan. 2015. 'Tweeting Taksim Communication Power and Social Media Advocacy in the Taksim Square Protests.' Computers in Human Behavior 50: 499–507.
92. Soule, S. A., Olzak, S., (2004). When Do Movements Matter? The Politics of Contingency and the Equal Rights Amendment. American Sociological Review 69: 473-497.
93. *StatLine—Agriculture; crops, livestock and land use by general farm type, region*. (n.d.). Retrieved 28 July 2020, from https://opendata.cbs.nl/#/CBS/en/dataset/80783eng/table?defaultview&dl=2E109
94. Steurer, R., Langer, M. E., Konrad, A., & Martinuzzi, A. (2005). Corporations, Stakeholders and Sustainable Development I: A Theoretical Exploration of Business–Society Relations. *Journal of Business Ethics*, *61*(3), 263–281. https://doi.org/10.1007/s10551-005-7054-0
95. Stokstad, E. (2019). Nitrogen crisis threatens Dutch environment—And economy. *Science*, *366*(6470), 1180–1181. https://doi.org/10.1126/science.366.6470.1180
96. Stokstad, E. (2019). Nitrogen crisis threatens Dutch environment—And economy. *Science*, *366*(6470), 1180–1181. https://doi.org/10.1126/science.366.6470.1180
97. Tanner, C. and S. W. Kast (2003), ''Promoting Sustainable Consumption: Determinants of Green Purchases by Swiss Consumers,'' Psychology and Marketing 20(10), pp. 883–902
98. Terlau, W., Hirsch, D., (2015). Sustainable Consumption and the Attitude-Behaviour-Gap Phenomenon - Causes and Measurements towards a Sustainable Development. International Centre for Sustainable Development – IZNE -, Bonn-Rhein-Sieg University of Applied Sciences, Germany.
99. The Nielsen Company (2019) *Marketing: Dit zijn de marktaandelen van de Nederlandse supermarktketens*. Retrieved 4 May 2020, from http://fonkonline.nl/artikelen/marketing/dit-zijn-de-marktaandelen-van-de-nederlandse-supermarktketens-48286.html
100. University of Twente (2020). *Manual statistics*: Cronbach Alpha. Retrieved 9 May 2020, from https://www.utwente.nl/en/bms/m-store/manuals/manuals-statistics/cronbach/
101. Van 't Erve, S., (2013). Minimizing the young consumers'attitude-behaviour gap in green purchasing. Master Thesis, University of Twente, Enschede.
102. Van Calker, K.J., (2005). Sustainability of Dutch dairy farming systems: A modelling approach. Wageningen University, Netherlands.
103. Van der Lee, J., Zijlstra, J., Wouters, B., Van Vugt, S., (2014). Milking to potential: Strategic framework for dairy sector development in emerging economies. Wageningen University and Research. AD (2020, February 6). *Kabinet is intimidatie en dreigementen Farmers Defence Force spuugzat*. AD.nl. Retrieved at July 21 2020 https://www.ad.nl/politiek/kabinet-is-intimidatie-en-dreigementen-farmers-defence-force-spuugzat~a92480ac/
104. Van der Ploeg, J. D. van der. (2020). Farmers' upheaval, climate crisis and populism. *The Journal of Peasant Studies*, *47*(3), 589–605. https://doi.org/10.1080/03066150.2020.1725490
105. Vanhonacker, F., Verbeke, W., Van Poucke, E., & Tuyttens, F. A. M. (2008). Do citizens and farmers interpret the concept of farm animal welfare differently? *Livestock Science*, *116*(1), 126–136. https://doi.org/10.1016/j.livsci.2007.09.017
106. Velten, S., Leventon, J., Jager, N., & Newig, J. (2015). What Is Sustainable Agriculture? A Systematic Review. *Sustainability*, *2015*, 7833–7865. https://doi.org/10.3390/su7067833
107. Ventura, A., Weary, D. M., Keyserlingk, M. G. A., (2014) *Animal Welfare Concerns and Values of Stakeholders Within the Dairy Industry*. ResearchGate. http://dx.doi.org/10.1007/s10806-014-9523-x

108. Vermeir, I., Verbeke, W., (2006). Sustainable Food Consumption; Exploring the Consumer "attitude – Behavioral intention" Gap. Journal of Agricultural and Environmental Ethics. 19:169–194.
109. Wageningen University and Research (2019). Agrimatie – Informatie over de agrosector. Zuivelprijzen van maart nog weinig verstoord. Retrieved 27 July 2020, from https://www.agrimatie.nl/ThemaResultaat.aspx?subpubID=2232&themaID=3596&indicatorID=2414&sectorID=2423
110. Wageningen University and Research (2019). Sustainable business operations linked to better economic results. Agrimatie – Sustainability.
111. Wagner, T., Bicen, P. & Hall, Z. (2008). The dark side of retailing: Towards a scale of corporate social irresponsibility. International Journal of Retail & Distribution Management, 36, 124–142
112. Woods, M. (2003). Deconstructing rural protest: The emergence of a new social movement. *Journal of Rural Studies*, *19*(3), 309–325. https://doi.org/10.1016/S0743-0167(03)00008-1
113. Young, A. (2004). The octagon model of volunteer motivations: Results of a phenomenological analysis. International Journal of Voluntary and Nonprofit Organizations, 15(1), 21-46.
114. Young, W., Hwang, K,. McDonald, S., Oates, C. (2010). Sustainable Consumption: Green Consumer Behaviour when Purch. Products. Sustainable Development 18, pp 20 - 31.
115. Zhang, L., Li, D., Cao, C., & Huang, S. (2018). The influence of greenwashing perception on green purchasing intentions: The mediating role of green word-of-mouth and moderating role of green concern. *Journal of Cleaner Production*, *187*, 740–750. https://doi.org/10.1016/j.jclepro.2018.03.201

Appendix A: survey

Information sheet

This research is conducted for the purpose of my Thesis for the Master Environment and Energy management. It aims to identify attitudes towards sustainable dairy products, and how the Nitrogen Issue might be affecting this. The survey will take a maximum of 10 minutes of your time, and is completely voluntary; you can quit at any moment. Participation is possible if you are 18 years or older, living in the Netherlands, and have bought a dairy product in the last month.

The research is in collaboration with Sustainable Brand Index (SBI) Nederland. SBI tries to identify the Dutch dairy industry and the relevant sustainable attitudes, in order to put sustainability on the agenda of companies and brands. Insights can help companies build a brand based on sustainability, and it simultaneously creates more interest in the topic among the consumers.

The research is approved by the University of Twente BMS Ethics Committee, for which much time is spend on the responsible, reliable and valid approach of this survey. The survey is completely voluntary and can be ended at any moment.

Your participation is completely anonymous, for which your honest opinion is of great value. The first questions will ask you about your age, level of education and province you live in. This data will be used to make sure that all the respondents together, will represent the Dutch end users as reliable as possible. The data derived from your answers, will be collected and stored on a GDPR certificated storage option. It will be handled with great responsibility and care. Your answers will be stored, as long as the research is in process. It is aimed to successfully finalize the Thesis in August 2020. Then, any identifiable data will be destroyed.

If you want to delete your data, want to revise it, or have any other questions, please contact me at: j.vandijk-7@student.utwente.nl I aim to answer your questions within 2 days.

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-bms@utwente.nl.

In order to continue to the survey, you can click the arrow in the bottom right. By doing so, you give permission that your answers may be used, and you confirm to have read and understood the text presented above.

Thanks in advance for your contribution!

Aggregated survey

Note: the survey presented below is a summarised end user version. Some very small vocabulary changes were made to adapt them for the farmers, government and business customer. Demographical questions regarding province and/or amount of employees or cows were left out.

The following statements could be answered with “strongly disagree” / “disagree” / “neutral” / “agree” / “strongly agree”.

1. **Animal welfare and health**

   I find it important that…

   a. …Cows can go grazing.
   b. …Animal harm is actively prevented.
   c. …Cows can show natural animal behaviour.

   In case of “agree” or “completely agree” on A, B, or C:

   d. I don’t care that in this case, dairy will become more expensive for me.

2. **Food safety and quality**

   I find it important that…

   a. …The dairy industry acts transparent regarding the production processes.
   b. …The milk quality is monitored and researched continuously.
   c. …Use of antibiotics on cows is performed with great care.

   In case of “agree” or “completely agree” on A, B, or C:

   d. I don’t care that in this case, dairy will become more expensive for me.

3. **Protection of environment and biodiversity.**

   I find it important that…

   a. …if soy is used as cattle feed, attention is given to the amount and ethical origin.
   b. …The dairy industry has a plan to preserve, restore and improve biodiversity.
   c. …The water use is measured throughout the dairy chain.

   In case of “agree” or “completely agree” on A, B, or C:

   d. I don’t care that in this case, dairy will become more expensive for me.

4. **Greenhouse Gasses.**

   I find it important that…

   a. …The dairy industry aims for GHG reduction.
   b. …The dairy industry only grows if this can be done climate-neutral.
   c. ...The dairy I buy is produced with renewable energy.

   In case of “agree” or “completely agree” on A, B, or C:

   d. I don’t care that in this case, dairy will become more expensive for me.

5. **Nitrogen crisis**

   I understand…

   a. …what the Nitrogen crisis entails, regarding the environmental aspect, such as the nitrogen deposition on Natura 2000 areas;
   b. …that the Nitrogen crisis is a result of the ruling from the Dutch Council of state;
   c. …that due to the Nitrogen crisis, thousands of construction and infrastructure projects came to a sudden halt.

In case of "agree" or "completely agree" on A, B, or C: Answered with "strongly negative" / "negative" / "neutral" / "positive" / "strongly positive":

- Before the Nitrogen crisis, was my attitude towards sustainable dairy…
- After the Nitrogen crisis, is my attitude towards sustainable dairy…

6. Farmers strikes

a. I have experienced, read about, or saw the farmers' strikes in the fall 2019;
b. I understand that these protests were related to the Nitrogen deposition of the agricultural sector;
c. I support these actions and protests.

