Legal and regulatory obstacles in small-scale producing

25-6-2021

"In what ways can the viability of Dutch small-scale producers of animal-based products be enhanced with regards to food safety regulations?"

ACT GROUP 2656

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YMC-60809 Period 6 of academic year 2020-2021 (May-June)

Group 2,656

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Preface

Regulations to which small-scale producers of animal-based products need to adhere are mostly based on large-scale (conventional) producers, this forms obstacles for small-scale producers. In this report, obstacles are explained that small-scale producers of animal-based products come across. Obstacles experienced by small-scale producers can be of all sorts of kinds and therefore we chose to demarcate our research and focus on regulations regarding food safety.

This research is done with a team of six students from Wageningen University for the course Academic Consultancy Training. The team consists of three MSc Animal Sciences students, Kirsten Elzinga, Inge Sikkema and Pauline Willemsen, one MSc Organic Agriculture student, Guus van der Aa, one MSc Environmental Sciences student, Nora Stein, and one MSc Economics and Governance student, Wim Elshof. The diversity of expertise within the team results in having different angles from which certain aspects will be looked at. Besides theoretical knowledge on agriculture, every student is familiar with practical experiences as well. Having experience from both a theoretical as a practical point of view, improves empathy and motivation for the project.

The report is commissioned by the Science Shop of the WUR with Adriaan Antonis. The biggest motives for the project are Stichting Zeldzame Huisdierrassen (SZH) and Doetie's Geiten. However, besides these two motives, the project concerns all small-scale producers in the Netherlands. Not only did we explain the obstacles that were indicated by the small-scale producers, but we also set up possible solutions and recommendations. This way we hope to be a helping hand for all small-scale producers in the Netherlands to improve their viability and make sure this sector does not get lost.

During the research and writing of the report, we have been overwhelmed by all different inputs that small-scale producers as well as experts gave us regarding food safety obstacles. It has been a challenge to know when to stop taking in more information since time was a big limiting factor. The motivation within the team to work on this project has been great, making it even more bummed to have to leave certain things out.

Cooperation within the team has been great. We did not know each other (that well) beforehand but ended up being very comfortable around each other and sharing both content related as well as personal related things with each other. Team functions were divided beforehand by applying for a certain position. The Manager function was fulfilled by Kirsten, the Secretary function by Wim, the Controller function by Pauline and the Project Member functions were fulfilled by Guus, Inge and Nora. As is implied by the function division, meetings were chaired by Kirsten and minutes were created by Wim. However, to involve every team member in all tasks, chairing and taking minutes were often also done by other team members than the Manager and Secretary. Doing a diversity of tasks best supported the personal and team process during the project.
Not only did we work on the process during project related meetings, we also have organised several activities outside of work time. These activities were an afternoon drink, dinner at the Rhine and climbing indoors.

Not only did we work on this project with our team, but we also received help. Once a week we met up with our commissioner, Adriaan Antonis, who came up with ideas for our project, gave his motivational insights and shared valuable information and contacts. Also, our academic advisor, Marcel Vijn, was important for this project as he steered us into the right direction and shared his knowledge, ideas and insights with us. Lastly, we were guided by our coach, Lambertus Vogelzang, who we met up with at least once a week and gave us tips on the team process as well as individual process. We want to thank Adriaan, Marcel and Lambertus for their help and support during this project!

Summary

Small-scale producers are a group of producers with their own unique, authentic practices and products. They could contribute to the preservation of rare breeds and often have a short supply chain. However, the extensive regulations on food safety are a problem for small-scale producers. In most cases they need to adhere to the same food safety regulations as large-scale producers when selling their products, while their financial position and their productivity are often not comparable to larger farms. This negatively affects the viability of small-scale producers. Therefore, the aim of this report is to elaborate ways to enhance the viability of Dutch small-scale producers of animal-based products with regards to food safety.

As there is no standard definition of a small-scale producer, we made our own definition based on the concept 'Standaard Verdien Capaciteit. With the use of a survey we identified the legal and regulatory obstacles that small-scale producers experienced with regards to food safety. In addition to the survey, we did several interviews with small-scale producers and experts to get more insight into the obstacles that were mentioned and the possible solutions. With the use of this information we identified the general obstacles and elaborate on the two main obstacles.
The first main obstacle 'Checks by monitoring organisations' was mainly mentioned by goat- and chicken farmers. They indicated that most of the rules are made for large-scale producers, especially with regards to the costs they have to make for monitoring organizations, such as NVWA. An example that was mentioned was the Q-fever vaccination. These high costs could be overcome if exceptions are made for small-scale producers. This could be done by making a label for authentic local products or providing subsidies to small-scale producers.

The second main obstacle 'Slaughter and home sales of meat' is related to the high amount of rules and costs related to slaughtering of their animals and selling their meat themselves. In addition, the cooled transportation of meat and carcasses is also seen as an obstacle as this gives high costs for the small-scale producers. Some organic small-scale producers experience problems with finding a suitable slaughterhouse for their animals, as SKAL certified slaughterhouses are sometimes too far away. A possible solution can be a mobile slaughterhouse. This would give opportunities for organic small-scale producers to sell their meat with the SKAL certificate, regardless of the distance to SKAL certified slaughterhouses. Problems related to the transport of animals to the slaughterhouse and the transport of the meat back to the farm can be overcome as well. As this concept is relatively new in the Netherlands, it is hard to indicate the exact effect.

Next to these problem specific solutions, we also recommend to unite small-scale producers. With the foundation of a small-scale producer association, small-scale producers can discuss obstacles, their solutions, exchange knowledge and represent interests. This association can be linked to a website, where regulations can be summarized to make it easy for small-scale producers to find rules and regulations applicable to them. This website can also function as a platform where knowledge can be exchanged. In addition, the handbook 'Huisverkoop biologisch vlees' can be extended with the obstacles found in this report and the rules and regulations that causes these obstacles, to give a clear overview to the small-scale producers. Another way to unite small-scale producers is to collaborate in a common concept. The small-scale producers will then only be responsible for part of the process, making the understanding of the rules and regulations easier.

Further obstacles that were named by small-scale producers are labelling, raw milk cheese, disapproval for slaughter, administrations and registrations. In addition, some small-scale producers had difficulties understanding the hygiene codes provided by branch organizations. In other cases, the hygiene codes were not completely usable as the production method of the small-scale producers differ from the one described in the hygiene code. To solve this, small-scale producers can write their own hygiene code, which could be done with the help of an expert or the small-scale producer association. The latter could also help to clarify the hygiene codes to small-scale producers who experience difficulties with this.

Samenvatting

Kleinschalige producenten zijn een groep producenten met hun eigen unieke, authentieke praktijken en producten. Ze kunnen bijdragen aan het behoud van zeldzame rassen en zijn vaak onderdeel van een korte keten. De uitgebreide regelgeving omtrent voedselveiligheid is echter een probleem voor kleinschalige producenten. In de meeste gevallen moeten zij zich bij de verkoop van hun producten houden aan dezelfde voedselveiligheidsvoorschriften als grootschalige producenten, terwijl hun financiële positie en productiviteit vaak niet vergelijkbaar zijn met grotere landbouwbedrijven. Dit heeft een negatieve invloed op de levensvatbaarheid van kleinschalige producenten. Het doel van dit rapport is dan ook om mogelijkheden uit te werken om de levensvatbaarheid van Nederlandse kleinschalige producenten van dierlijke producten op het gebied van voedselveiligheid te vergroten.

Omdat er geen standaarddefinitie is van een kleinschalige producent, hebben we onze eigen definitie gemaakt op basis van het concept 'Standaard Verdien Capaciteit. Met behulp van een enquête hebben we de wettelijke en regelgevende obstakels geïdentificeerd die kleinschalige producenten ondervonden op het gebied van voedselveiligheid. Naast de enquête hebben we verschillende interviews gedaan met kleinschalige producenten en experts om meer inzicht te krijgen in de genoemde obstakels en de mogelijke oplossingen. Met behulp van deze informatie hebben we de algemene obstakels geïdentificeerd en de twee belangrijkste obstakels uitgewerkt.

Het eerste belangrijke obstakel "Controles door toezichthoudende organisaties" werd vooral genoemd door geiten- en kippenhouders. Zij gaven aan dat de meeste regels zijn gemaakt voor grootschalige producenten, met name wat betreft de kosten die zij moeten maken voor toezichthoudende organisaties, zoals de NVWA. Een voorbeeld dat genoemd werd was de Q-koorts vaccinatie. De hoge kosten kunnen worden overwonnen als er uitzonderingen worden gemaakt voor kleinschalige producenten. Dit kan worden gedaan door een etiket op authentieke lokale producten te maken of subsidies te verstrekken aan kleinschalige producenten.

Het tweede belangrijke obstakel "Slachten en huisverkoop van vlees" houdt verband met de hoge hoeveelheid regels en kosten in verband met het slachten van hun dieren en de verkoop van hun vlees zelf. Daarnaast wordt het gekoelde transport van vlees en karkassen ook als een obstakel gezien, omdat dit hoge kosten met zich mee brengt voor de kleinschalige producenten. Sommige biologische kleinschalige producenten ondervinden problemen bij het vinden van een geschikt slachthuis voor hun dieren, omdat SKAL-gecertificeerde slachthuizen soms te ver weg zijn. Een mobiel slachthuis zou een mogelijke oplossing zijn. Dit zou biologische kleinschalige producenten de mogelijkheid bieden om hun vlees met het SKAL-certificaat te verkopen, ongeacht de afstand tot SKAL-gecertificeerde slachthuizen. Ook problemen in verband met het vervoer van dieren naar het slachthuis en het vervoer van het vlees naar het bedrijf kunnen worden overwonnen. Omdat dit concept in Nederland relatief nieuw is, is het moeilijk om het exacte effect aan te geven.

Naast deze probleemspecifieke oplossingen raden we ook aan om kleinschalige producenten te verenigen. Met de oprichting van een kleinschalige producentenvereniging kunnen kleinschalige producenten obstakels en hun oplossingen bespreken, kennis uitwisselen. Deze vereniging kan worden gekoppeld aan een website, waar regelgeving kan worden samengevat om het voor kleinschalige producenten gemakkelijk te maken om regels en wetten te vinden die op hen van toepassing zijn. Deze website kan ook fungeren als een platform waar kennis kan worden uitgewisseld. Daarnaast kan het handboek 'Huisverkoop biologisch vlees' worden uitgebreid met de belemmeringen in dit rapport en de wet- en regelgeving die deze belemmeringen veroorzaakt, om een duidelijk overzicht te geven aan de kleinschalige producenten. Een andere manier om kleinschalige producenten te verenigen is door samen te werken in een gemeenschappelijk concept. De kleinschalige producenten zijn dan slechts verantwoordelijk voor een deel van het proces, waardoor het begrijpen van de regels en voorschriften makkelijker wordt.

Andere obstakels die door kleinschalige producenten werden genoemd, zijn etikettering, rauwmelkse kaas, afkeuring voor de slacht, administraties en registraties. Bovendien hadden sommige kleinschalige producenten moeite om de hygiënecodes van brancheorganisaties te begrijpen. In andere gevallen waren de hygiënecodes niet volledig bruikbaar, aangezien de productiemethode van de kleinschalige producenten verschilt van de in de hygiënecode beschreven methode. Om dit op te lossen, kunnen kleinschalige producenten hun eigen hygiënecode schrijven, dit kan worden gedaan met de hulp van een expert of de kleinschalige producenten vereniging. Dit laatste zou ook kunnen helpen om de hygiënecodes te verduidelijken voor kleinschalige producenten die hier problemen mee ondervinden.

List of Abbreviations

BBZ - Bond van Boerderij-Zuivelbereiders (‘Association of Farm-Dairy producers’)
BVD - Bovine Virus Diarrhoea
CAE - Caprine Arthritis Encephalitis
CCP - Critical Control Points
CL - Caseous Lymphadenitis
COKZ - Controle Orgaan KwaliteitsZaken (‘Control Organisation Quality Affairs’)
DALY - Disability Adjusted Life Years
FBD - FoodBorne disease
FSMS - Food Safety Management System
GD - Gezondheidsdienst voor Dieren (‘Animal Health service’)
GI - Geographical Indication
HACCP - Hazard Analysis Critical Control Points
IBR - Infectious Bovine Rhinotracheïtis
LNV - Ministerie van Landbouw, Natuur en Voedselkwaliteit (‘Ministry of Agriculture, Nature and Food Quality’)
MDU - Mobiele Dodings Unit (Mobile Killings Unit)
MS - Mobiel Slachthuis (Mobile Slaughterhouse)
NVWA - Nederlandse Voedsel- en Waren Autoriteit (‘The Netherlands Food and Consumer Product Safety Authority’)
Skal - Skal Biocontrole
SFA - Small Farms Association
SO - Standaard Opbrengst (‘Standard Output’)
SVC - Standaard VerdienCapaciteit (‘Standard Earning Capacity’)
SZH - Stichting Zeldzame Huisdierrassen (Foundation of Rare Livestock Breeds)

Content

1. Introduction

There are many stories about small-scale producers of animal-based products (further referred to as small-scale producers) who try to put their ideas into practice but run into regulatory obstacles (van der Voort et al., 2011). These obstacles can be so obstructive that it adversely affects or even stops development. A specific group of small-scale cheese makers, including Doetie's Geiten, experiences difficulties with the regulations. These regulations are not in line with their practices of cheese making. Therefore, they asked the Science Shop of Wageningen University & Research for help. Together with the Foundation of Rare Livestock Breeds (Stichting Zeldzame Huisdierrassen; SZH) this project was formed. The SZH promotes the use of authentic Dutch breeds to preserve them and their genetic diversity. As such rare breeds are often used by small-scale producers, they also have an interest in this project. During this project, the focus will be on identifying obstacles for small-scale producers, related to food safety rules and regulations. Adriaan Antonis represents Doetie's Geiten and the SZH as commissioner of this project.

Farming and food production touches upon many kinds of regulations. Quite often, a farm needs land, and must comply with spatial planning regulation. If animals are reared, regulation about animal welfare, environment and construction are inevitable. If products are processed and sold at home, regulation about food safety, human health and commerce can also not be denied (van der Heijden, 2005). Each starting entrepreneur needs to sort out which regulations are relevant for their case. Although regulations could be constraining to new small-scale producers, they are also a necessity to guarantee safety of the consumers (van der Meulen, 2014).

The small-scale producers are a group of food producers that are hard to define. They can differ strongly from typical companies in the Dutch agro-food sector (Hylkema, 2020). They often have authentic and/or innovative practices, such as recipes, breeds, processing methods, selling methods, product taste and quality. Authentic products and practices are based on a deep passion, a way of thinking, a way of life, or nostalgia (van Dijk et al., 2020). Due to the unique nature of individual small-scale producers, the group is very diverse. This uniqueness is in fact their license to exist as an entrepreneur. They often deviate from the common products produced by large-scale producers. The quality, taste, and story behind the products provide strong stimuli for consumers to take the extra effort to purchase the products somewhere else than in the supermarket. It also shortens the supply chain, which is beneficial for the rural community (Peters et al., 2012). Consumers have the option to stand face to face with the person, farm or processer from where the product originates.

Given the benefits that accompany small-scale producers, these entrepreneurs should be valued. A thriving small-scale producing sector can also contribute to the preservation of rare livestock breeds, craft traditions, and locally produced products. The viability of these businesses needs to be ensured, also in the future (van der Schans & van Wonderen, 2019). Start-ups especially should be assisted in the realization of their ideas. At the same time, the diversity of small-scale producers also increases regulatory complexity. No matter how special or good a product and practice may be, by principle and law, all food producers need to comply with food and farming regulations. For the government it is impossible to create context-specific regulation for each individual food producer. Therefore, categories and limitations are formed. It is the responsibility of the food producers to know what is relevant for them, and to comply with these regulations.

The extensive regulations on food safety could potentially be a problem for small-scale producers (van Asselt & van der Spiegel, 2013). They experience difficulties to cope with rules and regulations on food safety set by the European Union and national governments (Hylkema, 2020). For these producers to be able to sell their products, in most cases they need to adhere to the same food safety regulations as other large producers, i.e., while the financial position and their productivity are in most of the cases not comparable to larger farms (van der Voort et al., 2011). Van Ruitenbeek (2012) showed in his report that the financial obstacles for small-scale producers mainly have to do with the costs associated with the checks by e.g. the NVWA, which have to be paid by the producers themselves in the case of dairy and meat. Additionally, inspectors mainly think in protocols, which

are focused on intensive farming systems. Small-scale producers do value their own perception. To overcome these problems, small-scale producers can in principle produce their own hygiene code. However, they often lack the knowledge and/or experience to develop such a hygiene code (WHO, 2006). These problems could negatively affect the viability of small-scale producers. This has led to the following research question:

In what ways can the viability of Dutch small-scale producers of animal-based products be enhanced with regards to food safety regulations?

To be able to answer the research question properly, several sub-questions are formulated:

1. *What are the most important legal and regulatory obstacles that Dutch small-scale producers of animal-based products experience with regards to food safety?*
2. *What are possible solutions to overcome these legal and regulatory obstacles?*
3. *Which stakeholders can be identified in relation to these legal and regulatory obstacles and what role can they play in the proposed solutions?*

These questions were researched by conducting an online survey among small-scale producers and by conducting nine interviews including both small-scale producers and experts. The survey and interviews were complemented by a literature research on the identified obstacles as well as their possible solutions.

In the following chapter, this methodology will be described in more detail. After that, the results of the research will be elaborated in chapter 3. Why do we have food safety regulations? Who are small-scale producers? What are the obstacles, possible solutions and relevant actors? The answers to these questions will be discussed in chapter 4. What are the strengths, limitations and ethical concerns? Finally, we conclude our findings, insights and suggestions in chapter 5 and of course, what are our recommendations? For further information about the research, such as the survey questions, interview questions and interview summaries.

2. Methodology

As a research design a cross-sectional study design was used. This design was suitable for this research, as it is used for investigating a phenomenon, situation, problem, attitude or issue at a certain point in time and a certain study population (Kumar, 2014). Furthermore, as Kumar (2014) states, these designs "are useful in obtaining an overall 'picture' as it stands at the time of the study" (p. 134). In this research this refers to the investigation of the current problem of food safety rules that form obstacles for small-scale producers.

Within this research design a mixed-methods approach was used whereby both quantitative and qualitative research methods are used. The survey was used to identify the main obstacles for small-scale producers regarding food safety regulations and in turn two main obstacles were identified that determine the focus of the more in-depth interviews. This is also referred to as facilitation, whereby in this case the quantitative research method (survey) facilitates the qualitative method (interviews) (Bryman, 2004).

2.1 Research methods

2.1.1 Literature research

A literature research was done to gain more information on the food safety rules and regulations that apply to small-scale producers. To get this information, websites of organisations that play a critical role in food safety regulations for animal-based products were visited. Furthermore, policy documents containing these rules and regulations were reviewed and this data was used as a base for the topics discussed in the survey.
Also, a literature research was done to gain more information on the obstacles that food safety regulations form for Dutch small-scale producers according to literature and the possible solutions to these obstacles. Apart from its goal of gaining more information on the topic of this research, the literature research is also used to set boundaries, as it was an important method to determine the definition of small-scale producers that is used in this project.

To perform the literature research, online search engines were used, including Google Scholar and Scopus. To make sure that there was sufficient literature available, both academic and grey literature were used.

