



Norwegian University
of Life Sciences

Master's Thesis 2019 30 ECTS
Faculty of Biosciences

Backwardness or innovation – the Norwegian farming community as a hindrance or support for increased and more environment- friendly vegetable production

Jofrid Brennsæter
Master of Science in Agroecology

ACKNOWLEDGEMENTS

A warm thank you goes to the nine vegetable producers who were willing to participate in this study, welcome me to their farms and spend time sharing their experiences. I would also like to thank my three advisors: Anne Kari Heen Skjoldal (NLR) who helped me define a useful and relevant research topic, co-organized the workshop and supported me throughout the process; and Anna Marie Nicolaysen and Tor Arvid Breland (NMBU) who helped forming the research process and the final thesis through highly valued input. Thanks also to Olav who read and helped improve the final manuscript. NLR Viken supported the work financially by paying for transportation to the interviews and by providing venue and refreshments for the workshop.

ABSTRACT

This master thesis presents and discusses findings from in-depth interviews with nine large-scale environment-friendly vegetable producers regarding the supporting and hindering qualities of the Norwegian farming community. The major hindering qualities identified in this study are “backwardness” (a resistance to innovation and change); lack of attention on vegetables and environmental issues from different parts of the farming community; and conflicts, competition and envy. The major supporting qualities are the farming community’s high appreciation of innovation; professional support; and well-functioning national structures like farmers’ associations and campaigns. The participants all recognize both supporting and hindering qualities in the farming community, but how they are influenced by them differs.

The thesis also presents and discusses a plan of suggested actions seeking to increase the supporting and decrease the hindering qualities of the farming community, created by four of the participants during a workshop held as part of this study. Their proposed actions are 1) to make well-defined goals for sustainability to guide the development in the vegetable sector; and 2) to build more favorable attitudes in the farming community towards sustainable practices and towards pioneer producers.

TABLE OF CONTENTS

- ACKNOWLEDGEMENTS.....iii**
- ABSTRACT.....iv**
- 1. INTRODUCTION1**
 - 1.1. PIONEER PRODUCERS2
 - 1.2. FACTORS INFLUENCING FARMERS2
 - 1.3. THE FARMING COMMUNITY3
 - 1.4. RESEARCH OBJECTIVE AND RESEARCH QUESTIONS4
 - 1.5. DEFINITIONS5
- 2. APPROACH AND METHODS6**
 - 2.1. THE INTERVIEWS.....6
 - 2.2. THE WORKSHOP.....9
- 3. PRESENTATION OF THE PARTICIPANTS11**
 - 3.1. MOTIVATION11
 - 3.2. BEING AN ENVIRONMENT-FRIENDLY VEGETABLE PRODUCER13
- 4. RESULTS AND DISCUSSION14**
 - 4.1. HINDERING QUALITIES OF THE FARMING COMMUNITY14
 - 4.2. SUPPORTING QUALITIES OF THE FARMING COMMUNITY23
 - 4.3. WHO SAYS WHAT27
 - 4.4. HOW THE FARMING COMMUNITY AFFECTS THE PIONEERS30
 - 4.5. OTHER FACTORS32
 - 4.6. PARTICIPANT SUGGESTIONS FOR FUTURE ACTION34
- 5. CONCLUSION.....43**
- BIBLIOGRAPHY44**
- APPENDICES48**
 - A: INTERVIEW GUIDE48
 - B: WORKSHOP SCHEDULE50
 - C: SENTENCES FOR RANKING.....51
 - D: ACTION PLANNING RESULTS53
 - E: REFLECTION NOTE55

1. INTRODUCTION

Modern agriculture is facing several concerns regarding environmental sustainability. This includes challenges like nutrient runoff; leaking of toxic chemicals to nature; topsoil degradation; and greenhouse gas emissions from soil, machines, storage and transport. Different management practices can help mitigate these challenges. For example, reducing the use of herbicides and pesticides, fertilizers and fossil fuels can have great impact (see for instance Rigby et al. 2001; Taylor et al. 1993). In addition, there are several practices taking into account the ecology of agroecosystems and the circularity of natural systems such as nutrient cycling (composting), cover cropping, and green manure.

Vegetable production is no exception, and also faces the above mentioned challenges. Vegetable production, especially large-scale vegetable production, is often run with intensive use of chemical inputs and heavy machinery on the fields, risking degradation of topsoil and nutrient leaking. However, in Norway the vegetable production is thought to be quite environmentally sustainable compared to countries they import from, using cleaner energy and less pesticides, herbicides and fertilizers (Gladheim 2018). All the vegetables produced in Norway are consumed within the country, and this gives environmental benefits in terms of reduced transportation.

Still, there is room for improvement, and increased attention on environmental sustainability has led to a call for better practices and lower climate impact also from the vegetable sector. At the same time, there is a desire to increase the vegetable consumption in Norway, due to health and lifestyle matters as well as concern for the environment.