In case of "agree" or "completely agree" on A, B, or C: Answered with "strongly negative" / "negative" / "neutral" / "positive" / "strongly positive":

- Before the strikes held by the farmers, was my attitude towards sustainable dairy…
- After the strikes held by the farmers, is my attitude towards sustainable dairy…

Summary results

NC = Nitrogen Crisis

FS = Farmers strikes

End user

	Strongly disagree Count	Disagree Count	Neutral Count	Agree Count	Strongly agree Count
AHW - grazing	26	16	44	233	561
AHW – harm	15	9	73	341	442
AHW – behaviour	14	8	40	371	447
AHW – financial	14	82	187	403	175
FSQ – transparancy	5	11	110	464	290
FSQ – monitoring	3	6	100	477	294
FSQ – antibiotics	4	14	52	388	422
FSQ – financial	12	93	166	427	164
PEB – soy	26	59	253	351	191
PEB – plan	21	49	195	394	221
PEB – water	28	103	304	322	123
PEB – financial	12	79	188	325	121
GHG – deposition	49	79	215	368	169
GHG – climate neutral	47	143	264	317	109
GHG – Energy	38	130	334	263	115
GHG – financial	10	56	156	283	122
NC – deposition	45	108	268	365	94
NC – Council of state	44	84	234	411	107
NC – construction permit	68	147	165	380	120
FS – read/experienced	4	8	31	433	404
FS – deposition	10	17	36	459	358
FS – I support	44	51	148	300	337

	1 Count	Strongly negative Count	Negative Count	Neutral Count	Positive Count	Strongly positive Count
Before NC	15	0	27	257	310	84
After NC	18	0	31	233	305	106
Before FS	13	0	24	373	376	78
After FS	15	0	39	306	393	111

Business customer

	Strongly disagree Count	Disagree Count	Neutral Count	Agree Count	Strongly agree Count
AHW - grazing	0	0	2	4	5
AHW – harm	0	0	2	5	4
AHW – behaviour	0	1	1	5	4
AHW – financial	0	1	4	6	0
FSQ – transparancy	0	0	0	5	6
FSQ – monitoring	0	0	1	5	5
FSQ – antibiotics	0	0	1	5	5
FSQ – financial	0	5	4	2	0
PEB – soy	0	2	3	5	1
PEB – plan	0	0	4	5	2
PEB – water	0	2	3	4	2
PEB – financial	0	5	4	0	1
GHG – deposition	0	0	1	8	2
GHG – climate neutral	0	4	3	3	1
GHG – Energy	0	4	2	3	2
GHG – financial	0	4	4	2	0
NC – deposition	1	1	2	7	0
NC – Council of state	1	1	3	5	1
NC – construction permit	1	1	2	7	0
FS – read/experienced	0	0	1	5	5
FS – deposition	0	1	2	5	3
FS – I support	0	1	7	3	0

	Strongly negative Count	Negative Count	Neutral Count	Positive Count	Strongly positive Count
Before NC	0	0	1	6	2
After NC	0	0	1	6	2
Before FS	0	0	2	6	2
After FS	0	0	2	6	2

Government

	Strongly disagree Count	Disagree Count	Neutral Count	Agree Count	Strongly agree Count
AHW - grazing	0	0	0	7	8
AHW – harm	0	0	2	7	6
AHW – behaviour	0	0	0	10	5
AHW – financial	0	3	1	8	3
FSQ – transparancy	0	0	2	9	4
FSQ – monitoring	0	0	4	8	3
FSQ – antibiotics	0	0	3	5	7
FSQ – financial	0	2	8	3	1
PEB – soy	0	0	5	5	5
PEB – plan	0	0	3	8	4
PEB – water	0	0	6	5	4
PEB – financial	0	1	7	5	1
GHG – deposition	0	0	0	8	7
GHG – climate neutral	1	0	3	7	4
GHG – Energy	0	1	3	7	4
GHG – financial	0	0	5	8	2
NC – deposition	0	0	0	7	8
NC – Council of state	4	1	0	7	3
NC – construction permit	0	0	1	9	5
FS – read/experienced	0	0	0	7	8
FS – deposition	0	0	1	10	4
FS – I support	2	7	6	0	0

	Strongly negative Count	Negative Count	Neutral Count	Positive Count	Strongly positive Count
Before NC	0	0	2	9	4
After NC	0	0	2	9	4
Before FS	0	0	1	11	3
After FS	0	0	1	12	2

Dairy farmers

	Strongly disagree Count	Disagree Count	Neutral Count	Agree Count	Strongly agree Count
AHW - grazing	7	15	16	48	51
AHW – harm	0	0	5	47	85
AHW – behaviour	1	1	10	81	44
AHW – financial	2	5	19	92	18
FSQ – transparancy	2	5	8	85	37
FSQ – monitoring	2	3	7	87	38
FSQ – antibiotics	1	1	4	76	55
FSQ – financial	2	9	30	78	15
PEB – soy	6	26	46	50	9
PEB – plan	10	35	48	40	4
PEB – water	12	44	55	25	1
PEB – financial	2	16	30	30	4
GHG – deposition	11	17	67	41	1
GHG – climate neutral	10	46	53	26	2
GHG – Energy	10	34	56	35	2
GHG – financial	1	9	21	26	2
NC – deposition	28	19	36	47	7
NC – Council of state	14	18	23	70	12
NC – construction permit	21	29	23	58	6
FS – read/experienced	0	1	2	43	91
FS – deposition	2	7	9	55	64
FS – I support	0	4	11	48	74

	1 Count	Strongly negative Count	Negative Count	Neutral Count	Positive Count	Strongly positive Count
Before NC	0	0	7	39	41	10
After NC	2	0	8	43	37	7
Before FS	0	0	13	52	55	15
After FS	2	0	19	54	46	14

Appendix B: Interview

Form of consent

General

- I, ..., voluntarily give my permission to participate in this interview, for the purpose of Jacobien van Dijk's thesis research.
- I understand that by participating in this research, I will answer the questions, which I received in advance. The interview will be considered complete when I answer the final question.
- The purpose and context of the research has been explained to me, and I have had the chance to ask questions about this.
- I agree to the fact audio of this interview will be recorded.
- I understand I can seek contact with others involved in this research when I seek additional clarification or information.

Use of data

- I understand that all information I provide will be treated in a confidential manner.
- I understand that all information I provide will be used in the thesis, the final report, and this will be published and publicly accessible on the University of Twente community website.
- I understand that there will be anonymous references to the data from my interview if I would prefer this. In this case my name will not be mentioned and suggestive data about either myself or others involved in the interview will be removed.
- I understand that after the interview, I have a right to access the acquired information.

Sustainable Brand Index (SBI)

- I understand that Sustainable Brand Index (SBI) will use the publicly available final report as explorative results for own research regarding sustainable perception in Dutch sectors. I understand they have no insight in personal data, or any other data linked to me.

Toestemming

- I understand that even though I give my permission right now, I can, at any moment, withdraw this permission, without any consequences or giving a reason for doing so.
- I understand that after the interview, I can withdraw my permission regarding the use of data. In this case all the acquired material will be removed.

Below you find the names of people involved, who safeguard the data and proper use of data acquired in this interview.

Researcher: Jacobien van Dijk
Project Supervisor: Maia Lordkipanidze
Participant:

Signature of participant:

Date:

Semi structured questionnaire

General

1. **Who do you consider to be a stakeholder? (When can someone be considered one?)**

……
……
……

2. **Mitchell (1997, p854) defines a stakeholder as** "an organisation is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives" **Do you agree with this definition?**

……
……
……

3. **Based on my own literature study, I identified four key stakeholders. Do you agree with these to be the prior stakeholders in the Dutch Dairy Industry?**
    - Consumers
    - Customers
    - Government
    - Suppliers

……
……
……

In the image below, you can find the model that I am using for my thesis research. It is called the Stakeholder Typology by Mitchell et al. According to this, stakeholders can be prioritized, based on three attributes: power, legitimacy and urgency.

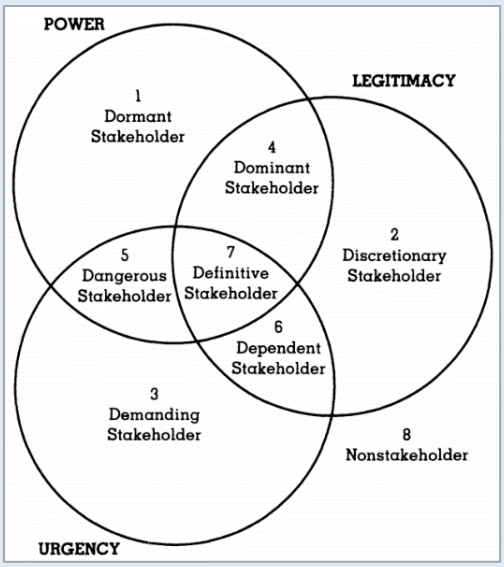


Figure: Stakeholder Typology (Mitchel, et al, 1997)

Power: the relationship between actors, I which actor A can make actor B do something, which actor B otherwise wouldn't have done.

Legitimacy: how genuinely a stakeholder is involved in the company.

Urgency: till what extend, and on what reaction time does a stakeholders desire needs to be met?

STAKEHOLDER A

If we recall your answer from the previous question, please consider the first stakeholder we discussed.

4. **What real or potential power does stakeholder A have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

……
……
……

5. **There are three types of power, which one (or more) does this stakeholder hold?**
    - Coercive power: physical resources of force, violence or restraint.
    - Utilitarian power: material or financial powers.
    - Normative: symbolic powers, like prestige and esteem.

……
……
……

6. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder A?**

……
……
……

7. **How urgently does the dairy industry need to respond to stakeholder A's demands? Or can they put them "on hold" considerably easily?**

……
……
……

8. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

……
……
……

STAKEHOLDER B

If we recall your answer from the previous question, please consider the second stakeholder discussed.

