

Integrated Food Studies, 4th semester

Transition time for conventional pig farming in Denmark?

Societal critique of the sector and farmers' perspectives

Master's thesis, First Semester 2016

Supervisor(s):

Mette Weinreich Hansen

Summary

Once very popular in the Danish population, the Danish conventional pig farmer have become the pariah of society due to bad practice in few cases and a problematic communication strategy in most.

This Master's thesis explores the negative image of the conventional pig farmers in Denmark through an analysis of its depiction in relation to the issue of sustainability, and proceeds to depict the farmer's perspectives on this negative image and on the reality they face. These two are then discussed through Geel's socio-technical transition theory on sustainability and more precisely analysed through the Multi-Level Perspective. Reflections about the multiple challenges the conventional production sector meets and the necessity for conventional farmers and organic farmers to forget dissensions and to join forces are included.

Acknowledgements

I would like to thank the interviewees who volunteered to participate in this project and my supervisor, Mette Weinreich Hansen, for her input and patience.

Table of Contents

Integrated Food Studies, 4 th semester	1
Acknowledgements	2
Introduction	6
Debates about agriculture in Denmark	7
The conventional pig farming in crisis	8
A transition in the making?	9
Research question	10
Clarification of terms	10
Conventional and alternative agriculture, conventional pig farming	11
Sustainability	11
Aim of the research	12
Research approach	13
Theoretical anchoring point	15
Socio-technical transition to sustainability according to Geels	15
State of the art	17
Perspectives on transitions taking place in agriculture	17
Transitions and socio-cultural influence	21
A look at pig farming research in Denmark	23
Citizens, consumers and pig production in Denmark	23
Suggestions for new approaches to research in the transitions to sustainability	26
Societal critique of conventional pig farming in the Danish national written media	29
Delimitations	29
Methodology	30
Selection of articles	30
Coding of articles	30
Results	31
Negative, problematic image of pig production, sustainability problems caused by conventional pig production or to which it contributes	32
A nuisance for the rural environment	32
Medication of pigs and MRSA	32
Animal welfare	33
Economic issues	34
Jobs, employment, and competition with other countries	34
A political issue	35
Conventional versus organic pig production?	36

The dark side of organic production	37
No system is perfect.....	39
Conventional pig farming seen with positive eyes.....	40
Conventional pig farmer's interviews	43
Methodology	43
Selecting and contacting potential interviewees	43
Conducting interviews	43
The interview guide.....	43
Transcribing and coding the interviews	44
Three different approaches to conventional pig production	44
A bad picture sells more than a thousand words	46
Explanations behind the negative images.....	47
Distance between the farmers and the rest of the population	47
The responsibility of the farmers.....	48
From popular to paria - and back?.....	48
Looking for the good stories	49
The importance of a good image	50
Issues with conventional pig farming.....	51
Economic pressure.....	51
Competition.....	52
Recruiting skilled employees.....	53
MRSA and antibiotic use	53
Why conventional is conventional.....	54
Comparison with organic farming.....	54
A black and white picture	54
The dark side of organic pig farming.....	55
The two systems have both advantages and drawbacks	56
Unfounded claims about organic farming	57
Cohabitation of systems.....	57
Positive sides of conventional pig farming in Denmark	58
Improvements & solutions	60
Perceived improvements in the business	60
Sustainability	61
Futures	62
Threats: competition and new trends in consumption and meat production	62
Hopes.....	63
Personal prospects.....	63
Discussion: societal critique of conventional pig farming and farmers' discourses examined through the socio-technical transition perspective	65
Conclusion	67
Considerations about future research needed.....	68
Reference list	69

Appendices	77
Appendix 1 - Maps	77
Appendix 2 - Primo search	97
Appendix 3 - Analysis of content from articles published in the Danish national written media - data collection & coding of data.....	98
Appendix 4 - Interview guide v1	104
Appendix 5 - Interview guide v2	106
Appendix 6 - Transcript examples	108

Introduction

The inspiration for the topic of this master's thesis came from my interest in the recent change of agricultural policy in Denmark. Following the election of Lars Løkke Rasmussen as Prime Minister in the summer 2015, the new right-wing government restored productivity and growth in the agricultural sector as the main priorities of the country's agricultural strategy, taking a different direction from the one initiated by the previous government to improve environmental and animal welfare conditions in food production. The "landbrugspakke" started soon to cause great debates in the Danish society. While the goals to maintain competitiveness and employment in the agricultural sector were seen as legitimate, the introduction of more flexibility regarding environmental protection rules faced criticism in the media. The situation revealed a clear divide among farmers, politicians, experts and the Danish population. On one side are supporters of an industry that has so far contributed to the country's economic reputation and growth through industrial production and exportations, and on the other side concerned critics who worry about the negative impacts of an intensive production, and would like to see a conversion to alternative production methods. Debates which have so far led to no other conclusion than that for one side, the greedy farmers who use conventional methods do not care about the environment, while for the other the "caffelatte Copenhageners" (Nøhr, 2016) do not know what they are talking about and should therefore abstain from criticising.

These debates took place, and presently continue to occur in a context of a serious crisis for the agricultural sector in Europe, which causes are complex, and the result of an accumulation of issues. Among these issues, recently the combination of a steady decrease in growth of the Chinese market and the sudden Russian import ban that was established in 2014 (Hogan, 2016) have suddenly changed the prospects of many European food producers.

The discussions around agricultural production in Denmark have not only been fed by the economic difficulties that the sector suffers, but have also been raised due to a multitude of other concerns concerning the future of food on the global scale. Another recent event, the signature of the COP21 climate agreement in December 2015

(UNCCC, 2015), reignited anxiety about the necessity to find solutions regarding the looming threat of climate change and to ensure long-term food security worldwide. In addition, repeated scandals regarding food safety, environmental and animal welfare issues have such as the case of the multiresistant bacterium MRSA CC398 linked to pig farming (Thomsen, 2014) have participated to create an atmosphere of distrust regarding the present food system and a need to question how food is produced in Denmark, involving many different actors and exposing conflicting needs and interests.

While my initial thoughts were to investigate how the possible impacts of the landbrugspakke, the new danish policy package, could compare with those of the french strategy to support the development of agroecology, I progressively limited my focus to the Danish situation solely, as the debates around food, animal welfare and the environment persisted in the national media. Why had the topic of food production suddenly become of interest for the Danish society?

Debates about agriculture in Denmark

During the last year, I have attended several conferences and debates dealing with the question of food production in Denmark. "Natur og landbrug - Samspil eller modspil?" (Tværfagligt Fødevarerforum, 2016) – which can be translated by "Nature and agriculture - interplay or opposition?" – is one of them, and tried to bring to light different conceptions of what nature means in Denmark for a biologist, a conventional farmer, a historian of ideas and an economist. Each participant exposed their visions of how nature and agriculture interact and what the ideal interplay should look like, the discussion that followed did not bring a consensus about how nature should coexist with agriculture in the future, and conventional farming was criticised for having a negative impact on Denmark's environment. A debate with a similar theme took place on the national television channel DR2 with a different panel, including also this time politicians from different parties, and attempted to answer the question: "what is more important, a clean environment or a competitive agriculture?" (DR, 2016). This question shows that there is a strong concern about the impossibility to achieve a food production that is both supportive of the economy and respectful of the environment in Denmark.

Coming closer to the topic of this research, another debate I have attended dealt with the subject of meat consumption (Roundtown, 2016). Organised by Restaurant Bæst in

the Danish capital of Copenhagen, the debate included a researcher, a conventional farmer, as well as the restaurant owner, Christian Puglisi, who aims to serve only organic meat in the different outlets he is the owner of. The impacts on health and the environment of meat consumption and production became the center of the discussion during the round of questions at the end of the debate, and especially the ones of conventional pig production, often in comparison to organic production, and exposed allegedly irreconcilable views between most participants present at the debate, and the vision exposed by the conventional farmer. Conventional pig farming was deemed by many as an undesirable production that damages the environment, is cruel towards animals and can have consequences for public health due to the MRSA issue.

The conventional pig farming in crisis

This distrust and rejection of conventional farming, and of pig farming especially, is somehow surprising. For many years this industry has contributed to Denmark's economic growth, and is still a success for Denmark's economy and reputation worldwide; it is also described by the main farmers' association in Denmark as "among the best in the world regarding breeding, quality, food safety, animal welfare and traceability" (Landbrug og Fødevarer, 2014).

Pig production is a good example of an agricultural sector that faces a crisis today and it has been hit especially hard. As an example, European exports of pork meat to Russia represented one billion euros in 2013 (Euractiv, 2015). In Denmark, a combination of rising debts since the global financial crisis and the loss of their primary market because of the Russian ban has significantly impacted the income of the country's 2400 pig farmers (Rodrigo, 2015). The sharp fall of pork meat prices has put many farmers at risk of bankruptcy (Ritzau, 2015). When 90% of the Danish pig production, largely conventional, is exported (Landbrug og Fødevarer, 2014), the sector becomes highly vulnerable to fluctuations in the international market, especially when considering that this production amounts to around 30.1 million pigs per year (Danish Agriculture and Food Council, 2015).

Pork meat holds a special place in the Danish food culture; it represents 43% of the total purchase of fresh meat of consumers in Denmark (Landbrug og Fødevarer, 2013, p.4), and is the main component of the national dish, crispy pork belly slices in parsley sauce

(MFVM, 2014). Recently, problems such as the MRSA scare have cast doubts about the safety of conventional pork production (Thomsen, 2014). But in 2014 most of the pork meat bought by Danish consumers originated from conventional farms, and the sale of organic pork represented only 3% of the market; nevertheless, in one year, organic pig meat purchases increased by 36%, more than other types of meat (Landbrug og Fødevarer, 2016).

The demand for organic pork meat is not only growing in the country; there is actually a shortage on the international market, and therefore a strategy to make Denmark as one of the leading countries in terms of organic production has been developed to be able to exploit its growth potential, also for export purposes (Landbrug og Fødevarer, 2016).

While alternative pig farming seems to encounter a quickly increasing demand both in Denmark and abroad, the conventional pig farming sector, which used to be one of Denmark's biggest success stories is presently suffering a deep crisis, both because of instability in the international market and in terms of image as well, due to health and environmental concerns linked to the type of production.

A transition in the making?

Is conventional pig farming soon a thing of the past that will slowly disappear from the Danish landscape then? At first sight, the situation for the industrial Danish pig farmers is similar to what their Dutch counterparts have experienced. Bos et al. (2012) have examined what the livestock sector in the Netherlands experienced with the help of concepts from Geels' transition theory and pinpointed similar struggles to the situation of the Danish pig farming sector.

After a period of rapid expansion and success, criticism soon arose against the predominating system of intensive livestock production – i.e the socio-technical regime when considered through Geels' multi-level perspective of sustainability transitions that will be developed in the theoretical background part – due to its environmental impact, repeated diseases and questionable animal welfare standards; yet, despite these challenges, the sector has somehow managed to embark on a transition, considering that the Dutch government has shown support for it by, for example, investing in research to improve animal welfare conditions for pigs (Bos et al., 2012).

The Danish government also seems to still see a potential in conventional pig farming. A recent research project named "Månegrisen" (the Moon Pig) is worth being mentioned.

Started in Denmark by the Danish Agri-Fish Agency (Naturerhvervstyrelsen, 2016), it aims at bringing conventional farming through the sustainability transition. Danish conventional pig farmers can participate in the project, which is an attempt at creating a model for a sustainable, yet highly efficient pig barn which emissions would have zero impact on the environment. The pig housing unit of the future would also ideally integrate resource optimisation and animal welfare practices (Naturerhvervstyrelsen, 2016).

One of the reasons why governments choose to take action in favour of the conventional system is that, whatever the benefits organic animal husbandry brings for the environment and animal welfare, it is not possible to substitute organic for conventional animal husbandry without a drastic change in production goals, simply because of limits regarding the volume of production (Bos et al., 2012, p.229-230). Therefore, it is worth giving it some attention, especially when considering the status the mainstream pig production has had in the Danish society until recently.

Research question

Taking the intense debates in Denmark as a sign of a questioning of the existing socio-technical regime, where are the conventional pig farmers in this picture of a possible transition in the making, when their future seem to be compromised by difficult conditions and they face a strong societal critique?

What are the aspects of the sustainability transition regarding conventional pig farming sector in Denmark?

- *How are conventional pig farmers depicted in the media?*
- *How do conventional pig farmers in Denmark position themselves in regards to their image and how do they experience their practice?*
- *How can the issues discussed in the debate and actually met by the farmers be considered in relation to a sustainability transition in pig farming in Denmark?*

Clarification of terms

Before exploring the abovementioned questions, it is important to clarify some of the important terms discussed in the thesis, and propose definitions as points of departure to

discuss the issues. The perspectives of different actors will come to enrich the definitions along the development of the paper.

Conventional and alternative agriculture, conventional pig farming

As the distinction between conventional and alternative agriculture will often be encountered in this paper, it is necessary to refer to a definition of each of the two types of production.

Park & Allaby's Oxford's Dictionary of Environment and Conservation (2013) defines conventional farming as "farming practices that involve the use of chemical fertilizers, pesticides, and machinery." Alternative agriculture, on the other hand, is "An approach to farming that reflects traditional practices such as using organic rather than chemical fertilizers and pesticides, increased use of crop rotations, reduced tillage of the soil, greater use of renewable energy sources and of intermediate technology, compared with modern high-energy, chemical-dependent agribusiness." (Park & Allaby, 2013)

These simple, clear-cut definitions that oppose the two systems of production to each other are consciously chosen as a point of departure that mimics the superficial way the farming types are presented as antithetical in the media. Moreover, as conventional pig production is the main topic of interest, it is important to begin with a simple definition of what is meant by conventional pig farming in this project. Conventional pig farming, that can also be referred to as industrial, or mainstream in some occurrences, encompasses a production that takes place in confinement, and respects the requirements established in Denmark for this type of production. Some of the characteristics of the conventional pig farming in Denmark are the following:

- sows can move freely during their pregnancy;
- Most give birth in a stall;
- The weaning of piglets takes place after 3 weeks minimum
- The feed is mostly composed of barley and wheat to which typically soy is added for extra protein, as well as vitamins and minerals. (Landbrug og Fødevarer, 2014).

Sustainability

Sustainability has many meanings and dimensions. From the universally accepted definition of sustainable development as "development which meets the needs of the

present without compromising the ability of future generations to meet their own needs.”(Murphy & Drexhage, 2012, p.2), which bears the idea of a careful management of resources, new definitions have appeared, applied to different activities. A definition of sustainability by Kajikawa related to agriculture can be found in Duru & Therond (2015): the state in which agricultural production levels are maintained within the capacity of the ecosystem supporting it”.

This definition takes into account two important elements: the maintenance of a level of production, and the relation of this production with the ecosystem it belongs to.

Being aware of the existence of radically different visions regarding sustainability can be useful for this project. An interesting perspective on the notion of sustainability applied to animal breeding is offered by Gamborg and Sandøe (2015). As part of the work led by a network named SEFABAR (Sustainable European Farm Animal Breeding and Reproduction), a definition including animal welfare, health, animal integrity, biodiversity, environmental protection, consumer safety, food quality and global competitiveness was developed. The resulting definition for the farm animal breeding network of actors is the following: “Sustainability in animal breeding and reproduction means the extent to which animal breeding and reproduction, as managed by professional organisations, contribute to the maintenance and good care of animal genetic resources for future generations”.

The sub-group working specifically with pig breeding highlighted several features as particularly important for their sector: the “maintenance of genetic diversity”, “animal welfare and animal health”, “breeding animals which are robust and efficient in different conditions or of an acceptable price”. As underlined by the researchers, the person or group who defines sustainability, and their own values and priorities influence heavily the content of the definition. Therefore even if it can be surprising when considering its importance when discussing agricultural systems as a whole, the “minimisation of environmental impact and prudent use of feed resources” was not among the priorities of the pig breeding working group. (Gamborg and Sandøe, 2015). For this project, the definition is let open, and the meanings associated to sustainability in the data collected will be examined in the end.

Aim of the research

Now that some of the important terms for the research have been clarified, its aim needs to be defined.

As conventional pig farming is often considered in relation to the difficulties it meets and the problems it causes, this research is an attempt at examining conventional pig production in Denmark through the prism of a more neutral perspective, with considerations for changes, a transition perspective. The focus will be directed on two issues related to the production sector that are somewhat remote from each other: on one side the very visible socio-cultural pressure exerted on the sector, expressed through debates and criticism published in the media, and on the other side the more complex reality of the farm-level conditions.

The intention is to first obtain a better understanding of what the sector is criticised for and by who, what is expected of conventional pig farmers from those who criticise it; and to then proceed to explore how the farmers relate to this image and to what they do as well as to get some insights about what motivates farmers to choose such a criticised system of production and how they consider their future prospects.

Research approach

This part presents the journey followed that motivated the choice of theories and methods selected to answer the research question.

As the primary inspiration for the topic of this thesis was not derived from previous research, I first took a grounded theory approach to determine how to analyse the situation, and more especially the one advocated by Adele Clarke (2005): "Situational analysis allows researchers to draw together studies of discourse and agency, action and structure, image, text and context, history and the present moment—to analyze complex situations of inquiry broadly conceived." (Clarke, 2005, p.xxii)

In order to define the topic of my thesis, I followed Adele Clarke's advice to map out preexisting knowledge and preconceptions before I started reading about specific elements of the subject: "Part of the process of making situational maps is to try and get such information [impressions, and images about topic areas and issues], assumptions, and so on out on the table and, if appropriate, into the maps." (Clarke, 2005, p.85). This resulted in messy maps where a certain amount of elements were pinpointed. These maps and the notes taken while making them allowed me to articulate some particular remarks about my topic of interest, and provided "the big picture" (Clarke, 2005, p.85) necessary to consider which direction to take regarding the definition of a specific problem. They also helped me pinpoint the knowledge that I was lacking and reflect on

my own presence in the situation, as it is encouraged in the practice of situational analysis (Clarke, 2005, p. xxvii).

Through the use of situational maps, which were used to obtain an overview of as many elements of the situations as possible at the early stages of the research process (Clarke, 2005, p.6) I narrowed down my focus, which started originally with the situation of farmers and the new policy package, to be limited to pig farmers, conventional pig farmers. The systematic reexamination of the maps has contributed to reorient my focus towards the discourses present in the media regarding pig farming after assessing the content of the initial interview, which had been approached with an attempt to distinguish any signs of sustainability in the farmers' practice. The first interview not only made me realise the difficulty to observe practices without the necessary knowledge about pig production practices, but also that some of the modern pig farm owners rarely accomplish tasks in the housing units on a daily basis. The content of some of the situational maps designed during this project are included in appendix 1

This wandering in the situation of conventional pig farming resulted in the combination of three elements. I was equally drawn to examine the very visible and accessible image of this sector of production, which is the one presented in the media and which is rarely a positive image, and to at the same time discover the other side of the story, the one of the individual farmers who are confronted every day to this image given of them and engage in the practice that so many Danish citizens frown upon. Inspired by the bricoleur approach (Clarke, 2005, p.146), on top of these two areas, Geels' multi-level perspective (MLP) model (Geels & Schot, 2007) and its focus on socio-technical transitions to sustainability appeared to me as a promising background to articulate these two situations.

Therefore this thesis is an attempt to combine the flexible and independent approach of situational analysis to look at data with the concept developed by Geels to enable me to look at the elements according to a structure that translates a change, a transition, to better recognize the characteristics and the signs of an evolution in both the debates in the media and in the farmers' approach to conventional pig farming.

Theoretical anchoring point

Having the sustainability transition theory framework in mind to consider the context conventional pig farmers find themselves in, and how they fit in this sustainability transition picture can in return, bring another perspective on these important actors of the Danish food system than the one presently conveyed in the media.

Socio-technical transition to sustainability according to Geels

First and foremost, it is necessary to explain the characteristics and the aim of the socio-technical sustainability transition theory that will be the connecting thread in the research developed in this paper. This will provide the necessary background for the coming theoretical concepts applied in the paper. Due to its richness and complexity, this theory is difficult to summarize but I will hereby make an attempt at explaining its core concept, the multi-level perspective. In the multi-level perspective (MLP) there are three levels: socio-technical landscape, the socio-technical regime, and the technological niches, with on each level, a different set of actors and different dynamics operate. In the simple, default pathway, a transition has taken place when a significant change on the socio-technical regime can be observed. This level is the core, where the mainstream practices, standards, rules, markets, technology and values are set and put in application. Changes on this level are the results of developments on the two other levels: on the one hand, the socio-technical landscape can be considered as the context, and changes on this level exert pressure on the regime; on the other hand, the niche-innovations, when they accumulate in a consistent stream of successful novelties, can come and disrupt, shake the socio-technical regime up, especially when a window of opportunity is created by an event in the landscape. The socio-technical regime then incorporates these novelties as adjustments to the mainstream components. (Geels & Schot, 2007).