Searchterms: small-scale producers; small-scale agriculture; local producers; local farmers; local food; regional farmers; regional food; authentic food; authentic agriculture; traditional producers; traditional farmers; traditional food; culinary food; culinary subsidies; authentic food subsidies; agricultural subsidies; authentic label; traditional label; authentic certificate; traditional certificate; small-scale producers union; association; cooperation; food safety and hygiene; food safety regulations; HACCP; hygiene code; food diseases regulations; zoonose regulations; mobile slaughterhouse; mobile killing unit; mobile slaughterhouse; animal welfare; food safety; food quality; institutions; NVWA; regulations; transport; traditional slaughterhouse; food safety

2.1.2 Survey

To obtain more information on the current obstacles regarding food safety regulations that Dutch small-scale producers face, an online survey was conducted. For more background information on the respondents, see Table 1. The purpose of the survey was to get quantitative data on the obstacles and to gain insight into the size of the obstacle for each topic that was identified by the literature research. This was done by incorporating a scale from 1 to 10 in each question about a certain food safety topic, so respondents could indicate how much they saw the particular rule as an obstacle for their business. Apart from multiple choice and scaling questions, the survey also included

open questions to receive qualitative data. This was needed to obtain more information on the specific rules that belonged to a certain topic that formed an obstacle and why.

The sampling of respondents was done by both using the network of the commissioner of this project and by searching online for relevant organisations, to ask them to send the survey to their members via email. Furthermore, the survey was also posted in 3 different Facebook groups with potential small-scale producers as followers and it was posted on LinkedIn and subsequently shared with our commissioner and academic advisor to also make it visible to their followers. As an incentive for filling out the survey, a present in the form of a package with local food products from a farm in Wageningen was raffled among the respondents.

Other than mentioning that the survey was meant for small-scale producers producing animal-based products, the respondent group was not strictly demarcated. This was mostly due to the limited amount of time that was available to conduct the survey, meaning that it was more difficult to get enough responses. To increase the response rate, we first awaited the number of respondents before deciding if this group needed to be demarcated more strictly, thereby possibly excluding some responses. In the end the survey was filled in by 29 respondents, of which 7 were removed from the results. They were removed because they did not meet the requirements of the target group, either due to their size (too large-scale) or due to the kind of animal they had (fish).

Table 1. Description of respondents of the survey.

Respondent	**Omschrijving**
1	Owner of a city farm with 45 chickens, also produces vegetables and herbs.
2	Owner of a "hobby farm" with 20 chickens
3	Owner of 65 blonde d'Aquitaine cows and sells meat
4	Owner of chickens and 3 sows. Produces and sells meat.
5	Owner of a "hobby farm" with one sow.
6	Owner of 30 pigs.
7	Owner of goats, pigs, sheep and cows.
8	Owner of 3 lakenvelder cows and 15 sows.
9	Owner of 10 lakenvelder cows.
10	Owner of a carefarm with goats, chickens, cows, sheep and pigs.
11	Owner of 10 lakenvelder cows.
12	Owner of a mixed organic farm with 450 pigs for meat and produces vegetables.
13	Owner of 90 lakenvelder cows.
14	Owner of a rare species poultry farm.
15	Owner of 500 sheep and produces milk, buttermilk and butter.
16	Owner of cows and sheep, produces milk.
17	Produces milk and ice.

18	Owner of an organic goat farm with 90 goats and produces goat cheese.
19	Owner of 122 goats and produces goat cheese.

20	Owner of a sheep farm.
21	Owner of 80 goats, sheep and pigs, produces dairy and meat.
22	Owner of 30 goats, produces goat cheese.

2.1.3 Interviews

In addition to the survey, we also gathered more detailed information by the conduction of semi-structured interviews. We conducted nine interviews on food safety regulations, of which two interviewees were experts and seven interviewees were small-scale producers of animal-based products. For more background information on these interviewees, see Table 2. Four of these interviews were conducted in real life and five were conducted online via Microsoft Teams. The reasons that some of them were done online were the restrictions regarding COVID-19, and to make more efficient use of the limited time and limit the traveling costs. The interviews with small-scale producers that were conducted in real life were meant to give more insight into the practices of small-scale producers and their contexts.

Semi-structured interviews were considered the most appropriate research method for gathering more detailed information on the specific food safety regulations that form an obstacle for small-scale producers, because they allow for more in-depth questioning (Kumar, 2014). The semi-structuredness of the interviews meant that a list of predetermined topics was made to be discussed with all respondents, which in turn allowed for comparison and triangulation of answers of the different interviewees (Bryman, 2004). At the same time, the semi-structuredness allows for probing when interesting information comes up and therefore increases the possibilities to get relevant information for the research and gain new insights (Kumar, 2014).

The sampling of interviewees was done in a non-random way, by using the network of the commissioner of this project and by asking respondents of the survey if they were interested in doing an interview. This way we could select interviewees according to the obstacles and kind of farm animals they had, to get a good variety in the interviewees and to have more detailed information on certain obstacles. This is also referred to as purposive sampling, which means that the interviewees are chosen in a strategic way to increase the correspondence between the research questions and the information gathered from the interviewees (Bryman, 2004).

The four interviewees with small-scale producers that were reached via the network of the commissioner, were done to gain more in-depth information on the food safety regulations in general. They also provided an important addition to the information retrieved from the survey, as they included roughly the same questions and could therefore be used as a triangulation method to compare with the results from the survey. Furthermore, four of these interviews were done in real life and therefore provided more context to the respondents by viewing the kind of farm and its activities in reality.

The three interviewees done with small-scale producers that were contacted as a result of their response to the survey, were meant to give more in-depth information on certain obstacles regarding food safety regulations that they indicated as important obstacles in the survey. This adds more qualitative depth to the report and makes it more understandable by adding concrete examples of problems that occur for small-scale producers.

Finally, two expert interviews were conducted with a dairy expert and a meat expert, to get more in-depth information on the existing rules and regulations regarding food safety and possible solutions to the obstacles that they form for small-scale producers. These expert interviews were arranged by expert sampling, meaning that they were contacted as a result of their known expertise in the subject (Kumar, 2014). They were planned at a later stage in the project to allow for a substantive discussion on possible solutions. This way it was also possible to check if the answers from the survey and interviews with small-scale farmers matched the information given by the expert, thereby giving an indication on the reliability of the survey and interview results.

All interviews were meant to provide more information on the relevant stakeholders that are involved in the identified obstacles. This information was in turn used to give a better overview of the involved stakeholders and to investigate the role they play or can play in the proposed solutions.

Table 2. Description of interviewees.

Interviewee	**Description**
Barbara Hart	Barbara Hart is an expert in the field of dairy. She has her own consultancy firm, Barlactica. She advises mainly traditional dairy producers. In addition, she gives courses to farmers about hygiene codes.
Barend Wouters	Barend Wouters is a hobby farmer with pigs, cows, sheep, goats and chickens. With his 2 Bonte Bentheimers he produces some meat.
Doetie Trinks	Doetie Trinks is a small-scale producer with 69 producing goats. She produces cheese and meat. She produces the cheese with raw milk in a traditional way.
Geert van der Kaa	Geert van der Kaa is a small-scale poultry producer with in total 1200 animals, which include 400 dams. He has his own farm shop and slaughterhouse.
Harry van Wenum	Harry van Wenum is a small-scale producer with an organic goat farm. He has 90 producing goats. His main product is raw milk cheese, but they also sell the meat of their goats.
Nico Steintjes	Nico Steintjes is a small-scale producer with a farm shop, where they sell their own cherries and meat of their animals. They have 10 breeding sows, 100 finishing pigs and around 20 to 25 cows with young stock.
Maria van Boxtel	Maria van Boxtel is an expert in organic farming. She is an advisor of Land & Co. She advises farmers about selling their products in their farm shops. She works together with the government to clarify rules for producers.
Peter Wijnen	Peter Wijnen is a small-scale producer with an organic pig farm. He has 3 sows, 1 boar and 30 to 35 piglets, which are slaughtered at one year of age.
Stan Gloudemans	Stan Gloudemans has a pig company named “Buitengewone varkens”. He had 15 sows on 20 different locations. In total there are 300 pigs produced per year, which are mainly sold to restaurants and horeca.

2.2 Analysis of results

2.2.1 Survey

To give a clear overview of the general information on the respondents, pie charts and a bar chart were made to visualise information on their geographical location, the types of products they produce and the scaling of their perception on food safety regulations as an obstacle.

The qualitative information from the survey was analysed by assigning codes to the responses. First, a small summary was written from the answers of each respondent, highlighting the most important results in each response. Consequently, all summaries were read and themes were identified that emerged from the responses. Three code categories were identified in relation to obstacles, and these were in turn sub-divided into sub-codes. This was done by highlighting pieces of text from the answers of the survey with a certain colour corresponding to the code categories. This analysis led to the identification of three important obstacles, of which two were chosen to elaborate on.

2.2.2 Interviews

During the interviews notes were made and they were all recorded. Using this, a summary was made of each interview in which the most important topics and relevant quotes were written down. These summaries were in turn used to incorporate the data of the interviews and the relevant quotes of the interviewees in the report.

3. Results

In the following chapters the results of the research are elaborated. Section 3.1 is about the background of food safety and hygiene regulations. Why do we have laws and regulations for food safety and hygiene in the first place? Section 3.2 is about the definition of small-scale producers. Which producers do we consider to be small-scale producers? After that, the respondents of the survey that do not meet our definition of small-scale producers can be filtered out in section 3.3.

In section 3.4, the general obstacles that were mentioned in the survey and interviews are summarised. After that, two main obstacles were picked out for further elaboration on the definition of the obstacle, possible solutions and the relevant actors that should be involved in sections 3.5 and 3.6. Lastly in section 3.7, we present possible solutions that are relevant to both main obstacles of sections 3.5 and 3.6.

3.1 Background information on food safety regulations

As a start, it is relevant to ask why there are regulations on food safety and hygiene. The origin of food safety regulations lies with human health issues. There are many ways by which pathogens are able to reach and infect humans. One of these is by infested food. Diseases that are caused by eating food that is infected by a pathogen, such as diarrhoea, are called foodborne diseases (FBD) (Koopmans & Duizer, 2004). The Foodborne disease burden Epidemiology Reference Group was appointed by the WHO to investigate the global and regional burden of FBD for all the WHO regions (Pires et al., 2021). The burden of FBD is nowadays expressed by a new metric, namely the number of disability adjusted life years (DALY) (Pires et al., 2021). This is the number of years that are lost by a specific population due to getting ill from eating infected food. The burden of FBD in the Netherlands is 82 DALYs per 100.000 inhabitants (Havelaar et al., 2012). This is relatively low as compared to African countries with 1200-1300 DALYs per 100.000 inhabitants and slightly higher than the average of European regions with approximately 50 DALYs per 100.000 inhabitants (Havelaar et al., 2015). Overall, FBD contributes significantly to an increase in DALYs (WHO, 2017).

The ten most important pathogens in the European WHO region are *Noroviruses, Campylobacter spp., Toxoplasma Gondii, Salmonella, Hepatitis A. virus, Brucella spp., Mycobacterium Bovis, Listeria Monocytogenes, Echinococcus Multilocularis* and *Escherichia Coli* (WHO, 2017). Besides microorganisms, other causes for FBDs are chemicals, toxins, and allergies (Efsa Panel on Dietetic Products & Allergies, 2014; WHO, 2016). However, most of the incidences are due to pathogens. According to the pathogen-specific DALYs, the four pathogens with the highest disease burden in the Netherlands are *T. Gondii, Campylobacter spp., Noroviruses* and *Salmonella spp*. (Havelaar et al., 2012). Additionally, due to the high hygiene standards in the Netherlands, the immunology of the population for certain pathogens like Hepatitis A. decreases, because the population is less often exposed to these pathogens. Foodborne *Hepatitis A*. is therefore an increasing problem to human health (Koopmans & Duizer, 2004).

Contaminated food and food infected with pathogens needs to be avoided in order to be safe for humans to consume. In order to guarantee the safety of the food chain in the Netherlands, two extensive laws and regulations have been established. The Warenwetbesluit Bereiding en behandeling van levensmiddelen (Commodities Act Decree Preparation and handling of foodstuffs) and the Warenwetbesluit hygiëne van levensmiddelen (Food Hygiene Commodities Act Decree) (Wettenbank, 2019 & 2020). These laws contain thresholds for all kinds of quality and safety standards, such as the maximum amount of pathogens that are allowed to be present in products. In order to live up to the requirements of the law, many treatments, measurements and practices need to be performed. These practices differ among pathogens and products and are used to inactivate the pathogens. For example, to counter *Hepatitis A.* in dairy products, the produce needs to be sufficiently heated to arrive at the maximum allowed amount of *Hepatitis A.* virus in the product (Bidawid et al., 2000). In order to ensure proper treatment of food to guarantee safe food for

consumers, the standards, guidelines and codes of practice need to be captured in the Hazard Analysis Critical Control Points (HACCP).

The HACCP is a food safety system that invests risk factors related to food safety (NVWA, 2019). Producers of animal-based food products have to follow a hygiene code. These hygiene codes are formed by the branch organizations and are based on the seven principles of the HACCP. If producers follow such a hygiene code, they will automatically ensure the requirements of the law. Furthermore, there is a possibility to write an own food safety plan based on the seven principles of the HACCP (NVWA, 2017a).

The seven principles of the HACCP are meant to indicate the potential risk factors that could play a role in the production of a certain product (Table 3). This is followed by the identification of so-called critical control points (CCPs). CCPs are points in the production process where these risks can be prevented, reduced or eliminated to an acceptable level. These CCPs have to be guarded and corrective measures have to be determined, so that if the CCPs are not managed, these corrective measures can take place. The safety of the model will be checked with the use of verification and the hygiene code will be documented and registered (NVWA[b], 2017). Hygiene codes thus function as a guideline for producers to follow the food safety laws.

Table 3. The seven principles of the HACCP (FDA, 2017).

Principle 1	Conduct a hazard analysis
Principle 2	Determine the critical control points (CCPs)
Principle 3	Establish critical limits
Principle 4	Establish monitoring procedures
Principle 5	Establish corrective actions
Principle 6	Establish verification procedures
Principle 7	Establish record-keeping and documentation procedures.

In general, all food producers and food producing companies need to ensure food safety to contribute to societal health. They are obliged to develop or comply with the HACCP system to make sure the food is not a threat for human health. As elaborated above, the importance cannot be denied. But how do these regulations affect small-scale producers and what if they become an obstacle?

3.2 Definition small-scale producers

To be able to identify the legal and regulatory obstacles for small-scale producers, first a definition of "small-scale producers" is required. Different institutions use different mechanisms to define small-scale producers. For example, Skal Biocontrole (Skal) - the independent organization that supervises the organic chain in the Netherlands – grants lower tariffs for small-scale organic farms. According to the definition of Skal, a farm is small-scale when its annual turn-over is lower than 50.000 euros (Skal, 2019). Also, on an international scale, efforts have been made to define small-scale producers, whereby farms are categorised utilising both physical and economical size. According to this definition, small-scale producers should be positioned in the first two quintiles of the cumulative distribution of both the number of livestock and land at national levels (FAO, 2018). This means that producers both have to be in the group of the 40 percent smallest farms in terms of the number of livestock as well as in the group of the 40 percent smallest farms in terms of land use to be defined as small-scale producers.

The definition of small-scale producers is subject to many different interpretations. For the sake of clarity and consistency, this research proposes a definition that will be used throughout the research. The definition that we will use is based on the concept 'Standaard Verdiencapaciteit' ('standard earning capacity'), further referred to as SVC. This concept was commissioned by the Dutch Ministry of Economic Affairs in 2009, to make it easier to compare different types of agricultural businesses. The SVC is based on the 'Standaard Opbrengst' ('standard output'), further referred to as SO, which assigns a standardized revenue per animal and hectare on an annual basis. The SO-norm is determined by the agricultural census, last attuned in 2017. This creates a summation for the total value of one agricultural business. The SVC allows for the comparison of farms that produce products

with different amounts of added values. It considers coefficients for every SO-group according to the compensation for labour and capital remaining for that specific group of agricultural products (Wisman, 2021). This means that every farmers' SVC is calculated by multiplying the SO of every agricultural product with the standard earning coefficient of that product.

In this report we will use the SVC per annual work unit to determine the scale of producers of animal-based products. One annual work unit contains 2,000 full working hours (LEI, 2010). For the usage of SVC, standard size classes have been assigned to determine the scale of farms. When a farm has a SVC of lower than 25.000 euros with at maximum 0,75 annual work units, it will be referred to as a very small business (Wisman, 2021). According to this statement, we can state that a farm in our project will be defined as small-scale when the SVC is lower than 33.000 euros per annual work unit. This is calculated by multiplying the small-scale producer limit of 25.000 times the maximum amount of annual work units of 0,75. In Table 4 an example of the SVC calculation is displayed. In this example, the farm would not be defined as a small-scale farm according to the SVC definition.

Table 4. Example calculation SVC.

Rubric	Number of units	SO-norm	Coefficient	Total SVC
Dairy and calf cows	100 cows	3.360,00	0,209	70.224,00
Young stock < 1 year, female	45 cows	355,00	0,209	3.338,78
Young stock 1-2 years, female	40 cows	505,00	0,209	4.221,80
Permanent grassland	50 hectares	1.180,00	0,406	23.954,00
Silage maize	5 hectares	1.470,00	0,325	2.388,75
Total SVC				104.127,33
Labour hours	80 hours			
Annual work units				2 years
Total SVC per year				52.063,66

3.3 Survey respondent analysis

There were 30 different respondents to the survey. First, we filtered out the respondents that did not meet the definition. To simplify the procedure, we calculated the SVC according to the amount of mentioned farm animals and the number of labour hours per week. In Table 5 this procedure is explained by using data of three different respondents. As mentioned in the small scale producers definition, when the SVC per year exceeds 25.000 euros, the farm will not be regarded as small-scale anymore. Therefore, respondent 3 will be regarded as a small-scale producer and respondent 6 and 24 will not be used in the results of the survey.

Table 5: analyzing farm sizes of respondents

Respondent 3

Rubric	Number of units	SO-norm	Coefficient	Total SVC
Sheep	500 sheep	595	0,055	16.362,50
Total SVC				16.362,50
Labour hours	40			
Annual work units				1 years
Total SVC per year				**16.362,50**

Respondent 6

Rubric	Number of units	SO-norm	Coefficient	Total SVC
Young Stock	200 cows	1350	0,209	56.430,00
Total SVC				56.430,00
Labour hours	80			
Annual work units				2 years
Total SVC per year				**28.215,00**

Respondent 24

Rubric	Number of units	SO-norm	Coefficient	Total SVC
Young Stock	200 cows	1350	0,209	56.430,00
Dairy and calf cows	45 cows	3360	0,209	31.600,80
Total SVC				88.030,80
Labour hours	100			
Annual work units				2,5 years
Total SVC per year				**35.212,32**

After filtering out the large-scale respondents, we had 22 remaining respondents that meet the definition for small-scale producers. As shown in Figure 1, 12 respondents only produce meat, 10 respondents produce meat and dairy, and 2 respondents only produce eggs. As shown in Figure 2, 7 respondents work more than 80 hours per week, while 12 respondents work less than 40 hours a week.