9. **What real or potential power does stakeholder B have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

……
……
……

10. **There are three types of power, which one (or more) does this stakeholder hold?**
    - *"Coercive power: physical resources of force, violence, or restraint;*
    - *Utilitarian power: material or financial powers;*
    - *Normative: symbolic powers, like prestige and esteem" (Mitchell, 1997, p865).*

……
……
……

11. **Legitimacy refers to "*the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context" (Mitchell, 1997, p866)*. How would you describe this for stakeholder B?**

……
……
……

12. **How urgently does the dairy industry need to respond to stakeholder B's demands? Or can they put them "on hold" considerably easily?**

……
……
……

13. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

……
……
……

STAKEHOLDER C

If we recall your answer from the previous question, please consider the third stakeholder discussed;

14. **What real or potential power does stakeholder C have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

……
……
……

15. **There are three types of power, which one (or more) does this stakeholder hold?**
    - Coercive power: physical resources of force, violence or restraint.
    - Utilitarian power: material or financial powers.
    - Normative: symbolic powers, like prestige and esteem.

……
……
……

16. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder C?**

……
……
……

17. **How urgently does the dairy industry need to respond to stakeholder C's demands? Or can they put them "on hold" considerably easily?**

……
……
……

18. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

……
……
……

STAKEHOLDER D

If we recall your answer from the previous question, please consider the fourth stakeholder discussed;

19. **What real or potential power does stakeholder D have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

……
……
……

20. **There are three types of power, which one (or more) does this stakeholder hold?**
    - Coercive power: physical resources of force, violence or restraint.
    - Utilitarian power: material or financial powers.
    - Normative: symbolic powers, like prestige and esteem.

……
……
……

21. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder D?**

……
……
……

22. **How urgently does the dairy industry need to respond to stakeholder D's demands? Or can they put them "on hold" considerably easily?**

……
……
……

23. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

……
……
……

Nitrogen issue

The Nitrogen Crisis occurred after the Dutch Council of State ruled against the active national policy on Nitrogen, Programma Aanpak Stikstof (PAS) in April 2019. Since it was stated to be in conflict with the Directive of European Habitat, the instrument could no longer be used in order to grant permits, immobilising thousands of construction and infrastructure projects (Raad van State, 2019). The short term solution resulted in a situation in which "unused" Nitrogen permits were taken from the farmers, in order to grant construction and infrastructure permits (Stokstad, 2019).

This event resulted in nationwide strikes, in which farmers claimed to be "stolen" from their permits, limiting their opportunities to expand the milk production once more. The strikes were characterized by civil disobedience in the form of disruptive tractor blockades on the highways, and mass protests on the Malieveld in The Hague. The actions, mostly organized and coordinated by Farmers Defence Force (FDF), received unprecedented media coverage and public support.

This public happening made the Nitrogen deposition in the Agricultural sector clear to a new, and very broad public.

24. What is your knowledge and experience with the 2019 Nitrogen Crisis?

……
……
……

25. Did this affect your organization? If so, how?

……
……
……

26. Do you think this has affected your attitude towards sustainable dairy?

……
……
……

27. Do you think this has affected the stakeholders' attitude towards sustainable dairy?

……
……
……

Transcripts

R1: Wageningen University & Research

28. Who do you consider to be a stakeholder? (When can someone be considered one?)

In my network, I make a distinction between partners whom I work together with on a regular basis, and stakeholders. To me, stakeholders are parties that can somehow affect my targets. Some are very directly involved, and some more indirectly. These are groups, of which I know I need to pay attention to. Because they have this potential impact.

29. Mitchell defines a stakeholder as "an organisation is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives" **Do you agree with this definition?**

Yes, I think this corresponds with my vision. I think it is fine if you use this definition. Although, it can be persons within an organization as well. But actual individuals don't bother me as much, unless they hold an important position within an organization. However, these are the greater powers.

30. Based on my own literature study, I identified four key stakeholders. Do you agree with these to be the prior stakeholders in the Dutch Dairy Industry?

- Consumers
- Customers
- Government
- Suppliers

I think "consumers" is quite broad. Behind consumers, you have the NGO's as Wakkerdier and Stichting Weidegang. So if you consider stakeholders, regarding consumers, you need to take into account the influence of these interest groups. The consumer behaviour can be based both on actions from the dairy industry, as the NGO. What one can now see happening is that the dairy industry is actually trying to be part of these NGO's, by initiating partnerships with a NGO as Natuurmonumenten.

On top of that, you have the never ending discussion of citizen or consumer. A citizen can have a certain opinion or stance in something, but this does not always translate into his consumer behaviour.

Regarding the government, you need to pay attention that this is not just one organisation. You should look at both Brussel, as national, regional and even municipal level.

I definitely agree with suppliers. However, you should consider that we deal with a cooperation here. Or rather, the dairy farmers are the owner of the cooperation. The cooperation is again part of the enterprise. So we are dealing with a bit of a special situation here.

In conclusion, I can find myself in these four stakeholders, as long as you take into the account the potential influence of the NGO's on both the consumers as the customers.

A: B2B customer

31. What real or potential power does stakeholder A have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).

This one is really important. They do have a significant power, since they are the customer. The product is sold to them. In this, you have the dilemmas of an international competitive market. Sometimes you are facing retail organisations who are even bigger than a FrieslandCampina. If they decide on certain actions or discounts, the dairy industry just has to accept these. This is not compensated by the retailer,

and needs to be paid by the dairy industry themselves. This is simultaneously one of the reasons of the major scaling-up from the last years. By doing so, companies can keep up with certain situations.

The catering industry is more focused on quality. However, they can have very strict criteria for this as well.

32. There are three types of power, which one (or more) does this stakeholder hold?

- Coercive power: physical resources of force, violence or restraint.
- Utilitarian power: material or financial powers.
- Normative: symbolic powers, like prestige and esteem.

I think this is mostly utilitarian, regarding the financial power. But normative power is also in place. This stakeholder aims to a certain sustainability goal and image. For example, it could be that a supermarket wants to be the front runner in this area, and will impose these standards on the dairy industry. As selling party, you can either accept these demands, or not. However, you see that it is often tried to meet these demands on a collective basis, in order to prevent mutual competition.

An example of this is the grazing covenant. All relevant stakeholders gathered to discuss the content, and sign it collectively. The basic conditions on this topic were decided through joint consultation.

33. Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder A?

I think it is socially acceptable. This stakeholder is in a way the representative of the consumers demands. It is just a commercial consideration.

If you look at NGO's for example, they often translate their interests in an almost activist manner. But you don't see that happening with this stakeholder, that doesn't suite the image.

34. How urgently does the dairy industry need to respond to stakeholder A's demands? Or can they put them "on hold" considerably easily?

This is leaning towards direct action. However, that is depending on the topic it is about. If it regards food safety, direct action is absolutely needed. In that case you don't have a choice.

If it regards a certain wish or request, you should hold a conversation. Not everything can be realised in one day. For some requests, you even need to go back throughout the whole supply chain, and discuss with the farmers.

But we should consider that there is a mutual power here. Because the supermarket wants to offer the product to their consumer. I consider this to be a mutual benefit; in the end they need each other.

35. What is, in your experience, the attitude of this stakeholder towards sustainable dairy?

I think this is considerably positive. Sustainable dairy was the answer to certain demands from this industry. You can see that everyone tries to align in this, although you have different brands.

B: End user

36. What real or potential power does stakeholder B have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).

I think this is quite limited. The consumer does buy the products, and decides whether a new product will be successful or not. In that perspective does the consumer hold a role, but I consider this to be indirect. There is very little direct communication towards this group.

A consumer can post something on social media. In that case, the dairy industry needs to make sure that they can act quickly. You don't want certain post to go viral for example. Addressing the needs and wishes from this group, the dairy industry does initiates events as "open farm days".

It is just important that the calamities are perfectly in order. When this is organized badly, you are the one that suffers. The consumer can then boycott a product.

37. There are three types of power, which one (or more) does this stakeholder hold?

a. Coercive power: physical resources of force, violence or restraint.
b. Utilitarian power: material or financial powers.
c. Normative: symbolic powers, like prestige and esteem.

This is mainly utilitarian power. I don't think it is fairly likely that the consumer will occupy the gates.

38. Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder B?

The consumer just expects a decent product, of which a certain sustainability level is expected as well. I think it is legitimate.

39. How urgently does the dairy industry need to respond to stakeholder B's demands? Or can they put them "on hold" considerably easily?

In here we need to make the distinction of food safety claims, or a trend in society. The latter is now seen in a trend on convenience food. People want more small deserts, smaller portions and so on. You do need to react to a geographic trend of smaller households, but this does not need to happen overnight.

40. What is, in your experience, the attitude of this stakeholder towards sustainable dairy?

I think this is in general quite positive. It is quite remarkable that we have several discussions about climate change, but if this is translated towards the farmers, we all think this has its charm.

Food is considered to be originated from the supermarket. The consumer is increasingly unaware of the whole supply chain behind a product. I think the consumer might not link the Nitrogen Issue to a dairy farmer.

C: Government

41. What real or potential power does stakeholder C have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).

Significant power in the area of legislation. A large amount is reserved for food safety, and the second part is mostly focused on production method. The latter regards the environmental part, including animal welfare. In this, the government holds a facilitating and supporting role. But don't get me wrong, there is very clear legislation around this topic. For example animal transportation.

42. There are three types of power, which one (or more) does this stakeholder hold?

a. Coercive power: physical resources of force, violence or restraint.
b. Utilitarian power: material or financial powers.
c. Normative: symbolic powers, like prestige and esteem.

I consider this to be coercive. The industry needs to comply with the imposed norms and regulations. It kind of depends if you consider legislation to be either coercive or normative.

43. Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder C?

This is generally perceived to be legitimate. You don't just have a government, it is there for a reason. Especially if you look at food safety. Regarding environmental issues, there might be some disagreements between the government and dairy industry. But in that case is there only one party who has the authority to decide on the norms, and that will be the government. Because there are so many involved parties, I think it is impossible to organize this through private law.