The figure below illustrate the default pathway:

Increasing structuration
of activities in local practices

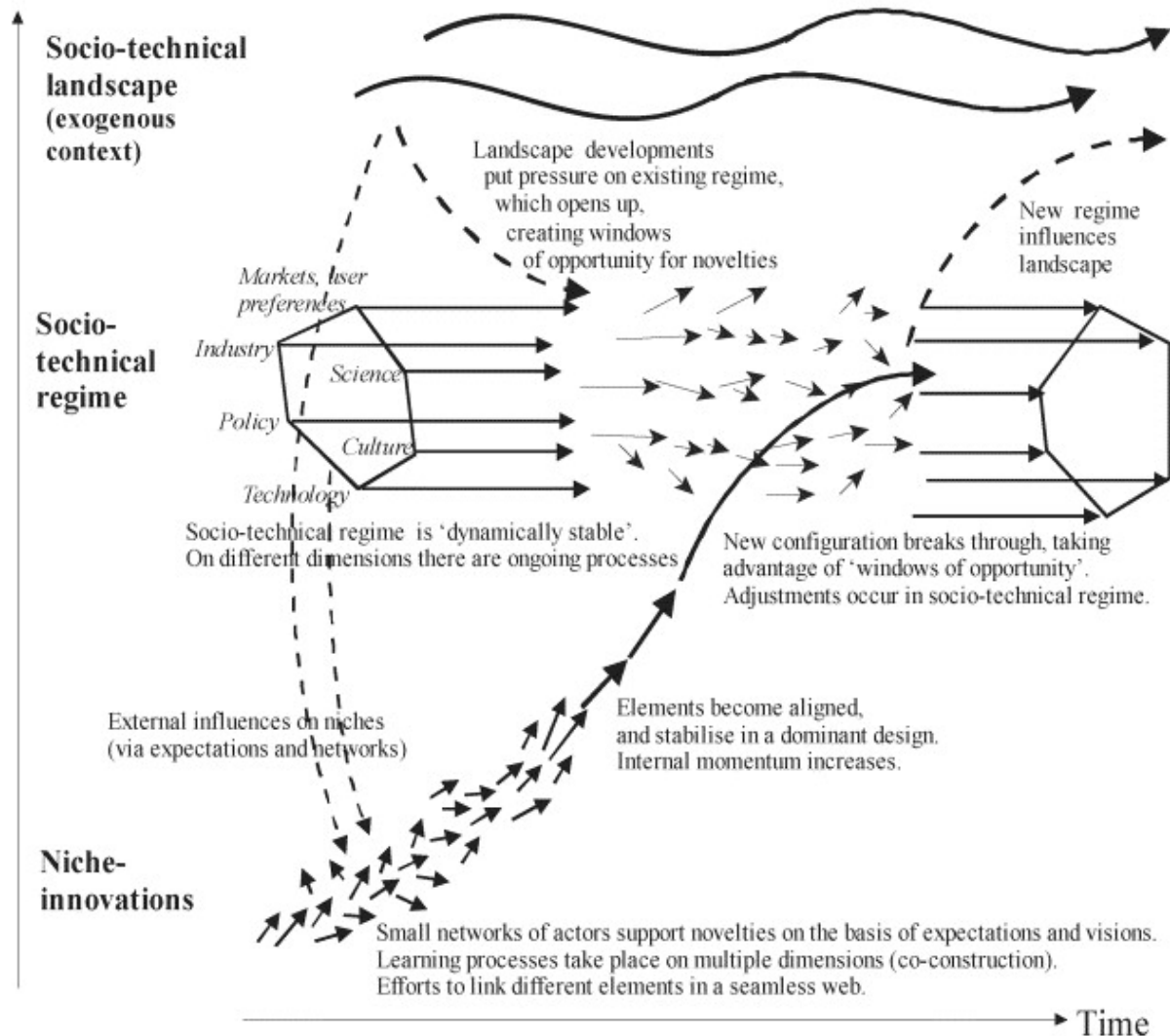


Figure 1 An overview of the multi-level perspective - (Geels & Schot, 2007)

This perspective combining a multitude of elements aims at facilitating the analysis and the management of transitions to systems that fit better with the socio-technical landscape. What makes the transition theory interesting for this project is that it takes a multi-dimensional approach when considering a change taking place: the different levels are different arenas where changes take place and they influence each other. By offering this overview of all the different dimensions and facets of the three different areas of activity, this model prevents from being trapped in one vision or the other, it encourages a distanced perspective which I consider of high necessity to approach this topic.

In order to uncover the latest developments regarding the topic of this thesis and to possibly collect inspiration to examine the collected data, recent scientific literature based on research in relation to transitions in agriculture (related to Geels, and also to other transition-related theories), socio-cultural influences on transitions, and the socio-cultural reflections on conventional pig farming systems, in Europe and Denmark when applicable will be now examined in the next section.

State of the art

The collection of literature presented in this section took place through Aalborg University's Primo database among sources with full access granted and published during the last ten years. In order to find the relevant information, the following keywords and their synonyms were combined: transition; sustainability; pig farming; media; discourse. The articles that were most relevant to the topic of this project among the results were selected by reviewing the titles and the publication journals; another round of selection took place by reading the abstracts. Several articles cited in the the selected publications were added when contributing with a new perspective. The presentation of the articles and their findings is structured as following: perspectives on transitions in agriculture,

Perspectives on transitions taking place in agriculture

Productivity is a major determinant in the transition of modern agriculture. As new environmental challenges appear, they challenge the way productivity can take place. For Wilson (2008), "agricultural transitions are often characterised by non-linearity, heterogeneity, complexity and inconsistency". His conception of multifunctionality offers three different pathways at farm-level: weak, moderate and strong. All pathways oscillate over time between productivist and non-productivist modes of action and thought, but the pattern of progress can vary from one farm to another. The strength of the multifunctionality pathway is determined by how high "social, economic, cultural, moral and environmental capital" is. Some of the features of strongly multifunctional systems are "high environmental sustainability", the importance of relocation of food chains, and how the food produced bears high symbolic characteristics. As a result, decreased productivity, diversification of production and an estrangement from capitalist market networks take place. Wilson is aware that "striving for strongly multifunctional agricultural systems may often represent a theoretical ideal rather than a fully achievable goal". (Wilson, 2008).

In a paper from 2015 and in collaboration with Rob Burton, Geoff Wilson examined the notion of neo-productivism. For the researchers, the term has the capacity to “nuance conceptualisations of the complex spatial, temporal and structural changes that characterise modern agriculture in any area of the globe”. However, its interpretation varies from one approach to another. They analysed how it has been conceptualised in two approaches: the actor-oriented spatio-temporal (AOST) approach and the structuralist interpretations. For AOST, neo-productivism is a re-emergence of productivism that reappears because of events putting pressure on non-productivist pathways. Whereas according to structuralist interpretations, neo-productivism is characterised by productivist approaches that are modified by the influence of non-productivism ideas, motivated by the market. (Wilson & Burton, 2015).

For Sutherland et al. (2012), transition at farm level only takes place if it is motivated by trigger events. The amplitude of the transition depends on path dependency, which in turn influences the nature of the changes undertaken. For some farms, a major transition takes place only after many small changes, in an incremental manner, whereas the transition in other cases happens abruptly. The transition follows five stages: “path dependency”, “trigger event”, “active assessment of options”, and implementation”, “consolidation” to then come back to path dependency. The ‘triggering change’ process described has some similarities to the ‘diffusion of innovations’ approach developed by Rogers (1983, 1995): “the recognition of the need for active information seeking, formal decision-making and confirmation of the new activity changes from conventional to alternative agricultural systems like organic farming require different forms of knowledge, acquired through experimentation and social interaction”. When a new approach develops, it usually takes time for it to become part of farming systems. Providing support over several years, facilitating knowledge sharing, especially through farmer networks should be considered by states that want to guide transition in a certain direction. (Sutherland, 2012)

Moving to farming systems, Caron, Biénabe & Hainzelin (2014) examined the conditions for a transition towards ecological intensification (EI) in agriculture on a worldwide perspective. They argue for “the need to renew the conception of the notion of performance in agriculture” considering how the challenges faced today indicate that new paradigms should be explored. They underline the apparition of new concepts, such as the multifunctionality of agriculture (how it goes beyond food production but can also

play a role in e.g. economic development, environmental protection, or in the maintenance of traditions).

One of the main characteristics of EI is that it is a “knowledge intensive process” and being a recent development, important knowledge gaps exist; it is also sensitive to the local context which calls for context-specific knowledge, local practitioners and experts. Another characteristic is that it is fundamentally different from the conventional system of agricultural production and therefore implies a complete revision of the way knowledge is produced and actors are organised. And many uncertainties lie in how to this revision should take place, which makes the transition to EI a major challenge. (Wilson, 2008; Wilson & Caron, Biénabe & Hainzelin, 2014)

The negative impact of their output on water quality, the amounts of feed they require, and the greenhouse gases emissions, coupled with the apparition of sustainability and multifunctionality measures in agricultural policies has pushed the quest for sustainability solutions on the agenda for livestock systems. Duru & Therond (2015) focused on the sustainability of their ecological modernization, and in particular two directions in this trend: weak and strong. As underlined by Gliessman, “Livestock can both stress and benefit ecosystems. Environmental problems lie not so much with the animals themselves but rather with how they are integrated into agroecosystems and food systems.” In order to reduce the impact on environment of animal production, two tendencies can be observed: in the case of weak ecological modernisation systems, there is only a focus on reducing the use of industrial inputs and to recycle waste; whereas strong ecological modernization systems aim in addition to increase agrobiodiversity, leading to a decreased need for industrial inputs. Weak and strong ecological modernisation systems both present advantages and inconvenients depending on which criterion of sustainability is examined. Regarding the resilience dimension of each type of systems, what is important is the governance model behind them: for weak ecological modernisation livestock systems it is the whole agri-food chain, and economical and technological is needed to support change, whereas the local dimension is paramount for the strong ecological modernization system and they rely on rich networks of local actors and biodiversity to thrive (Duru & Therond, 2015).

The book *Food practices in Transition: Changing Food Consumption, Retail and Production in the Age of Modern Reflexivity*, edited by Spaargaren, Oosterveer, & Loeber (2012) examines how sustainability transitions take place in the domain of food, be it in its production, consumption, or distribution aspect. Of special interest for this thesis is chapter 11, “Reflexive Design for Sustainable Animal Husbandry - Mediating

Between Niche and Regime” written by Bos et al. (2012). As briefly introduced earlier, it recounts the difficulties met by the Dutch conventional livestock sector in the last decades: overproduction, a succession of epizootics, criticism from the Dutch society regarding animal welfare, a growing environmental impact difficult to manage. A context that put a hard pressure on the livestock production regime, while solutions are hard to find: improving both environmental sustainability, animal welfare while keeping the production efficient and profitable is problematic. Bos et al. (2012) underline the necessity to undertake a more holistic and thorough approach when rethinking animal production and consumption, and the impossibility to reform the livestock sector according to the development taking place in the organic sector; they argue that innovation should go beyond small improvements and reflect a major shift to really be beneficial for the regime, a proper “system innovation” (Bos et al., 2012, p.229-230). How tenuous building a transition agenda regarding the animal production sector in the Netherlands is due to a lack of a common vision: many actors (of whom many individual farmers) need to be involved, the Dutch society is fundamentally divided on the topic, the complexity of the situation and disagreements about how sustainability in the sector can be achieved (Bos et al., p.232).

They nevertheless present a successful collaboration started in 2001 between the Dutch Society for the Protection of Animals and Wageningen University & Research Center on a project to redesign living conditions for pigs according to a needs approach to animal welfare. This initiative received support both from the Dutch government and the farmers' association LTO Nederland, who decided to take the project further and to make the conceptualised “Pigs in Comfort Class” barn a reality. The cooperation between prior antagonists, the Dutch Society for the Protection of Animals and LTO Nederland, brought a constructive dialogue in a relationship where there was beforehand only criticism and resistance. The Dutch Society for the Protection of Animals adopted “A strategy of actively promoting and supporting smaller or larger improvements was to be preferred over the conventional strategy of repeatedly criticizing any practice that did not conform to their ideal” (Bos et al., 2012, p.237). The organisation developed an “improved welfare” label, several farmers modified their barn, and a new segment of improved welfare products became available in Dutch supermarkets. The case presents interesting lessons for managing system innovation in a mainstream sector: the positive role of design and visual representation of ideas to bring interest and help develop a common vision; the establishment of a common ground for dialogue by reframing the problem on the needs of the pigs instead of

focusing on the preferred solutions, and the creation of a clear point of reference for dialogue with the level of animal welfare chosen.

What the recent research on the topic of transition in agriculture shows is that whatever the approach taken to analyse the change, environment issues are central to the changes taking place. At farm level (Wilson, 2008; Wilson & Burton, 2015; Sutherland et al., 2012), transitions are influenced by path dependency, i.e. “the concept that (potentially minor) historical events can ‘lock-in’ development pathways through events such as capital investment, gaining market dominance, increasing familiarity (reducing risk and uncertainty), and the build up of knowledge” (Sutherland, 2012). In turn, at the system level, the trials to remodel and design new systems are characterised by tensions in the redefinition of the goals of agricultural production, the challenge of combining productivity, environmental sustainability, and multifunctionality is central (Caron, Biénabe & Hainzelin, 2014; Duru & Therond, 2015). The attempt of combining all these aspects have been undertaken in the project described by Bos et al. (2012), which also took into account path dependency at farmer level. This illustrated by how individual farmers could select single innovations from the resulting vision and benefiting from being attached to the project anyway.

Transitions and socio-cultural influence

New technologies require acceptance at the societal level to be integrated to the mainstream system. Therefore Geels and Verhees (2011) focused on the influence of culture change as part of transitions and examined cultural legitimacy in relation to technical innovation journeys. “Cultural legitimacy derives from the content and meaning of discourses, which depend on the way that deep-structural elements, concepts, ideas, metaphors, arguments and images are ordered and related”.

Geels and Verhees choose the case of Dutch nuclear energy from the end of World War II to the Chernobyl disaster as a support for developing their theory about how cultural legitimacy is built, inspired by “insights from interpretive, discursive and performative approaches”. The public debate is seen as the stage where the cultural struggle takes place. Five dimensions articulate the creation of cultural legitimacy: “actor credibility”, “empirical fit”, “centrality”, “experiential commensurability”, “macro-cultural resonance”. All together these indicators determine how the frames can engage society because their representants and the arguments they present seem trustworthy, the issue can be deemed important, and easy to relate to for the audience. (Geels & Verhees, 2011).

A different approach but a similar focus on the normative and cultural influence on transitions is taken by Elzen et al. (2011), who argue that their contribution is especially relevant when studying "transitions towards societal goals like sustainability". Contrary to most studies of system innovation, Elzen et al. (2011) examined the effect of normative contestation of established regimes on a transition in the making in their comparison of pig husbandry systems. In the making, because it can be observed that pressure has built on the regime which shows some signs of being destabilised by contestation emanating from regime outsiders, but it is unclear if it will translate into a proper transition.

Their model of analysis is built upon on innovation studies and Geels' multi-level perspective, with additions from social movement theory (SMT) and political science, borrowing the concepts of normative pressure from the former and multiple streams from the later. Two specific cases in pig husbandry were studied with different influences of normative pressure: it actually brought changes in the case concerning pregnant sows but was not as successful in the case of pig fattening. The researchers explain the difference by the amplitude of the normative pressure, and how it is more effective because of a better compatibility of the changes advocated with developments on other levels, such as the markets, the regulations, or the technology (Elzen et al., 2011)

Another case study of pig husbandry in the Netherlands was undertaken by Geels (2009). This time the focus was not on the socio-cultural influence on the transition per se, but about how different ontologies in research can provide different interpretations on sustainability transitions. The transition in pig farming from 1930 to 1980, characterised by a change from mixed farming to an intensive model, was examined through different ontologies: "rational choice, functionalism, conflict and power struggle, interpretivism, and structuralism". Generally, causal agents differ for each ontology: from individual actors with each a different set of ideas and interpretation for interpretivism, to a deep structure behind beliefs on the collective level for structuralism. Causal mechanisms differ as well: free choice influenced by rationality and utilitarianism in the rational choice ontology, while in structuralism it is a structure behind actors that produce the change. Therefore there are as many interpretations of the transition depending on how actors and mechanisms are perceived: as an example on the two ends of the spectrum: for the rational choice, the transition in the pig farming was perceived as a price and cost led adjustment while for the structuralist ontology the transition was about "cultural traditions, ideology and discourse". (Geels, 2009).

Not examining the issue through transition theory, but acknowledging the importance of the public debate regarding the Dutch pig husbandry system, and the existence of

radically different ontologies, Benard & De Cock Buning (2013) through the experiment described in the article attempted to lessen normative conflicts between urban citizens and farmers regarding pig production. Working with the concept of frame reflection, i.e. having participants considering the situation of their opponent as if it were theirs, the two opposed groups discussed issues in focus groups and executed some exercises regarding farm practices, animal welfare, and consumer behaviour. The experiment demonstrated how difficult it may be to develop a common vision regarding pig husbandry between farmers and urban citizens in the Netherlands. The divide between the two groups was still strong on most issues after the experiment as there was a considerable gap between the groups' respective values, and limited mutual understanding derived from the exercises, except for a better understanding on the urban citizens' side regarding the farmers' perspectives about animals and the dilemma they face as producers.

For an innovation to integrate the mainstream regime, it has to bear a certain amount of cultural legitimacy (Geels and Verhees, 2011). Different ontologies among actors involved in the transitions create debates and in some cases obstacles to progress (Elzen et al., 2011, Benard & De Cock Buning, 2013); ontologies also determine the interpretation of transitions (Geels, 2009). Opinions, visions and values play a key role in transitions.

A look at pig farming research in Denmark

The literature examined so far about conventional pig farming mainly stems from and deals with cases from the Netherlands, where the socio-technical approach to transition was developed. As this thesis concentrates on the Danish situation, I struggled to find literature that dealt with transition of agriculture in Denmark.

Through a brief examination of what type of research on the topic of pig farming is performed in Denmark (see appendix 2 for a snapshot of the list of journals where the articles were published), the first finding is that there is a high proportion of published articles in life-science oriented journals.

Only a few articles resulting from this search dealt with the sociological aspect of pig production and its relation to sustainability. Here are their findings.

Citizens, consumers and pig production in Denmark

Krystallis et al. (2009) examined the attitudes of consumers in four countries: Denmark, Germany, Poland and Belgium towards pig production as well as their consumption behaviour regarding pork meat and pork-derived products. Animal and environmental well-being was found to be the most important criterion in defining “good” and “bad” practices in pig production. Yet the “citizen attitudes” did not reflect in the “consumer behaviour”. The researchers concluded that “People's attitudes to pig production may be more important for pig producers' long-term licence to produce than for the sales of their products”. (Krystallis et al., 2009)

Boogaard et al. (2015) conducted research regarding the socio-cultural sustainability of pig production. They define socio-cultural sustainability as “social perceptions of animal farming, including social appreciations and concerns of animal production systems”. For Boogaard and colleagues, animal production systems cannot exist without taking into account “social demands and values”. The researchers organised farm visits with citizens in the Netherlands (18) and Denmark (8), where participants were asked to evaluate both conventional and organic pig farms according to seven socio-cultural themes such as farm activities, the animals, housing system for pigs, environment and nature. Generally, organic pig production was preferred to conventional pig production, but participants developed a more complex understanding of what pig farming consists in, and the study offers insights about the issues participants focused on.

The factory-like, rationalised approach in conventional farming influenced by the necessity to produce at low costs was perceived as problematic for several participants, who felt guilty to be on the consumer end of such a system. Nevertheless, their vision of the organic production was also slightly negative, as they were uncomfortable with the impression that what they saw was also a kind of industry, only with better living conditions for the animals. Technological improvements were though perceived as beneficial for both the farmers and the animals. The farmers were generally perceived as hard working, engaged and committed to their work and their farm, good managers conscious of innovation, and their positive, open attitude was appreciated, but some concerns were expressed regarding their focus on the financial outcome of production and their management approach to farming that was interpreted as a kind of detachment from the animals and their possible suffering. The economic reality of pig production was taken into account, but most of the concerns were mostly directed towards the pigs and their living conditions; the possibility to express their natural behaviour was preferred and often associated with animal well-being. It entails “the freedom to move around, the possibility to go outside in the pasture, to root, to play, to sleep in a natural rhythm, to lie in the mud and to give parental care”. Handling practices that participants experienced

such as castration and tail docking received negative feedback, but it was appreciated when the farm gave an impression of all operations being under control, with an emphasis on the cleanliness of the sheds, special care for sick animals, and the administration of antibiotics according to rules. The space for moving was deemed important. Access to outdoor spaces was seen as preferred as it was perceived as giving the animals freedom to interact in the fresh air and daylight and giving better conditions for good health. The smell and lack of fresh air in the sheds was a concern, and the only advantage they provided according to participants was optimal temperature regulation.

The environmental load was not strongly perceived as a problem, and was a concern for only three Danish participants. What was found only among respondents from Denmark was the fact that pigs in the organic production lived in "nature", and that the settings in this type of production provided a picture of an idyllic rural landscape. The Danish respondents were positive that pig farming should remain part of the country's landscape and culture, be it organic or conventional. Dutch participants expressed the need for the pig production to be part of the landscape only if it replied to a demand and if it were more open and integrated in the rural life.

Caracciolo and colleagues (2016) examined the awareness of consumers in five European countries, including Denmark, about the environmental impact of pig production. Taking the recent expansion of the features establishing the meaning of quality as a point of departure, including sustainable production techniques, they investigated how this element plays a role in consumer preferences regarding pig products. Among the significant aspects of pig production consumers expressed preferences for in relation to sustainability were the access to outdoor space and small farm size. Boogaard et al. (2015)

When it comes to citizens and consumers, animal welfare is a more important concern than environmental impact in pig production, and they are especially attached to the possibility for pigs to live according to natural conditions, such as access to outdoor facilities (Krystallis et al., 2009; Caracciolo et al., 2016; Boogaard et al., 2015). As was observed by Benard & De Cock Buning (2013), citizens disapprove of the lack of compassion they perceive among pig farmers towards the animals (Boogaard et al., 2015).

Suggestions for new approaches to research in the transitions to sustainability

The recent literature provided reflections about how transition should be studied in future research.

For Turnheim et al. (2015), building a complete picture in the analysis of sustainability transition necessitates the combination of different approaches: “quantitative systems modelling”, “socio-technical transition analysis”, and “initiative-based learning”. This combination would benefit each approach and would be more appropriate in providing answers regarding decision-making and practice.

For Wilson (2008) it is necessary to undertake qualitative research on multifunctionality indicators to go beyond the “productivist and positivist statistics relating to production” through methods that facilitate a closer access to what the farmer's life history and development (Wilson, 2008).

In his work on the role of ontologies in transition research, Geels advocates for the integration of reflections regarding the existence of multiple perspectives on transitions: “Research that acknowledges the existence and relevance of multiple ontologies is important for socio-technical transitions, because these are multi-dimensional phenomena whose co-evolutionary characteristics cannot be fully understood from single ontology-work that remains within the boundaries of existing disciplines”. (Geels, 2009).

Geels & al. (2015) would like to introduce a new position in Sustainable Consumption and Production research (SCP), as they consider the two predominantly adopted ones, the reformist and the revolutionary, as limiting. The new position, reconfiguration, would allow for the analysis of and would highlight positive changes taking place in transitions. Where the reformist position sees solutions in making efforts to correct failures in the existing market and bringing eco-efficiency forward while keeping the same system lead by growth, productivity and consumption goals, the revolutionary approach rejects the existing market, advocates for the eradication of productivity and consumption as societal goals and offer a complete rethink of values that trend toward locality, degrowth, and sufficiency. Geels and colleagues consider that it is “risky, and probably unproductive, to approach new environmental problems such as climate change, biodiversity, pollution and resource problems through the uncritical appropriation of well-rehearsed and long-standing intellectual prisms.” Therefore the third way suggested

would not put the emphasis on the economic system as a whole or on societal values, but consider the systems that need to be rethought, such as the agro-food system, as an independent sphere in order to go over existing dichotomies and facilitate the analysis and promotion of truly beneficial elements of sustainability in the transition (Geels et al., 2015).