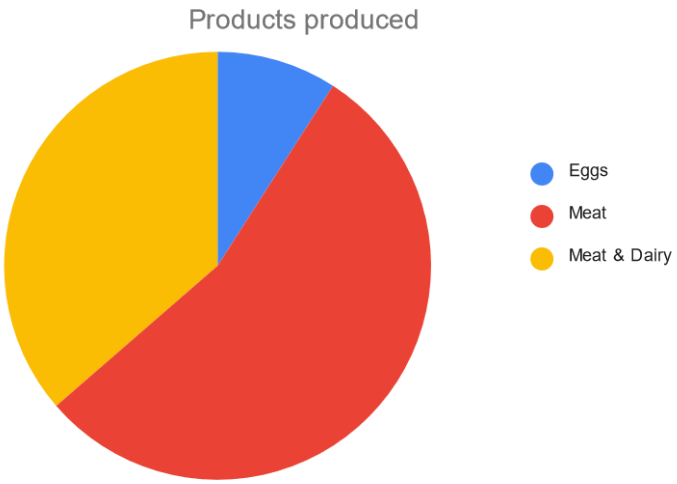


Figure 1. Products produced by respondents

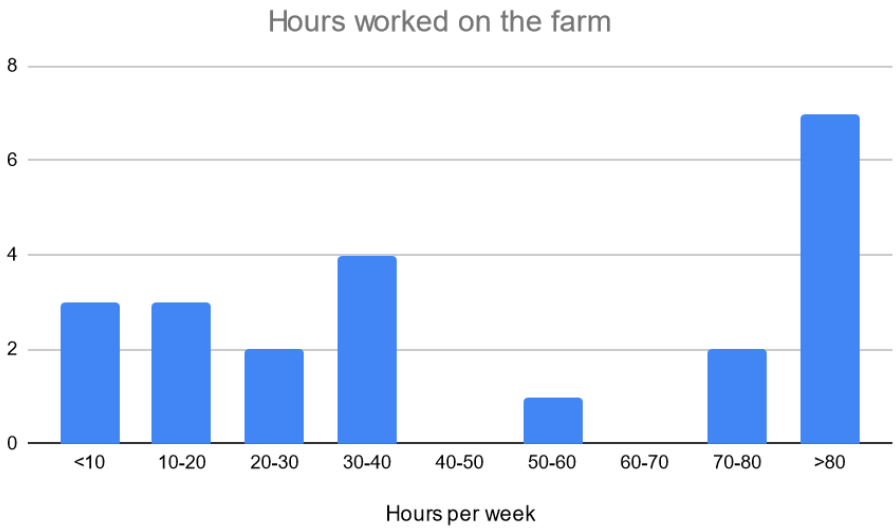


Figure 2. Labour hours respondents

3.4 Obstacles in general

In this section we will explain obstacles regarding food safety that were indicated regularly by the respondents on the survey and the interviewees. Out of these obstacles, two obstacles are picked out for further elaboration in chapter 3.5 and 3.6.

Product labelling
Problems with the labelling of the products were mentioned multiple times by the respondents. This obstacle was indicated by respondents 3, 4, 7, 10, 11, 14, 15, 20, 21 and 22, and Harry van Wenum. To retrieve nutritional values of the produced products, they need to be analysed, for example regarding fats, proteins, and carbohydrates. With a larger diversity of products, more products need to be analysed and therefore the labelling costs increase.

> *Labelling and product information are a big problem. Costs for research on the composition of fat, protein, etc. are very high. If you make multiple products, it will cost you a fortune.* (respondent 15)

The nutritional values as a result of the analyses have to be printed on a label that is placed on the product so that the consumer knows the nutritional composition of the product. Also, nutritional values can vary throughout the year due to influences from changing seasons, different weather conditions and grass growth (respondent 11). This change in nutritional value has a higher impact on small-scale producers compared to large-scale producers, since the products of large-scale producers are all compiled, creating a more homogeneous product. The obstacle on product labelling as mentioned in the survey and interview thus consists of high costs of product analysis and the difficulties related to the changing composition of the products.

Using raw milk
Respondents 15 and 22 produce raw milk cheese. Raw milk cheese is, as the name implies, not pasteurized, meaning that possibly not all (harmful) pathogens are killed. Due to the possible presence of harmful pathogens, there is a risk for FBDs (CDC, 2017). However, the taste of raw milk cheese is different and more unique compared to pasteurized milk cheese. Besides that, the 'good' bacteria that are found to be beneficial for your health are kept alive as well (Quigley et al., 2013). Since raw milk cheese is seen as a risky product, regulations regarding the production of raw milk

cheese are very strict. According to respondents 15 and 22, the regulations are almost too strict to keep producing raw milk cheese.

> *The monitoring costs [of milk and cheese] are relatively high. In particular the checks in connection with STEC. … Since the outcome initially appeared to be variable, the sample was increased from n=1 to n=5. This means that once STEC has been found, you have to check each batch with 5 samples for a year. In fact, that would mean the end of the production of raw milk cheese. The only option is to pasteurize, but with that you lose the uniqueness of your product.* (respondent 15)

Doetie Trinks also produces raw milk cheese. At first she was not allowed to use her own starter culture for this, but after writing her own HACCP and being checked by COKZ (Controle Orgaan Kwaliteits Zaken), she is now allowed to produce raw milk cheese with her own starter culture. Respondent 21 uses his/her own starter culture as well, to produce goat cheese. This is not allowed without writing an HACCP like Doetie Trinks did. Writing an own HACCP requires a lot of knowledge on microbiology as Doetie Trinks indicated.

Disapproval for slaughter
Respondents 6 and 22 point out that regulations that approve an animal to be slaughtered are strict, resulting in animals being disapproved to be slaughtered. Both respondents explained this obstacle with an example. Respondent 6 explained that when a pig has a physical abnormality, such as three legs or a broken leg, while further the pig is in perfect health, it will be disapproved for slaughter. Respondent 22 experienced a disapproval of the slaughter of a goat after an administrative mistake had been made. When an animal is rejected for slaughter, this means that it cannot be consumed, and it is therefore a loss of product.

Administrational burden
Respondent 7 and 15 mention the problem of having to monitor temperatures of all refrigerators and freezers resulting in extremely long lists to keep track of. For them, this causes an administrative burden. Respondent 22 also indicated that the obligated registration of medicine use for his/her goats forms an obstacle. The respondent is uncertain as to how to register the medication, and therefore waiting periods between medication usage and slaughtering become longer.

Checks by monitoring organisations
In the survey, many respondents indicated that they have a problem with the costs and the regulations with regards to the monitoring of the farm and the way of working regarding food safety. These respondents were mostly goat and chicken owners. The problem was indicated by respondents 1, 5, 6, 13, 15, 19, 21 and 22. The checks are done to find out if the food producers live up to food safety regulations, to see if there are no risks for human health. The respondents mention that they have relatively high costs, compared to large-scale producers. It seems to the respondents that the regulations are based on large-scale agriculture.

Slaughter and homesales of meat
Many respondents mentioned problems related to slaughter and the transportation of the meat back home from the slaughterhouse. There are problems and prohibitions that obstruct small-scale producers in their practicalities, according to respondents 1, 4, 5, 9, 10, 12, 13, 19, 25, 26. Even though some respondents would like their animals to be slaughtered at their own property and/or sell their own meat, some of them mentioned that they are held back by the amount of rules and high costs of slaughtering and selling their meat themselves (respondent 1 & 10).

The two obstacles "Checks by monitoring organisations" and "Slaughter and homesales of meat" are picked out for further research. Together with "Product labelling", these obstacles were mentioned the most. However, due to the limited amount of time that is available for this research, only "Checks

by monitoring organisations" and "Slaughter and homesales of meat" were subdued to further research. "Product labelling" and "Checks by monitoring organisations" are both related to the area of monitoring regulations with topics such as product information, processing, and HACCP codes.

3.5 Obstacle 1: Checks by monitoring organisations

3.5.1 Defining the obstacle

There is a wide variety of checks that are related to regulations and/or labels and certificates. Some of them are obligated and some are voluntary. Some checks are free and some cost money. As indicated by respondent 1, they check their cattle on IBR (*Infectious Bovine Rhinotracheïtis)*, BVD (*Bovine Virus Diarrhea*) and *Leptospirosis* which cost money. Respondent 15 explained a similar case where they check their goats in order to get a 'free of CAE/CL'-certificate. Having this certificate can however increase the value of the goats. Geert van der Kaa explained that his chickens need to be checked for *salmonella* and that blood samples need to be drawn. The results of these checks are, however, only valid for two weeks. After this, a sample has to be taken again, accompanied with the related costs.

> *A lot of administration is required, and more is added every time. As being responsible, I am mistrusted by regulators.* (respondent 22)

Besides the health checks of the animals, the way of production and the product itself are being checked as well, which also costs money. Respondent 5 explained that every pig he brings to the slaughter needs to be checked. Also, the produced meat needs to be checked again by taking samples to check the meat's quality, as respondents 5 and 21 explained. Next to the production of meat, the same problem was indicated by respondent 15 with the production of milk and cheese. These products have to be checked on STEC/EHEC (*enterohemorragic E. coli* which is a family of *E. coli*) as these can cause serious infections and diseases in humans.

Most respondents indicate that the food safety regulations are not the problem, as they understand the need for rules to ensure hygiene and food safety. However, according to them, the high costs and applicability of the regulations are an obstacle. They indicate that it seems that the regulations are developed and based on the context of large-scale producers and that the small-scale producers are forgotten.

> *No exceptions are made, making it unattractive for small-scale producers to continue. This is why we are phasing out*. (respondent 6)

This results in small-scale producers having to apply to the same regulations as large-scale producers do and this often leads to problems. An example is the case of respondent 19. Before slaughter of the chickens, the respondent is obligated to check one chicken in the group on salmonella and a blood sample needs to be taken. *Salmonellose* is a bacterium that is present in several kinds of poultry farms. It can cause serious symptoms of illness by young chicks and even death. Furthermore, this bacterium can cause illness for people as well, after eating infected eggs or meat (GD, n.d.-d). The Ministerie van Landbouw, Natuur en Voedselkwaliteit ('Ministry of Agriculture, Nature and Food Quality') (LNV) instructs that every couple of chicks needs to be checked for Salmonella before slaughter. This check takes a large number of samples (GD, n.b.-d). Doing this check costs Geert van der Kaa the same amount of money as it does for a large-scale producer. However, he explained that the groups on the farm contain about two to three chickens, which is way smaller than a large-scale producer and thus relatively more expensive. It is even more expensive since he does not slaughter all chickens in that particular group at the same time. If he wants to slaughter another chicken from that group, another sample will need to be drawn from the same group again, since the check is only valid for two weeks.

Doetie Trinks, Geert van der Kaa, and Harry van Wenum all indicate that the costs belonging to regulations are forming an obstacle. Producers of goat dairy products can check whether their goats

are free of CAE and CL as this raises the value of the goats. *Caprine Arthritis Encephalitis* (CAE) is a virus infection for goats. The disease is untrackable for a longer period of time until it slowly makes the animal very sick and in most cases it will cause death. As the disease can easily travel from animal to animal, the Gezondheidsdienst voor Dieren (dutch 'animal health service') (GD) takes measures to restrict the infection rate of CAE. GD affords a CAE-certification when goat farmers can prove that there are no signs of CAE in their goat herd (GD, n.d.- a). To stay certified, every year or every two years blood samples are taken by a monitoring institution. The amount of blood samples that need to be taken depends on the number of goats that are in production at the farm. Calculation of the sample size is done by means of a sample-table extracted from the GD. According to this table, CAE free certified farms with a herd of 118 goats have to take blood samples of every adult goat to stay certified. For every extra goat on the farm, the sample size becomes relatively smaller, until a farm has more than 9,000 goats, in that case the sample size must be 528. Farms with less than 40 goats are allowed to take samples every two years (GD, n.d.-b). For every sample, a certain amount of money must be paid by the farmer. Therefore, small-scale producers, such as Doetie Trinks and Harry van Wenum, have to pay a higher amount of money per goat than large-scale producers.

> *Small-scale producers have to have almost 100% of their herd checked. For large-scale producers this is often less than 20%. These checks have to take place every year, which is a burden increase for small-scale producers, while the problems lie with large-scale producers. Increase of disease cases took place at large-scale producers, not at small-scale producers.* (respondent 15)

Additionally, a premium of 0,95 euros per goat has to be paid every year. However, this premium only counts for the first 1,000 goats, after this amount the premium per goat is diminished (GD, n.d.-c). GD has the same approach towards *Caseous Lymphadenitis* (CL). This is a bacterial condition that nests into the lymph nodes of small ruminants and creates abscesses. As the incubation time varies from two to six months, it is not easy to track this condition in a herd. The GD extracts a package in which goat farmers can certify their herd both for being free of CAE as well as free from CL (GD, n.d.-c).

Regarding the costs, small-scale producers mostly explained that they experience a large difference in regulatory costs per kilogram product compared to large-scale producers. An example of this difference is explained by Geert van der Kaa. Geert van der Kaa states that the total regulatory costs per kilogram of chicken meat is 2,50 euros, approximately. He also states that the price per kilogram chicken meat for a large-scale conventional farmer is 0.82 euro, approximately. This 0.82 euros is the total income per kilogram chicken meat, with which the conventional farmer has to meet all costs. According to Geert van der Kaa, it is therefore impossible to assume that the conventional farmer has the same regulatory costs and that it is reasonable to assume that Van der Kaa has exceptionally high regulatory costs.

It should be mentioned that the comparison might not be valid if the numbers are not correct. A valid comparison would be between a large-scale producer of chicken meat and Geert van der Kaa, when both producers also process the meat. However, it is still reasonable to assume that the regulatory costs related to food safety of the slaughter facilities are relatively high and out of proportion.

Besides these high costs for small-scale dairy producers, this is also the case for producers of chicken meat, as Geert van der Kaa elaborated on by explaining the checks on *salmonella* and taking blood samples, as explained before. Also, a sample needs to be drawn once a week from the minced meat that is produced by the federation of poulterers. The costs of this sample are equal for small-scale producers and large-scale producers, while more kilograms of minced meat are produced by large-

scale producers. In other words, Geert van der Kaa as a small-scale producer has relatively higher costs for this check as compared to large-scale producers.

Besides the costs, the clarity of the regulations also forms an obstacle according to Doetie Trinks, Harry van Wenum and Nico Steintjes. Doetie Trinks explained that at the moment she first owned more than fifty goats, she was obligated to vaccinate the goats against Q-fever. It was unknown to her that the goats needed two vaccinations during the first year instead of one, and also Doetie Trinks' veterinarian was not aware of this regulation. This resulted in a fine for Doetie Trinks because she was not vaccinating her goats according to the regulations. Also, Harry van Wenum explained during an interview his problem with the Q-fever vaccination regulations. Costs of Q-fever vaccinations are high and goats are obligated to receive the vaccination against Q-fever every year. However, according to Harry van Wenum, goats are found to be immune for the rest of their life after having received vaccinations the first three years, meaning that unnecessary costs are made after these first years.

Nico Steintjes explained that the regulations are not clear to him and he does not know where to find them. He mentioned the lack of an overarching organisation that can be contacted to advise and support small-scale producers on regulations. Besides, he said that the regulations are too much focused on large-scale producers. Small-scale producers often come across other situations than large-scale producers, in some cases no regulations can be found at all.

> *I have to say that I am always a bit lost in this (legislation and regulations regarding food safety) and I don't really have a good contact person to consult about it. The NVWA website does contain all kinds of links to European legislation and Dutch legislation, which are all thick files that you have to wrestle through and they do not contain many key facts. … All Regulations are based on large slaughterhouses.* (Nico Steintjes)

Geert van der Kaa experiences problems related to the appropriateness of some regulations. To profile a farm as being organic, you have to be connected to Skal, who comes to check different aspects on the farm in addition to the regular monitoring organisations. During one of those checks at the farm of Geert van der Kaa, an inspector from Skal pointed out that in a group of animals, including both hens and chicks, there was one chicken too many. This was concluded considering the regulations of Skal. These regulations do not look at the amount of chicks (who need less space) and amount of mothers (who need more space) together, but the amount of individuals. Skal suggested Geert van der Kaa to set up two separate private companies (E.G.s): one for the hens and one for the chicks. However, this would cost too much money. Besides that, the chicks on Geert van der Kaa's farm are raised in an organic manner from birth, whereas at large-scale farms, chicks are often obtained from non-organic farms and are raised organically from a certain age onwards. By growing chicks organically from the start, Geert van der Kaa adds value to his products. However, situations like his are not included in the regulations of Skal and are therefore not taken into account. As a result, Geert van der Kaa is not allowed to profile his small-scale production as organic.

3.5.2 Possible solution: Exceptions for small-scale producers

In the recommendations of a research report on the obstacles for small-scale and traditional producers related to the HACCP and hygiene codes, it is mentioned that the government should make a distinction between large- and small-scale producers of food (Ruitenbeek, 2012). Furthermore, it recommended the government to create a list of traditional and local producers in the Netherlands for offering them more protection in case a problem emerges with food safety regulations and to help them maintain an exceptional status (Ruitenbeek, 2012). As Maria van Boxtel points out, the European Union has created the opportunity of small-scale producers to request regulatory exceptions. However, as said by Van Bostel, these exceptions are not available for Dutch

small-scale producers. She thinks that the Dutch government does not want to put the reputation of the Dutch agriculture at risk, which is highly dependent on export, thus international virtue.

A solution to the obstacle of high costs due to similar regulations for small-scale producers as compared to large-scale producers, could be to make a derogation for small-scale producers. This can be based on their uniqueness and their important functions including the conservation of gastronomic heritage, unique tastes, rare breeds, cultural landscapes and accessibility (Rougoor et al., 2003). Emphasising small-scale producers as artisanal and traditional has led Italy to defend more than 1000 products in Brussel's as cultural heritage (Rougoor et al., 2003). Additionally, culinary subsidies are also an option to protect and support small-scale producers. The Waddenzee Foundation granted subsidies for producers of regional and traditional food that is produced in the area of the Wadden Sea (Provincie Groningen, 2021). This is a Unesco World Heritage Site and subdued to conservation (Unesco World Heritage Centre. n.d.). Authentic regional recipes and their ingredients, such as mussels, lamb and salty vegetables, will be included in a recipe bank and financially supported to guarantee the future existence of production practices and craftsmanship.

Currently, there is a quality scheme developed by the European Union. This is the Geographical Indication, which indicates if the product is entirely linked to a specific region. This is to protect authentic products from misguided claims of other products and misuse of their names. There are two relevant protection labels, Protected Designation of Origin and Protected Geographical indication. With these labels, the consumer can be ensured that a product is really an authentic locally produced product (Regulations, 2012). Furthermore, an authenticity label not only legally protects products from replicates and false integrity claims, it could also increase the sales. When products are labelled as authentic, consumers are also more willing to purchase the product. When a product is deemed authentic with a label, also called objective authenticity, this is found to positively increase the willingness of consumers to purchase the product (Sidali, Capitello, & Manurung, 2021).

Additionally, as part of the Common Agricultural Policy, small-scale producers are eligible for an annual payment of up to 1250,- euros (European Commission, 2017). This is a direct payment to producers with less than five hectares of agricultural land. The used definition for small-scale farmers is not really clear and the payment depends primarily on the total amount of used agricultural land. However, a new Common Agricultural Policy will be introduced in the year of 2023. This new policy will leave room for a context-specific plan. Each member state of the European Union will need to develop a National Strategic Plan. In 2021, the LNV will develop the National Strategic Plan with additional eco-regulations on top of the basic regulations. Food producers will be able to increase subsidies by complying to sustainability related measurements (Toekomst GLB, 2021; Verslag webinar GLB Pilots, 2020). At the end of 2021, the concept version of the National Strategic Plan will be submitted to the European Commission. This will include the possibly new subsidy options for small-scale producers.