44. How urgently does the dairy industry need to respond to stakeholder C's demands? Or can they put them "on hold" considerably easily?

The advantage of our government, is that it is a democracy. So there is always some sort of consultation. You will always be included, and offered the chance to influence the policy. It often regards long term processes, in which you can have a say.

However, once the norm or law is decided upon, you don't have another choice than to comply. Just like food safety, you just need to operate according to these legislation.

45. What is, in your experience, the attitude of this stakeholder towards sustainable dairy?

Very positive. Governments focus on the minimal, basic legislation. Sustainable dairy takes this a step further. And that is exactly what the governments likes to see; that additional initiatives are initiated outside of the government.

They do intervene when things tend to go wrong. This can be seen by the Nitrogen Crisis now. But in general, they are very positive towards this type of developments in the market. They make the conditions as attractive as possible, to motivate these decisions and initiatives. If something needs to be repaired through legislation, you are already too late.

D: Suppliers

46. What real or potential power does stakeholder D have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).

In theory they have a significant power, but simultaneously you need to consider that there are 17.000 dairy farmers in the Netherlands. An individual farmer does not have a big say. An individual representing a bigger group, can have a power. But on individual level this is very limited.

So, yes. In principle they have power, but in the end you should focus on what the customer wants.

47. There are three types of power, which one (or more) does this stakeholder hold?

a. Coercive power: physical resources of force, violence or restraint.
b. Utilitarian power: material or financial powers.
c. Normative: symbolic powers, like prestige and esteem.

I would say normative, but also utilitarian power. And if they disagree with something they can organize demonstrations, as could be seen with the tractor blockades. This almost leans towards the coercive power.

48. Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder D?

The majority is legitimate. The farmer can supply his product, and the organisation purchases it. And in the basis, a cooperative is very legitimate in his nature. There are a lots of meetings and sessions, but these are all to include all the members.

49. How urgently does the dairy industry need to respond to stakeholder D's demands? Or can they put them "on hold" considerably easily?

This is a bit difficult. It depends on the demand. If all members disagree with a certain investment, there should be direct action, especially in a cooperation. It is urgent, in the sense that it should be handled well. All members together have the power to dismiss the board of directors.

50. What is, in your experience, the attitude of this stakeholder towards sustainable dairy?

A lot comes from the farmers themselves. Most of the time, the consumer does not know this. You have little groups who are being in the opposition, but the majority of farmers is really and sincerely involved with the topic of sustainability.

A lot of farms are family heritages. So besides the main goal of income, another important aspect is the durability. It will be given to many generations ahead.

Animal welfare is an aspect as well. Not one farmer enjoys the deportation of his sick animal. You really have a silent majority who agrees that change is needed. So in my opinion, there is a broad support for this topic.

A concern is the accumulation of governments measures and cabinets. Goals need to be achievable and realistic. Farmers cannot make big investments in something now, if the conditions will change within two years. If the targets are realistic enough, a majority of the farmers will be positive.

Nitrogen

51. What is your knowledge and experience with the 2019 Nitrogen Crisis?

Two sided. I have been following the discussion, although we did not really had something to do with the PAS. For years, we are doing research regarding Nitrogen and emissions. Both Nitrogen and Ammonia. We contributed a lot to the measures that already decreased the emission rates. We are conducting in-depth research and publications regarding this topic, so we are a knowledge provider.

52. Did this affect your organization? If so, how?

We are already in the next phase of this issue. This has all to do with Methane and Greenhouse Gases. It is commonly known that cows have a significant deposition. Together with a lot of other organizations, we are conducting research on this specific topic, researching how we can reduce these emissions.

53. Do you think this has affected your attitude towards sustainable dairy?

No, we have been working on this topic for many years. Even before the crisis. After the state ruling, I did think that we were facing quite a challenge. Especially the reactions from the sector, which I can understand.

It is a challenge whether this issue will remain in place. It is changing so quickly, and we need to continuously improve ourselves. For example, we are also conducting research for the Sustainable Dairy Chain. At this moment we are testing issues related to grazing and emissions. So we have a role in the knowledge development in this area.

54. Do you think this has affected the stakeholders' attitude towards sustainable dairy?

I am not sure. I think this will be limited for the government and B2B customer.

Regarding the dairy farmers, I do think there might have been a change. They start wondering what this is actually about. They made a lot of investments throughout the last years on this topic. And still, in their perception, they are burdened with the problems. This results in the movements that initiates protests.

I am not sure how this positions within the consumers group. If we consider the several surveys we conducted, there is a general positive image, but I really don't dare to conclude that. I have a gut feeling that the people do not link the Nitrogen crisis to sustainable dairy. But I should be careful with saying things like that, as a scientist.

R2: Land- en Tuinbouworganisatie (LTO)

1. **Who do you consider to be a stakeholder? (When can someone be considered one?)**

Potentially everybody, strictly interpreted. Regardless the issue in place, it often relates to all of us. In theory you can make a distinction between business and citizens, but in the end you are always a stakeholder.

It is important to know that a consumer is not the same as a citizen. What is offered in a supermarket, is what we think as citizens that we want to consume. But in reality, you are informed as a citizen. This cannot always be translated into behaviour.

2. **Mitchell defines a stakeholder as** "an organisation is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives" **Do you agree with this definition?**

I don't necessarily see this as one organisation, but rather an organic whole, who can have affect or is affected by the organization. Especially nowadays, it is way easier to start a movement. By writing a letter, you can create an entire platform. I consider this as a type of temporary organization, so it is a very organic thing.

On the other hand, it can also be one person who has a significant voice. This is powerful, when this person represents a group.

3. **Based on my own literature study, I identified four key stakeholders. Do you agree with these to be the prior stakeholders in the Dutch Dairy Industry?**
    - Consumers
    - Customers
    - Government
    - Suppliers

I don't necessarily agree with consumers. I think this group can be divided into two aspects: citizen and consumer. As consumer, you can act differently than what your stances are as citizen. It is a classic choice to use the consumers, but the citizen is luring in this. If you name it as "end use", you have translated it better. This includes citizenship, and thought that also relates to consuming.

Regarding the government; the European Union has a very obvious and powerful role. After this, you consider the national government, provinces and municipalities.

The supplier, definitely fits in this selection. Eventually everything returns on the farm. This is the motor of the entire sector, of which a lot is expected.

I think we are missing the NGO's in this selection. For example, the supermarkets are really sensitive for this group. They are able to create an image, to push companies to have 1/2/3 certification stars. If you score lower, you can almost not afford offering this in the shelves. They are afraid that the consumer will then go to another store to buy a product which has the wanted stars.

But what you can see, is that Wakkerdier actually campaigning a lot against battery cages. But in practice, there is an increase in selling rates of chicken. So it creates a reversed effect, in which the product is being bought even more. What I try to say is that data may show a different perspective than the public image might. But it certainly plays a role in this playing field.

A: B2B customer

4. **What real or potential power does stakeholder A have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

You get the impression that supermarkets really stands out when it comes to power. It is thought that this group is dominantly steering several issues, regardless that the dairy industry can be quite big. It is not an equivalent playing field. This stakeholder decides whether your product will be included in the shelves, and what the price will be. There is little room in this.

However, I do notice a change in this. But this only occurs when there is a specific demand for a product. When they have the impression that citizens will not come to their store anymore, there is a reason to shift. But it will still be the dairy industry's responsibility to translate this demand. And it should preferably be delivered tomorrow, throughout the whole year. But in the end, a supermarket does not want fuss about this, and it should match the consumers' demands.

5. **There are three types of power, which one (or more) does this stakeholder hold?**
    - Coercive power: physical resources of force, violence or restraint.
    - Utilitarian power: material or financial powers.
    - Normative: symbolic powers, like prestige and esteem.

Utilitarian power.

6. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder A?**

If it is not you, they will have another one tomorrow. On the other hand, the stakeholder does not want any trouble or fuss. You want to be sincere, because you aim for long term agreements about a product, since that is apparently needed and demanded. So the legitimacy is to ensure both the parties of a long term security. In there are different motives of course, but in the end it is a win-win situation.

7. **How urgently does the dairy industry need to respond to stakeholder A's demands? Or can they put them "on hold" considerably easily?**

The dairy industry needs to act quickly on a claim from this stakeholder. So it is urgent, they need to act fast.

If you look at the urgency of sustainability claims, we can see different situations. In here, the urgency can relate to a new proposition. In this case, the supermarket will look for a dairy company which can unburden the production method. Thus, the power relation is becoming more balanced, and more sincere. With dairy products, you know what you eat and what the terms are. But in other segments this might be less accessible, for which you need to orientate on the conditions. So I think the power relation is changing over the last couple of years.

8. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

At first, the attitude was nonchalant; "do what you want". However, it is shifting towards "okay, we might need this permanently, so we need to hurry". Before there was no integer motivation, it was considered as experiment. Nowadays, you notice that there is more urgency on this topic.

However, some corporations could have been way bigger in this area than they are now. So sometimes I question what the actual motive is. The attitude is changed, but I am not sure about the motive.

B: End user

9. What real or potential power does stakeholder B have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).

A consumer can have great impact by buying something, or not. But if I focus on sustainability, you have a variety of citizens who do or don't find this important in their consumer behaviour. And sometimes the end user can not buy their desired product, due to lacking availability. They are more loyal to their local supermarket than to a certain product they desire.

The power can be limit, considering the extensive selection in the shelves. But the power is increasing, if a consumer dislikes something, they can leave a message on social media. The end user and dairy farmer are the weakest right now, while they have potential to be the strongest. In the basis does the dairy farmer produces for the end user. If those two groups would find each other, an intermediary will be unnecessary.

The government tries to mediates in this, like a referee. They provide a clear playing field, the boundaries and what rules to comply with. Over the last years the government got an increasing power in this, but in a serving position. If the production can be organized a certain way with fair prices, that meets the demands of the end consumers, there can be a really great balance. However, we are not there yet.