Combined, these two desired goals constitute a window of opportunity for the Norwegian vegetable sector. Actors in the sector would prefer that as much as possible of the growth in vegetable consumption should be covered by Norwegian produce (Morthen 2018). If Norwegian vegetables really are more environment-friendly than imported vegetables, this will also give environmental benefits. If the growth in the Norwegian vegetable production is coupled with a shift towards more environment-friendly practices, the environmental effect will be even larger. But for this development to happen, the vegetable producers need to change their practices towards lower climate impact and higher environmental benefits. Some producers are already pushing this development, by integrating environment-friendly practices in their farm management.

1.1. PIONEER PRODUCERS

Literature on how new technologies spread distinguishes between different categories of people regarding their willingness to, and speed in, adopting new technologies. The diffusion of innovation theory (Rogers 2003) operates with five categories: Innovators, early adopters, early majority, late majority and laggards. The early and late majority together constitutes two thirds of a population, leaving one third for the three categories innovators, early adopters and laggards. Diederer et al. (2003) used similar concepts, but divided into only three categories: Innovators, early adopters and laggards. Common to the different ways of categorizing is the understanding that the innovators, and to an extent the early adopters, are important in paving the way for change. The latecomers need to see the demonstrations of the innovation that the innovators and early adopters provide, before they are convinced to join the change (Diederer et al. 2003; Murray 2009; Rogers 2003).

The Norwegian vegetable producers who are currently implementing changes in their farm management to lower negative climate impact and contribute to environmental benefits, are paving the way for the desired development in the sector. In this paper I will regard these frontline producers as members of the groups *innovators* and *early adopters* in Rogers' framework, and call them *pioneer producers*.

1.2. FACTORS INFLUENCING FARMERS

There has been done quite some research on factors influencing farmers in their choices regarding environmental impact from their farm management. From marginalized contexts, often in developing countries, multiple research projects have found that sufficiently spacious economy combined with knowledge and awareness about environmental concerns and farm management practices are key factors to ensure farmer participation in environment-friendly practices (see for instance Ashraf et al. 2015; Boz 2018; Dolisca et al. 2006; Zhang et al. 2017). Similarly, Padgitt & Petzelka (1994) proposed the “formula” that, in order to implement change, the actor needs to see a problem, know of alternatives and have the resources to implement the desired change (see also Duram 2000).

Much conventional writing on farmers' choices and development in farming communities is based on neoclassical economic theory, where people are seen as self-sustained utility maximizers¹. However, strong contributions from scholars more influenced by social sciences

¹ A famous example of this is Cochrane's treadmill model for development in the agricultural sector.

and social constructivism theory argue that these models at best give a very simplified version of reality, and in many cases they will be false. These scholars argue that farmers make many choices that are not profitable, or that farmers at least are motivated by many other things than profitability (Vatn 2007). Different social aspects are important factors in farmers' decision-making, as has also been shown by research on farmers in many contexts (see also Duram 2000).

1.3. THE FARMING COMMUNITY

One important social aspect for vegetable producers is the farming community they belong to, both locally, regionally and nationally. When choosing which practices to implement and not, it is likely that the social context plays a crucial role for many farmers. At least, this is argued by different theories like *classical institutional economics*. In this framework, "institutions" are defined as

"...the conventions, norms and formally sanctioned rules of a society. They provide expectations, stability and meaning essential to human existence and coordination. Institutions regularize life, support values and protect interests." (Vatn 2007 p. 60)

According to classical institutional economics, there is a link between institutions and people's choices regarding the environment, so that making good environmental choices is dependent on "good social contexts" (Vatn 2007 p. 1).

The norm of "how we do things around here" is also pointed to as a strong institution in most communities, deciding which practices are accepted and which are not. Vedeld et al. (2003) identified such a norm in the Norwegian farming community, called "good agronomy". The study showed how it was more important for the farmers to stay within this norm than to conform to other expectations, e.g. public taxes. Breaking a norm like this can lead to "punishment" by the community, e.g. in terms of triggering different social control mechanisms.

In the Norwegian society, there is an additional challenge in a phenomenon called "Janteloven", which supports humility and conformity within the society. Janteloven is a "law" that states how nobody is supposed to be different or think that they are anything special. It works as a social control mechanism ensuring that people trying to do things differently are punished for it (Avant & Knutsen 1993; Bromgard et al. 2014; Gopal 2004).

Pioneer producers are likely to be in an especially vulnerable position regarding this kind of social hindering forces from the farming community (Padel 2001). They are pushing change and development, and to make the change they desire they might have to step outside the norm

in their social context. Research on early organic farmers has shown that, before organic farming became accepted by the society, farmers who had converted faced a lot of social stigma (Lähdesmäki et al. 2018). Facing social stigma can lead to different forms of stress reactions (Miller & Kaiser 2001). However, as climate concern is becoming more common and demands for environment-friendly changes in agriculture are pressed from both consumers, organizations, politicians and different actors within the farming community, the pioneers are also likely to receive some support for what they are doing.

1.4. RESEARCH OBJECTIVE AND RESEARCH QUESTIONS

According to the diffusion of innovation theory and research on implementation of new practices in farming communities, the pioneers play a crucial role for change to happen. To achieve the desired development in the Norwegian vegetable sector, with increased and more environment-friendly vegetable production, it is important that the pioneers who are currently in the forefront of this development succeed. In order to provide the best possible support for these producers, it is important to know more about what their challenges actually are, and what current support they value. Studying this can also give an important contribution to the academic field of rural studies and the debate on how social factors influence farmers.