3.5.3 Stakeholders involved

Dutch farmers must comply with regulations composed by the LNV in the Netherlands. All food safety regulations are stated in the General Food Law (EU) and in the Wet Dieren ('animal law') (NL).Both the European Commission and LNV extract hygiene codes, which gives the opportunity to small-scale producers for making sure that the process of food production is safe according to the monitoring institutions.

The most common monitoring institutions in the Netherlands are the COKZ, responsible for monitoring food safety regulations in producing dairy products, and the Nederlandse Voedsel- en Warenautoriteit ('The Netherlands Food and Consumer Product Safety Authority') (NVWA), responsible for monitoring general food safety regulations. As explained by Barbara Hart, the COKZ is able to judge to a certain extent per farmer whether the food production process is complying to the Dutch hygiene codes and national and European legislation. If a farmer can show that the

production process is safe and the COKZ inspector can follow this line of argumentation, the way of producing animal-based products will be approved. When a farmer writes his or her own HACCP food safety plan, the NVWA will judge whether this plan is meeting certain requirements and if it is based on a scientific argumentation (NVWA, n.d.).

As survey respondents question whether most producers are able to design hygiene codes by themselves, farmers organisations that represent small-scale producers, like LTO and SlowFoods, can play a role in supporting and connecting farmers to perform steps in this direction. Possibly, organisations like SZH might help with setting up labels to distinguish small-scale producers from conventional producers.

3.6 Obstacle 2: Slaughter and home sales of meat

3.6.1 Defining the obstacle

This obstacle is about the slaughter of the animals and the transportation of the meat. What if a small-scale producer wants to slaughter their animals by themselves at their own farm? Or what if a small-scale producer would like to process the carcassas according to their own vision and/or craftsmanship?

> *Due to all the regulations, we are forced to have everything cut, packaged [and] labeled by a butcher. … We outsource everything to the butcher to get around this [obstacles regarding the slaughtering and processing of meat], but it entails enormous costs.* (respondent 10)

Nico Steintjes mentioned that he would like to process his own meat in the future, but due to the high costs related to this and because of the unclear regulations this is not possible yet according to him. Therefore, he outsources the slaughtering and processing of the meat before he sells the frozen meat in his shop. However, he sees values in processing his own meat:

> *It would be beautiful for the shop to slaughter a pig or a cow every other week and sell it fresh from the shop, I think that there is a quite a need and demand for this. … I think that people would like to buy fresh meat on a farm. I think that cutting meat and directly selling it could be of added value to the sales figures.* (Nico Steintjes)

There are also two respondents that refer to the high costs of slaughtering and the impossibility of slaughtering at their own property when asked for their most important obstacle in relation to food safety regulations (respondent 5 & 9). The reason that this is relevant, is because selling meat from home can increase the price for farmers when combined with good marketing and communication (Vijn et al., 2014). Also, as advisor Maria van Boxtel explains, producers value being able to control their own product which is often not possible when slaughtering is done by someone else.

Furthermore, the (increasingly) high costs of slaughter in general are mentioned by multiple respondents as an obstacle, which is indirectly related to the increasingly strict regulations and checks that are also brought up (5, 6, 10, 16, 19, & 21).

One of the more specific practical problems coming up when selling meat from home that was mentioned a few times by the small-scale producers of meat, is the difficulty of cooled transportation of meat from the slaughterhouse to the producer's home, as stated in Regulation (EC) No 853/2004. There were two respondents that explicitly referred to this rule and also admitted that they do not follow this rule due to its difficulty, as can be read in the following answers:

> *Transport [of meat] to home cannot be done according to the rules because it becomes too expensive if you have to keep it refrigerated.* (respondent 4)

> *Formally, the transport of a slaughtered pig and its meat must take place refrigerated, but I cannot manage to do that.* (respondent 5)

This problem of cooled transportation of carcasses was also mentioned during the interview with Peter Wijnen. He indicated that this is not possible for small-scale producers because of the high costs related to this. Therefore, he has difficulties fulfilling these rules. In addition to the cooled transport, Peter Wijnen mentioned that the processing of meat should also be done in a cooled room and that it should be done inside. Due to the high costs, he experiences difficulties in adhering to these rules.

The slaughter of dairy goats and dairy cattle gives extra risks as the reason for slaughter is often illness, which makes the animals useless for breeding or milking (NVWA, 2020c). As pathology is expected, there needs to be an inspector present during the whole slaughter process. This increases the costs of slaughtering, which is the reason that Harry van Wenum's organic butcher did not want to slaughter his goats anymore. Harry van Wenum did not see another option for organic slaughter, and therefore does not sell his meat organically anymore as they are now slaughtered by a conventional slaughterhouse. As he states: "*these kinds of rules are really frustrating and detrimental for small-scale farmers"* (Harry van Wenum). Besides this, Maria van Boxtel explains to have heard about this problem as well. As an agricultural advisor, Maria comes across several producers throughout the year. She explains that not many slaughterhouses have a Skal certification and the slaughterhouses are also often not closeby to the farm. Due to this, organic producers are not able to produce organic meat.

The costs of slaughtering are also high for Geert van der Kaa, as the NVWA checks them for open, modern slaughter, where the neck of the chickens are cut. However, Geert van der Kaa slaughters in a traditional way, where the carcass remains closed, as they cut the artery via the mouth (Walnoothoeven, n.d.). Additionally, they need to do checks for salmonella in the blood and also the minced meat should be checked. Due to the low number of animals slaughtered and the low number of minced meat produced, this results in high costs.

Doetie Trinks indicates that small-scale producers cannot follow their own preferred way of slaughtering and processing, according to the HACCP. However, she does not understand why it is not allowed to slaughter outside instead of in a slaughter room, as in her opinion it is not necessarily unsafe. In addition, she said that slaughtering outside would add extra value to the meat, as the processes in the meat can do their work.

Harry van Wenum, Nico Steintjes and Geert van der Kaa all indicated that the rules are made for large-scale industrial producers, and that this causes a lot of their problems. According to Harry van Wenum, large-scale intensive goat farming should be abolished. According to Nico Steintjes "*it is all a bit of a grey area, all the regulations are made for large slaughterhouses."*

3.6.2 Possible solution: Mobile slaughter

With the arrival of European regulations, the difference between small-scale, medium-sized and large-scale slaughterhouses has disappeared, meaning that all slaughterhouses must comply with the same rules. More European legislation has been introduced in the field of slaughter, and the Dutch government has tightened these rules by setting up regulations in a specialization for each process component (Lambooij et al., 2011). As a result, small slaughterhouses that slaughter different animals need multiple inspectors, which leads to high costs and contradictory views. In addition, only a small part of the slaughterhouses in the Netherlands has a Skal certificate, which means that small-scale organic producers have limited choice in slaughterhouses. This combination of facts can make it difficult for small-scale producers to have their animals slaughtered organically and as a result they are sometimes not able to sell their meat organically (Lambooij et al., 2011). However, these reasons, as Maria van Boxtel indicates, show the high potential of mobile slaughterhouses in the Netherlands.

To overcome this problem, several countries such as the United States, Sweden or Germany have started using a Mobile Slaughterhouse ("Mobiel Slachthuis", MS) or a Mobile Killing Unit ("Mobiele

Dodings Unit", MDU). Both methods have a complete system that can be moved between different locations for the slaughter of production animals. Production animals that are eligible for mobile slaughter are cattle, pigs, poultry, goats and sheep (Lambooij et al., 2011). The difference between the two methods is that with an MDU the animal is slaughtered on location, bled and then the carcass is transported to an external location for further processing, for example to a butchershop. With MS, the animal is also slaughtered on location, bled and the carcass is processed into meat products. In this case, the slaughter and processing of the carcass take place at the same location (NVWA[a], 2020). There are various requirements for the slaughter and processing of production animals from European and Dutch legislation, with which the MDU and MS must also comply (Lambooij et al., 2011).

An advisory report from the NVWA (2020[a]) on mobile slaughter describes that MS is already used in the United States, Sweden, and Germany and that the MDU is used in countries such as Germany, Switzerland and Austria (NVWA, 2020[a]). In the United States, one MS has the capacity of slaughtering five cattle or twenty sheep per day. A total of 950 cattle can be slaughtered per year with one MS (Lambooij et al., 2011). The procedure for slaughtering production animals is as follows. First, the animals to be slaughtered are inspected by a veterinarian. The animal is then placed in a restraining box and stunned. The animal is bled in the MS. After that, the carcass of the animal must be processed either in the MS, transported to an external butchershop or processed at your own farm. There are also a number of differences in the regulations on slaughtering between the countries, for example with regards to the place of bleeding or the time between slaughter and processing of the meat (NVWA, 2020[a]).

Since 2018, a trial with an MDU for the slaughter of cattle has been done in the Netherlands from the initiative of a slaughterhouse in Dokkum, supervised by the NVWA. The NVWA and the LNV have decided that four categories of animals are eligible for this trial: (1) animals for emergency slaughter, which is already allowed by the Dutch law; (2) feral animals in nature reserves; (3) animals that cannot be transported but that are still suitable for consumption, and (4) animals small-scale produced in an animal friendly way. The slaughter with the MDU was supervised by veterinarians (NVWA, 2020[a]). During the pilot with MDU in the Netherlands, there was discussion within the NVWA whether the possibility of slaughtering cattle in the MDU has adverse effects on the welfare of these animals (RTL nieuws, 2019). For example, according to veterinarians of the NVWA, when a cow has a disease or chronic condition and has to be slaughtered, it cannot receive medication before slaughter due to food safety regulations. Therefore, these cows sometimes have to suffer for a few days before they can be slaughtered in a MS or MDU, which reduces animal welfare. On the other hand, the cows do not have to be transported to a slaughterhouse, which positively influences the welfare (RTL nieuws, 2019).

Mobile slaughtering could be a possible solution for the obstacles of small-scale producers related to slaughtering, travelling a large distance for transport of the animals to slaughterhouses, being able to slaughter biologically if Mobile slaughtering can receive a Skal certificate and the processed meat or carcasses back to the farm/shop. The slaughtering of animals in mobile slaughterhouses instead of traditional slaughterhouses has some advantages, but there are also some drawbacks, which will both be further discussed.

Transport of animals

The transport of producing animals to the slaughterhouse and the loading and unloading of these animals causes stress for the animals (Leenstra et al., 2007; Mobiele-Slachterij, n.d.). It can result in illness, injury or exhaustion. In addition, physiological reactions or immunological reactions can occur and it can result in abnormal behavior (Eriksen et al., 2013; Leenstra et al., 2007). The experienced stress can influence energy expenditure and body temperature, resulting in increased breathing or evaporation (Eriksen et al., 2013; Lambooij et al., 2011). Diseases that can occur during transport are shipping fever in cattle, or porcine stress syndrome in pigs (Leenstra et al.,

2007). This stress can be avoided by slaughtering the animals on their own farm, so that transport is not necessary anymore, and can thereby increase animal welfare.

Various factors influence the amount of stress an animal experiences during transport to the slaughterhouse. One of those factors is the length of the transport. The longer the transport, the greater the chance that the transport will negatively affect animal welfare. Fluctuating temperatures, time of standing and lack of water and feed lead to discomfort (Miranda-De La Lama et al., 2014). In the Netherlands, the number of slaughterhouses with an organic certificate (Skal) is decreasing due to the extra costs of EKO-certification (van Boxtel, 2011; Lambooij et al., 2011), resulting in fewer slaughterhouses available in the neighborhood of organic small-scale producers. Therefore, if small-scale producers want to sell their meat product organically, the transportation of their animals will take longer, as they have to drive a longer distance. In addition, Staatsbosbeheer can also apply MS or MDU to slaughter wild animals close to the nature reserve (van Boxtel, 2011). By using MS or MDU, long-distance transportations of animals for slaughtering will be avoided.

The stress perceived during transport or (pre-)slaughtering also influences the quality of meat after slaughtering (Eriksen et al., 2013). Stress before slaughtering increases the breakdown of glucose and thereby depletes energy reserves (Lambooij et al., 2011). Eriksen et al. (2013) found that lambs slaughtered in a stationary abattoir experienced higher levels of stress compared to lambs slaughtered in a MS. If animals are exposed to stress prior to slaughter, blood glucose levels may rise. However, when animals are exposed to stress for a long period, the blood glucose levels may decrease, thereby depleting glycogen reserves. In general, the pH value of a carcass will be around 5.5. However, when ruminants pre-slaughter have experienced stress, the pH will increase up to 6 due to the depleted glycogen pool in the muscle, which is not wanted (Eriksen et al., 2013). Stress before slaughter will result in pale, soft and exudative meat for pigs and poultry. In ruminants, exhaustion before slaughter leads to dark, dry and firm meat (Lambooij et al., 2011). Mobile slaughter therefore gives less stress to animals, shortens the production chain (Lambooij et al., 2011) and thus preserves the quality of the meat.

Costs of mobile slaughter

Several trailers are needed for the slaughter and processing of large animals (van Boxtel, 2011). Mobile slaughter does not seem to be profitable for cattle. The costs for slaughtering and cutting are higher than in an 'ordinary' slaughterhouse. The higher price is due to the fact that only smaller numbers of animals can be slaughtered. As a result, the price for slaughter rises to 500,- to 600,- euros per bovine. In a normal slaughterhouse this would be 100,- to 200,- euros per bovine (Nantier, 2021). An MDU seems to be a possibility for the slaughter of smaller animals such as poultry, goats and lambs. There are three options for processing the meat, each with different costs. First of all, when using an MS, it will cost 673,- euros per animal for a cow, 150,- euros for a pig and 46,- euros for a sheep for slaughter. For processing, the costs of 967,- euros per cattle, 228,- euros per pig and 107,- per sheep are added. As a second option, the carcassed can be processed on the farm itself, which translates into costs of 601,- euros per cattle, 175,- euros per pig and 66 euros for a sheep. The costs for purchasing equipment and refrigerated space should also be included in addition to the processing costs. Prices are lower for slaughtering and cutting in a slaughterhouse: a total of 1068,- euros for a cow, 230,- euros for a pig and 68.50 euros for a sheep (Lambooij et al., 2011). The costs per kilogram of finished product are shown in table 6 (Lambooij et al., 2011). The costs for slaughter will be higher, but this is 1,- to 1.50 euros per kg. In addition, you save on the transport costs that you would have with slaughtering in a normal slaughterhouse (van Boxtel, 2011).

Table 6: Costs per kilogram of finished product (meat), based on a report from Lambooij et al., (2011).

	Costs per kg finished product cow (€)	**Costs per kg finished product pig (€)**	**Costs per kg finished product sheep (€)**
Scenario 1			
Mobile slaughter	2,49	2,28	1,70
Cutting by mobile slaughter	3,58	3,45	8,00
Total	**6,07**	**5,73**	**9,70**
Scenario 2			
Mobile slaughter	2,49	2,28	1,70
Cutting by farm	2,23	2,66	2,46
Total	**4,72**	**4,93**	**4,16**
Scenario 3			
Mobile slaughter	2,49	2,28	1,70
Cutting by slaughterhouse	2,67	2,17	1,44
Total	**5,16**	**4,45**	**3,14**
Scenario 4			
Slaughter and cutting by slaughterhouse	3,95	3,49	2,54

There are also some other arguments that should be mentioned regarding the use of MS or MDU, even though they will not be discussed in detail. First of all, there is a reduction in the chance of spreading diseases between farms when using MS or MDU due to the reduction in transport of living animals. Second, there are less carcasses affected when using MS or MDU. Third, MS or MDU could be an interesting possibility for producers with rare breeds, because MS or MDU can be especially adapted to the slaughter of the animals who deviate from standards (Lambooij et al., 2011). Some disadvantages that should be mentioned are the importance of rapid cooling of carcasses and the availability of pure water for food safety. In MS, these processes can sometimes hinder. In addition, a MS has a lower capacity for slaughtering animals as compared to a regular slaughterhouse (Eriksen et al., 2013).

Transport of meat

What has also been indicated are the regulations regarding cooled transport of meat. Multiple respondents indicated that they are obligated to transport meat with use of a refrigerated truck. The problem with these trucks is that they are expensive and most small-scale producers cannot pay for them. However, as was explained during the interview with Maria van Boxtel, it is not obligated to make use of a refrigerated truck when transporting meat. As a small-scale producer you do need to keep meat cooled while transporting it, this can however be done with anything as long as the temperatures remain correct. As Maria indicated, the problem with this probably does not lie with the regulations themselves, but with misunderstanding them.

3.6.3 Stakeholders involved

Bionext is an organisation that connects organic farmers to consumers. They have multiple projects to make organic agriculture even more sustainable (Bionext[b], z.d.). Together with INNOHOW they have taken the initiative to start with a mobile slaughterhouse. They have already gathered a group of small-scale producers, who want to make use of the mobile slaughterhouse, found a butcher for the slaughterhouse and have collected money via crowdfunding to finance the mobile slaughterhouse (Bionext[a], z.d.). Therefore, Bionext is the major stakeholder involved in this possible solution. Further organisations that play a role in this obstacle or its solution are discussed below.

One of the major stakeholders involved in this obstacle is the LNV, which is, among other things, responsible for the quality of our food. All food safety rules and regulations are stated in the General Food Law of the European Union and Wet Dieren (Rijksoverheid, 2019). The NVWA is the monitoring organisation, which oversees the safety of food production and sales (NVWA[b]., 2020). In the context of this problem, the NVWA plays a role in checking the temperature of the refrigerated transport.

Next to these organisations, there are also some quality and labelling institutions, like IKB Nederland and Skal, that provide certificates if producers adhere to their additional rules. Skal provides an organic certificate if producers fulfill the organic European rules and regulations (Skal, n.d.). To receive this certification, Skal will visit the organic farms at least once a year, to check whether the organic rules and regulations are still applied. Such organisations could play a role in a possible solution. As mentioned before, for small-scale organic producers there is a limited choice of slaughterhouses. If the mobile slaughterhouse would be skal certified, this will give new opportunities for small-scale producers who want to sell their meat with an organic label. Additionally, Skal or comparable organizations might use their network to investigate which small-scale producers would be interested in making use of these mobile slaughterhouses.

Next to SKAL, Slow Food might also be an interesting organization that can use her network to investigate the interest and promote the use of mobile slaughterhouses. Slow Food brings people together from the entire food chain. Besides, they build a platform for people who dare to produce with attention to people, animals and nature (Slow Food Nederland, 2020).

The last group of stakeholders involved in this problem are the associations. Next to breeding associations, the SZH also wants to preserve rare native Dutch breeds and their diversity (SZH, 2021). As a part of the small-scale producers in the Netherlands have such a rare native Dutch breed, the SZH could play a similar role in a possible solution to this problem as Skal and Slow Food.

3.7 Possible general solution: Uniting small-scale producers

Apart from the specific solutions that are mentioned for each elaborated obstacle, there is also a more general solution that in itself does not solve the problem, but can contribute to solving multiple obstacles. This is the uniting of small-scale producers to strengthen their position and to generate a platform for exchanging knowledge and skills. This chapter elaborates on such a union both in the form of a small-scale producers association and by providing an example of how collaboration can reduce obstacles for small-scale producers.

Small-scale producers association

A solution which can contribute to solving the ignorance and lack of knowledge about the process, which often results in higher costs because the NVWA or COKZ has to visit for checks more often, could be the uniting of small-scale producers in an association. If farmers would unite, they would be able to exchange experiences and knowledge on how other small-scale producers would handle their problems.