The position of the researcher is paramount when studying transitions, and the more of a varied overview the researcher presents the better the research on transition becomes. Turnheim and colleagues advocates for additional approaches to tackle the analysis of transitions (2015); Wilson underlines the importance of a qualitative, ethnographic approach (Wilson, 2008); Geels go further when assessing the need to acknowledge a multitude of ontologies (Geels, 2009); the limitations of adopting a unilateral perspective was illustrated by Geels and colleagues (2015) who suggest to make abstraction of ontological holdings among researchers and to, instead, take systems and their specific modes of functioning as point of departure for analysing issues where change is needed.

Table 1 - State of the art: list of articles

Author	Title	year	Journal /publisher
Benard, M. and de Cock Buning, T.	Exploring the Potential of Dutch Pig Farmers and Urban-Citizens to Learn Through Frame Reflection.	2013	<i>Journal of Agricultural and Environmental Ethics</i>
Boogaard, B.K., Boekhorst, L.J.S., Oosting, S.J. and Sørensen, J.T.	Socio-cultural sustainability of pig production: Citizen perceptions in the Netherlands and Denmark.	2011	<i>Livestock Science</i>
Bos, B., Spoelstra, S.F., Groot Koerkamp, P.W.G., de Greef, K. and Van Eijk, O.	Reflexive Design for Sustainable Animal Husbandry - Mediating Between Niche and Regime. In: G. Spaargaren, P.J.M. Oosterveer and A.M.C. Loeber, eds., <i>Food Practices in Transition - Changing Food Consumption, Retail and Production in the Age of Reflexive Modernity</i> .	2012	<i>Routledge</i>
Caracciolo, F., Cicia, G., Del Giudice, T., Cembalo, L., Krystallis, A., Grunert, K.G. and	Human values and preferences for cleaner livestock production	2016	<i>Journal of Cleaner Production</i>

Lombardi, P.			
Caron, P., Biénabe, E. and Hainzelin, E.	Making transition towards ecological intensification of agriculture a reality: the gaps in and the role of scientific knowledge	2014	Current Opinion in Environmental Sustainability
Duru, M. and Therond, O.	Livestock system sustainability and resilience in intensive production zones: which form of ecological modernization?	2015	<i>Regional Environmental Change</i>
Elzen, B., Geels, F.W., Leeuwis, C. and van Mierlo, B.	Normative contestation in transitions 'in the making': Animal welfare concerns and system innovation in pig husbandry.	2011	<i>Research Policy</i>
Geels, F.W.	Foundational ontologies and multi-paradigm analysis, applied to the socio-technical transition from mixed farming to intensive pig husbandry (1930–1980)	2009	<i>Technology Analysis & Strategic Management</i>
Geels, F.W. and Verhees, B.	Cultural legitimacy and framing struggles in innovation journeys: A cultural-performative perspective and a case study of Dutch nuclear energy (1945–1986).	2011	<i>Technological Forecasting and Social Change</i>
Geels, F.W., McMeekin, A., Mylan, J. and Southerton, D.	A critical appraisal of Sustainable Consumption and Production research: The reformist, revolutionary and reconfiguration positions.	2015	Global Environmental Change
Krystallis, A., de Barcellos, M.D., Kügler, J.O., Verbeke, W. and Grunert, K.G.	Attitudes of European citizens towards pig production systems.	2009	<i>Livestock Science</i>
Turnheim, B., Berkhout, F., Geels, F., Hof, A., McMeekin, A., Nykvist, B. and van Vuuren, D.	Evaluating sustainability transitions pathways: Bridging analytical approaches to address governance challenges.	2015	<i>Global Environmental Change</i>
Wilson, G.A.	From 'weak' to 'strong' multifunctionality: Conceptualising farm-level multifunctional transitional pathways.	2008	<i>Journal of Rural Studies</i>

Wilson, G.A. and Burton, R.J.F.	'Neo-productivist' agriculture: Spatio-temporal versus structuralist perspectives.	2015	<i>Journal of Rural Studies</i>
------------------------------------	---	------	-------------------------------------

As developed in the beginning of this section, Frank Geels' work on sustainable transitions and his multi-level perspective model will be used as a kind of "scene" in order to frame the analysis of the discourses taking place in the debates and criticism presented in the written media. Moreover, after reviewing the latest literature in the state of the art, several concepts and foci have proved to be of interest and will be used to provide a brief perspective on the data collected in the media about conventional pig farming in relation to the question of sustainability and during interviews with farmers: cultural legitimacy (Geels & Verhees, 2011), the role of ontologies in transition research (Geels, 2009) and the reconfiguration position (Geels & al., 2015)

Equipped with additional concepts to examine the data collected in this project, the next section will now introduce the analysis of some of the discourses and criticisms present in the media regarding the topic of conventional pig production.

Societal critique of conventional pig farming in the Danish national written media

Now that the general theoretical and methodological foundations of this thesis have been clarified, it is time to have a look at the subject matter of this study. As the initial inspiration for this study was the media storm around the agricultural policy package introduced by the new Danish government, I would like to take this intensity of debates, and more specifically those involving conventional pig farming in Denmark, as a point of departure to unfold the exploration of the research.

Delimitations

In order to be able to compare the same type of documents, only Danish national written media were selected for this study. This selection was made mainly for practical reasons, both in order to facilitate the coding and analysis, and because the variety of sources is much important in the written media than among the Danish tv or radio programmes.

There was an effort to limit the selection of articles to those containing specifically remarks about pig production. Including only articles specifically about pigs kept the number of articles in a reasonable range for the time imparted, but I am aware that some articles containing reflections about conventional meat or conventional agriculture in general and sustainability which have been excluded may have brought an interesting perspective as they generally reflected a more general conception of the relation between the two parameters.

The goal of this study of the discourses present in the Danish media during the last year is principally to:

- Pinpoint the issues conventional pig farmers are accused of creating or at least participating in;
- Distinguish what are the perceived advantages of conventional pig farming and solutions the sector can contribute with in the sustainability transition of agriculture in Denmark.

Methodology

Selection of articles

The collection of articles took mainly place on Infomedia, among all available sources through the database between the 18th of May 2015 and 18th of May 2016.

The keywords used for the search were the following, translated in Danish: conventional, modern (at least one of the words) AND pig production, pig producer, pig, pork, pig breeder (at least one of the words) AND sustainability, sustainable (at least one of the words). Were selected among the 355 documents that resulted from the initial search 41 articles with full access granted, and dealing with conventional pig production. These articles were then prepared for coding. Further details regarding the different steps in the selection of articles can be found in Appendix 3.

Coding of articles

In order to fulfill the goal of this analysis, which was to identify the perception of conventional pig farming in the written media in relation to sustainability, it was capital to stay as close as possible to the topic and resist deriving into broader considerations regarding either sustainability in general or animal welfare. Many of the articles in the original selection presented interesting content and indirectly relevant content regarding

conventional farming as a whole or about organic farming, but the what is examined in this section deals specifically with pig production, mainly conventional. Some quotes about organic production are also included, but only when they are used to make a comparison with the mainstream system.

As only excerpts dealing with pig production were too selected, the first step in the coding process was to identify those excerpts. In order to prepare the relevant content for analysis, four themes were derived from a combination of observations about the content of the articles collected and the goal of the research:

- Actors responsible, and cited in the debates
- Negative image, sustainability problems caused by conventional pig production or to which it contributes
- Positive image, solutions regarding sustainability in conventional pig production
- Comparison of conventional and organic pig production

The selected quotes were assembled under the three last themes, where the second round of coding took place to identify the meaning of the quotes further.

Results

The 41 documents consisted in 17 articles published in national newspapers, eight articles published in local or regional newspapers, 11 articles published in profession-oriented newspapers and magazines – mostly related to agriculture, and five were published on miscellaneous websites and blogs. More details are summarized in a matrix where the nature of the content of the quotes selected and the actors involved for each media source (see Appendix 3).

The Danish agricultural system at large and its possible future(s), organic production, and technological advance in pig production are the main foci of the articles where conventional pig farming and sustainability were discussed. In the national media the topic was discussed in debates, editorials, or opinion articles. There were also several opinion pieces in the local media, but mainly portraits of farmers in relation to local events could be found. Even fewer opinion pieces among the professional and specialised magazines and newspapers, but a special focus was set on the latest research and accomplishments in the area of agriculture.

Negative, problematic image of pig production, sustainability problems caused by conventional pig production or to which it contributes

Conventional pig producers today in Denmark suffer from a bad reputation and are not really wanted in the Danish landscape. For S. E. Rasmussen from Enhedslisten, there are too many pig producers in Denmark (Rasmussen, 2016). Conventional farmers are even perceived as the “biggest sinners” in agriculture (Lange, 2016). Chriss Hedeager a former conventional pig farmer, remembers how he was considered then: “Before, I was a bastard” (Tittel, 2016).

A nuisance for the rural environment

Their presence create a monoculture system that does not feed the Danish population (Holm, 2015) and in addition is negative for the Danish environment, as it reduces the fertility of the soil (Rasmussen, 2016). The presence of intensive pig farms in the Danish countryside is perceived a nuisance by Holger Øster Mortensen, a Danish citizen who has been quite virulent against conventional pig production in the past years (Skou-Hansen, 2014) :

“For the neighbours to the very large pig factories, often 25000 pigs per housing unit, this means an armageddon of dust, noise and stench from the nearby farms. The legislation provides no opportunity for these neighbours to complain about health problems or economic losses associated with falling property prices [...] On top of this their health is at stake. Emissions of ammonia from the large livestock farms cost many lives every year and billions in health budget. These neighbors of pig factories may even suffer the humiliation of living in fear of being contaminated by the super-resistant MRSA bacteria.” (Mortensen, 2016)

Medication of pigs and MRSA

MRSA is a major issue: “the resistant swine variant of the bacterium has infected 68 percent of the conventionally farmed pigs.” (Ekstra Bladet, 2016). It has now reached “the character of an actual epidemic of exponential character” which represents a threat

to public health, but the Danish pig production sector does not seem to want to deal with the issue (Bech, 2015).

The high amount of medicine and of antibiotics in the industry is perceived as a major challenge in conventional production (Chrintz, 2016; Lange, 2016; Mortensen, 2016). The addition of zinc to the pigs' feed has also recently become a concern. While the use of antibiotics is perceived as a threat to public health, the excessive use of zinc can affect the environment. As a journalist from Ingeniøren reports, Aarhus University assessed in a study that the amounts of zinc found in "45 percent of soil samples from 470 fields showed excesses compared to the so-called null effect dose set by the EU as the threshold at which zinc does not cause problems for the environment." (Stage, 2016). These excesses are linked to pig manure used as fertiliser:

"Zinc in the manure comes largely from the 1,300 tonnes of the metal, pig farmers annually give to pigs in the feed, both as nutritional supplements, but also as treatment for piglets suffering from diarrhea during the weaning period." (Stage, 2016).

For John Lange, Danish citizen who is in favour of organic agriculture, the release of ammonia in the atmosphere is another type of pollution the conventional pig sector contributes to, and he fears that the problem will only intensify with the new policy package: "A million more pigs as the agricultural policy package allows, will mean higher emissions of ammonia, and ammonia pollution into the atmosphere is a very serious health problem clearly undervalued." (Lange, 2015)

Animal welfare

In addition to the intensive use of medicine and supplements and indirectly its repercussions on public health and the environment, the general treatment of pigs in conventional farming is disapproved of (Andersen, 2015; Chrintz, 2016; Elbæk, 2015; Gjerding, 2016; Gjerris, 2016; Lange, 2016).

Lone Vitus, a former conventional pig farmer criticises the lack of space the animals suffer from: "Livestock density in the conventional system, regardless of whether it is for poultry, pigs or cows inside, is vastly problematic. It creates stress and is a breeding ground for a variety of diseases" (Elbæk, 2015). She does not believe it is possible to "give the animals a decent life" according to this mode of production. (Andersen, 2015). M. R. Gjerding from the political party Enhedslisten pinpoints the issue of long hours of

transportation for the pigs: "The pigs are slaughtered and made into sausage and parma ham many hours drive away from the local area" (Gjerding, 2016).

Economic issues

Not only is there a problem with pigs being transported on long distances, a lot of feed is imported from distant areas, mostly South America.

Jacob Justensen, a conventional farmer explains the rationale behind this problem:

"The big problem is fertilizer. The grain we have is too bad, so we need to buy an awful lot of soyabean meal to keep the protein content up (as pig feed). If we had cereals of the same quality as our neighboring countries, I would buy soybean meal for 25-30,000 kroner less every month. It is quite an amount of money." (Amtoft, 2015)

The situation of conventional pig farming today is perceived as the result of a specialisation and intensification of the Danish production during the second half of the last century which has created a "treadmill effect", as higher and higher quantities of a product bring the price of this product down when the market is saturated, which then forces farmers to produce even more to keep earning money from their production. (Abrahamsen, 2015)

For John Lange, "There is no money in producing conventional pork meat" (Lange, 2015). The organisation Danmarks Naturfredningsforening (DN), the Danish Society for Nature Conservation is in favour of closing some pig productions as they are no longer profitable, as "Danish pig farmers for the past 13 years on average lost 54 DKK per produced pigs"; they see benefits both for the Danish nature and the agricultural sector. (Lange, 2016)

Jobs, employment, and competition with other countries

Not only conventional pig farmers are perceived as having difficulties in earning money, but their activity does not create enough jobs in Denmark (Lange, 2016; BT, 2016; Gjerding, 2016)

For M.R. Gjerding from Enhedslisten, the conventional pig production as it takes place in Denmark necessitates very few employees: "High intensity pig production with products

of low quality and low processing can be done with very few employees.” (Gjerding, 2016)

The pigs produced in Denmark contribute to the creation of jobs, but only abroad:

“[Danish agriculture] has unilaterally focused on industrial mass production of cheap commodities to the world market. As an example, an increasing part of the processing of piglets moved south of the border. And the accompanying jobs as well.” (Gjerding, 2016)

A problem of competition with other European countries on quality exists when it comes to transforming pig meat in Denmark, which could bring higher incomes to farmers according to Jan Holm Ingemann, agricultural economist at Aalborg University (AAU):

“[Martin Merrild] says that it is difficult for farmers in Denmark to earn money by refining their goods as Jan Holm Ingemann suggests, because of the high cost. The price of goods would simply be too high, he said. “Who would buy the goods? We compete well with German, Polish and French farmers, who also provide good products and deliver them to the market price.”” (Abrahamsen, 2015)

For M. R. Gjerring, an additional hindrance to more jobs in agriculture in Denmark is the monoculture system that the industrial pig production creates:

“There are not many jobs on the endless cereal fields, which must be fed to the highly industrial pig production.” (BT, 2016)

A political issue

Ida Auken, former Minister for the Environment of Denmark and member of the political party de Radicale Venstre, criticises the choice of direction taken by the present government regarding Danish agriculture, and does not wish to see an increase in pig production as she does not consider it sustainable:

“According to Venstre, the solution for the heavily indebted Danish agriculture more of the same: more pigs, more manure and fewer environmental requirements. It is hopelessly heading for a fall.

More pigs, more manure and more production, this is neither environmentally nor economically sustainable.”(Auken, 2016)

Future not change: “But it is difficult to imagine politicians from a country where there are far more pigs than people making decisions about taxes on meat or similar that would lead to the reduction meat production drastically.” (Vahle, 2016)

Ella Maria Bisschop-Larsen, President of DN, agrees with Ida Auken:

“There is no need for more, but fewer pigs, but this requires a break with the political habitual thinking. Indeed, we can get the chronically struggling farmers out of their hopeless situation, while ensuring more space for nature and a cleaner environment. It will be beneficial both for nature and agriculture.” (Hansen, 2016)

Conventional versus organic pig production?

Conventional pig production is often referred to when discussing organic farming, and there is a tendency to argue which system is best when these comparisons take place. As an example, When Eva Kjer Hansen stressed that “organic farming uses more zinc than conventional farming, even if weaning takes place at a later stage”, Maria Reumert Gjerding from Enhedslisten retorted that organic producers used 20 times less antibiotics” (Stage, 2016).

Perceived advantages of organic production over conventional farming

The comparison is often to the benefit of organic production. Erik Nielsen, a former conventional pig producer, is satisfied to have converted his production to organic:

“[...] it is a great satisfaction to know that the pork meat does not contain any residue whatsoever, that the animals on the farm are feeling well, and that the production is sustainable.” (Jessen, 2015)

Among the perceived benefits of producing pigs according to organic principles is the lower incidence of MRSA among organic pigs:

“Magazine Ingeniøren reports: Organic pigs are largely free of the epidemic of antibiotic-resistant bacteria that is rampant in the conventional farmers' pigsties. New data from the Food Authority [Fødevaresyrelsen] shows that there is only MRSA in four out of 65 organic pig farms.” (Ekstra Bladet, 2016)

Organic farming is also seen as contributing to far better animal welfare than conventional pig farming. Mickey Gjerris commented on the new labelling scheme regarding animal welfare proposed by the government to differentiate animal welfare practices through three levels; for him, there is a clear distinction in animal welfare that can be achieved between the two systems:

“A scheme which will make it possible to market conventional pork without specific animal welfare terms, as 'specially animal-friendly', thereby undermining the market for the products already in the cooling disk that really make a difference in animal welfare compared to conventional production - mainly organic and free-range production” (Gjerris, 2016)

There are also more economic benefits in the organic production. Erik Nielsen, who shifted to organic production due to better tariffs for organic pigs, claims that there is no issue about finding a market when producing organic pigs: "the demand for organic pork currently significantly exceeds supply. So farmers can sell all the organic pork they can produce."

(Jessen, 2015)

The price per kilo is significantly higher in the organic production. In an article in the local online newspaper from West Jylland Jv.dk, it is said of Chriss Headeger, organic pig producer:

"he is both biodynamic farmer and a good businessman. So where conventional pig producers now only receive 8 DKK per kilo of slaughtered pigs, organic producers receive 30 DKK per kilo from the slaughterhouse." (Tittel, 2016)

For M.R. Gjerding from Enhedslisten, there is a better potential in organic production because of these profitable tariffs:

"With an average annual growth rate of 22 percent in the period 2004-2014, the organic exports more than both the non-organic food exports and the total Danish exports. And we can maintain the same export income with half as many pigs if they are organic, because organic products can be exported to a higher value than the conventional ones. At the same time the burden placed on nature and the environment by organic farming is in general much smaller." (Gjerding, 2016)

The same argument is supported by John Lange:

[...] organic products are charged at a much higher price than the conventional products, i.e. there can be produced fewer kilos of pork [...] for the same amount of money so there is no need for a large production equipment and for the 60% of agricultural land which are today exclusively reserved for the production of animal feed, and could be instead reserved for nature, or converted to the production of food for humans (Lange, 2016)

For Michael Søgård Jørgensen, researcher at AAU, it is a bad idea to spend resources on developing a solution for the conventional pig sector, as it is not as profitable as the organic one: "The 'Månegrisen' project will not solve the huge economic problems conventional pig rearing meets. It is the organic pig farmers who make money right now, "(Følsg, 2016)

The dark side of organic production

Nevertheless, some voices rise against the perfect picture of organic agriculture and its limitations. There are areas where conventional pig farming presents advantages over the new trend.

Erik Nielsen, the former conventional farmer recognizes that there are some inconvenients with organic production: "It provides some extra work, [...] we need to get hold of the vet every time an animal must have an injection against a disease. And the yield is not as large as in conventional agriculture" (Jessen, 2015)

Environmentally speaking, organic pig farming presents some challenges.

Representatives of the Association for Conservation agriculture in Denmark raise the issue of nitrogen leaching: "it looks worse with the organic pig production, where the foreseeable leaching is significantly higher than with conventional pork production." (Dahm and Ilsøe, 2016)

According to Jesper Bak, advisor and researcher in Bioscience at Aarhus University: "Nitrogen leaching per acreage for organic farming is, compared to conventional farming [...] significantly higher for pig farms, but organic yields are lower. The ammonia emissions from organic pigs are up to three times greater than for conventional production." (Bak, 2016); "As it is now, there are for example issues with the fact that organic pigs pollutes the water environment so much that you have to confine them inside a barn after a few months." (Følg, 2016)

All is not positive either regarding animal welfare. Jens Jørgen Pedersen, a Danish citizen, points out to actual evidence regarding the claims of better welfare:

"So organic provides better animal welfare? Search for the report online about the health of organic pigs, cows and chickens. There is no difference between the number of observations in slaughterhouses between organic and conventional pigs." He remarks as well that "Every third organic pig dies before slaughter." (Vrejlev, 2015)

J. Haugegaard, veterinarian, also disagrees with the perception that bad animal welfare practices only take place in conventional pig production:

"Veterinarians who work professionally with pigs have in a survey published in Danish Veterinary Journal 2005, designated organic pig farms to have the worst animal welfare. Since 2005, there have been significant improvements in the welfare of conventional pigs." (Haugegaard, 2016)

I.K. Rasmussen, who grew up on a conventional pig farm and is active in the organisation Tværfagligt Fødevarerforum that aims at creating a dialogue between different actors in the food sector, is equally critical of the image of ideal animal welfare in organic farming:

“Many buy organic food because they want to do something good for the animals. Here there is no doubt that organic is a fine landmark. But all is not great with organic animal welfare. Organic food production is experiencing great challenges regarding mortality, especially for pigs and chickens. The conventional pig production is often fiercely criticized by both politicians and the media for having a high mortality of piglets. But what many do not know is that the mortality rate among organic piglets is actually even higher than in conventional production. This is partly because there is a greater danger that the sow lies on its piglets and kill them, or that the piglets get infections, and they can also freeze to death.” (Rasmussen, 2015)

No system is perfect

Both organic and conventional production systems present harmful aspects for the environment and the animals, and none bears in itself a solution for a more sustainable future.

Representatives of the Association for Conservation agriculture in Denmark focus on how neither conventional nor the organic system can claim to be sustainable:

“Cattle and pigs seize vast land, we read. Yes, and so do the same livestock also in organic farming. Approximately 50% more land is needed in order to cultivate the necessary feed. Anyone who has even the slightest understanding of agriculture knows that.

Furthermore, it is a fact that most Danish organic farmers are totally dependent on being able to buy / get conventional pig manure and / or cattle manure for their fields. Without the slurry can their fields not grown with yields that holds together the farm economy, and without very quickly having a depleted soil.”

For J. Haugegaard, there are limits to what organic production can contribute with:

“Organic pig production is welcome, but due to its limited opportunity for a sustainable production it will never become anything else but an elitist niche production”

(Haugegaard, 2016).