Through my master thesis research, I want to contribute to this by answering the following research questions:

1. Is the farming community perceived, by selected pioneer producers, as a hindrance to the desired development of increased and more environment-friendly vegetable production in Norway and, if so, how? Is the farming community perceived as a support and, if so, how?
2. According to selected pioneer producers, what are specific actions that can be taken to increase the supporting qualities and decrease the hindering qualities of the farming community?

1.5. DEFINITIONS

Pioneer producers of environment-friendly vegetables will in this study refer to large-scale vegetable producers² that either have certified organic productions³, or show in other ways a special concern for environmental issues in their farm management (e.g. by integrating strategies like composting, cover cropping, green manure or other sustainable practices).

The Norwegian farming community will in this study refer to the community of farmers that the participants perceive themselves as a part of. This includes their immediate/local farming community, the community at a regional level, and also national structures like different organizations, conferences, farmer led political bodies, and the press.

² The reason for focusing on large-scale producers is that they produce the majority of Norwegian vegetables, and it can thus be argued that improving these productions can have a major impact on the environmental sustainability of the Norwegian vegetable production as a whole. However, it can also be argued that large-scale vegetable production in itself constitutes a threat to environmental sustainability, and thus that the solution should not be to try to improve the large-scale productions, but rather do something totally different (like restructuring the whole sector). In this thesis, I will not explore this alternative at all, but limit the scope to treating large-scale producers who aim at increasing the environmental sustainability of their productions.

³ Koesling et al. (2008) shows that organic producers are more often motivated by these issues than their conventional colleagues, and this is supported by several studies on farmers' motivation for organic production (see for instance Fairweather 1999; Laple & Rensburg 2011; Storstad & Bjørkhaug 2003)

2. APPROACH AND METHODS

The research project followed an agroecological approach as described by Méndez et al. (2013), emphasizing participation, transdisciplinarity and action-orientation. Stakeholders in the field and participants in the study were central in all parts of the research project: Deciding research topic, sampling, validating the findings, and action planning. This was to enhance the chance that the research may have an impact after finishing the project, something that has been a challenge in some traditional researcher-led research (Johnson et al. 2003; Reason & Bradbury 2005). This participation is crucial also to achieve transdisciplinarity through collaboration with stakeholders in the field, and to achieve action-orientation through letting the participants suggest actions to address challenges identified through the study.

As the research questions are of an exploratory nature, aiming to gain new, in-depth knowledge about the topic, qualitative methods were chosen for the project (Scheyvens 2014 p. 60). The research consisted of two main parts: First, semi-structured in-depth interviews with nine pioneer producers of environment-friendly vegetables in the Eastern region of Norway. The aim of this part was to find answers to the first research question. The second part was a workshop where all the interview participants were invited. The aim of this part was to answer the second research question.

2.1. THE INTERVIEWS

The interviews were carried out in the course of four days in the end of January 2019. The interview guide is included in the appendices (Appendix A). All the interviews were recorded and later transcribed. From the workshop, data was gathered both as written material produced by the participants during the workshop tasks, as notes taken during the workshop and as sound recordings from the response/discussion sessions.

The participants in the present study were selected through purposive sampling, with a hint of snowball sampling (Bernard 2011). Contacts in the Norwegian Agricultural Extension Service (NLR) proposed some pioneer producers, and through asking these producers for tips about relevant names, additional producers were added. Some research was done on the suggested producers, including checking their websites, asking other producers about them and having a short conversation with them, before involving them in the project, to evaluate whether or not they were really relevant for the study.

2.1.1. Data analysis

The data from the interviews were analyzed using Graneheim & Lundman’s (2004) method for content analysis. First, eight content areas were identified, and all relevant text from the interviews was divided between the content areas to form one unit of analysis. These text bits were then organized into *meaning units*, that were further condensed into *condensed meaning units*, and these units were given a *code*. The analysis focused on the latent content (the underlying meaning) already from the stage of condensing the meaning units. Because of this, the codes were organized into *themes* instead of *categories*, according to Graneheim & Lundman’s (ibid.) understanding that categories mainly refer to the manifest content (descriptive level) while themes represent the latent content (underlying meaning).

The codes were organized into 14 sub-themes, that were again organized into five themes (Table 1). During the workshop, the themes and sub-themes were validated by the participants through feedback and discussion.

Table 2 presents an example of how I got from meaning unit to theme for the theme “hindering qualities of the farming community”. The meaning units in Table 2 and the interview quotes included in the text of this thesis have been translated into English by me, and some of them have been edited by removing excess words and hesitations. Whenever the participants are cited in the text, the original quotes in Norwegian are included in footnotes.

The findings from the analysis are presented and discussed in chapter 4, using existing literature and theories to identify explanations for the participants’ experiences and to find useful analytical generalizations (Yin 2009 p. 15).

Table 1: The 14 sub-themes sorted into five themes.