There are already some organisations in the Netherlands that support small-scale producers. An example is Slow Food, which has a presidium project whereby it supports small-scale producers from all over the world. They do this to preserve small-scale quality food products of which the production entails (traditional) knowledge and skills, but also rare breeds and plant species (Slow Food, n.d.a). Currently there are 12 Dutch presidia in which small-scale producers unite to prevent a total of 100 Dutch small-scale quality food products from disappearing (Slow Food, n.d.b). These presidia thereby present an example of a place where small-scale producers can unite and share knowledge and skills. However, these groups are limited to certain products and ways of producing and therefore exclude a large group of Dutch small-scale producers who do not produce these specific products.

Another organisation that is relevant for Dutch small-scale producers is the SZH, which aims to preserve the rare traditional Dutch livestock breeds. They do this by supporting the owners of these rare livestock breeds. This takes different forms, including the facilitation of knowledge exchange on these breeds, promoting their functions and values and lobbying for the right rules and regulations with regards to keeping and breeding (SZH, n.d.). This organisation can therefore support the small-scale producers who keep rare livestock breeds. However, even though there are small-scale producers that keep rare livestock breeds, this ignores the group of small-scale farmers that keep regular breeds.

There already exist some organisations, however they do not have the power or find it not important enough to really lobby for better regulation for small-scale producers. For instance, several small-scale producers have lobbied by the LNV, but the proposed changes for the regulations were not implemented. Also according to Maria van Boxtel, due to underrepresentation of the small-scale producers, the availability of regulatory exceptions are not granted by the Dutch government. Furthermore, several small-scale producers have lobbied at the LTO, but they were not heard. To include all Dutch small-scale producers, an overarching association could be a useful contribution to the already existing organisations to unite all small-scale producers. Through this association, concrete solutions and knowledge could be exchanged between small-scale producers. Producers can get in touch with each other and thereby can build up a network. Another advantage is that producers who experience the same regulatory problems can go to the legislative authorities together, which can increase the feeling of urgency for these authorities. They could also develop a joint hygiene code or invite a professional advisor together in order to save costs. In addition, Harry van Wenum also mentions organising lectures or setting up study groups. For example, an inspector from the COKZ or NVWA could be invited who can give practical examples and advice based on his

or her knowledge and expertise. Through the association, producers could stimulate each other and take their small-scale farms to a higher level.

Barbara Hart, an entrepreneur who runs an enterprise that provides advice to dairy producers and processors, also mentions the benefits from collaboration between multiple small-scale producers. When knowledge between these farmers is shared and a common production process is established, it can be useful to collectively design a HACCP food safety plan. From knowledge that is shared, every producer can create its own HACCP food safety plan, so that it fits for the unique and specific situation the producer is in. Following a self-made plan gives farmers more freedom to produce products according to their own wishes and beliefs. Besides, it also decreases the chance of COKZ inspectors claiming that the activities are not according to food safety regulations. It might be difficult to find institutions, gather knowledge and write an own HACCP food safety plan for individual farmers. Therefore, Barbara Hart argues that uniting farmers would be of great value. This is acknowledged by Van Boxtel, regarding the need for union for meat producers. She has already developed a HACCP specific code for small-scale producers of meat, but the NVWA and the government demand for a representative organisation that facilitates access to the code and that keeps the code up-to-date.

> *If you have the same interests and you encounter the same problems, you can team up to find a joint solution for them.* (Barbara Hart)

In the UK, a group of small-scale producers already have formed an association called the 'Small Farms Association' (SFA). The major reason for the founding of the SFA is that the other farmers associations, which are more focussed on large-scale production, could not properly represent the interests of the small-scale producers. When joining the SFA, a small-scale producer can participate in discussion groups, events or can ask for advice and support. In addition, the SFA has a newsletter and offers a discount for members on professional services. The SFA seems to be a very active organisation that also contributes to policy making and collaborates with other farming organisations. In addition, the SFA has a forum on their website where farmers are able to contact and help each other regarding certain topics via the internet (SFA, 2016). This provides an example of how such an association could take form in the Netherlands.

Collaboration in one concept

Another way in which uniting small-scale farmers can be beneficial is shown by the following example of Buitengewone Varkens. Stan Gloudemans is one of the owners of the enterprise Buitengewone Varkens, a concept for raising pigs of special breeds (Buitengewone Varkens, n.d.; LNV, 2020). With this concept, Stan has a production of about 300 pigs per year that are divided over 20 locations in the Netherlands where people take care of the pigs. The pigs are thus delivered by Stan and when ready for slaughter, they will be picked up and brought to the slaughterhouse. At some locations, meat of the pigs is selled as well.

As one of the respondents of the survey, he was picked out by the project team to be interviewed because of his controversial answers. Stan Gloudemans mentioned in the survey that he did not disapprove of the Dutch food safety regulations, he actually was in favour of them. During the interview, Stan Gloudemans explained his point of view about the necessity for regulations and his solution to these regulatory obstacles.

Stan Gloudemans argued that the reasons behind the current food safety regulations should not be forgotten. There have been major crises in the Netherlands, for example foot-and-mouth disease and swine fever, which were related to the transmission of pathogens. According to Stan Gloudemans, the pig industry needs food safety rules and regulations to prevent widespread pathogen introductions. However, he acknowledged the obstacle of high costs for small-scale producers related to the food safety regulations. He stated during the interview that with their current number of pigs, 15 sows and 300 hogs approximately, enough turnover can be generated

to live up to the regulatory costs and still maintain a profitable enterprise. These pigs are raised at 20 different locations, of which around twelve locations have 4-12 pigs approximately. These locations are managed by caretakers. These caretakers receive piglets from Buitengewone Varkens and raise them until the slaughter weight has been reached. After that, the pigs are slaughtered and processed by a professional slaughterer and butcher and sold via the sales channel of Buitengewone Varkens.

This concept is beneficial regarding the first obstacle, costs for adhering to hygiene and food safety regulations can be distributed among different locations which decreases the costs related to animal disease checks. Furthermore, this concept can reduce the costs of slaughtering animals, as more animals at once can be transported to the slaughterhouse, which lowers transporting costs.

When a small-scale producer decides to join a concept, attention is paid to the utilization of the whole pig, thus creating a viable enterprise. Next to that, they also do not have to deal with all the regulatory burdens, these are taken care of by Buitengewone Varkens. Buitengewone Varkens additionally produces enough pigs to generate the required turnover to have a viable enterprise, regardless of the regulatory financial burden. The concept is based on the following principle: a small-scale producer needs to define what he or she is passionate about, raising pigs (being a farmer) or creating added value (product development and sales).

The concept of Buitengewone Varkens, as described by Stan Gloudemans, shows similarities with voergeld contracten (*'feed money contracts')*. These contracts are commonly used by veil farmers for many years (De Vlieger, 1979). The animals of one large-scale farmer are raised at different farms by a contract with the owners of those farms, called the contractors. A contractor receives financial compensation for housing, labour, feed and production rights (Swormink, 2011). The revenue of the slaughtered pigs is received by the large-scale farmer. This is beneficial for the contractor, in terms of less risk due to price volatility and less regulatory and administrative responsibilities. This is also beneficial for the large-scale farmer because no new farms need to be bought and managed.

4. Discussion

In the following chapters, the results of the research, strengths and limitations of research methodologies and the ethical concerns will be discussed. First, in chapter 4.1.1, the limitations of the definition of small-scale producers will be discussed. After that, obstacle 1 and 2 and the solutions and stakeholders for obstacle 1 and 2 will be discussed in chapter 4.1.2 and 4.1.3. Chapter 4.1.4 will be about the discussion of the more general solutions. Secondly, the ethical considerations will be discussed in chapter 4.2, which are connected to the solutions. Lastly, the strengths and limitations of the performed research methodologies will be discussed in chapter 4.3, so they can be taken into consideration when reading the conclusion.

4.1 Discussion of the results

4.1.1 Definition small-scale producers

For the sake of clarity within the project, it is useful to take SVC to identify whether farms are small-scale. However, there are a few shortcomings for using this definition. For example, when farms are not very effective in using labour hours in taking care of day-to-day affairs, the farm will automatically have a lower SVC (Wisman, 2021). These farms might have the benefits of being a relatively large farm and therefore will not face the same problems as small-scale farmers, which makes them not play a part in the subject of this project.

4.1.2 Obstacle 1: Checks by monitoring organisations

Overall, the results of the survey and interview pointed out that the costs are out of proportion in relation to the turnover. Overall it can be stated that small-scale producers have relatively higher regulatory costs than large-scale producers. This gives the impression of the regulations being tailored to conventional agriculture. In many cases, the relatively high costs per unit of product decreases the profitability of the small-scale enterprise. This is an indirect stimulus for small-scale producers to increase the number of animals and/or hectares in order to generate a decent income, thus growing in scale. An individual HACCP plan could reduce the regulatory costs of a specific enterprise. This could lower the total costs for food safety regulations and decrease the administrative burden and practical feasibility (Ruitenbeek, 2012). The case of Doetie Trinks shows an excellent example that it is possible to create such an individual plan. Doetie Trinks experiences the rules of the standardized hygiene code less as an obstacle to perform her unique production practices. The cheese can be produced how it should be according to her recipes. Meanwhile, food safety and hygiene are guaranteed and acknowledged by the monitoring organisations. However, to develop such a specific individual plan, specialised knowledge on microbiology or sufficient financial resources for external expertise are needed. Given the fact that obstacle one is based on financial pressure, it seems unrealistic to assume such resources are sufficiently available for all small-scale producers in need of such a plan.

Financial support to overcome such obstacles could be a valid governmental incentive, when it is based on solid argumentation. Food is often seen as an important defining factor of culture and there is a wide range of products and recipes that are region-specific (Rougoor et al., 2003). These products can be labelled as authentic and marked as part of the cultural heritage. The Geographic Identification labels of the European Union are well-fitted to label products for authenticity (Regulations, 2012). Authenticity and cultural heritage can therefore be the foundation of financial incentives. Indirectly, authenticity also increases the willingness of consumers to purchase the product (Sidali, Capitello, & Manurung, 2021). This is inherently also a financial stimulus. However, focussing financial support on such products implies the exclusion of products that do not fall into that category. These products could be excluded from financial support, regardless of their quality, uniqueness, culinary value or progressiveness. The same holds for culinary subsidies. As seen with

the Waddenzee regional products being subsidised, products that are deemed regional and culinary will end up in the Recipebank. Again, if products do not fit within the requirements, they will be excluded from financial support.

As another option, the generic subsidies of the Common Agricultural Policy of the European Union can be addressed. There is an annual amount of 1250 euros as financial support for small-scale producers available for application until the year of 2023 (European Commission, 2017). Currently, the Dutch National Strategic Plan of the new Common Agricultural Policy is being developed (Toekomst GLB, 2021). It is expected that there will be more emphasis on financial support for ecologically beneficial measures, but it seems like the small-scale producers are not directly represented during the formation of the plan.

4.1.3 Obstacle 2: Slaughter and home sales of meat

One of the major problems of slaughtering animals in a slaughterhouse are the costs related to this and the costs related to the cooled transportation of the meat or carcasses. The mobile slaughterhouses are not yet a suitable solution to this problem, as this will not financially be reachable (Lambooij, et al., 2017). However, if multiple small-scale producers work together and slaughter animals from multiple locations on only one farm, the costs of mobile slaughtering could be reduced by sharing the costs (Lambooij et al, 2017). The disadvantage of this is that the producers will still need the cooled transportation, thus having transportation costs. Another possibility to overcome these high costs for mobile slaughtering is to process and package your own meat. If small-scale producers are able to process and package their own meat, this will reduce the costs of the mobile slaughtering, as they will fulfill part of the process themselves (Lambooij, et al., 2017). In addition, part of the higher costs related to mobile slaughtering might be passed on to the consumers, considering the improved animal welfare and the quality of the meat that are both indicated as reasons for consumers to buy MDU meat (Hoeksma et al., 2017). On the other hand, Hoeksma et al. (2017) also found that the high prices of MDU meat and the doubts about the increased animal welfare were reasons for consumers not to buy MDU meat. Despite the high costs, mobile slaughtering will give the opportunity to small-scale producers to let their animals be slaughtered on their own farm. The carcasses and meat can be processed and packaged on their farm as well. In this way, small-scale producers do not need the knowledge or skills to do this themselves, but they have the opportunity for these processes to occur on their farm. This opportunity was named by Nico Steintjes as one of the practical obstacles for not processing the meat on his own farm. Finally, as discussed before, Skal certified slaughterhouses are sometimes too far away for small-scale producers. Slaughtering the animals becomes practically impossible and the meat cannot be sold anymore with an organic certificate. If Skal would certify the mobile slaughterhouses, it would also be possible again for these producers to sell their meat as organically certified. As mobile slaughtering is not yet implemented in the Netherlands, further research is needed to gain more insight into the costs and feasibility for small-scale producers.

Apart from the costs, there are also some other disadvantages that should be considered before implementing the mobile slaughterhouses. Two of these disadvantages are related to animal health. With the current working method in the MDU, the wastewater is captured together with the blood of the animals. This blood may be processed in animal feed. However, if this is done without a heat treatment, this will slightly increase the risk of feed being infected with pathogens (NVWA[a], 2020). This is especially the case for pets. The other disadvantage related to animal health is the risk of spreading animal pathogens/diseases between different farms. This could occur if the hygiene of the MDU collaborator is not good enough, or if the MDU unit is not cleaned properly (NVWA[a], 2020). However, these disadvantages could be overcome by implementing strict hygiene and cleaning rules to make sure that everything is safe.

Finally, there is an additional risk for food safety with the use of MDU. As mentioned before, by using the MDU, multiple farms are visited before the carcasses are sent to the slaughterhouses. In this

way the organs will be removed with a delay. Therefore, there is a slightly increased risk for microbial infections (NVWA[a], 2020). As one of the obstacles for the small-scale producers was the high costs for cooled transportation, the MS will probably be preferred above the MDU since transportation is not needed for the MS. To gain more insight into which type of mobile slaughtering is preferred by small-scale producers, more research should be conducted.

4.1.4 General solutions

Uniting small-scale producers

An overarching solution to the obstacles would be for small-scale producers to unite in an association, union or cooperation. Through collaboration, costs can be shared, knowledge can be exchanged, high volume purchase advantages can be realised, and a national network can be created. There are already some existing associations that might fit for certain small-scale producers, such as SlowFood and Stichting Zeldzame Huisdierrassen (SZH). Both organisations, however, have a specific target audience. As earlier mentioned, products and practices that do not meet the prerequisites are left out. The same holds for SZH. Overall, it can be stated that some small-scale producers are excluded and that a proper association is not available yet. Although, the Agriculture and Horticulture Organisation (Land en Tuinbouw Organisatie; LTO) focuses on every horticultural and agricultural entrepreneur and could therefore also be an option for small-scale producers to join an association (LTO Nederland, n.d.). LTO represents the interests of their members, but it is questionable to what extent the interests of the small-scale members will be represented when it comes to contradictory interests between large and small-scale producers. Therefore, there might still be the need and demand for a more generic association for small-scale producers.

As was mentioned earlier, there are many opportunities that are beneficial, such as subsidies, the development of individual HACCP hygiene codes and knowledge and expertise exchange. The Small Farmers Association in the UK is also an indication that there might be enough members to create an association in the Netherlands as well, this is however debatable and research should be done to find out if small-scale producers are indeed interested. This association could be embodied by specialists and consultants with several years of experience. The amount of financial available resources will determine the amount of work that can be performed by associates. A possible obstacle for creating a small-scale producer association can be the lack of interest due to already having many different (small) sector organisations in the Netherlands. However, the small-scale producer association is expected to overarch all smaller organisations and to include all sectors.

Another form of collaboration is by uniting small-scale producers in a concept. As mentioned before, Stan Gloudemans stated that their concept Buitengewoon Varken proved to be a solution for several obstacles. However, to initiate such a concept, sufficient private input is required, such as financial resources, time and specialised knowledge about marketing and product development. The collaboration with many actors also requires extensive organisational skills. All in all, the tasks of the founding and management of such a concept should not be underestimated. Furthermore, caretakers of the animals that belong to the concept also need to comply with the demands and requirements of the concepts. Caretakers might not have a free choice about which breeds, housing and feeding practices they can choose. The concept entails a certain product, that is produced in a certain way with specific animals. Furthermore, the end product needs to be of a certain quality standard. Caretakers will need to commit to the demands of the concept to guarantee the quality. Besides, this commitment could form an obstacle for small-scale producers who put value towards the authenticity of the products they produce. Therefore, despite the proposed economic advantages, there might be little interest from small scale producers to join a common concept. Furthermore, this concept leads to a situation in which animals are located across the country, which means that the risk circulation of animal diseases, like swine fever, will increase.

After looking at several reasons for farmers not to join a common concept, the question might arise about the future of small-scale production in the Netherlands. Must small-scale farmers join a

common concept to become large enough to deal with general regulations? Or must legislative institutions pay more attention to authenticity for animal-based products by making more regulatory exceptions for small-scale producers or grant subsidies for small-scale farmers to be able to adhere to dutch rules and regulations?

There might also be limitations to the total number of small-scale locations that become part of the concept. Stan Gloudemans also pointed out that housing locations with a maximum of four animals are less profitable. There are fitted costs connected to every housing location, such as the UBN (Uniek Bedrijfs Nummer). Also, the variance among animals that have reached the proper slaughter weight, decreases the profitability of locations with only four animals. If only one of the animals is ready for slaughter, it is too expensive to arrange transport for just one animal. Therefore, the whole group will be taken and quite some animals could be slaughtered when they are not at the proper slaughter weight, thus decreasing the quality of the end product. These practical implications limit the amount of small-scale producers that are granted by the owners of the concept to participate in the concept itself.

It should be clear that there are quite some benefits for small-scale producers when they collaborate through an association or concept. However, the downside of each form of cooperation should be taken into account. Such initiatives should not be underestimated, regarding the amount of financial resources, expertise and effort that are needed. In addition, there are already several organisations in the Netherlands which small-scale producers can join. All these small-scale producers should join the new association in order to become powerful. It is questionable whether this would happen. Next to that, with the foundation of a new association, the list of already existing associations is expanded. Will this new association be able to represent the interests of these small-scale producers well, or will the current associations only be fragmented by the foundation of this new association? And if the small-scale producers are united, is it possible to influence the decisions made in The Hague or do these smaller companies have no chance against the associations of larger companies? These questions should be taken into account and should be further investigated before the establishment of a new association.

If the answer on the above mentioned questions is negative, or in other words, when it is not possible to found an association with enough power and financial resources, then another possibility would be to set up a campaign to draw attention for small-scale producers. The different Dutch associations could collaborate together in order to bring the situation of the small-scale producers under the attention of the government. In this way, it is not necessary to form a new association to lobby for new regulations. The campaign should be informative and should communicate clearly what the current problems are and what the small-scale producers need to adhere to the current regulations. To be effective, the campaign should be conducted over a long period of time across different channels, such as newspapers, tv, social media and journals. It is also advised to come up with a catchy slogan so that the goal of the campaign will be remembered by people. Another possibility is to collect signatures in order to force the government to consider the situation of the small-scale producers.

Flexibility of current legislation and regulations

In the Netherlands, but also in Europe, hygiene codes are used. These codes are available for every producer, small-scale or large-scale, and are used as a guide for producers. It elaborates on how to apply the food safety regulations correctly. Besides sticking to an existing hygiene code, farmers have the possibility to write their own Food Safety Management System (FSMS) which is applied to their own production process. This FSMS has to be checked and approved by the monitoring organisations. Doetie Trinks, a goat farmer who makes her own cheese, has made her own FSMS for her special process for producing cheese. Because of this, she can produce goat cheese in her own authentic way, for example by using a wooden barrel. Writing a FSMS takes time and can be difficult. This is why a lot of small-scale producers are using an existing Dutch Guide for Good Hygiene Practices or use the 'European Guide for Good Hygiene Practices in the production of cheese and dairy products' a base for their FSMS.