Jesper Bak, commenting on how organic presents some challenges regarding its environmental impacts, recognizes that all systems present inconvenients: “Conversely, the conventional production not necessarily the answer to some of the global climate challenges we face.” (Pietrangeli, 2015)

The same Jesper Bak, who reacted to DN and the political party Alternativet's suggestion to convert 100% of the Danish agriculture into organic production, the reduction of yields that would be achieved with this system of farming if it were to be the only one existing in Denmark would be consequent:

“In a scenario without significant import of feed for the conversion to organic production, is to be expected [...] a decrease in pig and poultry production of 70 percent (Bak, 2016)

John Lange, a defender of organic production, recognizes that there are limits to how much you can produce, but argues that there is no actual need to produce as much as today:

“Organic pig production [...] cannot take place on the same large scale as the conventional one, but it doesn't matter, because organic products are charged at a much higher price than the conventional products, i.e there can be produced fewer kilo pigs [...] for the same amount of money, so there is no need for a large production equipment and 60% of agricultural land which is now exclusively reserved for the production of animal feed for nature, or converted for the production of human food.” (Lange, 2016)

The variety in opinions about conventional and organic pig farming may stem from the fact that they do not serve the same purpose. An article in Politiken points out that there are two very distinct markets for organic and conventional production:

“The boss from Coop is not in doubt. People want local products where animal welfare, environmental protection and a good story are part of the deal.
The representative for the pig producers is not in doubt either. People want the standard pork from Danish industrial pig which is 100 percent disease-free. It's just not the same people they are talking about.

The head of the local products department in Coop, Christian Christensen, is talking about the educated Danish consumers who live in big cities.

Henrik Mortensen, chairman of the Danish Pig Producers association, refers to the Chinese and other international consumers, who will pay a lot for food that is both safe and healthy to eat.” (Færgeman, 2016)

Conventional pig farming seen with positive eyes

Even if conventional pig farming is sometimes perceived as burden for Danish society, some positive stories and claims come out about the modern Danish production and its potential to contribute to a sustainable livestock production and agriculture in general.

To begin with, the CEO of the Danish Agriculture and Food Council K. Hækkerup makes the claim that conventional pig farming in Denmark offers better conditions for the animals than in other countries: “We live with the competition from abroad, but just remember that if you buy a conventional Danish pig, it has gone free a larger part of its life than most other pigs in the European Union.” (Hækkerup, 2016)

There are several examples of attempts at making production less harmful for the environment without abandoning the industrial model. Most of these involve the development of innovative technology.

Lars Kongsbak, entrepreneur specialiseret in genomics, lists the benefits of using gene modification technology in pig production for a better environment, with the example of the Enviropig.

"Already back in the end of the nineties a Canadian research team developed a pig which genome had been edited so that it contained a phytase gene from intestinal bacterium *E. coli*. Phytase is an enzyme which releases phosphorus from plant material. Pigs need phosphorus for healthy and efficient growth which is why phosphorus is added to pig feed, which creates pollution. But the genetically modified pigs do not need extra phosphorus in the diet, as the active phytase enzyme secreted in their saliva releases phosphorus from the food. Furthermore, there is less phosphorus in the manure from pig farming, which is good for the environment." Pig got the name - Enviropig- that can not be translated into Danish, as it gives a false sense! (Kongsbak, 2015)

A press release from the National Center for Food and Agriculture presents the EU project "Feed-a-gene", an attempt at increasing at the same time the environmental sustainability and efficiency of animal production.

"A large and ambitious EU project aims to find new solutions to increase efficiency and sustainability in livestock production in pig and poultry production. It should be done by developing new types of feed, feeding technologies and management systems as well as selecting more robust and adaptable animals.

The background for this project is that the global demand for livestock products continues to increase, particularly due to rapid population growth and greater purchasing power. According to FAO, there are currently no viable alternatives to intensive livestock production that can meet this demand." (Sorensen, 2016)

A Danish company Axzon A / S has managed to make pig production CO₂ neutral - in Poland though.

"We are the first company in the world where it is proven that you can produce pigs CO₂-neutral," says Tom Axelgaard who has founded Axzon A / S and is Executive Chairman of Axzon Group.

"On average CO₂ emissions amount to 5.5 kg CO₂ per. kg of pork. The reason why we do significantly better is partly due to our biogas production in Poland, and partly an optimal use of all resources". (Smitt, 2015)

Developing modern installations which can house a high number of pigs with a focus on better environment for the animals can also create jobs in the Danish rural areas.

Danish Crown congratulated pig farmer Kim Kjær Knudsen for the prize he received regarding innovative fattening units:

"The construction of this fattening unit will be of great societal importance.

And to put it all in perspective, I made some calculations on the scale of production, as Kim Kjær Knudsen wants to create. The 20,000 pigs will roughly turn into 35,000 millions of meatballs a year.

In addition pig trotters and heads are sold to China. About 90 percent of the animals are exported abroad, creating import revenues of nearly 30 millions for the state's treasury. At the same time the production will locally employ 12 slaughterhouse workers alone, not including additional transport and cleaning staff.

In short this investment means more jobs, which create value, and this should of course be acknowledged." (Okking, 2015)

But it is not all pig producers, far from it, who can develop innovative solutions. There are many issues, especially regarding farmers who are constrained to continue the production of pigs because of investments they made in the farm and who cannot afford to modernise their installation due to the difficult market.

Therefore some suggestions are made to bring improvements in the industry. NNF, the Slaughterhouse employees' union, suggests a "scrapping premium" for farmers to convert their installation to more modern and environmentally friendly structures.

"We have repeatedly presented the proposal for a scrap premium to pig farmers, replacing older, worn-out systems with modern, environmentally friendly plants. It would solve many of the challenges here and now is agriculture.

It will be a win situation for our environment because we can shut the installations, where farmers have not had the financial flexibility to modernize and invest in new technology, explains Ole Wehlast, Union President of NNF on the association's website. A total investment in the region of 325 million kroner, would according to NNF increase the production of about 100,000 pigs a year, creating around 400 jobs during the construction period, and then there will be permanent jobs for approximately 375 slaughterhouse and farm workers more." (Effektivt Landbrug, 2015)

Some farmers are positive about the future when considering the approach of the new government and the introduction of the new agricultural policy package.

For Hans Jakob Clausen, the agricultural package can improve the pigs' health by decreasing the use of soy: "Our environmental and Food Minister Eva Kjer Hansen introduced this paradigm shift in agriculture before Christmas - that bread should be baked from protein-rich, Danish grain; that Danish pigs must be fed with healthy, protein rich Danish cereal, so their stomachs are healthy and strong instead of being filled with soy from South America". (Clausen, 2016)

Conventional pig farming has a potential for being more sustainable if the system it depends on is favourable, according to Jacob Justensen, member of Bæredygtigt Landbrug. He explains how in a sort of virtuous cycle using more fertiliser derived from the pig production as supported by the new agricultural policy package would be in the end better for the environment, as it would increase the quality of crops, that would in turn decrease the need to import soy. Not only would "More fertilizer will make farming more environmentally friendly"; it would also keep jobs in the country: "In this way it

would be a profitable business for him to keep the pigs, fatten them up with Danish grain and later slaughter them at a Danish slaughterhouse". (Amtoft, 2015)

For Henrik Mortensen from the Danish pig producers' association, the future is in an increased pig production in Denmark. He "imagines large industrialized livestock facilities and super efficient slaughterhouses when he thinks about the future. "We must produce even more pigs in Denmark, because we are really good at producing a product that the world market demands" he says." (Færgeman, 2016)

Conventional pig farmer's interviews

Methodology

Selecting and contacting potential interviewees

The selection of potential interviewees took place after the identification of groups and individuals who were part of networks, or visible thanks to a website, and perceived as young, active farm owners in the pig production business.

The recruitment of interviewees took place via email. After the initial agreement established, the interviewees were given the possibility to choose a suitable date and to ask for the interview guide. Three farmers accepted to participate.

Conducting interviews

In order to obtain a better understanding of the individual's life worlds, the interviews took place at the farms of the participants. A consent form was handed to and signed by the participants, informing them about their right to retract their participation before the hand-in of the thesis and to ensure them of the non-disclosure of personal information.

The interviews were recorded to allow for transcription.

The interview guide

The first interview guide was designed relatively early in the development of the project, and included mainly open-ended questions originally with a practice-oriented focus,

which was not removed from the following guide, as it gave the possibility to better understand the everyday reality of farmers as they perceive it, but additional questions were inserted to the second version on the topic of the image in case the interviewees would not have as much a focus on the image of conventional farmers in the media as the first interviewee. The two interview guides can be found in appendix 4.

Transcribing and coding the interviews

The interviews were transcribed with the online software Transcribe (Transcribe, 2016). After my first attempt, I had to revise my approach regarding the transcript of interviews. When I tried to first transcribe the interviews in Danish, and then only translate in English the quotes that were selected through the initial coding round, I often felt the need to come back to the original record to compare the written Danish version to the original spoken version in order to appropriate meaning in English. Therefore, I then decided to listen to the interviews first in their entirety, noting down with time stamps the passages that I deemed especially relevant for my project according to the primary codes, and then translate directly these passages into English. This proved to facilitate the translation and to stay closer to the original tone of the interviewees' speech.

In the transcript, passages that have been cut from the quotes because they were not relevant or redundant are indicated with [...] and words or groups of words that couldn't be understood are indicated with respectively [*] or [***]. Remarks about the context has been added between square brackets when needed to understand the quote. Examples of the transcripts are available in appendix 5. The full transcripts are available on request.

Three different approaches to conventional pig production

Z is a pig production company owner with a very large production of finishers (over 50.000 pigs), the equivalent of several million kg of pork meat. His main responsibilities involve the quality control of the pigs sent out of the farms, administrative tasks, planning, purchases and management of employees, but is not really involved in the everyday feeding and care of the animals. He is educated as an agronomist and comes from a family who works with pig production. Z finds his job exciting due to the variety of tasks, and because it combines the possibility to work with nature, animals and the responsibility for many employees in a large company that uses modern technology. Z

aims at making the best quality and at designing innovative, integrated solutions to always improve the production.

The second interviewee's pig breeding center, with a production that relies on less than 500 sows, can look rather modest next to Z's production. J is not educated in farming, but has successfully managed the breeding center that she considers as a market niche due to the possibility to breed pure race pigs. As the owner, she mainly takes care of the administration and running of the farm, but participates also in the quality control of animals. With the small size of the production, J's focus is to provide good animal welfare to ensure the strength and quality of the purebred and crossbred pigs that are sent out of her farms, she also pays special attention to the welfare of her employees. B, together with his father, own among other agricultural properties a pig production based on 550 sows. He produces mostly weaners for export, and a few finishers. B is responsible for the pig production, the administration and the employees, but is also involved in the everyday feeding and care of animals. He is both educated as a farmer and from university and has worked in different types of farming before being actively involved in the family business. He enjoys that the set routine of pig farming brings the possibility to concentrate on optimizing the production by adjusting some specific parameters.

Conventional pig farming: its representation in the media vs. the reality perceived by farmers

My first interview took place with Z. At that time, my focus was not yet directed to the importance of discourses found in the media about conventional pig farming, but more toward the practices taking place on a conventional pig farm. The interview with Z made me realise how the representation of conventional farming in the Danish media was potentially problematic for the farmers.

Z: "I think that in most of the media today, we meet resistance in relation to it [the economic importance of agriculture in Denmark]. There it's still very critical of whether we need agriculture at all in Denmark. Because "we just get a lot of subsidies", so if we hadn't this agricultural sector we wouldn't get subsidies, we'd do without it. There are many media who have not done their homework yet."

Z's concern about the negative reputation of farmers in Denmark projected in the press was shared by B:

B: "[...] there are many people who are interested in nature and agriculture and use a lot of their time to criticize agriculture especially, who have some specific views about agriculture and don't like what I do. And there are a lot in the media about things like animal welfare, antibiotics, environment, and they don't see agriculture as a contribution, they see us as polluters, and as someone who goes in the opposite direction regarding animal welfare."

When asked to describe the image of conventional pig farmers, his list of characteristics was rather negative:

B: "It's miserable, [laughs] that picture of the conventional pig producer, as it is now in the general public. It could nearly not be worse than it is. We are perceived as reactionary, conservative, [*], angry, enemies of nature, cynical, greedy, [...] A very, very, very bad picture. And also poor!"

A bad picture sells more than a thousand words

Z underlines that the focus on sensational stories has a special appeal and is a good business:

Z: "And then it's so easy to sell a story that scares people, "now it's this stupid farmer again, who shits on nature and shits on animals". And there are many people who are jumping on. And who have an opinion about. Who think it's right"
And what I think also is happening at the moment, [...] there is so little knowledge about what we are doing. And I think that there has been so much scaremongering, I mean, my door is always open, people can come and see what we do",

For him, some media in particular are responsible for those negative stories that play more on emotions than facts:

Z: "the problem is so that some tragic stories arise sometimes. Some stories are grounded in reality, while others– it is often, it is especially– DR is bad, BT is bad– in order to make a story to sell. And here the farmer is an easy scapegoat because he answers right back. And it's unfortunately become this way, it's something that sells well."

For Z. the difficulty resides in the fact that pig farming involves animals and that it's easy to find a scene in a pig farm that would look dramatic in a picture on a newspaper:

Z: A photographer coming with a camera can always take a bad picture, and together with the right text it works awful. They can do that in my housing unit. That's our challenge, when we work with animals, we work with biology, but if that photograph has the same negative opinion he could make the same negative picture out on an organic field"

B agrees that it is a challenge to have a favourable interpretation of pictures taken on a conventional pig farm:

B: "[...] there isn't much "hygge" and if you take a picture of a sow, who is in box, then you cannot avoid the association with a jail [Laughs]. That's why, there isn't any good picture, and even if you come with a good one, it's always possible to find 10 bad pictures. So it's really difficult to create this good storytelling about the conventional agriculture"

He underlines that even the company that sells pig meat in Denmark tries to stay away from communicating too literally about animal production:

B: "In a way our marketing company has given up. Danish Crown has a slogan that is called "it's about food". That's not at all about animals [Laughs] It's not meat [laughs] and it's never said "oink" or "mooh", "it's a foodstuff in the cooling disk, and it's healthy, eat it". It shows how hard it is, because we own them, so there could be that there are some farmers who'd ask, "can't you say that it's about animals", but they don't do it."

B: We are not really geared to go in the hype [about food] because we don't make anything special, we make a standard product, we mass produce food, and the media ask for what's special, the unique, the weird, and if you are a common farmer, you really need to get up early to make something unique [laughs] because it's just a pig that says "oink". And you have to use all you have on marketing.

Explanations behind the negative images

Distance between the farmers and the rest of the population

For Z, the issue may be due to the fact that there are fewer and fewer farmers in the Danish population, which creates a lack of understanding between them and the rest of the citizens:

Z: "There are a really a lot of Danes who don't have [...] daily- or relatives in the countryside. In the past there was a farmer in every family. But it's not the case anymore. We've become such a small business with very, very few people, and then we have neglected during 25 years to tell what it is we're doing. So there are many today who do not know what we're doing.[...]"

B agrees with this: "we are becoming fewer and fewer, there is nobody who knows a farmer any more". He experienced being the only farmer in a group of city dwellers:

B: "And I think it was fun to study in Copenhagen and meet people, and they asked "So are you an organic farmer?" And I would answer "No." – "Uuugh" [Laughs] then I would start talking about it. It's very interesting, it's nearly exotic to be a real conventional farmer. [...] I have worked in all the worst possible places, seen through the eyes of a Copenhagenener."

J recognizes that it takes knowledge about pig production to decrypt the images:

J: "Because I have this breeding production, my animals are not as close to each other, they enjoy it, I can also see pictures on tv and think "Wow, they are really close to each other, they are really close to each other", so I can understand that somebody who doesn't work with this can think "wow!" but what takes place here on my housing unit I can stand 100% for [...]"

For Z, the fact that scary stories from the media have so much impact is because the representatives for the farming industry and the authorities do not inform the population well enough about the issues the sector meets:

Z: "We have a population that is very misinformed, very affected about what they see in the news. And it's actually about the debate about MRSA, that's what the agricultural organisation had campaigns about and made it clear that the Swedish goods were MRSA-free, salmonella-free and had higher requirements regarding animal welfare than the European and the Danish, and that's what made Swedish consumers to support the Swedish producers, the Swedish goods."

The responsibility of the farmers

The media may not be the only actors responsible for the negative image of the conventional farmers. For J & B, farmers themselves may have contributed to building this bad reputation through their repeated complaints:

J: "when one hears something from the agricultural sector, it's complaints, complaints, complaints: "Uh, too bad prices, too bad this, too bad that".

B: "The problem is that we cry and whine, as farmers "ow, i can't make ends meet", and then arrive environmental requirements, and we say "we can't do that", [...] if we got away from that and told the positive stories"

For J, when the landbrugspakke may attenuate the complaints from farmers, the new policy package may actually have a negative impact on their image:

J: "I don't think that it has contributed to give a better image of the conventional agriculture. I think it has given it a little chip actually. Because once again we end up to look like scapegoats, "so, now we get to pollute even more in Denmark!"

For B, another reason may be simply the lack of focus the conventional pig sector has set on the Danish market. "I think that it's because we are – it's also something we discussed out there – we are not really customer-oriented in Denmark, we are production-oriented". He added that the lack of transparency may also be a cause for the lack of support and understanding from the population: "we don't open doors to the housing units for health reasons"

From popular to paria - and back?

Being asked about how this representation of conventional agriculture in the media has evolved, Z replied that some media groups are actually making an effort to change their focus:

Z: "I think it has been worse. The last two years, both Jyllands Posten and Børsen have really focused on the things that I talked about [the important economic role of the Danish agriculture]."

B estimates that the picture cannot get worse:

B: "I have noticed a stagnation. The picture is really bad now. But it's not become worse [laughs] so in a way, we have reached the bottom in "image". Now people begin to slooowly, slowly, slowly maybe slightly better image than it was five years ago. Not much, but it's as if we don't fall, the image doesn't become worse. And that's what my father experienced, he experienced going from being a popular farmer, to nearly a paria in society during his time, when he started as a farmer in the 1970's, and he was popular because he was a farmer. [...] Whereas for me, I started when it was at the bottom."

For B., it will be hard to get rid of this negative image as more positive stories from conventional pig farming can be received with suspicion, due to such a long period of bad reputation:

B: "And I also think that there are many critical things to say about some of my colleagues from other types of agriculture such as organic, but people really don't want to tell a bad story. So it doesn't get told. And I don't think that it necessarily has to be told, it's just that, when you can see that when there is a bias, that bad stories around whatever, it's easier to continue with them than to create a new story, and I often experience that people don't believe it when I say some positive things about conventional agriculture. People don't really believe it, because they are so used to hear bad stories. It's not sure that I am right, it could be that I am mistaken, but, it can happen that people don't believe what I say."

Looking for the good stories

All interviewees are aware that changing the conventional pig farmers' image will be difficult.

Talking about the feedback he receives, Z sees positive reactions but he is aware that it is difficult to counterbalance the effect of the negative stories: "The feedback is positive. But it requires ten good stories to forget a bad one."

For Z, the effort needs to come from the farmers themselves:

Z: "Good stories don't sell as well as bad stories. It's difficult to obtain a good image on the big news channels. It's a bit easier in the local newspapers, but it's also what we can show ourselves. That's what Landbrug and Fødevarer's campaign tries to do. "The new story" about which a new film has just been released."

Reflecting on the new video from Landbrug and Fødevarer, B. believes that it's not the kind of message that could be targeted to consumers though.

B: "It's difficult to make something consumer-oriented, it is. Because there is this underflow of criticism, so if you make a rosy picture of me and my family and my kids who run around the housing unit, animals that come by and [grunts] and get some straw, then people would directly think, "hum, there is somebody who's been transforming that picture, [laughs], it doesn't look like that in reality, we know that very well". And that's how it is."

Z also acknowledges the help of some media in reestablishing a fairer picture of conventional farming:

Z: "there are Jyllands Posten, Børsen, to some extent Politiken as well, there are fortunately some of them who know how things work. That we need to sell some products

out there in the wide world to be able to buy some products out into the wide world. We can not live from cutting each other's hair."

For him, it's important to communicate what is taking place in farming:

Z: "That's our challenge, it is because we have neglected to tell what we are doing. So we're trying to change that. [...] I also try to do a lot about this, to talk about what we're doing here. Both inside my network, but also in places like Facebook and so on. To focus on what I consider is right. [...] In 25 years it will perhaps be a little better."
[Laughs]

J also agrees that farmers need to make an effort in communicating the positive side of their production:

J: "[...]. But I think, for conventional, we have a challenge we have to soon get out and tell what we do, it would be really nice if some good stories came out about the conventional agriculture, [...]" "Instead we should be better at telling the good stories, because there are many good stories from agriculture, and I think we have been far too bad to tell all the good stories."

B. could find some positive perceptions of conventional pig farmers among the population to build upon. According to him efficiency and quality can be attributed to his sector by Danish citizens:

B: "You can say that, there is something about efficiency, I would think people would say that the pig producers are relatively efficient, we could say that it's a positive perception.";

B: "I think that people feel that Danish meat, is better than Polish meat anyway. In that way, we still have a little credit. What else can I say, positive things..."

The importance of a good image

Not being supported by Danish citizens is a problem for B.

B: "The most negative influence I experience it most at a distance, it's more them who don't like agriculture, they damage my business quite a lot, but it's something long-term, it's not something that damages it directly, now, but they damage my agriculture a lot on the long run, because there are some regulations introduced and it makes the atmosphere around my business really bad. People don't feel like working in agriculture, they don't want to invest money in it."

For B, the opinion of consumers in Denmark is not really important, but these consumers are also Danish citizens who vote: "It's a political problem, it's not at all a sales problem." These voters if they are not satisfied can in the end influence governments to introduce new, tougher requirements on pig farmers in Denmark:

B: "What has an influence on my production, it's when the Russians close the market, or when the Chinese have bought enough to fill their shelves. My farm here, the other end, it's a chinese city like Hong Kong, or Russia, I don't produce for Denmark. [...] The problem with a bad story, is that it ends up in a regulation, which in turn means harsher requirements, and then my abilities to compete with my European colleagues drop."

Z agrees that because the Danish production is mainly exporting to foreign countries, the consumers in the country do not really have an influence, but he would nevertheless appreciate the support of the population he is part of:

Z: "the Danish support [from consumers] would not have a big importance for the price, but it would be very important for my business' self-esteem. And there should be a reason why we are here, and that's what we see the government is trying to do, to make the common Dane see that there is a reason why we are here."

Issues with conventional pig farming

In addition of suffering from a bad image, there are important challenges met by the conventional pig farming sector in Denmark today.

Economic pressure

When asked what could be better about his situation, Z replied: "I'd like the global price of pig meat to be a bit higher, at least the European price, because it's a bit pressed now." The many taxes that needs to be paid in relation to the production limit the benefits, and the situation is a bit worrying for Z:

Z: "Right now we should receive something more for what we do, because right now, now, we're almost doing it for free, what we do, and it... It's fine when it's fun, but we also have to make a living in the long term. So it is basically the price that is the pressure right now."