Theme	Sub-theme
Hindering qualities of the farming community	<ul style="list-style-type: none"> • “Backwardness” • Lack of attention • Conflicts, competition and envy
Supporting qualities of the farming community	<ul style="list-style-type: none"> • Innovative farming community • Professional support • National structures
Who says what	<ul style="list-style-type: none"> • Age • Production types • Geography
How the farming community affects the pioneers	<ul style="list-style-type: none"> • Self-sufficiency • Frustration and loss of energy • Welcome support
Other factors	<ul style="list-style-type: none"> • Market limitation • Time

Table 2: Example of analysis from meaning units to codes and further to sub-themes and themes.

Meaning unit	Condensed meaning unit	Codes	Sub-theme	Theme
Some people say this is interesting and good, and others think no, we don't like things that are different."	Some people positive towards new practices, others oppose	Opposition towards new practices	"Back-wardness"	Hindering qualities of the farming community
When people see a compost with horse dung and cabbage waste, they think it is pollution."	People think compost is pollution	Opposition towards new practices		
I think NB is very backward, they are not looking forward at the opportunities lying in the future. I think they behave like a union for the existing, trying to stop and reverse a development.	NB not looking forward, but trying to stop and reverse development	Backwardness in NB		
They need to realize that if we are going to have a more plant based diet, it must be prioritized	Not realizing that the desired change needs prioritation	Not realizing need for priority		
If we are to reach the political goals (...) and get focus on increased vegetable production, (...) I think we need to have more newspaper space so that people start caring about it.	Increased vegetable production will demand more newspaper space	Lacking attention from the newspapers	Lack of attention	
It's like NB <i>only</i> is cow and milk, it is hard to get other things through.	NB is for animal farmers	Lack of attention from NB		
The government goals for organic production are important, and at the moment there is no goal at all.	The government doesn't have any goals for organic farming	Lack of attention from the government		
The market won't increase before the state steps up and becomes the big buyer	The state should buy organic	--"--		
I know I'm running my farm in a way that is provoking to some. (...) If they were to say that my way of doing things is better, it would be meaningless for them to do what they do.	Organic provoking because if it is "the right way", conventional farming doesn't make sense	Conflict organic/conventional	Competition, conflict and envy	
What I have had most trouble with is that many people think they should have had the land that I have.	Trouble with people thinking they should have the land he has.	Competition for land		
Of course, there is always competition for the production plans in GH.	Competition for production plans in GH	Competition for production plans		

2.2. THE WORKSHOP

The workshop was carried out on 5th March 2019 (see Appendix B for the workshop schedule). All the participants were invited to the workshop and were informed and reminded about the time and venue. Four participants replied within the set deadline that they were unable to come. One more didn't show up, so in the end the group consisted of four study participants (participants 1, 3, 5 and 7), Anne Kari Heen Skjærdal (co-advisor from NLR) and me. It is likely that the outcome would have been slightly different, or at least more diverse, if more of the participants had joined the workshop.

The workshop consisted of two main parts: Validating the findings from the interviews; and suggesting future actions. During the first part, the findings derived from the data analysis described above were presented to the participants, and they got an opportunity to comment on and discuss them. This discussion was recorded and later transcribed.

During the second part, the participants were given a list of main challenges identified from the interview material (Appendix C). The participants were given the opportunity to comment on the list and change, remove or add any point they wished. Three points that had come up during the preceding discussion were added to the list, none were changed or removed. In two groups, the participants then ranked the points from most important to least important. This was done as an introduction to the session for action suggestion, but also to validate and give feedback to my understanding of the findings from the interviews.

Two points, that were ranked among the most important by both groups, were then selected for action suggestion. The groups treated one point each. The selected points were set as goals for development in the sector, and the groups identified hindlers for achieving this goal. Then, they selected some of the hindlers and suggested action steps to overcome them. The participants made suggestions to which actors could be responsible for the different actions, but did not address the challenge of how to make these actors take ownership and carry out the suggested actions.

The workshop was rounded up with presentation of the group work and some final conversation, giving the other groups an opportunity to give feedback on the action steps proposed, and allowing for final points to come up. The presentations and conversations were recorded and later transcribed. During lunch, the participants were encouraged to evaluate the workshop.

2.2.1. *Data analysis*

The findings from the first part of the workshop served as validation/correction for the interview analysis and entered into that part of the research project.

The findings from the second part of the workshop were subject to further analysis. First, the data was combined into two comprehensive sets of suggested actions, one for each of the two selected goals (Table 5 and 6 in Chapter 4.6). Both the written material produced by the two groups during the action suggestion activity (Appendix D), and the data from the oral presentations and discussions where the participants explained more of their thinking behind and around their suggestions, were used to make the sets of suggested actions. For goal 2, one suggestion that was written down by the group⁴ was not included in the suggested actions because it looked more like a goal than an action. It is referred to in the discussion as an intention behind the actions.

The sets of suggested actions then served as basis for discussion and analytical generalization in relation to existing theory (see Yin 2009 p. 15). Before discussing them, the sets of suggested actions were sent to the workshop participants by e-mail, inviting input and comments. No comments were given.

⁴ “Build a culture with attention on knowledge building without fear of competition.”

3. PRESENTATION OF THE PARTICIPANTS

The nine participants were from different farming communities in the Eastern region of Norway. Table 4 (p. 12) shows some basic information about the participants and their farms.