Guides for Good Hygiene Practices offer you tools to show that you are following the rules. (Barbara Hart)

The results of both the survey and the interviews show that small-scale producers have the feeling that they need to adhere to the Guides for GHP and that farmers are not aware that they can also write their own FSMS. If this would be communicated better and brought to their attention, this would create an opportunity for farmers to be able to implement and legalize their own production method. According to Barbara Hart, there is some flexibility in the Dutch and European legislation and regulations regarding food safety for small-scale producers. During the interview she discussed the administrative burden of registering the temperature as an example, which was also mentioned by Harry van Wenum. The point is that farmers must regularly indicate deviations in the temperature and have to indicate to the monitoring authorities what the subsequent action is when a deviation has been identified. If farmers state in their Guide for GHP or FSMS that they need to record the temperature every day, then they are creating an administrative burden for themselves, while this might not be necessary.

In the survey, some small scale producers mentioned that the legislation and regulations must be adapted for small-scale producers. However, Barbara Hart argues, in European legislation, to which the Netherlands have to comply as a member state, there already are some exceptions for farmers, for instance in the recitals of 852/2004:

> *"The HACCP requirements should take account of the principles contained in the Codex Alimentarius. They should provide sufficient flexibility to be applicable in all situations, including in small businesses. In particular, it is necessary to recognise that, in certain food businesses, it is not possible to identify critical control points and that, in some cases, good hygienic practices can replace the monitoring of critical control points. Similarly, the requirement of establishing "critical limits" does not imply that it is necessary to fix a numerical limit in every case. In addition, the requirement of retaining documents needs to be flexible in order to avoid undue burdens for very small businesses."* - Reg. (EC) No. 852/2004, recital (15)
>
> *"Flexibility is also appropriate to enable the continued use of traditional methods at any of the stages of production, processing or distribution of food and in relation to structural requirements for establishments. Flexibility is particularly important for regions that are subject to special geographical constraints, including the outermost regions referred to in Article 299(2) of the Treaty. However, flexibility should not compromise food hygiene objectives. Moreover, since all food produced in accordance with the hygiene rules will be in free circulation throughout the Community, the procedure allowing Member States to exercise flexibility should be fully transparent. It should provide, where necessary to resolve disagreements, for discussion within the Standing Committee on the Food Chain and Animal Health established by Regulation (EC) No 178/2002."* - Reg. (EC) No. 852/2004, recital (16)

Furthermore, the European Guide for Good Hygiene Practices is legally valid in the Netherlands and (small-scale) producers are allowed to align their FSMS with this Guide as well. Barbara Hart discusses that contrary to what some small-scale producers think, there are already possibilities for exceptions for small-scale producers in the European legislation and regulations. Does the law still need to be (further) adapted for small-scale producers or do they need to be made aware of the current legislation and regulations? Is this an opportunity or task for the government to inform these producers more or is this their own responsibility? According to Maria van Boxtel, the EU allows for exceptions for small-scale producers, but the Netherlands has not adopted exceptions in national legislation because of the reputation of the large export of Dutch cheese ('Goudse kaas'). The reputation of this large export product is therefore regarded as more important for policy-makers than the viability of small-scale producers, short chains and authentic products. There are thus still opportunities for the Dutch government to implement exceptions for small-scale producers. As a solution to the ignorance and lack of knowledge about the process, which often results in higher costs because the NVWA or COKZ must visit more often for inspections, Barbara Hart agrees with

the implementation of a small-scale producers association. If farmers would unite, they would be able to hear how other small-scale farmers deal with problems and could possibly team up to create common novel hygiene codes with distinction between eggs, dairy and meat. For instance, there already is an European guide for Good Hygiene Practices for dairy, the same could be applied to eggs and meat.

4.2 Ethical considerations

The topic of food safety in general leads to some important ethical questions. First of all, the question of who bears the responsibility is a relevant one when it comes to the issue of food safety. There exist all kinds of rules and regulations in the Netherlands to increase the safety of the food that we consume. However, some question if all these top-down rules are the right way to deal with issues of food safety. There are different ways to look at this. On the one hand, it can be said that food safety is the responsibility of the government to ensure public health, and to set strict rules to diminish risks. On the other hand, the responsibility can also be given to consumers themselves to make the right choices, while providing them with the necessary information and possible consequences it can have. This is related to two competing philosophies on the responsibilities for risks, namely that of informed consent and optimization (Thompson, 2001). When relating the optimization philosophy to food safety risks, a utilitarian view arises whereby food policies are made to reach the greatest good for the greatest number in terms of public health. This is mainly based on scientific knowledge regarding the predictions for certain public health risks of food practices. The informed consent philosophy, on the other hand, emphasises the responsibility of consumers to make food choices based on the information provided on the possible risks. This gives consumers the rights to make their choices based on their own values. According to Thompson (2001), currently the optimization philosophy is more dominant when it comes to food safety regulations and it is important that informed consent is also considered as a valid option to allow consumers to make their own food choices, for example based on their religious beliefs. When relating this to the issue of complex and expensive food safety regulations for small-scale producers, it could be discussed whether it is possible to shift the responsibility for food risks more towards the consumer by providing information on products regarding their production methods and possible risks. At the same time, it can be questioned whether consumers are able to estimate and understand the possible risks enough to make a well-considered choice (Rougoor et al., 2003).

Another ethical issue is related to the possible solution of making exceptions for small-scale producers when it comes to regulations and/or costs. The stimulation of small-scale producers can lead to unequal treatment in comparison to large-scale producers. It can lead to disadvantages for large-scale producers if they must comply with more and/or stricter rules. This raises the question if it is ethical to have different rules and regulations in place, for different kinds of producers. At the same time, however, the question can also be asked the other way around: is it ethical to have the same rules for all kinds of producers? Small-scale producers often work in different ways than large-scale producers and often lack resources (e.g., finance and knowledge) to deal with the rules and regulations which may prevent them from starting or continuing their business (van der Voort et al., 2011).

When it comes to the option of mobile slaughtering, animal welfare becomes an important topic of consideration. Some say that a MS improves animal welfare since the animals do not have to experience stress related to transportation to the slaughterhouse. It can be questioned, however, if this is really the case. How do we know how animals feel and if we are treating them in the right way? In science, animal welfare is measured according to the way in which animals cope with their environment (Brown, 2013). However, as we cannot feel what animals feel themself, we can never be sure if the way we treat them is the right way. Furthermore, it can be questioned if it is ethical to consume (products of) animals. Is it ethical for us humans to keep animals and use them for our consumption? This relates to the way in which we view animals and their position in our society (Brown, 2013).

Another ethical issue that arises is related to the controversial subject of the sustainability of animal-based agricultural production systems and if it is therefore desired to represent and support all of the small-scale producers of animal-based products. In 2018, the Dutch Minister of Agriculture, Nature and Food safety, Carola Schouten, launched her vision on the future of Dutch agriculture (Rijksoverheid, 2018). This vision emphasises circular agriculture and is supported by De Boer & Van Ittersum (2018), which published a booklet with the principles for Circularity in Agricultural Production. Two of those principles are that livestock should only be fed with products that are non-edible for humans, and if the soil of the farm is suitable for crops, crops should be grown instead of housing animals. In general, plant-based diets are found to be more environmentally sustainable (Sabaté & Soret, 2014). Therefore, stimulation of an increase of animal-based products might become less desirable.

4.3 Strengths and limitations

Before diving into the recommendations and conclusions of this report, there are a number of strengths and limitations that should be taken into account. This section will discuss these into more detail.

Survey

The survey that was conducted for this research is subject to a number of strengths and limitations.

First of all, a disadvantage of the sampling method used, is that it is not representative for the whole group of small-scale producers, as it is based on non-random convenience sampling and only includes respondents that voluntarily filled in the survey (Ball, 2019). This can lead to a response bias, whereby the people who return the survey may have different attitudes, attributes or motivations than the ones that do not respond (Czaja & Blair, 2005; Kumar, 2014). In the end there were 30 respondents to our survey, of which 22 fell into the target group. This number of respondents is not representative for the small-scale producers of animal-based products in the Netherlands. Due to these limitations, the results of the survey can by no means be generalised to the entire group of Dutch small-scale producers.

There are some advantages to the online conduction of the survey. Two important advantages are the low costs and the speed of data collection (Czaja & Blair, 2005). There are no costs attached to online surveys when using a free program such as we did (Google Survey). This would be different if another type of survey was used, such as traveling costs for face-to-face meetings or telephone costs for surveys conducted by phone. Online surveys also save a lot of time because apart from sending the link to possible respondents or placing it on online (social media) platforms, it is a matter of time to wait for the responses. Related to this is the automation of the online survey, since it will automatically make a visual overview of the results, which also saves time. With an online survey you also have a broader reach since the geographical distance of respondents does not play a role in their selection. Furthermore, the lack of an interviewer reduces the social desirability bias and thus allows people to give honest answers to the survey (Ball, 2019). As the survey is conducted online, it allows respondents to answer in their own time and at their own pace, which could increase response rates (Callegaro et al., 2015).

There are also some disadvantages of online surveys. Firstly, even though more and more people understand how computers work and have access to the internet, there are still some people, especially elderly people, that do not know how computers work or do not have access to a computer and/or the internet. Therefore, you exclude this group of (mostly elderly) people and this can lead to mistakes in the survey that in turn influence the results (Ball, 2019; Czaja & Blair, 2005). Another disadvantage of surveys is that the researcher is not able to probe and can therefore miss valuable information (Ball, 2019). This also occurs the other way around, since the respondents are not able to ask clarification if they do not understand a question, which can lead to the misinterpretation of questions and therefore influence the results (Ball, 2019). To decrease this risk, the survey was pre-

tested with some test respondents to see if there were any unclarities and to make sure that no technical problems occurred. It was also sent to the academic advisor of this project to check if the questions and structure were logical and if no important aspects were missing. Furthermore, we made sure to add our contact details in case there were any questions from the respondents. Finally, online surveys risk lower response rates and a higher level of incomplete responses. With the absence of an interviewer, the respondents might feel less motivated to do or finish the survey (Czaja & Blair, 2005). To decrease this latter risk, some incentives for the completion of the survey were used. First of all, the value of the survey results was explained to the respondent, also in terms of their own interests. Furthermore, the respondents were able to receive the results of the survey which might provide valuable and interesting information for them. In addition, a present in the form of a package with local food products from a farm in Wageningen was raffled among the respondents. Also, some of the open questions that required a longer answer (such as explanations in written text) were made optional, meaning that the respondents were allowed to skip these questions. This allowed the respondents who were less motivated or had less time to fill in the survey to skip these questions and only fill in the multiple choice and scaling questions.

Interview

The interviews were done partly in real life and partly online via Microsoft Teams. The advantages of online interviews as compared to real-life interviews mainly relate to the time and (travel) costs it saves. However, the most important reason that most of the interviews were conducted online is the current policy of the university regarding face-to-face meetings, which is limited because of the COVID-19 pandemic. The conduction of online interviews also leads to some disadvantages. First of all, doing interviews online makes it more difficult to observe the non-verbal communication. By using video in addition to audio, this limitation was reduced, however, it could still have led to misinterpretations of the things that were said when not being able to entirely observe the non-verbal communication. Also, online interviews limit the more informal interaction before and after the official interview, possibly missing out on important information that can come up during these more informal conversations. Finally, during online interviews it is harder to get an impression of the interviewee's situation, meaning to understand the context of the interview and to gain additional information by experiencing the surroundings. Also regarding the interviews done for this report, it was noticed that the real-life interviews led to more information, for example during the guided tour that were held at the farms before or after the interview.

With regards to the sampling method, this was done non-randomly and based on a strategic selection. This inevitably leads to a sampling error since the interviewees are not representative for the entire group of Dutch small-scale farmers (Bryman, 2004). As some of the interviewees were suggested by the commissioner of this project, this might have led to a selection bias where only a certain type of interviewees were reached. At the same time, it also led to a group of interviewees that fell into the target group of this research and all provided relevant information regarding its topic. Finally, the low number of interviewees is a limitation of this project that was caused by the limited available time. These limitations, together with the semi-structuredness of the interviews, all lead to the fact that the results of the interviews cannot be generalised to the larger target group but should rather each be considered as valuable inputs on an individual level.

Another limitation of the interviews could be that, even though they had the option to be anonymised in the report, the interviewees did not answer the questions entirely truthfully, since some topics were discussed related to possible illegal practices. This can be a sensitive subject and due to the presence of the interviewer(s) the interviewee might have not felt comfortable to talk about this openly. This also caused some information to be left out on request of the interviewee, excluding some of this data in the report.

As for the research methods in general, it should be mentioned that the mixed-methods approach used in this research allowed for triangulation, meaning that the results of the different research methods could be cross-checked against each other (Boeije et al., 2009; Bryman, 2004). This was for example the case when the answers given to the interviews were combined with the answers of

the survey. The expert interviews in particular allowed for a check regarding the reliability of the results of the survey and interviews with small-scale producers, to check if the obstacles mentioned by them were also recognised by the experts.

5. Conclusion

With the results of the research and the discussion of the obstacles and solutions, keeping their ethical limitations and the methodological strengths and limitations in mind, first the research questions can be answered. After that as a final conclusion, the main research can be answered.

Sub-questions

In this section the answers of the sub-questions will be stated. Therefore, the most important obstacles, solutions and stakeholders of this project are identified. The survey and interviews showed two major obstacles for small-scale producers in the Netherlands. The first obstacle is about the "Checks by monitoring organisations". The second obstacle is about the "Slaughter and home sales of meat".

The respondents argued that the producers of animal-based products face problems with relatively high costs of checks by monitoring organizations. Organizations like NVWA check for food safety regulations regularly at many farms. The respondents argue that most of the rules and regulations are designed for large-scale producers and that this leads to disproportionate costs per animal for small-scale producers.

There are initiatives in which small-scale producers are treated differently by institutions at regional, national and international levels. These are exceptions/labels provided for producers by governmental institutions, because of the value of authentic production practices and craftsmanship. A potential solution for this obstacle is for regulative and monitoring institutions to make exceptions for small-scale producers on regional and national level and/or by financial support.

The stakeholders that can play a role in designing and executing these exceptions are the LNV and the EU. The LNV can prosecute additional regulations, like increasing subsidies by complying with sustainability-related measurements in the National Strategic Plan as part of the new Common Agricultural Policy. The EU can extract labels that inform consumers that products produced by small-scale producers are authentic and locally produced. Furthermore, the European Commission can grant subsidies for farmers that fall within the borders of small-scale producers in EU member states.

Furthermore, respondents mentioned that rules and regulations do not allow them to process meat on their farm as they would like to do. However, it is arguable whether the regulations do not allow them to produce according to their wishes or whether they are not aware of the possibilities of the flexibility of regulations. A few respondents desire to slaughter their animals on their own farm, but due to high costs coupled with strict and unclear regulation, they are not allowed to do so.

A possible solution for giving small-scale producers the option to slaughter animals at their own farm, is the idea of mobile slaughter. This concept is currently practiced in different forms in other countries. It increases the options that small-scale producers have regarding animal slaughtering. However, it will not reduce high costs for small-scale producers.

In the Netherlands, mobile slaughterhouses are not put into practice yet. However, the NVWA and LNV have started pilots together, which will research the possibilities of MSs. These institutions will also play a role in designing rules and regulations which are about the use of MSs in the Netherlands.

A possible solution that could strengthen small-scale producers in general, is the idea of uniting small-scale producers into one organisation or concept. A general association for all small-scale producers will give more possibilities in representing the interests of small-scale producers at policy-making level to lobby for better regulations, and designing hygiene codes that are applicable for many small-scale producers in the Netherlands at this level as well. When farmers decide to join a

concept in which several small-scale farms create the same product, the process costs, regulatory costs and administrative burden that are related to animal-based products can be shared, thus reduced.

Main research question

The main research question that this project attempted to answer is "*in what ways can the viability of Dutch small-scale producers of animal-based products be enhanced with regards to food safety regulations?*". The results of this report have shown that there are different obstacles that reduce the viability of small-scale producers. There are, however, ways to increase the viability of small-scale producers by uniting with other producers to create a stronger lobby against unfair regulations, and to reduce the relatively high costs of being a small-scale producer. Several opportunities, such as financial support and regulatory exceptions, are not yet utilised. Furthermore, concepts like mobile slaughterhouses and subsidies for producing in an authentic way, can reduce the difficulty to comply with strict rules and regulations and/or costs set by regulating institutions.

6. Recommendations

In chapter 3 Results, the obstacles and possible solutions regarding food safety were described. In this section, the recommendations will be presented, on how small-scale producers can be supported to overcome indicated obstacles. Besides the already explained possible solutions to the obstacles in sections 3.5.2., 3.6.2. and 3.7, other recommendations are done as well.

Exceptions and subsidies

Section 3.5.2 contains a possible solution to the high costs and complex regulations that belong to monitoring the farm and the way of working regarding food safety. A possible solution to this obstacle would be to provide exceptions or a label for small-scale producers in order to reduce the costs. Also, the general obstacle on 'Disapproval for slaughter' can be possibly handled since the uniqueness will be looked into per farm. Making an exception for small-scale producers should result in a distinction between large-scale producers and small-scale producers. We recommend:

- The Dutch government to allow the use of the Geographic Identification labels of the European Union in the Netherlands again.
- The Dutch government to include representatives of small-scale producers in the development of the National Strategic Plan of the new Common Agricultural Policy of the European Union.
- Associations for small-scale producers to lobby for the labels and subsidies, related to small-scale producer association. There are many opportunities for small-scale producers, such as subsidies and regulatory exceptions through the European Union, that they are missing out of.

Mobile slaughtering

Section 3.6.2 contains a possible solution for obstacle two. Obstacle two is about problems related to slaughtering animals and home sales of meat. A possible solution to the slaughtering of animals is mobile slaughtering. Mobile slaughtering is done by moving a mobile slaughterhouse between farms. If meat is processed on the farm itself, transportation of the carcass from the slaughterhouse to the farm will not form an obstacle anymore. The high costs of cooled transportation for the carcass and the produced meat will become irrelevant when the slaughterhouse is moved to the farm. In addition, organic producers do not have to travel for a long time to be able to reach an organic slaughterhouse. Therefore, we recommend:

- Small-scale producers, who experience problems with (organic) slaughtering, inform about the possibility to join the (pilot) of mobile slaughterhouses.
- Associations for small-scale producers to investigate the interest in a mobile slaughterhouse.
- Bionext and INNOHOW to expand their mobile slaughterhouse to the whole of the Netherlands.

Small-scale producer association

Next to obstacle-specific possible solutions, also possible general solutions or contributions to solutions are provided that apply to both obstacle one, obstacle two and the general obstacles. These are explained in section 3.7. The first option is to unite small-scale producers with the use of a so-called small-scale producer association. This association allows small-scale producers to discuss concrete solutions to obstacles and exchange knowledge. The unified association can overarche other associations who will be a part of it. This way an expert for every aspect can be contacted and every producer can have access to the same information. This platform with information will be explained further on in the recommendations. Besides forming an association to exchange knowledge and know who to contact, activities can be organised. Activities organised by such an association can be lectures/webinars, discussion evenings, farm visits, organisation visits, etc. We recommend:

- Small-scale producers to take the initiative for the formation of such an association.

- Existing associations for small-scale producers to think about the efficiency of such an overarching association and possibly initiate the formation of an association.
- Experts share their knowledge with this association or convince smaller associations to unite in one large association.