The potential power lays with this stakeholder, but they are less proactive. There is no permanent power yet, but due to the generational change, a shift is no longer unthinkable. So the power relation is shifting.

10. There are three types of power, which one (or more) does this stakeholder hold?

a. Coercive power: physical resources of force, violence or restraint.
b. Utilitarian power: material or financial powers.
c. Normative: symbolic powers, like prestige and esteem.

Normative. It can be very determining, so the ultimate power. A company can provide a whole annual report what might look very solid, but once the reputation is not right, you are useless. If the dairy industry does not notice any doubt from the end user, the latter will hold the ultimate power.

11. Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder B?

Not necessarily. I don't think that an end user is sincerely connected with the dairy industry. You can choose an Arla pack because it looks nice, because it is in a bottle, or because you want to support small businesses.

For example, there is a strongly positive image of Melkunie or Mona desert. That way consumers are linked with a certain brand of the dairy industry. This type of emotional connection is very strong and can last a long time.

12. How urgently does the dairy industry need to respond to stakeholder B's demands? Or can they put them "on hold" considerably easily?

If the end user makes clear that they have a hurry with sustainable development, and that climate is top priority, the dairy industry will act fast. Partly because, in this example, you will be questioned about the topic. However, if the end user will ask for something, you are already too late. You should

always be one step ahead of this stakeholder. I consider this a different type of urgency, more a diffuse type of urgency. It can also be the case that the dairy industry is too early with introducing a new product, and the end user is not ready yet.

13. What is, in your experience, the attitude of this stakeholder towards sustainable dairy?

Diffuse, I don't think that the end user is actively thinking about sustainable dairy.

The hardest part about this is the unclarity about the concept of sustainable dairy. What is this supposed to be? Animal welfare is for example described rather clearly, through a certification star system. As a consumer, you can base your choice on these stars.

As an end user, it is difficult to decide what the difference is between regular and sustainable dairy, and what aspect is important here.

Nevertheless, I do think it is shifting. Nowadays, you already need to explain yourself why you don't buy biological products for example. So the social pressure has definitely increased.

C: Government

14. What real or potential power does stakeholder C have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).

The European Agriculture policy is essential in this sector. It plays a crucial factor, that decides the playing field. This can be seen in the abolishment of the milkquota for example. It could translate into a situation in which farmers can be financially rewarded if they deliver more societal value. This can have great impact on the behaviour of the dairy farmers.

The national government has influence on topics as Phosphate production. The government acts as a referee, explaining the playing field. But the dairy industry also has a say in this game. Some companies are well informed, and know what strings to pull. Because the government has become a weaker player, the current political situation lends for a free market.

As an example, you can see that some dairy organisations lean on certain officials, who don't completely understand the topic and context, so can be influenced rather easily. That way the government will be unburdened on the area of food safety, but this can also mean that they have given away the power. The dairy industry is sometimes even more powerful than the government.

On the long term, it is about sustainable development. If you don't want the old situation, and want to realise the new one, a change is needed. The dairy industry will then ask for guidance: how long can a farmer proceed with the old way of producing? Will there be a deadline? The dairy industry does not want to implement certain measures themselves, so will lay this responsibility with the government again. The result is pretty important on how the rules will be explained, and what they contain.

Some topics are waiting for over 30 years now, and that is the downside of this topic. You have a interest in sustainability, that asks for a long term strategy. This will not work if the government will be re-elected every four years. This will not stimulate sustainable production. The climate law is an example that presents the long term goal, which is decisive, and the strategy to go there is open for interpretation. This enables room for a new playing field and business models.

15. There are three types of power, which one (or more) does this stakeholder hold?

a. Coercive power: physical resources of force, violence or restraint.
b. Utilitarian power: material or financial powers.
c. Normative: symbolic powers, like prestige and esteem.

The government hold multiple of these powers. Coercive power in the sense that they can implement restraints and decide on required permits. But they also hold financial power, if you consider the subsidies for example. And normative power in the shape of legislation.

16. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder C?**

This is not as questionable as the supermarkets. The governments has a benefit to gather broad support, all parties should get a fair share in the end.

The dairy industry is included sufficiently in the policymaking. However, this can result in two outcomes. They are as stakeholder very determined against the other. Because the dairy industry is so well organised, there is a chance that the government will listen one sided to the industry. The government should pay close attention that they remain objective.

17. **How urgently does the dairy industry need to respond to stakeholder C's demands? Or can they put them "on hold" considerably easily?**

If the government acts, you should respond with great urgency. At this moment, they are quite decisive. The political field is however variable. If the political consultation changes, the influence of the dairy industry might decrease, for which the governmental lead can become more deciding.

An example is the Nitrogen proposal, with what the dairy industry is not happy with. But in the end, it will become the new legislation.

18. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

Roughly speaking very positive, especially if you consider the liberal underlying attitude. Sustainable dairy is a result of the free market, so this does not needs to be organised by the government anymore.

During a certain time, you could see that the attitude was shifting back and forth. The basic attitude of the government was too decisive. But if you don't act as a government, the societal goal will not come closer. Something can look very sustainable, but in theory this might not be the case.

D: Suppliers

19. **What real or potential power does stakeholder D have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

In a cooperation you have more power, because you hold power within a company. However, once the cooperation becomes bigger, this will become more difficult. In that case, the business model of the organisation will be more determining. in smaller organisations, the power of an individual supplier can be bigger, and conditions will be up for discussion. Thus, the influence increases once the scale is smaller.

If you organise yourself in a strong manner, and you make sure that you file this on member meeting, an individual stance can have influence on the cooperation's strategy. Because in this situation, you are compelling to a bigger group who shares the same interest.

20. **There are three types of power, which one (or more) does this stakeholder hold?**
    a. Coercive power: physical resources of force, violence or restraint.
    b. Utilitarian power: material or financial powers.
    c. Normative: symbolic powers, like prestige and esteem.

Normative and coercive. You can occupy a headquarter, which is both restraining as symbolic power. On top of that, questioning of a dairy industry's own dairy farmers, will have enormous impact on the reputation.

21. Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder D?

I would say this is balanced. But the meat industry is for example more legitimate. This lays in the fact that a dairy cooperation like FrieslandCampina has a task of yielding a good market price. This translates in a goal, whereby they are not able to squeeze every last drop out. Sometimes there is a milk surplus, but you also have uncertainties as a collapsing world market.

Nevertheless, in general there is no illegitimate relation here. But once it involves an additional step, or investment, the question arises; where is the additional reward coming from? Will this either be from the government or dairy industry? There is a considerable tension here.

I do notice that the sector is becoming more social and loyal. The dairy industry is not a place in which the farmer is distrustful in advance.

22. How urgently does the dairy industry need to respond to stakeholder D's demands? Or can they put them "on hold" considerably easily?

Not very urgent, but they should act in the end.

23. What is, in your experience, the attitude of this stakeholder towards sustainable dairy?

Comparable to the end user. They feel that it is an important and promising aspect, which can circulate back on the farm. In this position is the basic attitude quite positive. However, we also see uncertainty and suspicion regarding sustainability. In this it is mostly questioned if the additional costs can be yielded from the market. You have to follow this development, but as a joint sector.

The judgement about sustainable dairy is diffuse. It needs to be translated to a very specified topic on farm level, which makes it easier to agree or disagree for this group. If it is clear, the attitude will become more positive and farmers will be more willing to implement.

Nitrogen

24. Did this affect your organization? If so, how?

We gauged how the dairy farmers thought about the climate plan. This survey was held two days after the second demonstration. The result was remarkably positive, on behalf that "the government performed certain actions". I think this is because they know they are not alone, and that they need to participate in the end. But overall, the answer was more positive than that we expected, based on the public image.

As LTO, I do notice that some strategic choices are made in the coalition, which is under the direction of Dijkhuizen. This included parties who are difficult to align with, and influenced the theme around sustainability. Meanwhile I get the idea that this is shifting again. This results in a situation in which farmers just want to be acknowledged and heard, and receive clarity about the issue and measures. The farmers acknowledge the importance of the issue, but don't want to be overwhelmed. On the farm, the whole concept of sustainability comes together, including Nitrogen.

This issue also includes the need for a new playing field, in which there are clear expectations, and that answers the demands of the end user. Nitrogen is only a facet of this whole issue.

25. Do you think this has affected your attitude towards sustainable dairy?

If it continuous to go like this, we will be more cautious if our members are ready to implement climate measures. In the end, members pay me to defend their interests. But if members will reject measures, or question them, I will start to question myself as well. So for me it was definitely a reason to pause and reflect. The emotions reached a very serious level, for which we should pay serious attention to what they were actually saying, and make sure to listen very carefully.

But in the end, the survey presented moderate results. Nevertheless, you should find a suitable way for our organisation as a whole. In this, you can not please everyone at all times.

26. Do you think this has affected the stakeholders' attitude towards sustainable dairy?

I think the end user was positive against the first two actions, but they already held a certain attitude that farmers are good in the basis. They felt solidary with the farmers, since the government did not always listened. But afterwards a change could be seen, when the strikes started to be perceived as annoying. It became unclear what the farmers actually protested for.

The discomfort of the farmers also played a big role. But you can definitely notice that these actions have an impact. But the internal discussion in Farmers Defence Force simultaneously shows the disagreement among the farmers themselves.

Due to the Nitrogen crisis, new business models need to be explored. However, no one knows what this should look like and how this can be organized. The government was forbidden to pursue in the current playing field, which they need to abandon.

I consider the Nitrogen issue to be a problem situation. The terms of Natura 2000 were unrealistic from the beginning. Some goals could never be achieved, regardless the efforts. It starts to look like that the result of the crisis will translate into a cattle limitation. But in order to achieve this, other things need to fall in place as well. The debate needs to become more open and honest, for which we might successfully find a solution.