For participant 7, both the husband and the wife participated in the interview. Both were active in the running of the farm, but the husband was in charge of the farming side and the wife had more to do with the farm shop, so the husband is my primary informant of the two. However, the wife was the one participating in the workshop, so she also had an important role in the study. Apart from that, all the participants in the study were men. Some of them run their farms in some cooperation with their wives.

3.1. MOTIVATION

To find out to what degree the participants were motivated by environmental concerns, all of them were asked in an open question to explain what motivated them in farming the way they do. After some reflection on this, the differentiation made by Schoon & Grotenhuis (2000) between idealistic and pragmatic motivation for environmental concern was explained, and the participants were invited to reflect on their position in regards to these two categories. There were great similarities between the participants in regards to motivation, and they all had elements of both pragmatic and idealistic motivations. Table 3 below shows the categories within which their motivations can be piled.

Table 3: Categories of motivations reported by the participants, sorted as pragmatic or idealistic.

Pragmatic	Idealistic
Production results	Environmental benefit
Market orientation	Personal well-being
Economic benefits	Conservation for the future
Being innovative	Personal interest in innovation and challenges

Table 4: Basic information about the participants and their farms. The participants are numbered after the order in which the interviews were conducted. The column called “Market” shows how the products are sold, often meaning who they are delivered to, focusing on the vegetable produce.

Participant no.	Age	Area	Employees	Products	Market	Organic/conventional
1	46	10 ha veg, 140 ha tot	35/day at the most	Different lettuces, zucchini, fennel, cauliflower	Gartnerhallen (GH) / Bama, Coop	Both
2	69	0,4 ha (greenhouse)	4-5/day at the most	Tomatoes, cucumber	GH /Bama	Org
3	47	35 ha veg, 140 ha total. Owns 5	40/day at the most, 6/day during winter	Herbs, spring onions	GH /Bama	Conv
4	64	8 ha veg, 25 ha tot	2 on the farm, uses labor from cooperating farmers	Carrots, potatoes, grain, feed	Veg: GH/Bama	Org
5	38	Greenhouse. Starting 30 ha org outdoors	7/day mostly	Cucumbers, seedlings, bedding plants	Veg: GH/Bama. Seedlings: Farmers. Bedding plants: Plantasjen	Seedlings 85 % org.
6	67	63 ha, owns 40 of them	24/day at the most, 4-5/day in winter	Carrots, potatoes, gherkin, grain, feed	Veg: GH/Bama, Orkla/ Stabburet, Maarud (potatoes)	Both
7	62	58 ha, owns 8 of them	7/day in season + people at the shop	Potatoes, rutabaga, beetroots, parsnip, gherkin, onions, celery, grain & feed. 40 diff. vegetables for farm shop	GH/Bama, Orkla/ Stabburet, farm shop	Both (owned land org)
8	62	100 ha, owns 40	50/day at the most, 10/day in winter	Leeks, cabbage, red cabbage, cauliflower, strawberries	GH/Bama, some private sale of strawberries	Both (some leeks org)
9	55	180 ha, owns 10	40/day at the most, 12-15 in winter	Carrots, onions, leek, cabbage, celery, spring onions. Special products: Brassicas, onions, leeks.	GH/Bama, a little to food boxes	Both

3.1.1. *Pragmatic, idealistic or both?*

In their reflection on whether they were more pragmatically or idealistically motivated, all the participants described themselves as a mix. They agreed that the pragmatic had to be there before the idealistic, or else they would not be able to run their farms. As one participant put it: “It isn’t easy to do anything unless it can be defended economically. You can take on a cost, but all the time you need to weigh the results, what you will get in return”⁵. Most of the others said similar things.

However, as the economic bottom line was present, all the producers seemed to have quite strong values and talked about the way they farmed as trying to do “the right thing”. One participant put it like this: “You do not wish to pollute, you do not wish to reduce the soil quality, you want it to become better, both to humans and nature”⁶.

The participants also emphasized motivation in being up front, innovative and always taking on new challenges; in producing high quality products that the market demands; in the good feeling of knowing you are doing the right thing; and in conserving the farm for the future in a best possible manner.

3.2. BEING AN ENVIRONMENT-FRIENDLY VEGETABLE PRODUCER

After stating that the participants tried to be environment-friendly vegetable producers, they were asked what that is like. The positive parts of it overlap to a large extent with the motivating factors above, although other things were mentioned, like favorable subsidy schemes from the government; positive trends in society (doing what is “in”); and becoming positively surprised at how good results practices like green manure and composting give.

The challenges included practical challenges linked to adopting new methods; increased expenses; lack of demand for organic/sustainable vegetables in the market; lacking knowledge and attention within the extension service and research institutions; opposition from the local farming community; and challenges related to policy⁷.

⁵ Participant 5. ”(...) det er ikke så lett å gjøre noe som helst hvis ikke du kan klare å forsvare det økonomisk også. Man kan ta en kostnad, men man må hele tiden avveie resultatet, hva du får tilbake.”

⁶ Participant 9. ”(...) du ønsker ikke å forurense, du ønsker ikke å redusere jordkvaliteten, du ønsker at det skal bli bedre, for både folk og natur.”