Unite in a concept

Another recommendation named in section 3.7 is to provide collaboration between small-scale producers within one concept. This recommendation is inspired by Stan Gloudemans from 'Buitengewone Varkens'. The concept of Stan himself has been explained earlier in section 3.7. However, besides doing this for pig meat, this same concept can be applied in other sector aspects. This same concept can apply to beef and chicken meat, but also producers of eggs, egg products, milk and dairy products can collaborate in a similar way. The animals can be provided by an organisation like 'Buitengewone Varkens', the products that are produced will be picked up by the organisation and brought to customers. These products can differ from not being processed (such as a cow for slaughter or raw milk), to being fully processed (such as cheese or cut pig meat). By using this collaboration concept, producers can take care of their animals and produce the way they want it, but sales of the products are done in collaboration which makes it possible to sell larger stocks and making it easier to sell their products. Therefore, we recommend:

- People who like to keep animals for production, but see a lot of obstacles with the rules and regulations regarding the processing of the products to join such a concept.

Clarifying the HACCP plan

Besides the already explained possible solutions in our results, we will elaborate on some other recommendations as well. It is also recommended to clarify the HACCP plan as these are not always clear to everyone. Often the codes are difficult to understand as to what is meant and what needs to be done. Maria van Boxtel explained this regarding meat production. No general hygiene code is published yet as an organisation is missing which would want to guarantee the code and keep the code up to date. Maria van Boxtel indicates that this is a big gap of representatives. Due to this, the codes are not always followed which then can result in situations that do not comply with the regulations. Our recommendation would be to contact organisations that can support with writing the HACCP plan, they can help with creating hygiene codes applicable to your farm. This recommendation can become a part of the small-scale producers association and/or the collaboration in one concept. This combination can be useful, since most information will be exchanged in order to write a HACCP plan. The codes in such a HACCP plan can be general for the type of product category, which can be used by any producer. However, a HACCP plan can also be written specifically for a certain producer and its way of working. Information on how to write your own HACCP plan could be very helpful for small-scale producers. General steps according to Carter (2020) are as follows:

1. Plan what needs to be done and write this down.
2. Do what you planned to do to maintain food safety.
3. Check that you are doing what you planned to do to maintain food safety and write down what was checked and when.
4. Act to correct any food safety problems and write down what has been done about the problem and when.

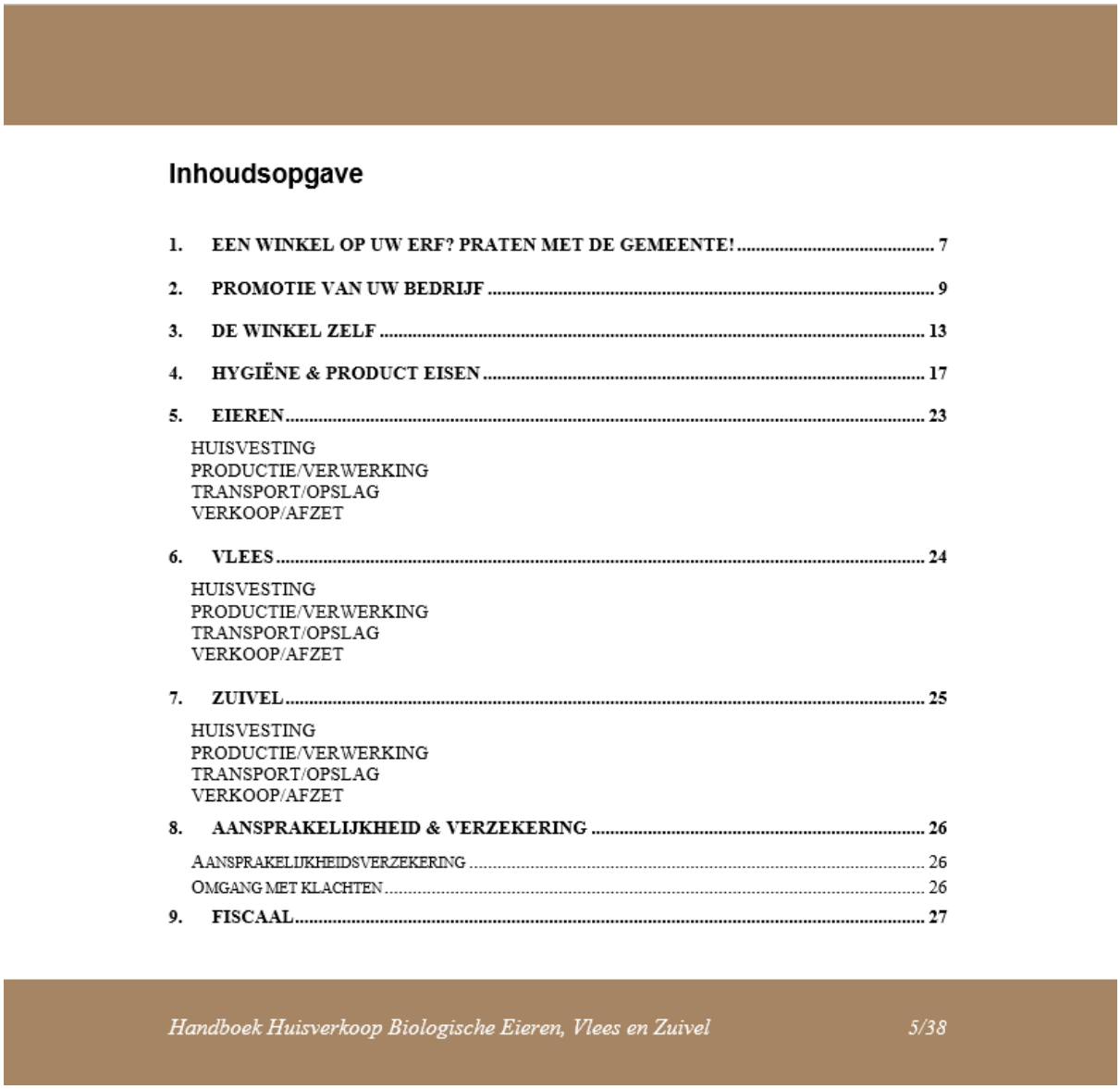
Besides explaining how to write a HACCP plan yourself, organisations that are specialized in writing a HACCP plan can be indicated so that small-scale producers know who to contact for writing a HACCP plan. We recommend:

- Small-scale producers to contact organisations that can support with writing a HACCP plan. They can help with creating hygiene codes applicable to your farm.
- Small-scale meat producers to find a representative that would like to guarantee the hygiene code and keep it up to date. This might be facilitated by the small-scale producer association described before.

Expand/renew handbook 'Huisverkoop biologisch vlees'

The handbook 'Huisverkoop biologisch vlees' ('home sales organic meat'), will be renewed. This handbook was published in March 2005, and because regulations have changed since then, the handbook will be updated. A handbook can be used by current small-scale producers as well as starters as it will provide an overview of what a small-scale producer needs to take into account to successfully produce its products.

From interviews, the survey and literature, several important aspects came forward which can be used for the handbook. We recommend expanding the handbook with eggs, egg products, milk, and dairy products next to meat products. This way the handbook can be used by all small-scale producers of animal products. Based on our report, we recommend making use of deviations in regulations. These deviations will be explained under subheadings, and are animal housing, production and processing, transport and storage, and sales. For each subhead the regulations, 'translation' of the regulations, where the regulations can be found and the organisations that are involved will be explained. To visualize, a table of contents of the possible new handbook according to our recommendations can be seen in figure 3.



Inhoudsopgave

Figure 3. Concept recommendation of the table of contents for the renewed handbook 'Huisverkoop Biologisch Vlees'.

Besides the big lines we also noticed smaller, but very important aspects that need more attention and are therefore recommended to add to the handbook as well. These aspects will be explained below.

A first recommendation that is specifically related to the meat sector, is to emphasize the cooled transport, storage of meat and the sales of meat in the handbook. Our research shows that small-scale producers are often not aware of current legislation and regulations and therefore often keep unnecessary (hard) rules to themselves. In addition, it was indicated that the control surrounding slaughter is often very strict from the regulations. From the interview it emerged that it is possible to follow a class at the NVWA to become an assistant keurmeester van vlees ('assistant judge of meat') yourself and in this way be able to inspect your own meat. This could be further explored and elaborated in the handbook.

What also could be included in the handbook is the advice for increasing the batch size of which small-scale producers have to take samples. The results of the survey and interviews often showed that sampling involves high costs and that these costs are the same as the costs for larger producers. Especially for the labelling of products this can be a problem as was indicated in section 3.3, General obstacles. As an advice, producers could increase the product batch size that they have to sample (for instance from daily basis to weekly basis), in order to reduce costs. However, if a disease is present in a batch or herd, then the costs will increase because more specific sampling is needed due to stricter monitoring.

What is also interesting to include in the handbook is the fact that within European legislation and regulations, there is already some flexibility left for national authorities to adopt a flexible attitude towards small-scale producers with authentic production methods. It is recommended to look into ranges within the current legislation and regulations, for instance look specifically to reduce the administrative burden experienced by small-scale producers or specific regulations regarding food safety where small-scale farmers already have an exception to be more flexible with some food safety rules.

More general subjects that are recommended to include in the handbook are the following. First of all, a problem that came up during our research very often is not understanding the regulations in a way that they are formulated in a difficult way. We recommend 'translating' the regulations in a way that everyone understands what is meant by them and misunderstandings are prevented. This can help for the obstacle as mentioned in section 3.6.2. with the unclarity of transportation of meat. Thus, rewriting regulations with use of easier language in the handbook. This is something that has also been discussed with Maria van Boxtel as she already gives training where she explains certain regulations to the farmers.

Besides the regulations according to the law which are hard to understand, the same thing often holds for the hygiene codes since this was indicated as a problem by multiple respondents/interviewees. Therefore, we recommend a similar solution as for the regulations by 'translating' the hygiene codes in a way that everyone knows what they mean and everyone can imply them within their production.

Apparently, many small-scale producers are not aware of the possibility of writing their own hygiene code. Due to this the general obstacle on the usage of raw milk can be an obstacle, which actually does not have to be an obstacle. If small-scale producers want to produce and sell their products in their own authentic way, they could include this in a HACCP plan and submit and discuss it with the NVWA or COKZ. The handbook can provide guidelines on how producers could write this hygiene code, where they can find more information or who could help them write this hygiene code.

A recommendation for the handbook related to a possible solution that was mentioned before, is the one of creating an overarching association. This association can take on the role of point of contact. The association is independent and can be contacted by small-scale producers who still face problems

or unclarity after having consulted the handbook. For the handbook we recommend taking up information on who to contact for what for the association. Including information on the association completes the handbook as everything can then be found in one place.

As was mentioned before, all these recommendations are based on results from our research. These recommendations thus relate to current obstacles and by adding them to the handbook, they can provide support for small-scale producers.

Create a website

Finally, we recommend creating a platform, such as a website, on which small-scale producers can find any information applicable to them. On this website a visual overview of a rural village will be shown (Figure 4) in which users can click on the types of agriculture and the types of legislation of their interest. This front page will function as a table of contents that directs the website user towards a new page with more specific information. Within this website, hyperlinks will be posted that direct to websites where regulations are fully elaborated, so that producers know which regulations apply to their farm and way of producing. In figure 4 an example of such a front page of a website is shown. It will refer to three different types of animal-based agriculture (meat, poultry and dairy) and elaborates on the next stages of the production, like slaughterhouses and dairy processing. Lastly, it will contain different types of consumers of the products. When one of these aspects is clicked, a list of regulations with certain obstacles that apply to small-scale producers will be shown. Rules and regulations will be divided upon the four different groups as stated in the 'handbook' section of the recommendations (animal housing, production and processing, transport and storage, and sales).

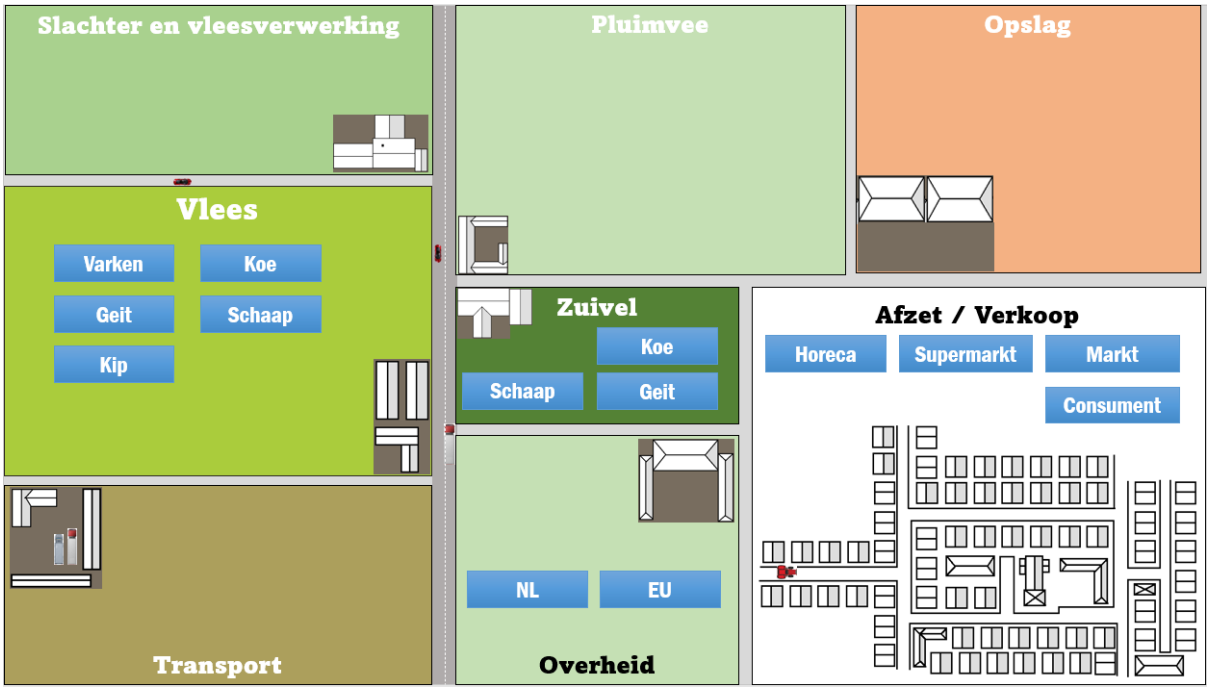


Figure 4: visual overview

Next to this, contact information of organisations and instances with which small-scale producers often are in touch will be elaborated on this website. Furthermore it will be explained in what type of situation, what organisation can be contacted. Small-scale producers have access to a forum page of the website where they can ask questions or propose ideas to which other producers can answer. Also an agenda is posted in which activities of the small-scale producers association can be found. To conclude, the website will contain all information for small-scale producers so that the producers can look for information themselves, but the producers can also contact other producers online as well as physically during activities or other meetings. We thus recommend:

- Make a website, related to the small-scale producer association, where the following information can be found:
    - Platform to exchange knowledge between small-scale producers and experts.
    - An overview of rules and regulations divided in several aspects that small-scale producers have to follow.

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Appendix A

Survey Questions

Introductie enquête

Beste veehouder,

Met deze enquête willen wij te weten komen wat voor u de knelpunten zijn op het gebied van hygiëne en voedselveiligheid bij het produceren, verwerken en verkopen van dierlijke producten. Wat belemmert u om uw gewenste (ambachtelijke) productiewijze uit te oefenen? Met de resultaten van deze enquête willen wij de punten aanpakken die u aandraagt. Wij zijn Inge Sikkema, Kirsten Elzinga, Nora Stein, Pauline Willemsen, Wim Elshof en Guus van der Aa van Wageningen University & Research en werken in opdracht van kleinschalige boeren.

Met uw kennis, ervaring en expertise helpt u niet alleen ons, maar ook andere kleinschalige producenten. Wij willen de belangrijkste problemen die door u en uw collega's worden genoemd in kaart brengen, daarvoor concrete oplossingen formuleren en aandragen bij relevante organisaties.

Onder de deelnemers verloten wij een streekproductenpakket van Boerderijwinkel de Hoge Born te Wageningen!

Wij vinden het belangrijk dat u uw eigen verhaal en ervaringen vrij kunt delen in deze enquête. Daarom worden uw antwoorden anoniem verwerkt en zal er integer worden omgegaan met uw data. Uw persoonlijke antwoorden of gegevens worden niet openbaar gemaakt of gedeeld met andere instanties. Wel kunnen wij u de verwerkte resultaten van de enquête toesturen. Dit kunt u aan het einde van de enquête aangeven.

De enquête zal ongeveer 15 minuten in beslag nemen. Graag ontvangen wij uw antwoord uiterlijk 13 juni. Ontzettend bedankt voor uw tijd en inzet voor deelname aan dit onderzoek!

Algemene introductie vragen

1) Hoe lang geleden bent u gestart met het verkopen van voedselproducten op uw bedrijf?
    a) <1 jaar
    b) 1-5 jaar
    c) >5 jaar
2) In welke provincie bevindt uw bedrijf zich?
    a) Drenthe
    b) Flevoland
    c) Friesland
    d) Gelderland
    e) Groningen
    f) Limburg
    g) Noord-Brabant
    h) Noord-Holland
    i) Overijssel
    j) Utrecht
    k) Zeeland
    l) Zuid-holland
3) Hoeveel uur per week wordt er in totaal gewerkt op uw bedrijf?
    a) <10
    b) 10-20
    c) 20-30
    d) 40-50
    e) 50-60

f) 60-70
g) 70-80
h) >80

4) Kunt u uw bedrijf kort omschrijven?
   Beschrijf bijvoorbeeld wat u produceert, of u zelf producten verwerkt en verkoopt en wat uw dagelijkse activiteiten zijn
5) Welke producten produceert u op uw bedrijf?
   a) eieren
   b) vlees
   c) zuivel

Sectie: Eieren

1. Hoeveel producerende dieren heeft u momenteel op uw bedrijf? En van welke rassen/kruisingen zijn deze dieren?
2. In hoeverre vormt regelgeving omtrent voedselveiligheid een probleem in uw bedrijfsvoering?
   Schaal 1-10 of n.v.t.
3. Wanneer u een specifieke opgelegde regel omtrent voedselveiligheid zou mogen benoemen die u het meest belemmert binnen uw pluimveebedrijf, welke zou u dan noemen?

Dierhouderij

1. In hoeverre ervaart u problemen met de regelgeving omtrent huisvesting (bijvoorbeeld hygiëne) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
2. In hoeverre ervaart u problemen met de regelgeving omtrent diergezondheid (bijvoorbeeld regelgeving over gezondheidszorg, bezoekersregeling, ziektepreventie en het gebruik van verboden stoffen) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. In hoeverre ervaart u problemen met de regelgeving omtrent water- en voervoorziening in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
4. Kunt u toelichtingen/voorbeelden geven van de problemen bij de drie bovengenoemde onderwerpen?
5. Zijn er nog meer problemen waar uw bedrijf tegenaan loopt omtrent het houden van pluimvee? Zo ja, kunt u deze toelichten?

Verwerken van eieren

1. In hoeverre ervaart u problemen met facilitaire regelgeving (bijvoorbeeld regelgeving over inrichting, reiniging en apparatuur) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
2. In hoeverre ervaart u problemen met de regelgeving omtrent de werkwijze/productiewijze (bijvoorbeeld schouwen en sorteren) van het verwerken van eieren in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. In hoeverre ervaart u problemen met de regelgeving omtrent het verpakken, etiketteren en verstrekken van productinformatie in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
4. Kunt u toelichtingen/voorbeelden geven van de problemen bij de drie bovengenoemde onderwerpen?
5. Zijn er nog andere problemen waar uw bedrijf tegenaan loopt omtrent de verwerking van de eieren die niet in de vragen zijn voorgekomen? Zo ja, kunt u deze toelichten?