B's biggest problem is the economic situation to come, which is according to him the same for all the conventional pig production in Denmark:

B: "my biggest problem, the price of pig is relatively low, and i believe it will continue to be low. I don't think we will get a particularly high price for pigs in the many years to come. We have to follow with the market, which means that I need to find more costs that I can get rid of and I have to produce more, and I don't know how to do that yet."

J is also worried about the economic situation:

J: "And at the moment there is a lot of selection taking place, there is, I don't know if it's the biggest crisis since the 80s [...], today there are many farms that end because of the economy, some have been unlucky with some loans and some have been in a situation where they have bought some expensive land when land was here, in the area where the soil is of bad quality, sandy soil, land was sold for 300.000DKK when it would be sold 150.000 today max. So I think there are some who really are bleeding now."

For B, the conditions of pig farmers in Denmark mean that even if the prices are low, they are forced to produce anyway:

B: "The Danish farmer is very focused on producing, sometimes it gives a benefit, sometimes it gives a loss, in Poland you only produce if there is a prospect for a benefit."

If there is a risk for a loss, so you don't fill your housing unit with pigs. And they can do that because they have very cheap housing units, so they don't necessarily have to run them, whereas in Denmark, we have a setup, we have a lot of expensive units, we have a lot of expensive workforce, so it has to run."

Competition

For Z the pressure is high when the competition involves other producers in Europe subject to far fewer requirements in their country:

Z: "We have to be the best in Europe both regarding the environment and animal welfare, and quality, etc, and it should preferably translate in a better price, but it's a bit difficult to obtain, especially when you have to export 90% of it. It is especially traceability and quality are what we sell out in the wide world. [...] we have a higher cost setup because our salaries are more expensive, higher taxes, etc. So there has to be more in price."

Z pointed out that some of his competitors not only do not have to suffer from the especially tough restrictions set in Denmark, but they also do not comply with the European regulations and would like to see the rules respected:

Z: "the challenge is that the distance to those that can produce as cheap as possible doesn't become bigger. And it's a challenge that countries like Spain and Italy don't live up to EU's requirements yet. The requirement about free-roaming sows became a requirement in 2013 during the pregnancy, [...] and there is a big part of both the Italian and the Spanish production that don't live up to these requirements. And it's a challenge for me, because I have had those additional costs, and I have to pay now, but they don't, and they sell on the same market as me."

Z: "It's a European challenge, and I can't really understand that it's not sanctioned more by the EU."

J can also notice the competition in Denmark regarding pig breeding:

J: "There is a lot of pressure at the moment. There is been a lot of competition especially about crossbreeds. It happened when Russia closed, so there were suddenly too many gilts for sale in Denmark, and I think at that moment there had been many who had expanded their production, so now there is an overproduction. I have talked with SPF which is one of our sales companies, they say that there is at least 20-25% too many crossbreed gilts right now. And it makes people put pressure on each other about prices, so we compete with each other on the price."

She refuses to compromise on prices as she feels she may not benefit from such a strategy:

J: "I think that in this first quarter, there is really a fight about customers taking place. People are ready to sell them much cheaper. And I think, my customers, they speak together when they attend congresses, or Erfa meetings, etc, so my customers they have to have my animals to the same price. [...]"

There may be a long-term risk in doing so: "I think it's a bad direction we are taking, because it will be difficult to get the prices high again. It's easy to take away 200DKK but it's really difficult to get 200DKK back on".

She is aware that the pressure from her customers comes from the difficult market situation for pork meat: "But they [the pig producers] are also pressed, because the price on finishers is not really high either. They are told to optimize."

Recruiting skilled employees

While it is a less pressing challenge than the economy, recruiting capable employees, is also a challenge:

J: "it's not easy to find employees. [...] I think there are only a few you can choose between."

Z: "It is not easy, we have some long-term employees as permanent staff who have responsibilities and they are hard to find, it's actually easier to train somebody yourself. We have many Danish and foreign trainees, and it is not that many of them that prove to be talented and good, so we focus on them. It is often internal recruitment for the higher positions, and so it's the Danish trainees and foreign trainees, and the ordinary employees as assistants."

The number of students choosing to study pig farming has decreased in the last ten years. Z sees it as an issue and considers that the criticism against pig production and the economic difficulties of the sectors are possible explanations:

Z: "The problem is that we are not enough, that we are not educated enough, the reason for it, it's two things, the one thing it is the public hate. It is always against us, pig farmers, it means that it's not especially popular, and it has a great influence. And the other reason is that it's been a relatively long period where the economy for the average farmer has been under pressure, and the result is that there have been employed more and more, low-paid employees in the pig production, so it is also a bit hard for agricultural students to see themselves in a profession where the pay is low and it is not very popular."

MRSA and antibiotic use

Z had to foreign employees who were tested positive to MRSA, but not his production. He explains though the changes he has brought in his practice: "We have always had contamination protection to avoid taking anything in the housing unit, [...] and now we have taken some actions to avoid taking anything out of the housing unit."

For B, it's necessary to be aware of the problems the use of antibiotics creates, but advocating for less antibiotics can have some consequences if it is not communicated properly:

B: "it would be nice if we had focus on the right things. I can understand that it would be better to avoid multiresistant bacteria, so in some way or another there has to be a focus on antibiotics, I think that a lack of focus on how they are used of it can be damaging, because it has lead all pig producers to instead of giving antibiotics for 7 days have given them 3 days, and after 3 days there are maybe still some bacteria that have survived the treatment. So, to say that the usage brings resistance, well all use of

antibiotics gives resistance, but sometimes it's better to use it during 5 days than in 3 days. So this focus we have in Denmark that we have to use as little antibiotics as possible, it's good in a way, but it also has some unfortunates effects sometimes."

Why conventional is conventional

When discussing why conventional pig farmers did not adopt some of the practices that are supported by the Danish population today, the farmers pointed out the difficulty to adapt to a different system of production.

S: Why did you choose a conventional pig production?

B: "[Laughs] Many have asked me that! And it's actually a question which is a bit stupid! [laughs] [...] That's not something that one really chooses. [...] When the housing unit is there, then it's there, and then it has to produce until it can't do that anymore. So what can I say, most farmers, including myself, don't have any choice. [...] They are forced to produce according to the system that is built for them."

For B, there are some issues that the persons who do not work in the industry may have difficulties to understand when they criticise what takes place in conventional pig production: "space costs a lot. People don't think about that, they think "why can't they give them more space, why do they have to stand there", but space is incredibly expensive.

It is not conceivable for Z to sell for the local Danish market: "The way our business is built with the quantities we produce, we can't sell 6,5 million kilo of meat [in the area where the farm is]."

For J, the low protein content in the Danish feed means that pigs producers have no other choice than to rely on imports:

"there is such a low protein content in the wheat that we need to put so much soybean protein in, it's twice more expensive to put it in than to give pigs wheat. [...] And the soy, where does it come from, eh? It's not from here, it needs to be imported, so one should look at the big picture, there something wrong especially with soy that needs to be imported with boats... It's really a shame. And I really don't think it's that organic, the soy we get in Denmark, or...?"

Comparison with organic farming

A black and white picture

For Z the situation of organic pig farmers should not be compared with the ones of conventional farmers, because they are evolving in two different systems:

Z: "As long as it's helping in increasing the sales prices of the organic products, then it's fine. When it comes to, as it's often the case, that I become a scapegoat, I am a bit tired of that, because I consider that I also do a good job, and I have extra costs which mean that I should get more in price, than what the Spanish farmer gets, and I don't think this has been examined enough."

According to him, conventional pig farming should also get some credit for what it does, especially when considering the pressure it suffers from:

Z: "it's good that there is a positive focus on the different branches, but I think we are forgotten. When you compare our production with a Polish, a Spanish or a Brazilian production, then you would see a big difference. Both on animal welfare, environment, input/output."

He added that he perceives the unconditional support given to organic as unfair:

Z: "The organic production has more initiatives, they have a higher price setup on their product, and of course the price should be higher. And those who want to buy it, should buy it. The big problem is, we are really bad at dealing with the internal stuff in agriculture, but also Coop for example is really bad, when doing this black and white, organic is the good, and conventional is the bad. I don't think that's how it is. But I think it's a problem that a business like Coop make it so black and white. They can invest in organic, and encourage customers to buy the products, but the way they advertise it, the communication black and white. I am tired of it".

For J the picture of organic is a bit too perfect: "I don't have anything against organic, I also buy organic goods, where it's a problem is when it becomes too holy"

For J the difference is not that wide between the two systems, it is mainly an issue regarding storytelling on the side of conventional:

J: "What I think is a pity today, regarding organic versus conventional, it is that we haven't been good enough to maybe at telling what we do, because in reality I don't think that there is a big difference between what we do."

B believes that what organic farming sells is first and foremost a story:

B: "I know that there is an important growth in organic farming, but what you buy is mostly a story."

The dark side of organic pig farming

For J it is unfair that some aspects of organic farming do not get criticised because not making it clear that both systems face issues regarding different aspects of the animal production is in the end detrimental to the conventional business. She pointed out the animal welfare concerns raised by a study regarding injuries of organic pigs:

J: "I think there was a survey at some point – I think it's been hushed a lot – that showed that organic finishers had as many injuries as the conventional pigs, and that's because an organic finisher production [...] they have the right to give an injection to their pigs only once in their lifetime, [...] so many had injuries on their legs, why is that... I think it's

very weird. So one should put down those animals, instead of letting them live and be unwell until the end. I don't think that this has anything to do with animal welfare. [...] I think that if you can't treat the animals that have become sick, I think it's terrible. And you don't hear much about it."

The lack of awareness from consumers about how organic farmers actually make use of products derived from the conventional pig farming is also a concern for her:

J: "And in reality, those who buy organic they maybe don't know that much about how it takes place anyway. An organic producer can collect my manure here and spread it out. I can also sell animals to an organic farmer so he can get pigs on his field, and it's then an organic pig. It's maybe necessary to say that a conventional farmer is actually able to help organic farmers, because they cannot cope by themselves. They don't produce enough animals, they don't produce enough food for their animals, they don't produce enough fertiliser in form of manure. I know that the local potato farmer [interruption from J.'s husband] [...] But in reality nobody knows. But I don't know if we can change the picture, because I think the population [*] and we have programs like Bønderøven and people think, "oh, how pleasant", but we can't LIVE that way, we can't LIVE that way, there is a need for conventional agriculture to cover for it, we are really not that bad. "

The two systems have both advantages and drawbacks

B recognizes that an undeniable advantage with organic production is that the animals experience a natural course of life:

B: "I think there are really good things with organic production. The fact that the animals get the right to live according to their natural needs, that's great."

Nevertheless, for him there are advantages that organic pig farming cannot offer in terms of animal welfare as he envisions it:

B: "it's a very different kind of production, where you have to thrive for less in everything - all pigs survive as well as possible all the time, I think one has to thrive for the animals can go around and mess with the soil, to give the possibility of natural behaviour. That's what organic can really do, it's to give the animals the possibility to live, to develop according to their instincts. I can't do that. My sows, they are boxed in, and I'm pretty sure they are bored, but the good side is that there isn't so much waste, and I know that I don't overfeed them because they don't freeze, they feel warm and well, so they only eat what is needed. That's what I like with the conventional production."

For J there is a need for both systems as the production of organic farmers cannot cover the production of conventional farming, and therefore the system should not get subsidies:

"And I think that many of the organic producers, they have become organic because there are so many subsidies you can get for organic, so it can pay to convert, and I think that it should be the consumers that pays, because they want to give more in price, because of course you can't make as many food products with organic, we would need 5 planets more if everybody should be organic farmers to feed the world, so there would be many that would die from starvation – the fact that they receive so many subsidies it should be the consumer that pay the additional price if it costs"

Unfounded claims about organic farming

For B, it's problematic to lack of criticism against organic farming:

B: "And I think that the picture, it's totally, extremely, rosy. I don't have anything against those who become organic farmers, I could become an organic farmer if there was a good business in it, there are many good things in it. But there is absolutely no criticism, there are never any critical questions asked. When there is an interview with an organic farmer, it's more like "what do you feel?" [laughs] So it's just like an interview of the queen [...] There is never anything critical, and I think this is a bit weird, because I don't think that journalists are that good to... I mean it's their job to have a critical standpoint to everything. And it's not there with the organic agriculture. They don't think about "what is bad with this?", and there is something bad with everything, but there isn't anybody who knows anything about the slightly problematic sides of organic farming. And there is even the case when you hear DN and others using terms like sustainable and climate-friendly about organic agriculture. And it is factually not. It has other qualities, but it shows that, at they think that it's good in itself, totally good, and it's good for everything. And that's what is straining."

Cohabitation of systems

Most of the interviewees would like the fight between the two systems to stop.

For J the relation between the systems needs to change:

J: "I don't think it's the right way that the organic producers throw mud at the conventional farmers, just as I don't think it's fair that the conventional producers throw mud at the organic farmers. There should be place to both forms of production."

J wishes that both systems find a way to coexist:

J: "There has to be place to both of us, hopefully, I don't think we'll get a 100% organic Denmark [...] and I think if we can find a competition relation that is more fair, then we could see that what conventional producers do is also ok. What the organic producers do, they do it because they can get some money... well..."

For J it is time for the two systems to communicate about how they can be beneficial to each other and to cooperate:

J: "I think we should be careful, it should be organic against conventional, I think we should have a cooperation, because it's fine, I would really like to sell animals to organic producers, I am proud that my animals are strong enough to be let free on a field, i think it looks cosy when there are pigs out in a field, I would really like to be supplier for that, I just think that... If I could be proud of it and could promote myself as conventional pig breeder who supply pigs to organic production, I am proud of what I can do that, because the animals have strong legs, if we can use each other in a positive way instead... I think we need to be careful to have, this is organic, this is conventional, so that us against them. Why can't we be friends altogether? [laughs]
She is not optimistic that it will take place though, as the organic farmers's image may suffer if they acknowledged publicly their need for resources coming from the conventional production:

J: "So if we found each other's strengths, and used each other on this. I don't think there is any organic producer that says " we are so glad to get manure from a conventional farmer otherwise we wouldn't be able to grow our–". I think that there is something wrong here. If the organic producers said that, "we also need the conventional farmers because we can't produce fertilisers" that would be really nice to do that this way, but it won't happen, I don't think so, because that would damage their perfect image."

For Z the success of organic production is actually beneficial for all producers in Denmark:

Z: "It goes really well for them [the organic farmers], they have a good supplement to their price today, there wasn't one in 98, when we tried it, so we did it too early. My point of view is, that we, in the agricultural sector – and it doesn't matter if we are conventional, organic, or whatever – but agriculture as a whole, must sell as many goods as possible, for the highest price possible. And organic is among those who bring prices up right now, so it's good for the whole of agriculture."

For him what is most important is buying Danish products, whatever the system they come from:

Z: " I consider that as long as we keep buying danish products, we do a favor to both the environment, animal welfare, and the danish farmer. If we could manifest that the the Danish products are better than anything else one can get, then I would be satisfied."

Positive sides of conventional pig farming in Denmark

For J, a simple justification for the existence of the conventional system is that it provides conditions for animals that makes it possible to avoid contamination in the breeding sector:

J: "there is no organic breeding business, because "the main threat is contamination, and it doesn't make sense to have pigs go out on the field, there are other animals they can get diseases from, so in order to keep the highest status of animals in Denmark, [...] so of course it is needed to have them enclosed, to keep them behind closed doors."

For her, it is possible to offer acceptable conditions to animals via the conventional pig business:

J: "My veterinarian said to me, "you are nearly organic, J", we have on our farm a "hoof care box", so if a sow has a bad leg, it can be put in this hoof care box where they hang here on the belly, and you can look under the feet, because often it's because they have had a hoof injury, and that's why they have a bad leg, or drag their leg. So it wouldn't help to give them an injection, because it only works during the three weeks, but if you take care of the injury under the foot then the animal doesn't have any pain anymore and then you don't need to at give them an injection. And that's how it is for many conventional farmers, because all conventional farmers really like their animals, there isn't any, well one should never say never, and I think there's been a generation once, that was not a generation of good farmers, who has destroyed the picture a bit, I think that's what we fight against still, because there are not many places where I think you can find the picture they use on the internet, it's old pictures. Today you don't have the possibility to drive it too far, we have the veterinarian, 2 veterinarians come once a

month each, we have 24 visits a year, if we don't have control over the production, so they need to report me, or they have to return their veterinarian card. I think that there is so much control, we have something called Danish Control, for when you can deliver animals to the slaughterhouse, they come every three years to check, they can come on unplanned visits, [...]. "there's been a period where things were driven too roughly, too much medicine was used, it's been... And I think that picture should disappear, because when you can suddenly reduce the medicine because you set a focus on this, [...]"

The combination of efficiency and animal welfare is what B appreciates in the conventional system:

B: "I also like the conventional [system], because I like that you get a lot out of what you have. I really like the idea that when my sow gives birth [...] 18 pigs, that the majority survives, and I know where they are, and I can look at the sow and her piglets, and see, ok they are here, and I know that when the sow is done with feeding them, then it's highly probable there are a lot of pigs ready for the controlled environment section."

Z listed what conventional pig farming should be appreciated for:

Z: "If what is important for the consumers that the pigs go out on the fields, then it's not so compatible with what I do, because my pigs don't go out. But that the pigs are fine, that they get fed healthily and right, and that they grow properly, and there is quality, then it fits really well with what we do".

According to B the rules about medication in conventional pig farming make sense, "i don't need to wait 3 days for the veterinarian, then I may as well put the pigs down."

For him the practices in Denmark need to be put in relation to what other producers use in Europe, for example regarding the use of antibiotics: "We use much less [antibiotics] than what they do in other countries. They don't use as much in Sweden, but they use a lot in Norway for example."

It is also valid regarding the straw provided for the pigs:

B: "We give straw to the sows in all units, they don't do that in other countries, it's not a requirement. It's something that I am a bit irritated about, because that's extra work. [laughs] And our low mortality, that's also animal welfare."

B believes that there are farmers, including himself, who show efforts to promote the positive side of conventional farming:

B: " [about people who give a good image of conventional] there are some of my colleagues, they are very good. They have a positive effects on the local society, people drive by and they think, it looks really great. Or they are known for doing things right. I also think that I personally contribute to the local debate around agriculture, I had DN on a visit, and it's also something that contributes to a picture of an open agriculture which is aware of problems, challenges, and which is also willing to be part of the debate. [...] That's what contributes to the positive narrative. Otherwise it's difficult, because the positive around conventional agriculture, it comes nearly only from the farmers themselves. There isn't anybody that goes around and say that conventional agriculture

is good, if they are not part of it themselves. So that's why it's really getting difficult. There isn't any journalist that thinks, "now we get out and make a real feel-good interview with a conventional pig farmer" [Laughs] It's more the critical questions they bring, isn't it?"

Improvements & solutions

Perceived improvements in the business

Z has experienced improvements in the local authorities management of applications for expansion permits:

Z: "Two years ago I would have said that the authorities' procedures were a big challenge, but I think it gets better and better, a lot has happened in the last two years. So it has become fairer, even the authorities' regulatory approach about when we need to apply and to expand, and so on. It's going better now than it went two years ago."

Z: "For him the new government gives signs of bringing beneficial changes for his business:

Z: "Anders Fogh Rasmussen's government started this adversity against agriculture in the beginning of the 00s. Where the requirements for farmers increased. [...] more and more to achieve. This line has been driven until the new government, which tries to do something with what has gone too far, and I hope that even if the government changes, we will keep the same direction. It can happen that we from time to time have a minister of environment that set the focus on something, or another time a minister of agriculture, a minister of food that set the focus on other things. Dan Jørgensen, he did this national dish [laughs] that's also very good."

As he sees it, the landbrugspakke will have several advantages for his production:

Z: "I am going to make better grain for my pigs. I am going to get a bigger yield, and more protein. Then I will have to add less protein to the feed, and I buy that all the way in Argentina, or USA, so if I can buy less of that, because I make a better quality on the field, it's very positive. And regarding pigs for slaughter, the acreage on which their manure needs to be distributed on, becomes smaller, which means a lot for our production."

For J the situation of pig farmers could improve if all the parts of the sectors collaborated to obtain better prices:

J: "I think that's it's a pity in the pig production we know for little about each other's niches. For example, we breeders know maybe not enough what problems pig producers have. Pig producers don't know anything about what we do in the breeding sector. [...] We all have pigs, I think it's a pity, we should stand together all groups and fight for better prices for all."

She also think it is necessary for farmers to work on communication: "We are our best ambassadors, we have to be good to get out and tell the good stories, we can't expect

that somebody else would take care of that". Z agreed that farmers need to communicate and to find the right angle to convince consumers in Denmark: "We need to have more openness, I think we are in the process, but it's not something you can do from one day to another, it will take many years. I believe that we need to prove to the consumers that we are both important for Denmark and that we make something good."

B has a suggestion about how to improve the conventional reputation by playing on the sustainability aspect of the production, even if it may be difficult:

B: "for example, sustainability. People are into it. [...] Those who really are serious about sustainability, they would prefer that we don't eat meat at all. And that's where it's really difficult for us to deliver a good story, because it becomes, everything or nothing. And if it's all or nothing, then we always come short, because we will always use some antibiotics, we will always be a bit climate-unfriendly when we give grain to the pigs instead of using it for bread. So it's difficult to meet this, "this makes the world a nice place", we can't do that, where we really can do something, it's if we keep polluting and eating lots of meat etc, then our production the best that can be used. So this sustainability agenda we can pull something."

B is confident that there is a change coming in the Danish citizens' perception of what conventional pig production is about: "I think that they are about to understand, there is something with technology, there is something with efficiency, I think, this can contribute to draw a better picture."

Sustainability

As this thesis has been examining the discourses regarding pig farming in relation to sustainability, the fact that the perception of sustainability is different between the different actors is also reflected in the interviews. All three consider that they can play a role regarding the demand for sustainable products with their production.

B is totally convinced that his production answers the criteria of sustainability: "Pork meat produced by me? It's incredibly sustainable, the best would be of course not to eat pigs, but if you're to eat pigs, so eat B's pig! [laughs] That's how I see it. That's something I can be proud, it's actually to be able to deliver sustainability."

For Z it is definitely a point that needs to be clarified. He also considers his production more sustainable than organic:

Z: "Sustainability, that's a word that is not really well defined, or there isn't really the same definition for all, because... My production is in the end actually more sustainable than the organic production, if you go to a cooling disk and ask a consumer, he will tell you that it's not. I produce more with less, and without having a damaging effect on the

environment and the population. And with a larger output. And that must mean that my production is more sustainable. So it's a word that would be nice to have defined, we could use a sustainability stamp, they talk about an animal welfare stamp, at there should be stars on the products, I think we could use a sustainability stamp."