⁷ Particularly one policy was mentioned by most of the participants: A newly adopted EU-policy forbidding parallel production of organic and conventional produce on one and the same farm from 2020. Many of the participants meant that this would seriously hinder vegetable producers who are considering organic production.

4. RESULTS AND DISCUSSION

In this chapter, the nine large-scale vegetable producers' perceptions of the Norwegian farming community, as expressed by them and interpreted by me, will be presented and discussed. The chapter is structured with one section for each of the themes and sub-themes identified in the study (see chapter 2), and one section for the action suggestions that were produced in the workshop. The first five sections are mostly based on the findings from the interviews, but additional data from the workshop is added when relevant. The last section discusses the findings from the workshop, but also builds on the findings from the interviews. All the findings are treated as equally relevant, regardless of who or how many of the participants they were expressed by.

4.1. HINDERING QUALITIES OF THE FARMING COMMUNITY

4.1.1. "Backwardness"

One of the hindering qualities of the farming community experienced by the participants is a general resistance to innovation, change and "forward thinking" – described by several as a "backwardness"⁸. This backwardness is described in individual farmers, in the largest farmers' association in Norway, Norges Bondelag (NB), and in tangent industries.

One of the participants described how the neighboring farmers oppose not only his innovative environment-friendly practices (e.g., green manure, composting, and cover cropping), but vegetable production in general. His farm is situated in a traditional grain growing area, and he explained how vegetable production is seen by some as harmful to the soil, and is thus criticized, while grain monoculture is praised as a good agronomic practice. Composting is criticized because it is seen as polluting. He said: "Some people say this is interesting and good, and others think no, we don't like things that are different. And especially if you need to harvest while the conditions aren't perfect, as you sometimes need, then they say no, this isn't good for the soil and so on."⁹ This is perceived by the participant as a "backwardness" in the attitudes of the neighboring farmers, as they are not open to new practices but only value the traditional agriculture (grain monoculture). He thinks that if they were more "forward minded", they would be curious about his practices and grab the opportunity to learn.

⁸ "bakstreverskhet"

⁹ Participant 9: "Og da er det noen som sier at jammen dette er jo spennende og interessant og bra, og så er det noen som tenker at nei, huff, alt som er annerledes, det liker vi ikke. Og særlig hvis du da må ut og høste mens det er veldig ugunstige forhold, som du noen ganger må gjøre, da, og da er det, nei dette er ikke bra for jorda og så videre og så videre."

Other participants have similar experiences and agree with this understanding. One participant experienced critique of his green manuring practices, the neighboring farmers were not curious about this new practice but only called it a waste of land¹⁰. Other participants struggle with the fact that the owners of the land they lease are not “forward thinking” about their land, they simply lease it out without taking any responsibility or being at all sensitive to issues regarding e.g. soil health and quality.

Several participants are frustrated with neighbors who don't seem to value that they are pushing a development – the neighbors don't seem to recognize that this innovation will eventually benefit many others as well. These participants feel that there is a lack of understanding of the role of the pioneer in the farming community. This aspect was especially emphasized during the workshop, and those participants feel that it would have been a lot easier to push the innovations they are pushing if they were given more respect and space in the farming community, e.g. by getting priority in the market. But this won't happen as long as other producers are insensitive towards the importance of the pioneer.

Norges Bondelag, NB, got a lot of critique from the participants in this study. One said: “I think NB is very backward, they are not looking forward at the opportunities lying in the future. I think they behave like a union for the existing, trying to stop and reverse a development.”¹¹ Another said: “They need to realize that if we are going to have a more plant-based diet, it must be prioritized (...)”¹² The participants wish that the association was more eager to push a desired development in the vegetable sector and in the society.

One participant¹³ also called for more innovation in research institutions and in the waste industry, saying he thinks synthetic fertilizers ought to be unnecessary when we could rather reuse nutrients from waste. He thinks that if the waste industry and other actors were as innovative and eager as e.g. Yara, and the same amount of resources were spent on researching sustainable fertilizer alternatives as on conventional practices, these issues could have been

¹⁰ Participant 1

¹¹ Participant 9: ”Jeg syns jo Norges Bondelag er veldig, bakstrevsere for å bruke det uttrykket, jeg syns dem er lite fremoverlent og ser mulighetene som ligger i tida framover, jeg syns bondelaget opptre mer som en fagforening for det eksisterende. Sementerer, forsøker å stoppe, reversere, en utvikling.”

¹² Participant 1: ”...dem må ta inn over seg at hvis vi skal ha et mer plantebasert kosthold, så må vi prioritere det...”

¹³ Participant 3

solved quickly and a high-value fertilizer product from the waste industry could have been made available to farmers.

Several of the participants have some explanations for these “backward” attitudes. In their neighboring farmers, they think it is mostly about lack of knowledge and awareness. The participant who gets critique for his composting put it like this: “When people see a compost with horse dung and cabbage waste, they think it is pollution. (...) They don’t see that this is something we do to strengthen the soil quality.”¹⁴ The participant criticized for green manuring has similar experiences: “They don’t see that green manuring is production. (...) They don’t see it as valuable, but we see it as very valuable. Establishing good soil is maybe our main task.”¹⁵

This coincides with the studies from developing contexts showing that knowledge and awareness are key factors in farmers’ adoption of environment-friendly practices (Ashraf et al. 2015; Boz 2018; Dolisca et al. 2006; Zhang et al. 2017). However, as most Norwegian farmers are both well-educated and supported by well-functioning extension services, one could guess that lack of knowledge and awareness might not be a hinder for adopting environment-friendly practices. Still, it is not evident that either the educational system or the extension service has attention on innovative environment-friendly practices like the ones used by the participants in this study, so the farmers might not have knowledge about them even if they are both well-educated and professionally supported. Being well-educated is not enough in itself, the farmers need to identify a problem in their own farming methods before they can be expected to implement any change (Padgitt & Petzelka 1994).