R3: Dutch Dairy association (NZO)

1. **Who do you consider to be a stakeholder? (When can someone be considered one?)**

Someone who represents interests of a group. We are also an organisation that represents interests of our members.

2. **Mitchell defines a stakeholder as** "an organisation is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives" **Do you agree with this definition?**

Okay, I can agree with this definition, when it is about mutual effect on each other. But this can also be one person representing a group.

3. **Based on my own literature study, I identified four key stakeholders. Do you agree with these to be the prior stakeholders in the Dutch Dairy Industry?**
    - Consumers
    - Customers
    - Government
    - Suppliers

The only part I am struggling with is the NGO. What is this part of? In theory it can be considered a end user. But we consider it to be a separate stakeholder. For example, an organisation as Wakkerdier reacted to a commercial from us, which lead to newspaper titles. This can influence an individual on both consumer level, as business level.

A: B2B customer

4. **What real or potential power does stakeholder A have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

There is definitely a case of power here: not supplying the product in the shelve or on the menu. They can have a decisive say in both the supply and price. But there is also power in place regarding sustainability initiatives. There is a limited space in the store, which can be filled with several brands. This creates a negotiation position.

5. **There are three types of power, which one (or more) does this stakeholder hold?**
    - Coercive power: physical resources of force, violence or restraint.
    - Utilitarian power: material or financial powers.
    - Normative: symbolic powers, like prestige and esteem.

I think utilitarian power, both material and financial.

6. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder A?**

Both the supermarkets and catering sector decide what is on the menu. If you only consider the wishes of the end user and producer, you can question whether this is always fair. An example that you can hear of, is that the consumer desires more local products in the supermarkets. However, their part of the shelves is very limited, and is difficult to influence by consumers. Because a certain shelve comes with a certain price, a larger cooperation has more means to buy this than a smaller local organisation.

7. **How urgently does the dairy industry need to respond to stakeholder A's demands? Or can they put them "on hold" considerably easily?**

A claim from this stakeholder is urgent. It is the question whether you can directly comply with the demands, but you should stay in a conversation. Otherwise you have a risk that your part of the shelve will be given to another company. With larger cooperation, there is some mutual power. But not every organisation holds this scale, including a variety of products. But in the end, everyone should definitely work the issue out.

8. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

Quite positive. As dairy industry, we dare to take collective steps forward. The collective package has a very decent basis level, on which individual farmers can add upon. There are good inspections, and any doubt will be handled adequately. This unburdening creates a certain level of trust for this stakeholder.

I also think that the attitude positively increased. Considering other sectors as pigs, in which a lot of segments are actually struggling to guarantee and maintain a certain level. This struggle enforces our position, since we can show that the dairy industry is actually very organised on these aspects.

I do think that you should consider that you are dealing with a couple of big purchase organisations, who decide how things go, including the sustainability standards.

B: End user

9. **What real or potential power does stakeholder B have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

By not buying or consuming the product. Two of the main activities of the dairy industry are monitoring the milk quality, and consumer behaviour. These parameters are very important. After actions of Wakkerdier, the consumer might start to ask questions, on which you should try to remove the possible doubts. I agree that the end user has a power, because this is in the end the group you are producing for.

10. **There are three types of power, which one (or more) does this stakeholder hold?**
    - Coercive power: physical resources of force, violence or restraint.
    - Utilitarian power: material or financial powers.
    - Normative: symbolic powers, like prestige and esteem.

Since it can lead to serious restraints, I think it is a coercive power.

11. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder B?**

I would consider this to be legitimate.

12. **How urgently does the dairy industry need to respond to stakeholder B's demands? Or can they put them "on hold" considerably easily?**

It is urgent. Preferably, you want to be ahead of claims. But you should show that you are working on the relevant topic. The fact that they are doubting you, makes that you should doubt your own message as well. The value of good and adequate communication is very often underestimated in this case.

13. What is, in your experience, the attitude of this stakeholder towards sustainable dairy?

I think this is a bit unknown, people assume that it is already on a good level. How we are actually achieving that, might not always be clear to the end user. So I think it is not necessarily negative, but more unclear. The consumer can make a better perception of biological products, as example. They know this concepts from a young age, and is positively associated. Sustainability is on the other hand a vague concept, which can differ to every consumer. Some people are very aware on their choice about a certain aspect, such as animal welfare.

C: Government

14. What real or potential power does stakeholder C have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).

Also a decisive say whether your product will be in the shelve. When it comes to governments, we are closely observed. When we apply for a permit, for example, lots of factors as transportation and water supply will be researched.

15. There are three types of power, which one (or more) does this stakeholder hold?

- Coercive power: physical resources of force, violence or restraint.
- Utilitarian power: material or financial powers.
- Normative: symbolic powers, like prestige and esteem.

Coercive power, they can enforce restraints through law, or they can even close a company. During the Corona crisis, companies are obligated to test. These types of measures can have great impact on the whole supply chain, as well as a significant impact on your reputation. So it might also be a more normative power.

16. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder C?**

The government should include everyone's interests on a comparable level. However, I question if this is actually happening at the moment. Up till now, we have not been affected by this, but in other sectors you can see this happening.

17. **How urgently does the dairy industry need to respond to stakeholder C's demands? Or can they put them "on hold" considerably easily?**

Significantly urgent, especially if you are shut down by the government.

18. What is, in your experience, the attitude of this stakeholder towards sustainable dairy?

Again very positive, because we unburden a lot of aspects. We have a very coherent overview of the milk quality, the monitoring is very accurate. Regarding sustainability, we publish annual reports that show our progress. For this we receive government resources. This mutual aspect causes a high level of positivity.

During a climate negotiations, we appoint our efforts. Even if this is not literally in line with the demands or wishes, we can agree on the aspects we already implemented and run.

At Phosphate level we were closely involved. We got some criticism on this, so we try to hold back a little bit for now. You can see that the governments reacts to this, in a way that they are expecting us to take the lead. So this is a certain balance, of whom is going to initiate something.

I also think that the decentralisation of the government is an important aspect in this. There are certain topics on national level, but others are playing on more regional grounds. Through mutual consultation, the provinces can determine with the national government if something is happening or not. In here you can find some tension, in which they do not always agree.

D: Suppliers

19. What real or potential power does stakeholder D have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).

Ultimate power, since the dairy farmer supplies the milk. An individual farmer can not cause significant changes, but when a specific idea finds ground with multiple farmers, they definitely can execute their power. Also when a very specific issue is shared, people will join this opinion, and support the stance.

20. There are three types of power, which one (or more) does this stakeholder hold?

- Coercive power: physical resources of force, violence or restraint.
- Utilitarian power: material or financial powers.
- Normative: symbolic powers, like prestige and esteem.

It is not very likely that they will act with extreme measures, since that will also leads to no income. On one hand is limiting the supply a restraining coercive power. On the other hand, it can also be a more normative power when injustice occurs.

21. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder D?**

This can be unfair sometimes. Farmers are willing to do something, but in their own pace. FrieslandCampina for example, always uses an average. But farmers who perform below this average, can not always keep up. Because these cooperatives are so big, there can be some friction here.

22. **How urgently does the dairy industry need to respond to stakeholder D's demands? Or can they put them "on hold" considerably easily?**

I would say less urgent than the other stakeholders we discussed. In this group you have, so to say, a week to react. Most farmers still need to sell their milk. Only when a certain claim is shared by multiple farmers, it can become more dangerous.

23. What is, in your experience, the attitude of this stakeholder towards sustainable dairy?

I think this is a but suspicious. In a sense that a farmer wants to earn more money, with every new implemented measure. While it sometimes regards a norm, with which the farmer just simply needs to comply with. There is a certain tension field here as well. They want to be rewarded for the investments they need to make.

Closing the loop and optimizing their efficiency, is of course considered to be something good. This results in less dependency on others, which is a lively topic among farmers. As an example; the current drought in the Netherlands. The farmers are looking to solutions on how this can be fixed on their own lands.

You need to consider that the gap between the supplier and end user is considerably big. This results in a back-and-forth incomprehension about the concept of sustainability. This dynamic is very determining, and both parties are struggling with it.

Nitrogen

24. **What is your knowledge and experience with the 2019 Nitrogen Crisis?**

Up until the Nitrogen crisis, we worked on this topic with ZuivelNL. We were working on a plan regarding nitrogen discretion. During, and after, the crisis we needed to look at the wishes and demands from our dairy farmers, so we took a step back.

We could see that the farmers started to question everything. About Ammonia, but also about themselves; what they considered to be important. This really impacted sustainable development, since it is a bit unclear what the possibilities are to keep this topic developing within this sector.

25. **Do you think this has affected the stakeholders' attitude towards sustainable dairy?**

The ministry tries to involve as many as farmers as possible. But in the end, this results in a less important influence, since they are putting many different groups, with different opinions, into one.

Regarding supermarkets, I am not sure whether they are affected. But they might become more aware on how many people are dealing with this issue.

Consumers might also question the authenticity of milk. If it is true what they say.

The farmers start to question themselves. But there have also been lots of changes, throughout a very limited amount of time. This resulted that a considerably protected market, needed to shift towards a free market. Subsequently, the free market increased it demands as well, for which we are again exploring a new playing field. The whole playing field and rules is becoming are becoming very uncertain and unpredictive.

Regarding this situation, you can clearly notice that some farmers struggle to keep up, while you simultaneously have frontrunners. So there is a big distinction here, in which it is very likely that some groups might drop out. At the same time, organisations need to satisfy the whole constituency. You can see that this struggle is getting increasingly more difficult.

R4: Arla

1. **Who do you consider to be a stakeholder? (When can someone be considered one?)**

Any party which has an interest in the activities a company unfolds. This may also concern a project; in which case you can contact specific parties. Even better still, in such a case you look at who may have interest in a company or a sector. My preference lies in a specific question and project.

2. Mitchell defines a stakeholder as "an organisation is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives" **Do you agree with this definition?**

I can agree with that. It does not always have to be an organisation; it could also be an individual. However, if you specifically want to ask the consumer, you do have to speak to someone who represents a group. For example, this could be a customer panel, of the Consumers Association. You then take a critical look at who can represent the voice.