J shares the consumers' concerns about sustainability, and believe they would agree on her conception of it. "I really don't dream about having 1000 sows. Why should it be that big when I can live out of these 300 sows and I can have 3 full-time employees, who can also live from my farm?"

Futures

The interviewees perceived that there are some challenges ahead regarding the future of conventional pig farming. Several threats are looming.

Threats: competition and new trends in consumption and meat production

The competition from other countries represents a serious issue for the years to come regarding the pig production:

Z: "the challenge now is that Spain develops their pig production, and they take market shares in countries where we sell, and they are in the process of outcompeting us. And that's a problem when you see that they don't respect the European rules [...]"

Signs of changes in society regarding the consumption of food, and the possible decrease of meat consumption due to trends such as vegetarianism and veganism motivated by a rising concern for the place of animals in society and by climate-change concerns are taken into account by the producers. For B, farmers need to be aware of these trends and of what values they represent:

J "there is also more and more that become vegans and who don't want to, who don't eat meat at all, or who won't have anything to do with animal products, I think also there will be more of them, so how to tell the right story from the countryside that we take care of our soil, and we take care of our animals, and we want to make the products the consumers want to buy, I think we are very adaptable, because we become forced to, if we don't get sold what we make here so we're not here anymore."

Z agrees that it is a possible scenario, but that synthetic meat could also come and change the game:

Z: "The biggest threat for my production is either that consumers eat less and less meat, or it becomes produced in petri-dishes. That Novo [Nordisk] starts making protein meat, in a laboratory out of stem cells. I think that's the biggest challenge."

For B. the disintegration of conventional pig farming, whatever its causes, would represent the loss of jobs, not only directly in the pig production, but also in the businesses that depend on it:

J: "We are well under way to send all of our agricultural production out of the country. What should we have left in Denmark then? There are many, I think when I go to pig production congresses, I think that out of the 2000 people present, 1000 are farmers, the rest are bank people, advisors, veterinarians... There are many connected businesses"

Hopes

The landbrugspakke seems to bring hope to the conventional pig farmers, as it means a better market for their manure and better quality feed for their animals:

Z: "I am going to make better grain for my pigs. I am going to get a bigger yield, and more protein. Then I will have to add less protein to the feed, and I buy that all the way in Argentina, or USA, so if I can buy less of that, because I make a better quality on the field, it's very positive. And regarding pigs for slaughter, the acreage on which their manure needs to be distributed on, becomes smaller, which means a lot for our production."

B is also enthusiastic about the landbrugspakke:

"It's really good for me, because I have a lot of manure, and I experience that it's less and less used as fertiliser, it becomes more and more a waste product, because we add a lot of enzymes in our feed, to make the animals digest much more the nutritional components in the feed than before. So there is less [...], there is less phosphorus, there is less of everything in the manure, and the norms regarding the use of fertilisers haven't changed [...] And one can see that the protein content decreases and we have to buy more soy, and that costs money. So that's why the landbrugspakke is really, really gold for the pig production. And the way I see it, I think it's not made to benefit the environment, I don't think it's that good for the environment that I throw more fertiliser on the fields, it is about keeping workplaces. We have experienced on Bornholm that the slaughterhouse is about to close. We are maybe the next slaughterhouse to close, so less jobs, and when I export to Poland, I know where the workplaces end up, it's either in Poland or Germany. And I think that's what the landbrugspakke should actually be about, it's about workplaces in "udkantsDanmark" [rural areas of Denmark with low economical activity] and it's not that I think that the landbrugspakke will give more jobs, it only delays the process of outphasing the industry workplace in agriculture and food sector."

Personal prospects

Z is hopeful about finding a new profitable market:

Z: "The situation now is that too much meat is being produced in Europe in relation to what is eaten. So there must come an adjustment on the European level. But the future for us, we are going to make a product that we can sell for a higher price, somewhere else. I am pretty sure about that."

When asked if they would consider producing organic pig in the future, Z can see a potential in it:

Z: "maybe, if the possibilities extend, it could be a new adventure for our business, but it's not the strategy now, we have bought production in Sweden, and we're going to produce in Sweden, so that's the next step."

Z: "I am pretty sure that the organic production will become bigger. As long as it follows the market, as long as the market grows bigger, the production will increase. And it could well be that I'll go with it, at some point."

His wish for the future is that he would like to see more professionalism in journalism from now on: Z: "The only thing that I need, is that more demands are placed on the journalists' credibility."

When asked if he could benefit from any support, he replied:

Z: "No, we need to earn our own money. We need to get rid of the support. We need to earn our own money. We just need some frames, continue to ensure that we have frames, so that we can earn money. We need to earn our own money. We need to develop the business, and make what people want to buy."

Regarding J, she doesn't plan to develop the production and is satisfied with the 300 sows she now has: "we can live from this, because it is a niche production" ;

J: "I think it's important, especially in Denmark, because when we produce animals we are pressured by the fact that it can be done much cheaper in foreign countries because we have higher costs with salaries [...]. So I think that if I can keep my little niche production it's really, really good."

Regarding possible changes, she leaves the decision to her son, who has shown an interest in taking over the farm, to develop the installation in his own time, and does not want to take the risk to build something new if he realises that he is not interested in taking over the business. "My plan is what I call a recession strategy. We use this out and we wear it out, I am not going to build a new housing unit."

She nevertheless sees the changes that are needed in case the business is to keep existing:

J: "I can see what needs to be done in the future if my son is to live from it. Then it's our farrowing facility, which is the oldest structure, which could be built anew. But today you don't build new housing units for 300 sows, because it's just too small, so if I were to build a new structure, it should be made to accommodate many more sows, but then all the other buildings would be too small. My challenge is to keep being able to deliver the same results as today [...] it's a big challenge that I don't have new, big, nice and modern installation."

The size of her production is also a challenge. "All the other stocks, both here and abroad are becoming bigger, so for example, especially for crossbreeds, it's a bigger

supply they want to set up, and I cannot deliver that many. [...] if too many from the small [producers] disappear, then I don't have any customer left for the type of stock I have now."

B considers that the future of conventional pig farming is uncertain and fragile:

"I think the image will improve a little [...] if we in one way or another shut down and say we don't want a bigger agriculture, it will stop, I don't doubt about it."

Regarding his farm, he can plan to close the pig production in 20 years as he sees no potential in pig farming in his area, and would like to engage in more profitable businesses.

What is important for him in regards to the development of his business is to not be surprised by new regulations:

"I need to know what to expect. If we know what we can expect in 20 years, it's great. And when making a new regulation, saying, this regulation starts in 20 years, they you're in a good situation as a farmer, [...] because there is so much that is unpredictable, so much things in the market, when the Russians close theirs, or there is a financial crisis, so if there was a political safety on top, it would be good. So predictability is the most important."

Discussion: societal critique of conventional pig farming and farmers' discourses examined through the socio-technical transition perspective

Looking at the situation, it is easy to identify the different levels established by Geels in his MLP model (Geels & Schot, 2007): while conventional farming is established in the socio-technical regimes, intense pressure from both the landscape, where issues such as the sustainability of the Danish agriculture is being questioned due to factors like climate change, and where the Danish media can be considered as a window on this landscape. On the other side, the activity of the niche-innovations that the organic farming businesses represent is starting to make an entrance in the main regime, as the fact that some farmers have now large farms that have the same customers as the

conventional farming. Businesses as J's can also be considered as a niche, but it doesn't exert much pressure as it is not part of a flow of similar initiatives.

The negative image that is the expression of the pressure on the regime of conventional pig farming. On the other side, the support that organic farming and its practices seem to profit from at the moment shows that it has a potential to integrate the regime.

There are though questions regarding the application of the model: it is still unclear how the integration of organic can result in more than a coexistence with the conventional system, that may change for example in its manner of communicating and developing its sustainable character. There is a radical difference between the two systems in the fact that one functions as a production detached from the environment, while the other aims at integrating the environment. Additionally, there is a different approach to animal welfare between the two systems that does not seem to be possible to merge at the moment. It is then highly improbable that conventional farming will disappear because the organic system will take over, but it needs to change its image, and justify its actions in beneficial terms regarding animal welfare and sustainability in order to slow down the requirements set on the production in Denmark.

Another issue with the application of Geels' model (Geels & Schot, 2007) is the fact that the Danish pig production is not well seen in Denmark contrasts with the interest that foreign countries show in the production. The pressure from the landscape level here becomes a pressure from a rather close physical landscape, but then how to consider this demand from other countries?

The farmers' perceptions of their own work translates a position that is close to the reformist position (Geels et al., 2015). Their interest is to keep producing as they have so far produced and they do not wish to question the productivity and efficiency incentives. This position though is not totally voluntary: there are many constraints in the form of investments in housing units and competition from abroad that makes it difficult for farmers to reconsider what they do. Additionally, their representatives communicate about this need to continue in the same direction (

Nevertheless the position expressed by B when he considers that the production should be thought in terms of sustainability could be a sign of the adoption of the reconfiguration position.

It is easy to identify actors in the media who take the revolutionary position, such as Enhedlisten. (i.e Gjerding, 2016) when they suggest a total conversion of the agricultural system to organic production.

Conclusion

Whatever the future of the agricultural transition that takes place today in Denmark is, conventional pig production is not likely to stop abruptly to be totally replaced by alternative systems. Be it because of an on-going demand for Danish pig meat that respects specific quality requirements, economic imperatives or a well-defined business expansion plan, conventional pig farms will still be part of the Danish landscape for the coming years.

The three pig farmers interviewed demonstrate that there is not only one way of approaching the practice of conventional pig farming in Denmark. While the minimum requirements need to be met by all, different approaches exist in terms of animal and social welfare and environmental sustainability, as well as different strategies for business development. This contrasts with the caricatural image conveyed by the national media, which opposes the bad conventional farmer to the holy conventional farmer, and which tends to become moderated as researchers begin to criticize the constant opposition between the conventional and organic, as it does not solve some issues regarding sustainability.

What stands out of the examination of both the media discourses and the farmers' perspective is that there is a need for cooperation between the two systems, a fairer treatment of the difference between them, and a better, more positive communication from the conventional farmers' side. Instead of opposing conventional pig farming and alternative modes of agricultural production, establishing a positive dialogue between farmers belonging to each group could lead to learning from each others' strengths. Alternative farmers could prepare to enter a competitive market and learn about adapting to strict requirements in order to produce high quality products. The "only" difficulty is to find a common ground of discussion, as the different positions taken by the actors in the situations suggest.

The biggest gap exists between Danish consumers, in particular urban citizens, and conventional farmers. The latter suffer from the negative image that has built up during the last years, and even if the perceived support from the government legitimizes their work, they still have not found a way to remedy to the lack of acceptance for their

practice of the Danish society at large that has surfaced recently. In addition to the difficulty to be represented by an actor that could navigate between the different ontologies, storytelling, which is a strength of the organic pig production, is difficult to put in place when conventional farmers are disconnected from the end product they sell, cannot promote the natural behaviour of animals due to confinement and have to build on years of accumulated negative examples.

Considerations about future research needed

This thesis provides a brief glance at the world of modern conventional pig farming in Denmark. The sector and numerous challenges it meets today would provide deserves ample investigation about solutions on how to allow it to perform a successful transition that could bring forward most of its actors. The complex relation between the remote production and the impact of consumers who actually are not really consumers of this production would also benefit from more attention and the interdisciplinary approach of Integrated Food Studies could be beneficial in this case.

Reference list

Abrahamsen, S., 2015. Kan det danske landbrug overhovedet betale sig? | Information. *Information.dk*. [online] 5 Aug. Available at: <http://www.information.dk/541077?utm_content=buffer403db&utm_medium=social&utm_source=facebook.com&utm_campaign=buffer>.

Amtoft, J., 2015. Landmændene tabte første sæt i gødningssag. *Horsens Folkeblad*. 27 Jun.

Andersen, S.A., 2015. Lone vil være den ny tids landmand. *Midtjyllands Avis*, 7 Nov., p.37.

Auken, I.D.A., 2016. OPINION : Regeringen ignorerer landbrugets afgrundsdybe krise. *Jyllands-Posten* |. 8 Jan. Bak, J., 2016. Der er grænser for økologiens mirakler. *Politiken*. 16 Nov.

Bech, G., 2015. Landbruget skal være et valgtema. *Organictoday.dk*. [online] 14 Jun. Available at: <<http://www.organictoday.dk/landbruget-skal-vaere-et-valgtema/>>.

Benard, M. and de Cock Buning, T., 2013. Exploring the Potential of Dutch Pig Farmers and Urban-Citizens to Learn Through Frame Reflection. *Journal of Agricultural and Environmental Ethics*, 26(5), pp.1015–1036.

Bjerring, D., 2016. Jordbearbejdning er som en bulldozer i et boligområde. *Maskinbladet.dk*. [online] 7 Mar. Available at: <<http://www.maskinbladet.dk/artikel/jordbearbejdning-bulldozer-i-boligomrade>>. Bloch, C., 2016. Debat : Det store Sbluffnummer. *Jyllands-Posten*. 15 May.

Boogaard, B.K., Boekhorst, L.J.S., Oosting, S.J. and Sørensen, J.T., 2011. Socio-cultural sustainability of pig production: Citizen perceptions in the Netherlands and Denmark. *Livestock Science*, [online] 140(1-3), pp.189–200. Available at: <<http://www.sciencedirect.com/science/article/pii/S1871141311001351>> [Accessed 17 May 2016].

Bos, B., Spoelstra, S.F., Groot Koerkamp, P.W.G., de Greef, K. and Van Eijk, O., 2012. Reflexive Design for Sustainable Animal Husbandry - Mediating Between

Niche and Regime. In: G. Spaargaren, P.J.M. Oosterveer and A.M.C. Loeber, eds., *Food Practices in Transition - Changing Food Consumption, Retail and Production in the Age of Reflexive Modernity*. New York: Routledge, pp.229–256 (Kindle edition).

BT, 2016. Debat : KONTROVERS : Kommer landbrugspakken til at ramme fremtidens landmænd ? *BT*. 5 Apr.

Caron, P., Biénabe, E. and Hainzelin, E., 2014. Making transition towards ecological intensification of agriculture a reality: the gaps in and the role of scientific knowledge. *Current Opinion in Environmental Sustainability*, [online] 8, pp.44–52. Available at:

<<http://www.sciencedirect.com/science/article/pii/S1877343514000475>>

[Accessed 29 Sep. 2015].

Chrintz, T., 2016. *Blogindlæg : En tredje vej til et landbrug i balance med naturen*.

[online] concito.dk. Available at: <<http://concito.dk/blog/tredje-vej-landbrug-balance-naturen>>.

Caracciolo, F., Cicia, G., Del Giudice, T., Cembalo, L., Krystallis, A., Grunert, K.G. and Lombardi, P., 2016. Human values and preferences for cleaner livestock production. *Journal of Cleaner Production*, [online] 112, pp.121–130. Available at:

<<http://www.sciencedirect.com/science/article/pii/S095965261500774X>>

[Accessed 27 Mar. 2016].

Clarke, A.E., 2005. *Situational Analysis Turning to Discourse (s). Situational Analysis*.

Clausen, H.J., 2016. Vi vil måles på fakta -ikke på følelser. *Fyns Amts Avis*. 20 Jan.

Dahm, H. and Ilsøe, S., 2016. Kronik : Styrk den bæredygtige dyrkning af landbrugsjorden. *Kristeligt Dagblad*, 20 Apr., p.9.

Dahm, H. and Ilsøe, S., 2015. Debat : Udokumenterede fortræffeligheder. *Weekendavisen*. 25 Sep.

Danish Agriculture and Food Council, 2015. *Statistics 2014 - pigmeat*. [online] Available at: <<http://www.lf.dk/~media/lf/tal-og-analyser/aarsstatistikker/statistik-svin/2014/22109-079-15-a5-lf-statistics-pigmeat-2014-uk-v4-web.pdf?la=da>>.

DR, 2016. *Debatten: Landbrug eller natur | TV |*. Available at:

<<https://www.dr.dk/tv/se/debatten/debatten-2016-04-20>> [Accessed 10 May 2016].

Duru, M. and Therond, O., 2015. Livestock system sustainability and resilience in intensive production zones: which form of ecological modernization? *Regional*

Environmental Change, [online] 15(8), pp.1651–1665. Available at:
<<http://dx.doi.org/10.1007/s10113-014-0722-9>>.

Effektivt Landbrug, 2015. NNF vil have skrotpræmie til udslidte landbrug. *Effektivt Landbrug*. 18 Dec.

Ekstra Bladet, 2016. Svineri. *Ekstra Bladet*, 3 Mar., p.2.

Elbæk, J.R., 2015. Jeg ville bare gerne være landmand. *Økologisk*, 14 Dec., p.46.

Elzen, B., Geels, F.W., Leeuwis, C. and van Mierlo, B., 2011. Normative contestation in transitions 'in the making': Animal welfare concerns and system innovation in pig husbandry. *Research Policy*, [online] 40(2), pp.263–275. Available at:
<<http://www.sciencedirect.com/science/article/pii/S0048733310002118>>
[Accessed 16 May 2016].

Euractiv, 2015. *Brussels plans help for pork sector hit by Russian ban*. [online] Available at: <<http://www.euractiv.com/section/agriculture-food/news/brussels-plans-help-for-pork-sector-hit-by-russian-ban/>> [Accessed 28 Apr. 2016].

Færgeman, T., 2016. Industrisvin kan godt være bæredygtige. *Politiken*, 13 Feb., p.12.

Følg, M.L., 2016. Det storstilede staldprojekt 'Månegrisen' står (stadig) solidt plantet på Jorden. *Ingeniøren*. [online] 22 Apr. Available at:
<<https://ing.dk/artikel/det-storstilede-staldprojekt-manegrisen-star-stadig-solidt-plantet-pa-jorden-183635>>.

Gamborg, C. and Sandøe, P., 2005. Sustainability in farm animal breeding: a review. *Livestock Production Science*, [online] 92(3), pp.221–231. Available at:
<<http://www.sciencedirect.com/science/article/pii/S0301622604001666>>
[Accessed 16 May 2016].

Geels, F.W., 2009. Foundational ontologies and multi-paradigm analysis, applied to the socio-technical transition from mixed farming to intensive pig husbandry (1930–1980). *Technology Analysis & Strategic Management*, [online] 21(7), pp.805–832. Available at:
<<http://www.tandfonline.com/doi/abs/10.1080/09537320903182280>>.

Geels, F.W., 2010. Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research Policy*, [online] 39(4), pp.495–510. Available at:
<<http://www.sciencedirect.com/science/article/pii/S0048733310000363>>
[Accessed 9 Jul. 2014].

Geels, F.W. and Schot, J., 2007. Typology of sociotechnical transition pathways. *Research Policy*, [online] 36(3), pp.399–417. Available at: <<http://www.sciencedirect.com/science/article/pii/S0048733307000248>> [Accessed 9 Jul. 2014].

Geels, F.W. and Verhees, B., 2011. Cultural legitimacy and framing struggles in innovation journeys: A cultural-performative perspective and a case study of Dutch nuclear energy (1945–1986). *Technological Forecasting and Social Change*, [online] 78(6), pp.910–930. Available at: <<http://www.sciencedirect.com/science/article/pii/S0040162510002878>> [Accessed 16 May 2016].

Geels, F.W., McMeekin, A., Mylan, J. and Southerton, D., 2015. A critical appraisal of Sustainable Consumption and Production research: The reformist, revolutionary and reconfiguration positions. *Global Environmental Change*, [online] 34, pp.1–12. Available at: <<http://www.sciencedirect.com/science/article/pii/S0959378015000813>> [Accessed 22 Apr. 2016].

Gjerding, M.R., 2016. Kronik : Landbruget skal respektere naturens grænser. *Politiken*, 4 Apr., p.5.

Gjerris, M., 2016. Debat : Det nye mærke til svin er en gave til hykleriske forbrugere. *Politiken*. 20 Mar.

Hækkerup, K., 2016. *Jeg vil have stoltheden over dansk landbrug tilbage*. [online] B.dk. Available at: <<http://www.b.dk/kronikker/jeg-vil-have-stoltheden-over-dansk-landbrug-tilbage>>.

Hansen, K., 2015. *DN mener : Færre svin er vejen frem*. [online] Gylle.dk. Available at: <<http://gylle.dk/dn-mener-faerre-svin-er-vejen-frem/>>.

Haugegaard, J., 2016. Debat : Dyrevelfærd i økologisk produktion ? *Jyllands-Posten*. 2 Feb.

Holm, J., 2015. Film gør op med fordomme om økologi. *Nordvestnyt Holbæk/Odsherred*. 20 Aug.

Hogan, P., 2016. Speaking Points for Commissioner Hogan at COMAGRI 7 March 2016, Strasbourg. Landbrug og Fødevarer, 2014. *Svineproduktion i Danmark*. [online] Available at: <<http://www.lf.dk/lf/Viden/om/Landbrugsproduktion/Husdyr/Svin>> [Accessed 28 Apr. 2016].

Jessen, P., 2015. Kik ud på sovannen. *Herning Bladet*. 27 May.

- Kongsbak, L., 2015. *Blogindlæg : Bæredygtig produktion baseret på genom-designede dyr , planter og mikroorganismer*. [online] Ingeniøren. Available at: <<https://ing.dk/blog/baeredygtig-produktion-baseret-paa-genom-designede-dyr-planter-og-mikroorganismer-176463>>.
- Krystallis, A., de Barcellos, M.D., Kügler, J.O., Verbeke, W. and Grunert, K.G., 2009. Attitudes of European citizens towards pig production systems. *Livestock Science*, [online] 126(1-3), pp.46–56. Available at: <<http://www.sciencedirect.com/science/article/pii/S1871141309002066>> [Accessed 17 May 2016].
- Landbrug og Fødevarer, 2014. *Svineproduktion i Danmark*. [online] Available at: <[http://www.lf.dk/lf/Viden om/Landbrugsproduktion/Husdyr/Svin](http://www.lf.dk/lf/Viden%20om/Landbrugsproduktion/Husdyr/Svin)> [Accessed 28 Apr. 2016].
- Landbrug Øst, 2016. Om Økologi. *Landbrug Øst*, [online] 26 Jan., p.10. Available at: <<http://www.lf.dk/viden-om/oekologi/om-okologi>>.
- Lange, J., 2016. Hvad skal der blive af den danske landbrug?
- Lange, V., 2016. Bæredygtige svin ? *Fyens Stiftstidende*, 23 Feb., p.27.
- Langeveld, H. and Röling, N.G., 2006. *Changing European Farming Systems for a Better Future: New Visions for Rural Areas*. [online] Wageningen Academic Pub. Available at: <<https://books.google.com/books?id=72A0jIRBeIMC&pgis=1>> [Accessed 16 May 2016].
- Gylle.dk. [online] 1 Mar. Available at: <<http://gylle.dk/hvad-skal-der-blive-af-dansk-landbrug/>>. Lange, V., 2016. Bæredygtige svin ? *Fyens Stiftstidende*, 23 Feb., p.27.
- Mortensen, H.Ø., 2016. *Dansk landbrug er nået til en skillevej*. [online] KritiskDebat.dk. Available at: <http://kritiskdebat.dk/articles.php?article_id=1618>.
- Murphy, J. and Drexhage, D., 2012. Sustainable Development : From Brundtland to Rio 2012. *United Nations*, [online] (September 2010), p.26. Available at: <http://www.un.org/wcm/content/site/climatechange/pages/gsp/documents_1>.
- NaturErhvervstyrelsen, 2016. *Månegrisen*. [online] Available at: <<http://naturerhverv.dk/tvaergaende/maanegrisen/>> [Accessed 17 May 2016].
- Nøhr, K.G., 2016. *Landmand: Caffe latte-kritikerne ved ikke meget om muld - Politiken.dk*. [online] Politiken. Available at: <<http://politiken.dk/oekonomi/ECE3069874/landmand-caffe-latte-kritikerne-ved-ikke-meget-om-muld/>> [Accessed 2 Jun. 2016].