The findings also correlate with Rogers’ diffusion of innovation theory (Rogers 2003). According to this framework, one of the main roles of pioneers is to give an example that convinces others that it is “safe” to follow (Diederer et al. 2003; Murray 2009; Rogers 2003). This shows how new innovations always have to be supported by knowledge and awareness building in order to be successfully implemented.

Understanding the situation in light of Rogers’ diffusion of innovation theory might also help explain why the participants perceive their neighbors as “backward” compared to themselves:

¹⁴ Participant 9: ”Når folk ser en kompostranke med hestemøkk og kålavfall, så tenker man at ja men dette her er jo forurensning. (...) Man ser ikke at det er noe man gjør for å styrke jordkvaliteten.”

¹⁵ Participant 1: ”(...) dem ser ikke at grønn gjødsling er produksjon. (...) Ja, så dem ser ikke det som verdifullt da, og det ser vi som svært verdifullt. Etablere god jord er kanskje hovedoppgaven vår.”

It seems evident that pioneers will perceive late followers and laggards as “backward”, or at least as slow, compared to themselves. If the participants in this study belong to the category of pioneers, and their “backward” neighbors belong to the categories of later adopters or even laggards, this is how they would be perceived. As Rogers (2003) explains the diffusion of innovations as a social process, where information about a new idea is communicated between peers and its meaning is gradually constructed, the “backwardness” experienced by the participants can be simply a stage in this social communication process. If this is true, one may expect that the result will be that the neighbors are convinced and adopt the practices themselves eventually.

When the farmers’ association and the research institutions are perceived as “backward”, it might mean that the participants perceive them as siding more with the later adopters than with the pioneers. For NB this seems probable, as it is farmer owned and led, and can thus be expected to reflect the average farmer more than the pioneer minority. However, if this is correct, the farmers’ association wouldn’t reflect the laggard minority very much either, and this challenges the description of NB as *extremely* backwards offered by some of the participants. This perception is probably very real to them, but might say more about the difference in attitudes between this participant and NB/the majority of the farming community than about NB itself.

In addition, lack of awareness of environmental issues might be part of explaining the “backwardness” of the organizations as well as the individual farmers.

4.1.2. Lack of attention

Several participants are frustrated with the apparent lack of attention on the environment-friendly development they are trying to push, in the farming community both locally and nationally.

At the local level, the participants described some concern about neighboring farmers who “only” care about profit and are not sensitive to the environmental impacts of their farming practices at all. “There are still some farmers who do programmed spraying, spraying every fifth day in the potatoes. That is simply nonsensical,” one participant says.¹⁶ The participants in the study are no strangers to economic motivations themselves and do not criticize for-profit

¹⁶ Participant 7: ”Det er nok en del som fortsatt driver med programmert sprøyting. Kjører hver 5. dag i poteten, det er bare tullball.”

farm management practices, but they strongly believe in the importance of reducing environmental impact from their farming practices (see chapter 3). Moreover, they believe that this is the future, and they wish their neighboring farmers would join in the development and have attention on environmental issues, instead of just carrying on as they have always done.

At the national level, the participants perceived a lack of attention on vegetables and environmental issues in several arenas; the farming-related press, farmers' associations, and in policy and politics. The lack of attention on vegetables and environmental issues in the national farming-related press is thought understandable by some of the participants, as vegetable producers constitute a very small part of Norwegian farmers. However, most of the participants think it is a shame, seeing that vegetable production accounts for quite a large share of the value production in the Norwegian agricultural sector¹⁷, and that there are political goals for increased production and consumption of vegetables in Norway. "If we are to reach the political goals (...) and get focus on increased vegetable production, (...) I think we need to have more newspaper space so that people start caring about it. Simple as that."¹⁸

NB receives critique from all of the participants for not having satisfactory attention on vegetables and environment-friendly practices. However, they have different suggestions as to why this is so: Is it the organization's fault, or do the vegetable producers have to take part of the blame? One participant reflects: "It's like NB *only* is cow and milk, it is hard to get other things through. Then NB says it is because you (*the vegetable sector, my note*) don't contribute, but I think it's a little more complicated than that."¹⁹ The vegetable sector also has their own associations, but several of the participants perceive them as powerless in relation to the farming community at large: "Gartnerhallen²⁰ (...) is maybe the worst cooperative, or what to say, the one with the least power,"²¹ one participant claims. Another agrees: "Gartnerhallen, for instance, struggles getting headlines in *Nationen*²²."²³

¹⁷ Horticulture (not including potatoes) accounted for 14,7 % of the value production in the Norwegian agricultural sector in 2016 (Budsjettnemnda for jordbruket 2017)

¹⁸ Participant 5: "Og hvis vi skal nå de politiske måla (...) skal man få fokus på økt grønnsaksproduksjon, (...) så tror jeg man er nødt til å sette av mer spalteplass for å få folk til å bli opptatt av det. Enkelt og greit."