3. **Based on my own literature study, I identified four key stakeholders. Do you agree with these to be the prior stakeholders in the Dutch Dairy Industry?**
    - Consumers
    - Customers
    - Government
    - Suppliers

I can agree with these four, however I am of the opinion your selection is quite the *economical* approach of stakeholders. For example, you have a blind spot for the NGO's, which also play a large role. In addition, you should also think about academical institutes which share in the most recent knowledge, the media, internal stakeholders, and residents living in the specific project's surroundings.

For now, I can answer regarding these four stakeholders, but do realise this creates a limited view on the dairy industry.

A: B2B customer

4. **What real or potential power does stakeholder A have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

A large influence, in particular when we want anything related to sustainability. For example, we may want to launch a certain programme, but it may very well be that a customer does not want to pay for this, or put it on the packaging. In such a case we can do very little. However, when convincing the customer, it's not just the financial side we need to look at, but also look at the market. If the market is not yet ready you are standing there as a mockery.

5. **There are three types of power, which one (or more) does this stakeholder hold?**
    a. Coercive power: physical resources of force, violence or restraint.
    b. Utilitarian power: material or financial powers.
    c. Normative: symbolic powers, like prestige and esteem.

I think mainly the second, additionally also the bit about normative imago.

6. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder A?**

I think this is never very fair, in this sector too counts: money is power. This stakeholder can always threaten to no longer buy the product. However, you also cannot compare it to a sector like the textile industry, where purchase conditions are already very wry. This mean this relation is not as equal, but not *too* extreme. On that score it is fitting when looking at supply and demand, in other words a healthy business relation. This includes negotiations and discussions, to eventually be able to do business.

7. **How urgently does the dairy industry need to respond to stakeholder A's demands? Or can they put them "on hold" considerably easily?**

We do act fast on this. But this is also in the framework of contracts between de supermarket and dairy organisation. But if this is wished we do look at this.

8. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

In the market I can see the wish of sustainability. However at the same time supermarket branches have a substantial purchase power and price power. They are keen to meet the sustainability ambitions, but at the same time they would rather not pay more. Which leaves the question: who is going to pay for these investments? Here you see that the willingness of financial allowance is present, but with little leeway.

The will is there, and a push towards sustainability, but the practical realisation is difficult. An important factor in this is that many sustainable initiatives arise, thanks to which the concept "sustainability" becomes unclear. For example, there is "Planet Proof", "Beter voor de koe", "weidemelk". You want to get the whole sector on board. Having one logo, for example, rather than several. Now you are more likely to have a competition concerning sustainability.

B: End user

9. **What real or potential power does stakeholder B have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

It is a party which is generally taken into account. However, it is difficult to make your voice hearable as an individual consumer. Your voice is you wallet, so to speak, but in the end it is up to the supermarket what they put in their racks. In regards to this, the consumer expectation is slightly silly, seeing the supermarket decides.

In theory it does have a purchasing power, in practice it's not as loud a voice as you would want.

10. **There are three types of power, which one (or more) does this stakeholder hold?**
    a. Coercive power: physical resources of force, violence or restraint.
    b. Utilitarian power: material or financial powers.
    c. Normative: symbolic powers, like prestige and esteem.

Symbolic power.

11. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder B?**

You do want to know what moves the consumer, yet it is not a very influential power. The crookedness is in the supermarket's power. In this aspect a consumer and a citizen are two different things: a citizen may want something, but in turn this is different from what you consume.

12. **How urgently does the dairy industry need to respond to stakeholder B's demands? Or can they put them "on hold" considerably easily?**

We respond urgently to this, the reason why is the usage of social media by the consumer. Let's say there is something wrong with the milk and this is posted, then we need to manage this. Otherwise this may get out of hand.

You do see this stakeholder being linked to interest groups, like vegans with a strong opinion. This group seizes every platform to convey their vision. This may influence us, but rather in a positive manner. This is because we truly are head of the line in sustainable dairy. We can profile ourselves positively about this.

13. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

I think dairy is a very accepted and normal part of our diet. The consumer wants to feel good in this regard. But they also need to feel the dairy was produced in a good way. Sustainability is a subject which will start to play a role, but I do not expect the average consumer will suddenly stop buying this.

There I do see an increasing demand for sustainable biological dairy.

C: Government

14. **What real or potential power does stakeholder C have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

Large, if they introduce a law we need to follow it, so it's a definitive power.

15. **There are three types of power, which one (or more) does this stakeholder hold?**
    a. Coercive power: physical resources of force, violence or restraint.
    b. Utilitarian power: material or financial powers.
    c. Normative: symbolic powers, like prestige and esteem.

Compelling power, in the sense of limiting guidelines. Also looking at the entire nitrogen discussion. If the government implements legislation concerning the number of animals per hectare, we need to follow this legislation. This in it's turn has economical impact.

16. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder B?**

Here it is top down. We do try as a dairy organisation to come together. And this is an endeavour to think along and have a say. I am under the impression that sometimes the government is to far away from the reality in the provinces. For example, in the nitrogen crisis you can see the measures and investments previously taken are not looked at. This makes the farmers feel they never do enough. In my opinion, having a better insight in this could be done quite a bit better. Strikes are the results of an escalation regarding these matters, in other words the approach could be more constructive.

17. **How urgently does the dairy industry need to respond to stakeholder B's demands? Or can they put them "on hold" considerably easily?**

Yes, urgently, depending on the legislation. There is always an implantation time to carry through changes.

18. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

A very torn attitude. I do see the urgency and the realization of sustainability in agriculture and dairy. Yet, at the same time also the insecurities of how to achieve this. This then translates to unclear guidelines, thanks to which space for interpretation arises, which leads to frustration. A better involvement of stakeholders is needed, after which clear argued guidelines can be presented.

D: Suppliers

19. **Welke echte, of potentiele, macht heeft deze stakeholder in de maatschappij, wat het voor stakeholder D mogelijk maakt om hun wil uit te oefenen op een zuivelorganisatie (zoals Arla, FrieslandCampina)?**

Large power, they are the deciding organ. We are the cooperation, in which the Arla farmers play a deciding role. *And* they supply the product, so it is a clear key stakeholder.

20. **There are three types of power, which one (or more) does this stakeholder hold?**
    a. Coercive power: physical resources of force, violence or restraint.
    b. Utilitarian power: material or financial powers.
    c. Normative: symbolic powers, like prestige and esteem.

All of them actually.

21. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder B?**

With us there is no relation, because this is one thing inside a cooperation. But, sometimes we have have to purchase extra milk, because we are not the largest in the Netherlands. In principle, we then have certain quality and sustainability demands, which we also expect from these externa suppliers. In this case it is a less equal discussion. I do have to say these external suppliers are seen as partners inside Arla, and not simply a one-off transaction.

22. **How urgently does the dairy industry need to respond to stakeholder B's demands? Or can they put them "on hold" considerably easily?**

I notice a claim is not always handled with a red flag. This also depends on the way this happens. If a member of the board of directors submits a claim, this is super urgent. But if one of the dairy farmers says the demands are not achievable, then it could take a while before anyone acts on it.

23. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

Positive. Yes, the extent to which surprised me when I first started working here. I thought they would be through with all these demands, but they are very receptive to the subject. They are also the first who notice the effect of climate change, look at the droughts for example. This has economical consequences, which the farmers must solve themselves.

You do have to take into account that every farmer is different. There needs to be some wiggling room. For example, the dairy farmer can choose themselves whether to generate their own green energy, or to buy this. We have a goal and the farmer is free to decide for himself how to get there.

Nitrogen

24. **What is your knowledge and experience with the 2019 Nitrogen Crisis?**

I have noticed the effect, because the measures taken by the government have caused unrest among the farmers. The measures are not always clear, which may cause confusion. This nice thing is that inside Arla, measures taken concerning the decrease in storage, are often coherent with our already existing measures.

However, at the same time this causes questions internally: we already do this so much, do we have to reduce just as much as the others? In our case the starting position is already more positive.

We have a workgroup concerning the nitrogen crisis. We follow this closely. We try to position ourselves with a critical view; to what degree is it compulsory, looking at what we are already doing.

27. Do you think this has affected your attitude towards sustainable dairy?

It was already very positive. At first I was afraid that thanks to Corona, sustainability would no longer be a priority for companies. But especially in the middle of the crisis, we received a letter of the CEO, motivating us to realise the sustainability goals this year as well. This is very fitting for our company's DNA.

25. **Do you think this has affected the stakeholders' attitude towards sustainable dairy?**

It is a subject which is felt by all stakeholders. However, I think it's felt the least by the supermarkets. And I think the consumer feels this more strongly in its' role and citizen, more than its' role as consumer. The dairy farmers feel this more. In that sense I am slightly afraid of having more tiredness concerning this subject, they are already forced to do so much. Now it is also pressured the solution has to be in agriculture. The government's attitude towards this I do not know.

R5: FrieslandCampina

1. **Who do you consider to be a stakeholder? (When can someone be considered one?)**

I agree with the definition presented in question 2. In addition, I would suggest that stakeholders can also be dependent on the organisation. One stakeholder can hold direct influence, but some other stakeholder, such as the supplier, is also dependent on the results of the organisation. We are an cooperative, so suppliers will affect our way of operating, but are also dependent on us. So it goes two ways, but in the end you will need each other. It is a cooperation.

2. **Mitchell defines a stakeholder as** "an organisation is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives" **Do you agree with this definition?**

So far, my experience is that it always regards an organisation or group of people. However, only 1 thing needs to happen in a market, such as a quality issue, then the story changes. But we are a big company, who is not easily influenced by individuals.