Transport en opslag van eieren

1. In hoeverre ervaart u problemen met de regelgeving omtrent opslag van de eieren in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
2. In hoeverre ervaart u problemen met de regelgeving omtrent transport van de eieren in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. Kunt u toelichtingen/voorbeelden geven van de problemen bij de twee bovengenoemde onderwerpen?
4. Zijn er nog andere problemen waar uw bedrijf tegenaan loopt omtrent de opslag en transport van de eieren die niet in de vragen zijn voorgekomen? Zo ja, kunt u deze toelichten?

Verkoop van eieren

1. In hoeverre ervaart u problemen met de regelgeving omtrent de verkoop van uw eieren op uw eigen bedrijf in relatie tot voedselveiligheid?
2. In hoeverre ervaart u problemen met de regelgeving omtrent het extern verkopen van uw eieren (bijvoorbeeld aan een supermarkt, lokale winkel, markt of horeca) in relatie tot voedselveiligheid?
3. Kunt u toelichtingen/voorbeelden geven van de problemen bij de twee bovengenoemde onderwerpen?
4. Zijn er nog meer problemen waar uw bedrijf tegenaan loopt omtrent de verkoop van de eieren? Zo ja, kunt u deze toelichten?

Producten

1. Produceert u naast dit product nog meer producten op uw bedrijf?
   a) Ja, namelijk vlees.
   b) Ja, namelijk zuivel
   c) Ja, namelijk eieren
   d) Nee

Sectie: Vlees

1. Welke dieren houdt u op uw bedrijf?
   a) Geiten
   b) Kippen
   c) Koeien
   d) Schapen
   e) Varkens
2. Hoeveel producerende dieren heeft u momenteel op uw bedrijf? En van welke rassen/kruisingen zijn deze dieren?
3. In hoeverre vormt regelgeving omtrent voedselveiligheid een probleem in uw bedrijfsvoering?
   Schaal 1-10 of n.v.t.
4. Wanneer u een specifieke opgelegde regel omtrent voedselveiligheid zou mogen benoemen die u het meest belemmert binnen uw pluimveebedrijf, welke zou u dan noemen?

Dierhouderij

1. In hoeverre ervaart u problemen met de regelgeving omtrent huisvesting (bijvoorbeeld hygiëne) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
2. In hoeverre ervaart u problemen met de regelgeving omtrent diergezondheid (bijvoorbeeld regelgeving over gezondheidszorg, bezoekersregeling, ziektepreventie en het gebruik van verboden stoffen) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. In hoeverre ervaart u problemen met de regelgeving omtrent water- en voervoorziening in relatie tot voedselveiligheid?

Schaal 1-10 of n.v.t.

4. Kunt u toelichtingen/voorbeelden geven van de problemen bij de drie bovengenoemde onderwerpen?
5. Zijn er nog meer problemen waar uw bedrijf tegenaan loopt omtrent dierhouderij van vlees? Zo ja, kunt u deze toelichten?

Verkoop van vlees

1. In hoeverre ervaart u problemen met de regelgeving omtrent de verkoop van vlees op uw eigen bedrijf in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
2. In hoeverre ervaart u problemen met de regelgeving omtrent het extern verkopen van uw product (bijvoorbeeld aan een supermarkt, lokale winkel, markt of horeca) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. Kunt u toelichtingen/voorbeelden geven van de problemen bij de twee bovengenoemde onderwerpen?
4. Zijn er nog meer problemen waar uw bedrijf tegenaan loopt omtrent de verkoop van de eieren? Zo ja, kunt u deze toelichten?
5. Wordt het vee op uw eigen bedrijf geslacht?
   a) Ja (sectie: zelf slachten, zelf verwerken)
   b) Nee (sectie: extern slachten, extern verwerken)
   c) Nee, maar ik verwerk het vlees wel zelf (sectie: extern slachten, zelf verwerken)

Sectie: Extern slachten, zelf verwerken

1. In hoeverre ervaart u problemen met de regelgeving omtrent transport van dieren in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
2. In hoeverre ervaart u problemen met de regelgeving omtrent transport van vlees/karkassen in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. In hoeverre ervaart u problemen met de facilitaire regelgeving (bijvoorbeeld regelgeving over inrichting, reiniging en apparatuur) benodigd voor het verwerken van uw geslachte dieren in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
4. In hoeverre ervaart u problemen met de regelgeving omtrent het uitsnijden van karkassen op uw bedrijf in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
5. In hoeverre ervaart u problemen met de regelgeving omtrent de opslag van vlees voor de verkoop in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
6. In hoeverre ervaart u problemen met de regelgeving omtrent het verpakken, etiketteren en productinformatie in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
7. Kunt u een toelichting/voorbeelden geven van de problemen bij de zes bovengenoemde onderwerpen?
8. Zijn er nog meer problemen waar uw bedrijf tegenaan loopt omtrent het extern slachten van dieren, het transport van dieren of vlees en de opslag van vlees? Zo ja, kunt u deze toelichten?

Sectie: Extern slachten, zelf verwerken

1. In hoeverre ervaart u problemen met de regelgeving omtrent transport van dieren in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.

2. In hoeverre ervaart u problemen met de regelgeving omtrent transport van vlees in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. In hoeverre ervaart u problemen met de regelgeving omtrent de opslag van vlees voor de verkoop in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
4. In hoeverre ervaart u problemen met de regelgeving omtrent het verpakken, etiketteren en productinformatie in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
5. Kunt u een toelichting/voorbeelden geven van de problemen bij de vier bovengenoemde onderwerpen?
6. Zijn er nog meer problemen waar uw bedrijf tegenaan loopt omtrent het extern slachten van dieren, het transport van dieren of vlees en de opslag van vlees? Zo ja, kunt u deze toelichten?

Sectie: Zelf slachten, zelf verwerken

1. In hoeverre ervaart u problemen met de facilitaire regelgeving (bijvoorbeeld regelgeving over inrichting, reiniging en apparatuur) benodigd voor het slachten van dieren op uw bedrijf in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
2. In hoeverre ervaart u problemen met de regelgeving omtrent het slachtproces op uw bedrijf in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. In hoeverre ervaart u problemen met de regelgeving omtrent het uitsnijden van karkassen op uw bedrijf in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
4. In hoeverre ervaart u problemen met de regelgeving omtrent de opslag van vlees voor de verkoop in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
5. In hoeverre ervaart u problemen met de regelgeving omtrent het verpakken, etiketteren en productinformatie in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
6. Kunt u een toelichting/voorbeelden geven van de problemen bij de vijf bovengenoemde onderwerpen?
7. Zijn er nog meer problemen waar uw bedrijf tegenaan loopt omtrent de verwerking van vlees? Zo ja, kunt u deze toelichten?
8. Zijn er nog meer problemen waar uw bedrijf tegenaan loopt omtrent het slachten van dieren op uw eigen bedrijf, het transport van dieren of vlees en de opslag van vlees? Zo ja, kunt u deze toelichten?

Sectie: Zuivel

1. Welke dieren houdt u op uw bedrijf?
   f) Geiten
   g) Kippen
   h) Koeien
   i) Schapen
   j) Varkens
2. Hoeveel producerende dieren heeft u momenteel op uw bedrijf? En van welke rassen/kruisingen zijn deze dieren?
3. In hoeverre vormt regelgeving omtrent voedselveiligheid een probleem in uw bedrijfsvoering?
   Schaal 1-10 of n.v.t.
4. Wanneer u een specifieke opgelegde regel omtrent voedselveiligheid zou mogen benoemen die u het meest belemmert binnen uw pluimveebedrijf, welke zou u dan noemen?

Dierhouderij

1. In hoeverre ervaart u problemen met de regelgeving omtrent huisvesting (bijvoorbeeld hygiëne) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
2. In hoeverre ervaart u problemen met de regelgeving omtrent diergezondheid (bijvoorbeeld regelgeving over gezondheidszorg, bezoekersregeling, ziektepreventie en het gebruik van verboden stoffen) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. In hoeverre ervaart u problemen met de regelgeving omtrent water- en voervoorziening in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
4. Kunt u toelichtingen/voorbeelden geven van de problemen bij de drie bovengenoemde onderwerpen?
5. Zijn er nog meer problemen waar uw bedrijf tegenaan loopt omtrent dierhouderij van vlees? Zo ja, kunt u deze toelichten?

Verwerking van Zuivel

1. In hoeverre ervaart u problemen met facilitaire regelgeving (bijvoorbeeld regelgeving over inrichting, reiniging en apparatuur) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
2. In hoeverre ervaart u problemen met de regelgeving over productbehandeling (bijvoorbeeld regelgeving over pasteurisatie) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. In hoeverre ervaart u problemen met de regelgeving over overig productgebruik (bijvoorbeeld regelgeving met melkzuurbacteriën) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
4. In hoeverre ervaart u problemen met de regelgeving omtrent het verpakken, etiketteren en verstrekken van productinformatie in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
5. Kunt u toelichtingen/voorbeelden geven van de problemen bij de vier bovengenoemde onderwerpen?
6. Zijn er nog andere problemen waar uw bedrijf tegenaan loopt omtrent de verwerking van de eieren die niet in de vragen zijn voorgekomen? Zo ja, kunt u deze toelichten?

Transport en opslag van zuivel

1. In hoeverre ervaart u problemen met de regelgeving omtrent opslag van melk op uw eigen bedrijf in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
2. In hoeverre ervaart u problemen met de regelgeving omtrent opslag van verwerkte zuivelproducten op uw eigen bedrijf in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. In hoeverre ervaart u problemen met de regelgeving omtrent transport van zuivelproducten in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
5. Kunt u toelichtingen/voorbeelden geven van de problemen bij de drie bovengenoemde onderwerpen?
6. Zijn er nog andere problemen waar uw bedrijf tegenaan loopt omtrent zuivelproductie? Zo ja, kunt u deze toelichten?

Verkoop van zuivel

1. In hoeverre ervaart u problemen met de regelgeving omtrent het verkopen van zuivelproducten op uw eigen bedrijf in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.

2. In hoeverre ervaart u problemen met de regelgeving omtrent het extern verkopen van uw zuivelproduct (bijvoorbeeld aan een supermarkt, lokale winkel, markt of horeca) in relatie tot voedselveiligheid?
   Schaal 1-10 of n.v.t.
3. Kunt u toelichtingen/voorbeelden geven van de problemen bij de twee bovengenoemde onderwerpen?
4. Zijn er nog meer problemen waar uw bedrijf tegenaan loopt omtrent de verkoop van de eieren? Zo ja, kunt u deze toelichten?

Afsluitende vragen

1. Wilt u nog iets kwijt over regelgeving omtrent voedselveiligheid voor Nederlandse voedselproducenten wat nog niet behandeld is in deze enquête? Laat dit dan hieronder weten.
2. Mogen we u benaderen om eventueel aanvullende vragen te stellen, wilt u op de hoogte gehouden worden van de resultaten en/of wilt u kans maken op het streekproductenpakket?
   a. Ja, je mag me benaderen
   b. Ja, houd me op hoogte
   c. Ja, ik wil kans maken op het streekproductenpakket
   d. Nee, liever niet
3. Indien u de bovenstaande vraag met ja heeft beantwoord, laat dan hieronder uw contactgegevens achter.
4. Ik ga ermee akkoord dat mijn antwoorden op de vragen in deze enquête gebruikt worden voor dit onderzoek.
   a. Ja
   b. Nee

Appendix B

Interview questions
I1. Interview questions dairy expert

Introductie
- Opnemen interview
- Mogen we haar noemen in het verslag
- Introductie onderzoeksproject

Kunt u uzelf en uw bedrijf introduceren?

Obstakels uit ervaring
Wat is uw mening rondom de huidige wet- en regelgeving voor kleinschalige boeren omtrent voedselveiligheid?

Welke problemen komt u tegen bij kleinschalige boeren omtrent regelgeving over voedselveiligheid?

Wat zou er moeten gebeuren om deze problemen op te lossen?

Is de huidige wet- en regelgeving duidelijk te vinden én daarnaast te begrijpen voor kleinschalige boeren?

Problemen waar kleinschalige boeren tegenaan lopen
1. Problemen met de gezondheidszorg voor dieren
    a. Regels rondom STEC/EHEC
    b. Regels rond CAE/CL
2. Problemen met verpakken, etikettering en productinformatie
    a. Onderzoek naar samenstelling product
    b. Te veel gedetailleerde informatie op etiket
3. Problemen met opslag van (verwerkte) producten
    a. Te veel administratieve procedures
    b. Hoge eisen omtrent koeling voor opslag op bedrijf en tijdens transport

Herkent u zelf deze problemen vanuit uw werkzaamheden?

Wet- en regelgeving

Is deze duidelijk te vinden voor boeren?

Is deze duidelijk te begrijpen voor boeren?

Sluit regelgeving tussen verschillende instanties aan?

Afsluiting

Wat is voor u het belangrijkste probleem waar de boeren tegenaan lopen?

I2. Interview questions meat expert

Introductie
- Opnemen interview
- Mogen we haar noemen in het verslag
- Introductie onderzoeksproject

Kunt u uzelf en uw bedrijf introduceren?

Obstakels uit ervaring
Wat is uw mening rondom de huidige wet- en regelgeving voor kleinschalige boeren omtrent voedselveiligheid?

Welke problemen komt u tegen bij kleinschalige boeren omtrent regelgeving over voedselveiligheid?

Wat zou er moeten gebeuren om deze problemen op te lossen?

Is de huidige wet- en regelgeving duidelijk te vinden én daarnaast te begrijpen voor kleinschalige boeren?

Handboek 'Huisverkoop biologisch vlees'
Wat zijn de voornaamste onderwerpen die worden aangepast? Of zouden volgens u aangepast moeten worden?

Zou het verbreden van het handboek een goed idee zijn om zo voor alle sectoren binnen small-scale producers één handboek te hebben? In dit geval zouden dus zuivel en eieren aan het handboek moeten worden toegevoegd.

Problemen van boeren voorleggen vanuit de enquête
- Controle van Salmonella en bloedmonsters op kippen vóór de slacht.
    - Uitslag is maar twee weken geldig.
    - Maar één dier uit de groep hoeft gesampled te worden.
        - kleinschalige boeren daardoor relatief hoge kosten
        - grootschalige boeren daardoor relatief lage kosten
- Gekoeld transporteren/verwerken
    - Gaat gepaard met hele hoge kosten.
        - busje
        - gekoelde ruimte
        - vlees intern houden, niet via buiten
- Boeren geven aan vaak zelf te willen slachten op eigen terrein maar dat dit door regelgeving erg moeilijk wordt gemaakt.
    - Slachten en verwerken wordt daarom veel uitbesteed wat weer hogere kosten met zich meebrengt.
- Strenge en vele controles bij slachten van koeien en geiten.
    - Is aangegeven door geiten boer Harry van Wenum waardoor biologische slachters nu niet meer zijn geiten willen slachten en Harry genoodzaakt is van het label biologisch af te stappen.
- Geiten van Doetie mogen niet in de buitenlucht worden geslacht.
    - Het natuurlijk process verbeterd de vleeskwaliteit.
    - Het is niet onveilig.
- Onduidelijkheid/moeilijkheid van HACCP plan.

Mogelijke oplossingen
- Mobiele slachterij
    - Bent u bekend met de mobiele slachterij?
    - Ziet u hier een toekomst in? Waarom wel, waarom niet?
- Eén concept (Buitengewone varkens)
    - Bent u bekend met dit concept?
    - Ziet u hier een toekomst in? Waarom wel, waarom niet?
- Small-scale producers association
    - Ziet u hier een toekomst in? Waarom wel, waarom niet?

Wet- en regelgeving
Is deze duidelijk te vinden voor boeren?

Is deze duidelijk te begrijpen voor boeren?

Sluit regelgeving tussen verschillende instanties aan?

Afsluiting
Wat is voor u het belangrijkste probleem waar de boeren tegenaan lopen?

I3. Interview questions farmers familiar with the survey
Introductie
- Mogen we dit interview opnemen?
- Heeft u er problemen mee als we uw naam noemen in ons verslag?
- Introductie onderzoeksproject

In de enquête heeft u al kort uw bedrijf omschreven, zou u dit wat uitgebreider kunnen doen?
* Bij fysiek interview, mogen we een rondleiding over uw bedrijf?

Vragen over voedselveiligheid
→ Per boer van te voren de response uit de enquête opzoeken en opmerkelijke punten noteren en daarop doorvragen.
→ Doel is om meer in te gaan op het probleem dat uit de enquête naar voren komt en duidelijker te krijgen waar het specifieke obstakel ligt (qua regelgeving e.d.) en hoe de boer een oplossing ziet.

In de enquête gaf u aan dat u … met betrekking tot voedselveiligheid als een obstakel ziet. Kunt u dit misschien toelichten?

Wat is de oorzaak van deze problemen volgens u?

Wat is het directe gevolg van dit probleem op uw bedrijf?

Wat zou u graag anders willen zien? Of hoe denkt u dat het op te lossen is?

Met welke instanties heeft u hierbij te maken?

Kent u meer boeren in uw omgeving die hetzelfde probleem hebben of is dit een specifiek probleem voor uw bedrijf?

Wetgeving
Is het voor u duidelijk waar u alle wet- en regelgeving omtrent voedselveiligheid kunt vinden?

Zijn de regels omtrent voedselveiligheid duidelijk te begrijpen voor u?

Maakt u gebruik van de verschillende hygiënecodes omtrent voedselveiligheid?

Zijn er mensen die u informeren of adviseren over de huidige regelgeving omtrent voedselveiligheid?

Afsluiting
Wat is voor u het belangrijkste probleem waar u tegenaan loopt?

I4. Interview questions farmers not familiar with the survey
Introductie
- Mogen we dit interview opnemen?
- Heeft u er problemen mee als we uw naam noemen in ons verslag?
- Introductie onderzoeksproject

Zou u uw bedrijf kunnen omschrijven?
* Bij fysiek interview, mogen we een rondleiding over uw bedrijf?

Vragen over voedselveiligheid
Ervaart u problemen met …* met betrekking tot voedselveiligheid?

a. Zo ja, welke zijn dit?/Licht deze toe
b. Wat is de oorzaak van deze problemen volgens u?
c. Wat is het directe gevolg van dit probleem op uw bedrijf?
d. Wat zou u graag anders willen zien? Of hoe denkt u dat het op te lossen is?
e. Met welke instanties heeft u hierbij te maken?
    i. Heeft u een uitzonderingspositie als kleinschalige boer of wordt u juist benadeeld?
    ii. Welke indruk/ervaring heeft u van deze instanties?

* (1) huisvesting van dieren, (2) productie en verwerking van product, (3) transport en/of opslag van het product & (4) verkoop van het product.

Kent u meer boeren in uw omgeving die hetzelfde probleem hebben of is dit een specifiek probleem voor uw bedrijf?

Wetgeving
Is het voor u duidelijk waar u alle wet- en regelgeving omtrent voedselveiligheid kunt vinden?

Zijn de regels omtrent voedselveiligheid duidelijk te begrijpen voor u?

Maakt u gebruik van de verschillende hygiënecodes omtrent voedselveiligheid?

Zijn er mensen die u informeren of adviseren over de huidige regelgeving omtrent voedselveiligheid?

Afsluiting
Wat is voor u het belangrijkste probleem waar u tegenaan loopt?