Okking, N., 2015. Sjællandsk svineproducent skaber historie. *Landbrugsnyt*. 30 Jun.

Park, N. and Allaby, V., 2013. *Conventional agriculture - Oxford Reference*. [online] Available at: <<http://www.oxfordreference.com/view/10.1093/acref/9780199641666.001.0001/acref-9780199641666-e-1695>> [Accessed 14 Apr. 2016].

Pietrangeli, T., 2015. Arla : Nuancer øko-debatten , tak. *Altinget.dk*. [online] 4 Dec. Available at: <<http://www.alinget.dk/foedevarer/artikel/arla-nuancer-oeko-debatten-tak>>.

Rasmussen, I.K., 2015. *Blogindlæg : Køb økologi og vær et godt menneske*. [online] B.dk. Available at: <<http://millennials.blogs.berlingske.dk/2015/11/08/kob-okologi-og-vaer-et-godt-menneske/>>.

Rasmussen, S.E., 2016. Debat : Flere bønder og mindre gylle. *Information*, 23 Feb., p.18.

Ritzau, 2016. *Bank: Hver tredje landmand er på randen af konkurs*. [online] Available at: <http://borsen.dk/nyheder/ritzau/artikel/3/2068056/bank_hver_tredje_landmand_er_pa_randen_af_konkurs.html> [Accessed 10 May 2016].

Rodrigo, P., 2015. *Danish pig farmers face difficult times*. [online] Global Meat News. Available at: <<http://www.globalmeatnews.com/Livestock/Danish-pig-farmers-face-difficult-times>> [Accessed 28 Apr. 2016].

Roundtown, 2016. *Perspektiv: Det udskældte kød - København, Denmark | Roundtown*. [online] Available at: <<https://roundtown.com/event/50279384/Perspektiv-Det-udsk%C3%A6ldte-k%C3%B8d-K%C3%B8benhavn-DK>> [Accessed 10 May 2016].

Schønning, A.D., 2015. Debat : Sag om gødningsregler. *Jyllands-Posten*, 22 Jun., p.23.

Smitt, L.B., 2015. Moderne landbrug og miljøhensyn er partnere -ikke modsætninger. *Landbrugsavisen*, 14 Aug., p.18.

Spaargaren, G., Oosterveer, P.J.M. and Loeber, A.M.C., 2012. *Food Practices in Transition - Changing Food Consumption, Retail and Production in the Age of Reflexive Modernity*. [online] New York: Routledge. Available at: <https://www.researchgate.net/publication/254834621_Food_Practices_in_Transition_-_Changing_Food_Consumption_Retail_and_Production_in_the_Age_of_Reflexive_Modernity> [Accessed 16 May 2016].

Sørensen, L.S., 2016. Vejen til mere robuste og effektive husdyr. *Dca.au.dk*. [online] 15 Apr. Available at: <<http://dca.au.dk/aktuelt/nyheder/vis/artikel/stort-projekt-vil-bane-vejen-til-mere-robuste-og-effektive-husdyr/>>.

Stage, M., 2016. Miljøministeren vil have mere viden om zink i grise , før der kommer en grænse. *Ingeniøren*. [online] 4 Feb. Available at: <<https://ing.dk/artikel/miljoeministeren-vil-have-mere-viden-om-zink-i-grise-foer-der-kommer-en-graense-181983>>.

Sutherland, L.-A. and Darnhofer, I., 2012. Of organic farmers and 'good farmers': Changing habitus in rural England. *Journal of Rural Studies*, [online] 28(3), pp.232–240. Available at: <<http://www.sciencedirect.com/science/article/pii/S0743016712000459>> [Accessed 10 Mar. 2016].

Thomsen, S., 2014. *Kenneth blev smittet med svine-MRSA: 'Folk reagerede som om, jeg havde pest' (Kenneth was infected with swine-MRSA: 'People reacted as if I had the plague')*. [online] Politiken.dk. Available at: <<http://politiken.dk/forbrugogliv/sundhedogmotion/sygdom/ECE2390156/kenneth-blev-smittet-med-svine-mrsa-folk-reagerede-som-om-jeg-havde-pest/>> [Accessed 9 May 2016].

Tittel, Y., 2016. Landmand sagde farvel til skiderikken. *Jv.dk*. [online] 30 Jan. Available at: <<http://www.jv.dk/artikel/2209308:Business--Landmand-sagde-farvel-til-skiderikken>>.

Transcribe, 2016. *Transcribe - online transcription and dictation software*. [online] 2016. Available at: <<https://transcribe.wreally.com/>> [Accessed 1 Jun. 2016].

Tværfagligt Fødevarerforum, 2016. *Natur & Landbrug - samspil eller modspil?* [online] Facebook. Available at: <<https://www.facebook.com/events/1210080662340246/>>.

UNCCC, 2015. *Paris Agreement Text*. [online] Available at: <http://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf>.

Vahle, G., 2016. Nærkontakten kræver millioner af års stabilitet. *Jyllands-Posten*. 1 Jan. Vrejlev, J.J., 2015. Økologisk blålys. *Nordjyske Stiftstidende*.

Videncenter for Svineproduktion, 2016. *Videncenter for Svineproduktion - faglig viden om svineproduktion*. [online] 2016. Available at: <<http://vsp.lf.dk/>> [Accessed 28 Apr. 2016].

Wilson, G.A., 2008. From 'weak' to 'strong' multifunctionality: Conceptualising farm-level multifunctional transitional pathways. *Journal of Rural Studies*, [online] 24(3), pp.367–383. Available at:

<<http://www.sciencedirect.com/science/article/pii/S0743016707000885>>
[Accessed 25 Jan. 2016].

Wilson, G.A. and Burton, R.J.F., 2015. 'Neo-productivist' agriculture: Spatio-temporal versus structuralist perspectives. *Journal of Rural Studies*, [online] 38, pp.52–64. Available at:
<<http://www.sciencedirect.com/science/article/pii/S0743016715000182>>
[Accessed 23 Feb. 2016].

Appendices

Appendix 1 - Maps

Initial map - messy map - march 2016

Topic: the introduction of the national agricultural policy in Denmark - landbrugspakke in mind

Human actors

Non-human actors

Discourses

Ministry of environment and food

Venstre

Media

Consumers

Voters

Communities

Landbrug & Fødevarer

Rural areas

Consultation

Decision power

Influence

Lobbying

Dialogue

Political parties

Farmer's unions

Growth

Priorities

Young farmers

Cooperative model

Network

Organisation

Income

Employment
Productivity
Ownership
Representation
Investment
Costs
Uncertainty
Monoculture
Farming as occupation
Part-time farming
Generation
Traditions
Knowledge
Prices
Biotech companies
Motivation
Attitude
Farm land
Debts
Governance
Education
Financial benefits
Instability
Technology
Purchasing power
Supermarkets
Financial resources
Subsidies
Food security
Market
Sustainability
Export market
Quality
Self-sufficiency
Food systems
Climate change
Natural resources
Future
Vision
National agricultural policy

CAP

short-term/long-term

Consequences

Agreement

Agroecology

Environment

Biodiversity

Conventional farming

Risk

Food safety

MRSA

Losses

Pollution

Animal welfare

Organic production

Paradigm

Ethics

Image

Climate-smart agriculture

Research

Limits

Production

Quotas

Regulations

Guidelines

Requirements

Regulate - de-regulate

Space: agriscape

This messy map was built at the beginning of my work on the master's thesis. During that period, I was exploring the topic of agriculture in Denmark in relation to the introduction of the landbrugspakke, and was influenced by my previous knowledge about food systems and issues being discussed in the media at the time.

Some of the reflections that were derived from it were the following:

- As agriculture is part of the food systems, the changes will affect other actors in the system
- The deep financial difficulties that are presently experienced by farmers - would the landbrugspakke solve or alleviate them?

- The context is uncertainty, of change - the direction chosen by the previous government is challenged;
 - There are issues influenced or created by modern agriculture: animal welfare, MRSA, climate change, pollution, food safety - how will they be approached with this new package in place? What are the priorities?
 - The situation may be different for farmers who have established their business a long time ago and those who have just started or taken over a farm;
 - This question is debated in the national media, but is mainly affecting businesses in rural areas;
 - Consumers may have a very different opinion about the introduction of this package from the ones of farmers, as their preoccupations, priorities and knowledge are different
 - There are different production systems that have different and they may be affected differently by this new national policy - there could potentially be winners and losers
 - The discussion about the necessity and goals of this policy package revealed how opposed different paradigms behind the different modes of productions could be, and the impossibility to find agreements regarding some concepts such as animal welfare or productivity
-

Second map - messy map - march 2016

Topic: conventional pig farmers in Denmark / sustainability

Human actors

Non-human actors

Discourses

Conventional pig farmers

Organic pig farmers

Free-range pig farmers

Ministry of food and environment

Consumers in Denmark

Consumers abroad

Environmental NGOs

Animal welfare NGOs

Citizens

Neighbours to the farms

Rural community

Slaughterhouses

Professional network

Researchers

Farm

Barn

Pigs

Pork meat

Sustainability

Feed

Import of feed

Space allocated for the pigs

Technology

Controls

Quality

Markets

Exports

Crisis

China

UK

Financial incentives

Costs

Diseases

MRSA

Outbreak

Risk for public health

Epizootics

Loans

Price variations

Continuity

Animal welfare

Productivity

Volume of production

Intensive

Knowledge

Education

Slaughterhouses

Antibiotics

Business

Veterinarian

Growth

Conversion to organic
Comparison
Bad image in the media
Profit
Environment
Respect of environment
Damaging the environment
Priorities
Pressure
Debts
Needs
Future
Attitudes
Transition
Stability
Family business
Community
Older generations of pig farmers
Young pig farmers
Transport of animals to the slaughterhouse
National market/European/international market
Former success story in Denmark
Uncertain future
Danish food culture
Climate change
The impact of meat consumption on the climate
Preference for free-roaming pigs
Success of organic agriculture
Pig production in other countries
EU policies
National policies
Influence of government shifts

This messy map was developed when I realised that there was a sector that was really struggling in the Danish agricultural landscape, as pig production used to be a leading sector in Denmark some decades ago and is now regarded as a nuisance by the population due to issues such as the MRSA, animal welfare and sustainability, and is also in decline economically.

Some of the reflections that were derived from this messy map were the following:

- In Denmark, organic is seen as the ideal type of production, but conventional pork meat is still perceived as a quality meat in other countries such as the UK or China
- What consumers criticise the conventional pig production for is the fact that pigs do not go outside the barn and are kept in narrow spaces without limited possibility for movements, the use of antibiotics that they judge excessive and at the source of the MRSA issue, and the nature of the feed given to them, that is often imported from South America (and can be GMOs, but not so many are aware of it)
- Many pig farmers are facing debts and are therefore forced to keep their business running in one way or another, and may not be able to choose what kind of production they want to carry
- Pig production faces an uncertain future due to possible changes originating from concerns about the impact of meat on climate change, and a change in the Danish food culture, which may be translated in a decade by a decrease in consumption
- At the same time consumption of meat in BRIC countries increases rapidly to match the more developed ones and therefore represent potential market growth.

Third map: Ordered map

Topic: conventional pig farmers in Denmark / sustainability

Individual human elements/actors

Ministry of food and environment

Landbrug & Fødevarer

Danish Crown

Collective human elements/actors

Conventional pig farmers

Organic pig farmers

Free-range pig farmers

Ministry of food and environment

Farmers' unions

Landbrug & Fødevarer

Consumers in Denmark

Consumers abroad

Environmental NGOs

Animal welfare NGOs

Citizens

Neighbours to the farms
Rural community
Slaughterhouses
Professional network
Researchers
Veterinarian
Older generations of pig farmers
Young pig farmers
Supermarkets
Butchers
Meat processing companies
Customers

Discursive constructions of individual and/or collective human actors

Sustainability
Quality
Crisis
Risk for public health
Continuity
Animal welfare
Productivity
Intensive
Growth
Conversion to organic
Bad image in the media
Respect of environment
Damaging the environment
Priorities
Pressure
Efficiency
Transition
Stability
Former success story in Denmark
Uncertain future
Danish food culture
Climate change
The impact of meat consumption on the climate
Preference for free-roaming pigs
Success of organic agriculture
Pig production in other countries

High Danish standards of pig production

Political/economic elements

Government

Ministry of food and environment

Farmers' unions

Landbrug & Fødevarer

Environmental NGOs

Animal welfare NGOs

Banks

Costs

China

UK

Export countries

Loans

Debts

Price variations

Distribution system

Profit

Exports

Markets

Volume of production

Productivity

Financial incentives

Business

Growth

National market/European/international market

EU policies

National policies

Influence of government shifts

Temporal elements

MRSA

Price variations

Bad image in the media

Crisis

Transition

Stability

Continuity

Productivity

Climate change

Former success story in Denmark

Uncertain future

Major issues/debates (usually contested)

Profit

Crisis

Environment

Respect of environment

Damaging the environment

Growth

MRSA

Outbreak

Risk for public health

Intensive *production*

Transport of animals to the slaughterhouse

Danish food culture

Climate change

The impact of meat consumption on the climate

Preference for free-roaming pigs

Non-human elements/actants

Fresh meat

Transformed pork meat

Technology

Tools

Pig breeding knowledge

Feed knowledge

Regulation knowledge

Business management knowledge

Communication technology

Farm

Barn

Pigs

Pork meat

Feed

China

UK

Epizootics

Costs

Diseases

MRSA

Outbreak

Loans

Price variations

Debts

Nature

Slaughterhouses

Antibiotics

Implicated/silent actors/actants

Danish consumers who buy conventional pork meat

Discursive construction of nonhuman actants

Sustainability

Import of feed

Space allocated for the pigs

Technology

Controls

Quality

Markets

Exports

Financial incentives

Risk for public health

Animal welfare

Productivity

Volume of production

Knowledge

Education

Business

Growth

Profit

Needs

Transport of animals to the slaughterhouse

National market/European/international market

Former success story in Denmark

Uncertain future

Sociocultural / symbolic elements

Organic /free-range label

Animal welfare label

Denmark

The Danish nature

The smell of pig farms

Denmark as an organic nation

Spatial elements

Farm

Barn

Food system

Space allocated for the pigs

Volume of production

Markets

Slaughterhouses

Transport of animals to the slaughterhouse

National market/European/international market

China

UK

Denmark

Other export countries

Supermarket

Butcher

Transformation plant

Neighbours to the farms

Rural community

Customers

Epizootics

Environment

Nature

Climate change

EU policies

National policies

Related discourses (historical, narrative, and/or visual)

Organic /free-range label

Animal welfare label

Bad image in the media

Media

Animal welfare

Danish food culture

Climate change

The impact of meat consumption on the climate

Preference for free-roaming pigs

Success of organic agriculture

Free-roaming pigs

Happy pigs

The Danish nature

The smell of pig farms

Animal abuse pictures and videos

Transition

Change

Denmark as an organic nation

Greedy farmers

Other kinds of elements

-

This ordered map was developed to categorise the results of the messy map and to potentially discover more elements during this process, as their organisation can create new thoughts regarding the situation (Clarke, 2005, p.89).

Some of the reflections that were derived from this ordered map were the following:

- Danish conventional pig production relies on a specific system of distribution where meat processing companies such as Danish Crown play an important role, and its meat is sold to consumers, at least in Denmark, through supermarkets and butchers as either fresh meat cuts or transformed products such as bacon or, liver pâté - It has its specific customers, and many of them are located in other countries.
- What the Danish conventional pig farming has a reputation for is its efficiency and its relatively high standards of production when it comes to animal welfare and meat quality, but it has a bad image when compared to organic or free-range production
- The present period combines several issues: an economic crisis, the MRSA contamination and the question of how sustainable and respectful of animal welfare conventional farming is compared to the growing organic production. All

those issues are intensely present in the media. It seems that this system of production does not fit with what Danish consumers, at least those who are represented in the media, want, because at the moment a lot of emphasis is put on the importance of animals being able to roam freely outside.

Fourth map: Ordered map - added elements post interview and farm visit

Topic: conventional pig farmers in Denmark / sustainability

Individual human elements/actors

Ministry of food and environment

Landbrug & Fødevarer

Danish Crown

Individual farmers

Anders Fogh Rasmussen (former prime minister)

Eva Kjær Hansen

Collective human elements/actors

Conventional pig farmers

Organic pig farmers

Free-range pig farmers

Ministry of food and environment

Farmers' unions

Landbrug & Fødevarer

Consumers in Denmark

Consumers abroad

Environmental NGOs

Animal welfare NGOs

Citizens

Neighbours to the farms

Rural community

Slaughterhouses

Professional network

Researchers

Veterinarian - regular & control

Older generations of pig farmers

Young pig farmers

Supermarkets

Butchers

Meat processing companies

Customers

ERFA groups

Families

Employees on the farms

Trainees

Advisors

Accountants

Farm managers

Discursive constructions of individual and/or collective human actors

Sustainability

Quality

Crisis

Risk for public health

Continuity

Animal welfare

Productivity

Intensive

Growth

Conversion to organic

Bad image in the media

Respect of environment

Damaging the environment

Priorities

Pressure

Efficiency

Transition

Stability

Former success story in Denmark

Uncertain future

Danish food culture

Climate change

The impact of meat consumption on the climate

Preference for free-roaming pigs

Success of organic agriculture

Pig production in other countries

High Danish standards of pig production

The pleasure of everyday work at the farm

Profit

Economical pressure
Producing according to a system
Competition
Recruiting competent employees

Political/economic elements

Government

Ministry of food and environment

Farmers' unions

Landbrug & Fødevarer

Environmental NGOs

Animal welfare NGOs

Banks

Anders Fogh Rasmussen

Eva Kjær Hansen

Accountants

Costs

China

UK

Export countries

Loans

Debts

Price variations

Distribution system

The existing housing structure

Export fees

Taxes on electricity, antibiotics, gas

Profit

Exports

Markets

Volume of production

Productivity

Financial incentives

Business

Growth

National market/European/international market

EU policies

National policies

Influence of government shifts

Competition

Tough regulations

Export production

Temporal elements

MRSA

Price variations

Synthetic meat

The housing unit

Bad image in the media

Crisis

Transition

Stability

Continuity

Productivity

Climate change

Former success story in Denmark

Uncertain future

The farm's rhythm

Changes in food habits

Major issues/debates (usually contested)

Profit

Crisis

Environment

Respect of environment

Damaging the environment

Growth

MRSA

Outbreak

Risk for public health

Intensive *production*

Transport of animals to the slaughterhouse

Danish food culture

Climate change

The impact of meat consumption on the climate

Preference for free-roaming pigs

The legitimacy of organic

The use of antibiotics

The seriousness of journalists

Non-human elements/actants

Fresh meat

Transformed pork meat

Technology

Tools

Pig breeding knowledge

Feed knowledge

Regulation knowledge

Business management knowledge

Communication technology

Farm

Housing unit

Pigs

Pork meat

Feed

China

UK

Epizootics

Costs

Diseases

MRSA

Outbreak

Loans

Price variations

Debts

Nature

Slaughterhouses

Antibiotics

Manure

Danish feed

Soy

Enzymes

Implicated/silent actors/actants

Danish consumers who buy conventional pork meat

Discursive construction of nonhuman actants

Sustainability

Import of feed

Space allocated for the pigs

Technology

Controls

Quality

Markets

Exports

Financial incentives

Risk for public health

Animal welfare

Productivity

Volume of production

Knowledge

Education

Business

Growth

Profit

Needs

Transport of animals to the slaughterhouse

National market/European/international market

Former success story in Denmark

Uncertain future

Weaning

Sociocultural / symbolic elements

Organic /free-range label

Animal welfare label

Denmark

The Danish nature

The smell of pig farms

Pictures of sick/dead animals

Denmark as an organic nation

Bread-winners

Scapegoat

Spatial elements

Farm

Housing units
Food system
Space allocated for the pigs
Volume of production
Markets
Slaughterhouses
Transport of animals to the slaughterhouse
National market/European/international market
China
UK
Denmark
Other export countries
Supermarket
Butcher
Transformation plant
Neighbours to the farms
Rural community
Customers
Epizootics
Environment
Nature
Climate change
EU policies
National policies

Related discourses (historical, narrative, and/or visual)

Organic /free-range label

Animal welfare label

Bad image in the media

Media

Animal welfare

Danish food culture

Climate change

The impact of meat consumption on the climate

Preference for free-roaming pigs

Success of organic agriculture

Free-roaming pigs

Happy pigs

The Danish nature

The smell of pig farms

Animal abuse pictures and videos

Transition

Change

Denmark as an organic nation

Greedy farmers

Additions were made to this map according to notes the interviews and the visit of a farm.