3. **Based on my own literature study, I identified four key stakeholders. Do you agree with these to be the prior stakeholders in the Dutch Dairy Industry?**
    - Consumers
    - Customers
    - Government
    - Suppliers

With these four stakeholders, I think you can provide a coherent overview of the industry. Of course, you can always add to this list, but you have chosen four important groups. What I was thinking, considering the Corona crisis, that you might want to consider employees as well. Sticking to the Corona example, the health care workers received lots of attention. But our staff working in the factories, also had to keep working. They were the people who ensured that the food was available in the shelves.

This situation lead to some tension for sure. On the end of the chain, the demand for food remained very big, it even peaked do to the hoarding actions of the citizens. The staff worried about their health, but at the same time, as an organisation we held the responsibility to supply the stores. In the North, we were lucky enough to keep working, but factories in the South had to made alterations.

A: B2B customer

4. **What real or potential power does stakeholder A have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

This stakeholder surely has some power. Our department is not directly linked with this stakeholder, since we deal with more regional bounded sales offices. However, there certainly are region in which these groups can have significant influence on us. We work with a lot of tenders. If this is desired, it will influence the financial results and supply figures.

During the Corona crisis, we were able to fulfil certain gaps in the market, in which the competitors were not able to supply. Due to the tenders and certain companies you desire to win over, you will go a few miles extra. In that case you might need to agree upon some supply agreements that might not look achievable, or financial contributions, for which the initial result might be less positive.

5. **There are three types of power, which one (or more) does this stakeholder hold?**
    a. Coercive power: physical resources of force, violence or restraint.
    b. Utilitarian power: material or financial powers.
    c. Normative: symbolic powers, like prestige and esteem.

In this case I would say utilitarian and normative. Sometimes you also make decisions, which will benefit the image of the company. Sometimes it regards a strategical in a certain area.

6. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder A?**

I am not involved with this stakeholder on that level. Speaking about our own rules, we use an ethical code, on which we act. In this we make sure that everything will be as sincere as possible. We have certain agreements which we need to comply with. A big part of this covers doing sincere business, but this always includes some financial benefit. However, this should never influence the legitimacy. Therefore, the company's image is worldwide too big. As an example, the clients will also be scanned whether they fit our standards and beliefs.

7. **How urgently does the dairy industry need to respond to stakeholder A's demands? Or can they put them "on hold" considerably easily?**

You should act directly, but this does not mean that you are able to provide the answer right away. You also act in your own interest, to find out whether a claim is justified, and we can learn something of it. We are surely not going to sleep with a clear mind, once a market issue occurs. But still, you cannot solve all issues in one day.

8. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

I think our company attracts a certain group of customers who are actively involved in this, since we are ass well. So I would say that this stakeholder group has interest in this topic. Through internal criteria systems, we can label the milk per farmers. So this topic reaches considerably far. If you advertise with this, you automatically will attract the customers who are interested in this.

B: End user

9. **What real or potential power does stakeholder B have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

This group surely has power, but can be seen as the eyes and ears of our business groups. So if the market demands something, we will adapt our product based on this. An example is that our product is available on every spot our customers will be. This might require adaptations, such as a smaller packaging. Whereby we used to be found in only supermarkets, we now can also be found in the shops on the train stations. So we adapt to the living behaviour of our end user. This translates in our different departments which focus on a specific end user. So you can say that this group has an influence on us. I would not necessarily consider this to be a direct power, unless there is a quality issue in place.

10. **There are three types of power, which one (or more) does this stakeholder hold?**
    a. Coercive power: physical resources of force, violence or restraint.
    b. Utilitarian power: material or financial powers.
    c. Normative: symbolic powers, like prestige and esteem.

I would say this regards a coercive power, but then I am specifically thinking about specialised food. This involves certain restrains, since these groups might have very limited options when it comes to nutrition. We cannot ignore these facts, and need to adapt our products to this.

11. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder B?**

I would consider this legitimate. The end user makes a conscious choice with healthy nutrition, in which dairy plays an important role. So I think they are sincere in this.

12. **How urgently does the dairy industry need to respond to stakeholder B's demands? Or can they put them "on hold" considerably easily?**

Comparable to stakeholder A. Although, nowadays we are facing Social Media, in which issues has the potential to escalate and go viral. So you need to be able to react fast, in contrary with stakeholder A, for which you can quietly speak out your mutual expectations. When it comes to an end user claims, it regards a personal reason, so you should act.

13. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

I think that this is a topic that is experienced as important. This group is thinking about how their actions and choices influence their own, but also future, generations. It is proven that the consumer is making increasingly conscious decisions. This also translates into their awareness on how products will influence their nutritious diet. We also act on this. An example is that we build over 30 factories worldwide, in order to be close to the end users. This spares transportation costs, but simultaneously we will be able to help the local farmers. A more specific example is Nigeria. We also build a factory here. It created local employment opportunities, in which we were able to support local farmers, instead of exporting everything for Europe. This is not the cheapest option, but it is the right one.

C: Government

14. **What real or potential power does stakeholder C have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

Absolutely, and this does not only limits to the national government. This also regards international governments, such as Russia for example, which has its own regulations and standards. They perform their own audits in our factories. These differ from the ones we are used to. So this power goes a long way on international level; they have big influence.

In the Netherlands, we get audits on several moments throughout the year. Let alone the general regulations and laws we need to comply with. Our sector is specifically paid close attention to. On every aspect, such as food safety, finances and ethical aspects. An example; during the fusion of Friesland Foods and Campina, the European Competition Network ruled that we needed to lose certain brands/sectors. As a result, hundreds of jobs were lost.

15. **There are three types of power, which one (or more) does this stakeholder hold?**
    a. Coercive power: physical resources of force, violence or restraint.
    b. Utilitarian power: material or financial powers.
    c. Normative: symbolic powers, like prestige and esteem.

Coercive and utilitarian. The latter also regards to subsidies, in that case we are talking about a financial power which can be withdrawn once something does not comply anymore. They also hold a coercive power in legislation and regulation. In here, the Rijksoverheid mostly holds a controlling role.

16. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder C?**

This can give a bit of a wry feeling, but if I consider the dairy industry in general, it would not be right if the government would be prejudiced, and hold a less sincere position. In nature, this stakeholder is legitimate. However, some practical issues can be a bit deviating.

17. **How urgently does the dairy industry need to respond to stakeholder C's demands? Or can they put them "on hold" considerably easily?**

Considerably urgent, but this is also depending on the claim. We withhold ourselves from political interference. We do not involve in political preferences or policy related topics. Personally, I think we can improve this. Afterall, our CEO holds the voice of 18.000 dairy farmer members. It is generally known that this sector got hit several times. So maybe we should stand up more.

Regarding this, we have a clear stance that we withhold ourselves from this political field. Our members are aware of this, but on the same time I feel like we should stand for our members. Lobbying does not always needs to be a bad idea in this case.

18. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

Positive. Regarding Co2, everything needs to be reduced. If this needs to happen on dairy farmer level, or during processing operations, I am not sure about. The public idea is that all sectors need to adapt to this, including construction for example. But how the actual attitude is, I am not sure about. Pretty difficult. The dairy sector holds a certain scale, for which we are focused upon when it comes to reduction potential.

D: Suppliers

19. **What real or potential power does stakeholder D have in society, enabling them to impose their will on a dairy corporation (such as Arla, FrieslandCampina).**

If we delineate to the dairy farmer, this will be an interesting situation. We are a cooperative, so the farmers have a lot of power actually. But that is in our case. If I think on a more general perspective, I do think this power might still be in place. It is the key product we work with. Despite the organisation, everyone wants to work with high quality and sustainable dairy. Our customers are also very critical on this aspect, so we need to be too. It will be a big issue if there is something wrong here.

This group does not directly influence our way of working, in the end they need to supply their milk. In this case I am referring to what I said in the beginning, about mutual benefit and dependence. So they have lest influence in the general procedures.

20. **There are three types of power, which one (or more) does this stakeholder hold?**
    a. Coercive power: physical resources of force, violence or restraint.
    b. Utilitarian power: material or financial powers.
    c. Normative: symbolic powers, like prestige and esteem.

Utilitairian, material wise.

21. **Legitimacy refers to the degree to which a stakeholder relationship with an organisation is seen as appropriate, proper, and desirable in the social context. How would you describe this for stakeholder D?**

Based on my knowledge, this can be a bit wry sometimes. As an example; the price of raw milk is decreasing for years now, while the same amount of work needs to be done. On the other hand, this price is not just made up, they are also looking to competitor prices. The farmers have their own responsibility to work as efficiently as possible. That way, they should be able to keep up with the market, by innovating on higher quality or quantity.

We are always looking on how to compensate this, by looking for new ways to earn money with the milk. We are still tapping into new markets, and we are continuously trying to innovate. Conversely, the farmer has a purchase guarantee, they never need to spill their product.

On top of that, they are the owner of the cooperative. So on multiple moments of the year, they benefit from the business profit. But it can be a point of discussion where the money is going to. In here you notice some feelings of injustice among the dairy farmers.

22. **How urgently does the dairy industry need to respond to stakeholder D's demands? Or can they put them "on hold" considerably easily?**

I have not experienced this myself, so I do not dare to give you a definitive answer on that. But in my opinion, will we act less urgently compared to a claim coming from the market. It is of course dependent on the claim again, and whether it regards an individual case or that multiple farmers support it.

23. **What is, in your experience, the attitude of this stakeholder towards sustainable dairy?**

Initially, I thought that this positivity was moderate. But in contrary, they are realy working on this. They are aware that the world is changing. Both for the next generation, as for their own cows, they want to produce more sustainably. They are working on various aspects, among nutrition, efficient manure processing, and what the possibilities are for cows that do not produce milk anymore. This

really surprised me, for which I also think that the public image about the farmers is misplaced. They were subject of already many policy changes, they made a lot of investments in order to comply with these. And still, the farmers keep improving.

Nitrogen

I read the questions in advance of the interview, and I think I am not the one to answer these. I am working here since January 2020, and once I was aware of my position in the company and all internal relations, Corona happened and completely took over. The Nitrogen Crisis was put to the background on my department.