Appendix 2 - Primo search

Result of the search for "pig production" AND "denmark" in the AAU Primo database among publications from the last 10 years

Refine Search

Include	Exclude	Journal Title
<input type="checkbox"/>	<input type="checkbox"/>	Livestock science (40)
<input type="checkbox"/>	<input type="checkbox"/>	Preventive Veterinary Medicine (25)
<input type="checkbox"/>	<input type="checkbox"/>	Biosystems Engineering (19)
<input type="checkbox"/>	<input type="checkbox"/>	Acta Veterinaria Scandinavica (15)
<input type="checkbox"/>	<input type="checkbox"/>	Farmers Weekly (14)
<input type="checkbox"/>	<input type="checkbox"/>	Animal (12)
<input type="checkbox"/>	<input type="checkbox"/>	Journal of Environmental Management (12)
<input type="checkbox"/>	<input type="checkbox"/>	Veterinary Microbiology (11)
<input type="checkbox"/>	<input type="checkbox"/>	Veterinary Parasitology (11)
<input type="checkbox"/>	<input type="checkbox"/>	Journal of Cleaner Production (9)
<input type="checkbox"/>	<input type="checkbox"/>	Journal of Agricultural and Environmental Ethics (9)
<input type="checkbox"/>	<input type="checkbox"/>	Agriculture, Ecosystems and Environment (6)
<input type="checkbox"/>	<input type="checkbox"/>	Theriogenology (6)
<input type="checkbox"/>	<input type="checkbox"/>	Epidemiology and Infection (6)
<input type="checkbox"/>	<input type="checkbox"/>	Meat Science (5)
<input type="checkbox"/>	<input type="checkbox"/>	Applied Animal Behaviour Science (4)
<input type="checkbox"/>	<input type="checkbox"/>	Applied Energy (3)
<input type="checkbox"/>	<input type="checkbox"/>	Animal Genetics (3)

Appendix 3 - Analysis of content from articles published in the Danish national written media - data collection & coding of data

1. Performing a search among all media sources available in the database Infomedia, accessible through Aalborg University Library.

Key words:

konventionel, konventionelle, moderne, modern (at least one of the words)

AND

svineproduktion, svineproducenter, svin, gris, grise, griseproduktion, svineavler, griseavler (at least one of the words)

AND

Bæredygtighed, bæredygtig (at least one of the words)

Publication period: 18/05-2015 - 18/05/2016

The screenshot shows the Infomedia search interface. At the top, there's a header with 'INFOMEDIA' and a navigation bar with links like 'Hjælp', 'Rapport', 'Aalborg Universitets Bibliotek', and 'Afslut'. Below the header, there are tabs for 'Søgning', 'Udvidet søgning', and 'Ekspertsøgning'. The main search area has three input fields for search terms: 'svineproduktion, svineproducenter, svin, gris, grise, griseproduktion, svine', 'konventionel, konventionelle, moderne, modern', and 'bæredygtighed, bæredygtig'. Each field has a 'Mindst et af ordene' and 'I hele artiklen' dropdown menu. A 'Søg' button is at the bottom right. Below the search area, there are buttons for 'Afmarkér alle', 'Vis alle artikler', and 'Print'. The search results show 355 results. Three results are visible: 'Ritzau Plus: Lone vil være den ny tids landmand', 'Kik ud på sovannen', and 'Dansk landbrug er nået til en skillevej'. Each result has a checkbox, a title, a brief description, and a word count. On the right side, there's a 'Præciser din søgning' section with filters for 'KILDE' (All media, Landsdækkende dagbl., Regionale dagblade, Lokale ugeaviser, Fagblade og magasin., Nyhedsbureauer, Webkilder) and 'PERIODE' (18-05-2015 - 18-05-2016, I dag, Seneste 7 dage, Seneste 30 dage).

Justification for choosing the written media: possibility to access many different sources, easy to code.

It could have been possible to include content from Twitter and Facebook by searching for specific tags, but the arguments presented on these platforms may not have been as developed as in newspapers, magazines and blogs due to the different format (e.g. character limit on Twitter) and therefore it would have been more difficult to interpret the intention of the sender.

1. Examining the search results

355 items selected by the Infomedia search engine.

- First selection based on review of content before download of articles: 276 items excluded

Excluded redundant articles, articles with only excerpts available, articles where the main topic was not agriculture or sustainability

- Refining the selection: reviewing the articles that have been downloaded: 8 items excluded

Excluded further redundant articles and articles where the main topic was not agriculture or sustainability

Remaining items: 71.

1. Uploading the articles to Mendeley

This step facilitated the referencing. Examining the articles while editing the reference information eliminated 30 articles that were not mentioning conventional pig production directly or in the context of sustainable production / the future of agriculture.

1. Coding of the articles

Focusing on four main themes:

- actors present in the debate (coded in yellow)
- Positive image, solutions regarding sustainability in conventional pig production (green)
- Negative image, sustainability problems caused by conventional pig production or to which it contributes (red)
- Comparison of conventional and organic pig production (purple)

Mendeley Desktop

http://apps.infomedia.dk.zorac.aau.dk/Ms3E/ShowArticle.aspx?outputFormat=Full&Duid=

MIDTJYLLANDSAVIS

Lone vil være den ny tids landmand

Midtjyllands Avis | 07.11.2015 | Side 37 | 484 ord | Artikel-id: e54d7429 | Original artikel

En af landbrugets skarpeste kritikere er Lone Vitus kaldt, for hun er groet ud af det konventionelle landbrug. Men da det blev for meget, gik hun sin egen vej

af SUSANNE A. ANDERSEN redaktion@m-jylland.dk

PRIS Lone Vitus har altid villet være landmand. Men turen er gået fra traditionel svineavl og medlem af Danish Crowns repræsentantskab til økologisk kritiker af fødevarerindustri, sprøjtegift og ringe dyrevelfærd.

På tirsdag får hun højskoleprisen Den Gyldne Grundtvig på Odder Højskole for sin engagerede formidling af bæredygtighed og grøn omstilling på folkelig og vedkommende facon.

-Hvad fik dig til at lægge din gård radikalt om? -Da jeg endelig blev landmand lidt ad omveje, var jeg i starten bare begejstret.

Men jeg indså, at uanset hvor meget umage jeg gjorde mig, ville det aldrig i en konventionel stald være muligt at give dyrene et ordentligt liv. Jeg kunne ikke blive ved at sprede gift og kunstgødning på jorden. Jeg besluttede simpelthen ikke at gøre det mere. Også selvom vi ikke vidste, hvor pønnenene så skulle komme fra.

Details Notes Contents

Lone vil være den ny tids landmand

Authors: S. Andersen

View research catalog entry for this paper

Publication: *Midtjyllands Avis*

Year: 2015

Pages: 37

Abstract:
interview of Lone Vitus, a former engaged conventional pig breeder who is now converted to organic agriculture, and has recently received a prize for her way of communicating about sustainability and green conversion. She does not criticize the farmers, but the system behi...

Tags:
discourse analysis; local

Author Keywords:

City:

Day:
7

Month:

Writing down the context of the quotes in each document in Mendeley with a brief summary of who expresses these views and what the general topic of the article is about

Then, creating a document with the reference, and the quotes.

In this document, another round of coding took place, selecting parts of the quotes that addressed a specific topic.

The different quotes were then arranged in clusters with similar themes and translated to english.

Bech, 2015. *Organictoday.dk*

Article questioning if the present model of agriculture is really a good business in Dk considering its negative impacts on society, animal and the environment

I flere år har man med stadig større uro kunnet følge udviklingen af den smitsomme svinebakterie MRSA CC398, som nu har karakter af en egentlig epidemi med eksponentiel karakter. Denne svinebakterie smitter ikke bare mellem svin, men overføres nu også fra svin til mennesker og mennesker imellem. Dansk svineproduktion ønsker ikke at gøre noget ved problemet, da det ikke gør grisene syge men -kun- mennesker.

Ekstra Bladet, 2016. *Ekstra Bladet*

Ingeniøren meddeler: 'Økologiske grise går stort set fri af den epidemi af antibiotika-resistente bakterier, der hærger de konventionelle landmænds svinestalde. Nye data fra Fødevarestyrelsen viser, at der kun er MRSA i fire ud af 65 økologiske svinebrug. Det skal sammenlignes med, at den resistente svine-variant af bakterien har inficeret 68 procent af de konventionelt opdrættede slagtesvin.' Nu venter vi så på Bæredygtigt Landbrug, der vil råbe, at det er det rene sludder, og at forskerne ikke har fattet en brik.

Stage, 2016. - *Ingeniøren*

Then minister of food and environment Eva Kjer Hansen's strategy regarding the worrying amounts of zinc released in the Danish soil through pig manure.

For meget zink i 45 procent af markerne

Følger på siden for at holde sig opdateret på de seneste nyheder

Sandrine L.
01:16 Today

MRSA
public health issue

Resolve

Sandrine L.
01:11 Today

MRSA

Resolve

Source	Discourses Purple: Comparison between conventional and organic pig production (21) Green: Positive image of conventional pig production, solutions regarding sustainability in conventional pig production (8) Red: Negative, problematic image of pig production, sustainability problems caused by conventional pig production or to which it contributes (22)								Actors Black: neutral, unclear position Red: critical about conventional pig farming Green: supporter of conventional pig farming in italics: mentioned actors, not expressing views
National newspapers (17)									
Jyllands-Posten (5)									Ida Auken from De Radikale Venstre Carl Bloch, Danish citizen J. Haugegaard, Veterinarian Anders Dahl Schøning, a Danish citizen Casper Andersen, researcher in history of science and technology at AU
Politiken (4)									Jesper Bak, advisor and researcher in Bioscience at AU DN Alternativet Chefen for de lokale varer i Coop, Christian Christensen Henrik Mortensen, formand for Danske Svineproducenter M. R. Gjerding from Enhedslisten M. Gjerris, researcher in ethics
Information (2)									Jan Holm Ingemann, agricultural economist, AAU Søren Kjeldsen- Kragh, professor emeritus, institute of food economics, KU Martin Merrild, Chairman of Landbrug & Fødevarer S.E. Rasmussen from Enhedslisten
Berlingske (2)									K. Hækkerup, CEO of the Danish Agriculture and Food Council I.K. Rasmussen, organisation Tværfagligt Fødevarerforum.
Ekstra Bladet (1)									<i>Fødevarestyrelsen</i> <i>Bæredygtigt Landbrug</i>

Weekendavisen (1)								Representatives of the Foreningen for Reduceret jordbearbejdning i Danmark
Kristeligt Dagblad (1)								Representatives of the Foreningen for Reduceret jordbearbejdning i Danmark
BT(1)								M.R. Gjerding, Enhedslisten
Local/Regional newspapers (8)								
Jv.dk (1)								Chriss Headeger, organic pig producer
Nordjyske Stiftstidende (1)								Danish citizen, Jens Jørgen Pedersen Erik Thyge Nielsen from Enhedslisten
Fyens Stiftstidende (1)								Vilja Lange, Danish citizen
Herning Bladet (1)								Erik Nielsen, an organic producer
Nordvestnyt (1)								video production company owner Bent Yde Jørgensen
Fyns Amts Avis (1)								Hans Jakob Clausen, a farmer
Midtjyllands Avis (1)								Lone Vitus, a former engaged conventional pig breeder who is now converted to organic agriculture
Horsens Folkeblad (1)								Jacob Justensen, farmer and member of Bæredygtig Landbrug
Profession-oriented newspapers & magazines (11)								
Ingeniøren (3)								Michael Søgaard Jørgensen from AAU Lars Kongsbak, entrepreneur specialised in genomics minister of food and environment Eva Kjer Hansen
Landbrugsavisen (1)								A Danish company Axzon A/ S
Landbrugsnyt (1)								Danish Crown Kim Kjær Knudsen
Landbrug Øst (1)								N/A

Effektivt Landbrug (1)									Ole Wehlast, Fødevareforbundet NNF, which is the slaughterhouse employees union
Maskinbladet.dk (1)									Hans Dahm, Foreningen for Reduceret jordbearbejdning i Danmark
Organictoday.dk (1)									Gustav Bech, envir. journalist
Økologisk (1)									Lone Vitus, former conventional pig breeder and now organic farmer
Altinget.dk (1)									Jesper Bak, advisor and researcher in Bioscience at AU
Other (5)									
Gylle.dk (2)									DN John Lange, Danish citizen
Dca.au.dk (1)									National Center for Food and Agriculture
KritiskDebat.dk (1)									Holger Øster Mortensen, Danish citizen
Concito.dk (1)									T. Chrintz, chief knowledge Officer of danish think tank Concito

Appendix 4 - Interview guide v1

Indledende spørgsmål

Kunne du introducere dig selv kort?

Hvad producerer du på gården?

Hvor stor er din gård? Hvordan ville du definere den type produktion, der foregår?

Hvor mange medarbejdere arbejder på din gård?

Hvad er de vigtigste opgaver, du udfører hver dag? (Under anvendelse af hvilket rum, værktøjer, metoder)

Hvem er de personer/organisationer, du er i kontakt med hver dag?

Svineavl som et fag

Hvornår startede du / overtog du gården?

Hvad motiverede dig til at være svineavler?

Hvordan er du blevet svineavler?

Hvorfor valgte du konventionel produktion?

Hvordan er du tilfreds med din situation og hvad du hidtil har opnået?

Produktionen

Hvad ville du sige er særlig ved din gård / produktion?

Hvad sker der med grisene, du sælger?

Hvor bliver kødet solgt: i Danmark eller i udlandet - hvis udlandet, hvor?

Hvad vil du sige er det bedste ved din produktion?

Hvor vil du sige, at der er plads til forbedring af din produktion?

Hvis produktionen bliver eksporteret: Hvor tilfreds er du med at eksportere din produktion - vil du gerne producere for lokalsamfundet, det danske marked?

Hvad er de største problemer, du møder i dag i forbindelse med arbejdet med konventionel svineproduktion?

Landbrugsfællesskabet

Hvem samarbejder du med i landbruget? Hvordan interagerer du med dem? Er det tilfredsstillende for dig?

Hvilke personer og institutioner er vigtige for dig? Hvem giver dig støtte, og hvem hindrer din succes?

Efter din mening, hvem/ hvad giver et godt billede af det konventionelle landbrug?

Efter din mening, hvem/ hvad giver et dårligt billede af det konventionelle landbrug?

Er der konkurrence mellem de danske konventionelle landmænd? Og hvis ja, hvordan manifesterer det sig?

Hvordan vil du sammenligne din praksis med hvad andre europæiske svineproducenter gør?

Hvor meget har andre svineproducenter indflydelse på din praksis?

Hvad synes du om økologiske og frilands-svineproducenter? Har du nogensinde overvejet at blive en?

Som ung landmand, føler du dig lyttet til blandt ligemænd? Hvad synes du om de tidligere generationer, som stadig driver landbrug?

Indflydelse fra de danske medier og forbrugere

Hvordan opfatter du billedet af de konventionelle svineproducenter i dag i Danmark?

Hvad er din reaktion, når du hører eller læser negative historier om konventionelle svineproduktion i medierne?

Hvordan passer de mange emner som er vigtige for forbrugerne i dag med dine? fx hvor vigtigt er dyrevelfærd / miljømæssig bæredygtighed / kvalitet for dig?

Hvordan påvirker den offentlige mening dit arbejde, hvis den gør?

Indflydelse fra europæiske & nationale politikker

Har du noget papirarbejde eller regler, du skal følge, der kommer fra EU?

Har du nogen mening om indvirkningen af EU-regler på dit arbejde?

Hvad ved du om indholdet af den nye danske landbrugspakke og hvordan det kommer til at påvirke dit arbejde?

Har du nogen mening om dens indflydelse på dit arbejde?

Føler du dig støttet eller presset af disse politikker? Hvorfor?

Hvad ville du synes om at producere i udlandet, hvor det kunne være mere rentabelt og mindre reguleret?

Fremtiden

Hvad tænker du om den generelle situation nu for svineproduktion?

Hvad forventer du, der vil ske i de kommende år?

Efter din mening, hvordan vil fremtiden for konventionel svineproduktion blive, hvis tingene fortsætter, som de er i dag?

Hvad har du brug for i form af hjælp, hvis nogen? Og hvad ville det hjælpe dig med at opnå?

Hvad ser du, som hjælper / forhindrer dig i at virkeliggøre din vision for svineproduktion?

Sidste spørgsmål

Har du flere kommentarer, noget du vil gerne sige?

Appendix 5 - Interview guide v2

Indledende spørgsmål

Kunne du kort præsentere dig selv og dit arbejde?

Hvad producerer du på gården?

Hvor stor er din gård? Hvordan ville du definere den type produktion, der foregår?

Hvor mange medarbejdere arbejder på din gård?

Hvad er de vigtigste opgaver, du udfører hver dag?

Svineavl som et fag

Hvornår startede du / overtog du gården?

Hvad motiverede dig til at være svineavler?

Hvordan er du blevet svineavler?

Hvorfor valgte du konventionel produktion?

Hvordan er du tilfreds med din situation og hvad du hidtil har opnået?

Produktionen

Hvad ville du sige er særlig ved din gård / produktion?

Hvad sker der med grisene, du sælger? Hvor bliver kødet solgt: i Danmark eller i udlandet - hvis udlandet, hvor?

Hvis produktionen bliver eksporteret: Hvor tilfreds er du med at eksportere din produktion - vil du gerne producere for lokalsamfundet, det danske marked?

Hvad vil du sige er det bedste ved din produktion?

Hvor vil du sige, at der er plads til forbedring af din produktion?

Hvad er de største problemer, du møder i dag i forbindelse med arbejdet med konventionel svineproduktion?

Har du nogen mening om indvirkningen af EU-regler på dit arbejde?

Vedr. den nye danske landbrugspakke, hvordan det kommer til at påvirke dit arbejde?

De andre svineproducenter

Hvilke personer og institutioner er vigtige for dig i landbrugsfællesskabet? Hvem giver dig støtte, og hvem hindrer din succes?

Efter din mening, hvem/ hvad giver et godt billede af det konventionelle landbrug?

Efter din mening, hvem/ hvad giver et dårligt billede af det konventionelle landbrug?

Hvordan vil du sammenligne din praksis med hvad danske svineproducenter gør?

Hvordan vil du sammenligne din praksis med hvad andre europæiske svineproducenter gør?

Hvor meget har andre svineproducenter indflydelse på din praksis?

Hvad synes du om økologiske og frilands-svineproducenter? Har du nogensinde overvejet at blive en?

Hvad synes du om de tidligere generationer af svineproducenter, som stadig driver landbrug?

Hvordan vil du definere forandringen mellem de tidligere generationer af svineproducenter og den nye, hvis du ser en?

De danske medier

Hvordan opfatter du billedet af de konventionelle svineproducenter i dag i Danmark?

Hvor vigtigt er hvad bliver skrevet/vist i medierne om den konventionelle svineproduktion for dig?

Hvad er din reaktion, når du hører eller læser negative historier om konventionelle svineproduktion i medierne?

Har du bemærket en udvikling af hvordan den konventionelle svineproducenter er repræsenteret i medierne, og hvis ja, hvilken?

De danske forbrugere

I din mening, hvor stor indflydelse har medierne på de danske forbrugere vedr. den konventionelle svineproduktion?

Hvordan passer de mange emner som er vigtige for forbrugerne i dag med dine? fx hvor vigtigt er dyrevelfærd / miljømæssig bæredygtighed / kvalitet for dig?

Hvor vigtigt er forbrugernes mening for dig?

Hvordan påvirker den offentlige mening dit arbejde, hvis den gør?

Et nyt billede

I din mening, hvad kunne man gøre for at ændre billedet af den konventionelle svineproducenter?

Hvem skulle være ansvarlig for at ændre billedet?

Fremtiden

Hvad tænker du om den generelle situation nu for svineproduktion?

Hvad forventer du, der vil ske i de kommende år?

Efter din mening, hvordan vil fremtiden for konventionel svineproduktion blive, hvis tingene fortsætter, som de er i dag?

Hvad har du brug for i form af hjælp, hvis nogen? Og hvad ville det hjælpe dig med at opnå?

Hvad ser du, som hjælper / forhindrer dig i at virkeliggøre din vision for svineproduktion?

Sidste spørgsmål

Har du flere kommentarer, noget du vil gerne sige?

Appendix 6 - Transcript examples

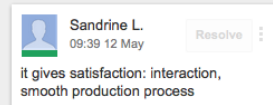
C: Men det er lidt af en svaghed, fordi mange af mine kollegaer, de har arbejdet meget seriøst med for eksempel griseproduktion i mange år. Og jeg har slet ikke arbejdet med grise mere end 3 måneder inden jeg kom hjem, så det er hvor jeg har selvfølgelig lavet min fejl, som jeg har også måttet betale for. Så det der med at prøve alt muligt, det er meget godt når man bliver inspireret, men det er også lidt noget skidt når man skal [inaudible] have ansvar for en griseproduktion.

S: Hvorfor – din far var allerede landmand – hvorfor vil du arbejde med grise?

C: Jeg valgte at arbejde med grise, fordi min far havde købt en grisegård. Og fordi han selv ikke kunne finde ud af at passe grise. Og fordi når man laver en generationskifte, så er det meget godt at fordele opgaverne. Det er svært at arbejde med sine forældre, og det er ekstra svært hvis man ikke har en klar ansvarsfordeling. Så derfor, valgte jeg at passe grise. Og det, jeg godt kan lidt med det at passe grise, at det er det samme hver uge. Og det man kan sige, at man kan gøre det bedre, bedre og bedre hver uge. Det er meget trygt, det er en helt lille verden, man kommer på arbejde, og når det bare spiller, så er der ikke noget der forstyrrer ind. Udefra. Og så er der kollegaer og tid, og det er også en rigtig god ting. Fordi hvis man nu har et stort planteavl, så kan man godt sidde på en traktor alene og køre rundt i lang tid, og det er jo lidt ensom, synes jeg.

S: Hvorfor har du valgt en konventionel produktion?

C: [Laughs] Der er mange der har spurgt om! Og det er faktisk et lille dumt spørgsmål! [inaudible] Det er ikke noget [inaudible] vælger. Altså [inaudible] sige, når stalden står der, så



develop the farm in his own time, and does not want to take the risk to build something new if he realises that he is not interested in taking over the business. "My plan is what I call a recession strategy. We use this out and we wear it out, I am not going to build a new barn."

[00:29:37]

"I can see what needs to be done in the future if my son is to live from it. Then it's our farrowing facility, which is the oldest structure, which could be built anew. But today you don't build new barns for 300 sows, because it's just too small, so if I were to build a new structure, it should be made to accommodate many more sows, but then all the other buildings would be too small. My challenge is to keep being able to deliver the same results as today [...] it's a big challenge that I don't have new, big, nice and modern installation."

The size of her production is also a challenge. "All the other stocks, both here and abroad are becoming bigger, so for example, especially for crossbreeds, it's a bigger supply they want to set up, and I cannot deliver that many. [...] if too many from the small [producers] disappear, then I don't have any customer left for the type of stock I have now."

"I think that's it's a pity in the pig production we know for little about each other's niches. For example, we breeders know maybe not enough what problems pig producers have. Pig producers don't know anything about what we do in the breeding sector. [...] We all have pigs, I think it's a pity, we should stand together all groups and fight for better prices for all."

[00:45:26]