¹⁹ Participant 3: "Det er liksom ku og melk som er bondelaget, det er vanskelig å få gjennom andre ting, så sier Bondelaget det er fordi dere ikke deltar, men så trur jeg kanskje at det er litt mer innfløkt enn det, da."

²⁰ The largest cooperative for vegetable producers.

²¹ Participant 3: "Gartnerhallen, (...) de er kanskje det dårligste samvirket, hva skal man si, de med minst makt."

²² The largest national newspaper for agriculture and district

²³ Participant 1: "Gartnerhallen for eksempel sliter med å få overskrifter i *Nationen*."

The policies and politics are described as having similar faults as NB – the participants don't think there is enough attention on vegetables and environment-friendly development. However, they all emphasize the importance of the import protection and for getting a minimum of subsidies, and they acknowledge the policies for it. They also acknowledge NB for their important role in the negotiations for the agricultural policies, and say they won't criticize all their work even though they wish there was some more attention on issues important for the vegetable sector.

In addition, some participants expressed a wish for more ambitious political goals for organic production: “The government goals for organic production are important, and at the moment there is no goal at all: They will support organic production where there are sales, that means it needs to succeed before it is supported. When there was a 20 % goal, albeit unrealistic, there was more focus in the media, and that might have led to people buying more organic. The government should have been more ambitious regarding organic.”²⁴ Others join in stressing the importance of the government in increasing organic production: “The market won't increase before the state steps up and becomes the big buyer.”²⁵

Several of the participants explain this lacking attention with the power structures in the national farming community. This particularly applies to NB: “It is so heavy on the animal side that you will never get a vegetable producer as a leader of NB. That wouldn't be possible. It wouldn't be accepted by all the animal farmers.”²⁶ Another explains the lack of attention with a fear of change in the farming community, resulting in a suppression of environmental issues: “I believe it is fear. Fear of losing herbicides and pesticides, fear of having to do things differently.”²⁷

²⁴ Participant 6: “myndighetenes mål med økoproduksjon, det er jo egentlig viktig, og sånn som for øyeblikket så har jo ikke myndighetene noe mål i det hele tatt, i den siste regjeringserklæringen så er det jo sagt at myndighetene skal støtte opp om økologisk produksjon der det er salg, og hva er det, da må du først lykkes før du støtter oppunder, og det vil si at det er ikke noe mål i det hele tatt. Den tida det var målsetting på 20 %, som var urealistisk, så var det mye mer fokus og skriving i media om øko, og det gjorde at, det fokuset gjorde at folk kanskje var mer oppmerksomme på øko, og kanskje kjøpte mer økologisk. Så det at målsettinga er borte syns jeg er negativt. Landbruksdepartementet kunne vært mer fremoverlent når det gjaldt øko.”

²⁵ Participant 7: “Markedet går ikke opp før staten går foran og er den store innkjøperen.”

²⁶ Participant 2: Det er så tungt på den husdyrsida at du får jo aldri en leder i Bondelaget som kunne være en grønnsaksprodusent fra Vestfold for eksempel. Det går jo ikke. Er du gæærn. Det kan jo ikke alle husdyrbønda finne seg i.

²⁷ Participant 5: “Jeg tror det er frykt, altså. Frykt for å miste plantevernmidler, frykt for å måtte gjøre ting annerledes”

According to these findings, the vegetable producers perceive themselves as a minority in the farming community, that struggles to be heard by the majority. According to them, the vegetable sector lacks a strong voice in the farming community: The large organizations don't have sufficient apparatus for the vegetable sector, and the sector-specific organizations are not powerful enough to be heard. This implies that the issue of lacking attention could be explained to a large extent by minority/majority dynamics: It is not necessarily about differences in values, attitudes or similar, nor about ill will in the farming community at large, but simply that the vegetable sector is “drowning” in a farming community that is heavy on animals, and in a farming tradition that has been much based on milk and grains. However, the participants seem to experience that vegetables and the environment is seen as unimportant in many of the institutions they are members of. Profitability is valued above environmental sustainability²⁸.

Lack of attention is a hinder in itself, e.g. because it slows down the development in technology and the market, but it is also a hinder in a more indirect way, stealing “energy” from the vegetable farming community. Whoever is being overlooked feel small and powerless, and spend too much energy trying to change things without being heard. This mechanism is evident in many different settings, but in a farming context it might be even more important given the “personal” nature of farming. Vedeld et al. (2003) emphasized how farming is *not* “just a job”, but a *life mode*²⁹. Practical competences and skills are intertwined with worldview, values and identity, together constituting what it is to be a farmer (see also Mariola 2005; Sutherland 2013). So when their way of farming and their interests are treated as unimportant, it is not merely perceived as a professional disagreement, but a more personal attack. When they all also identify very deeply with the national farming community and NB (see chapter 3), the frustration might be deepened because they feel excluded from a community that is important to them.

From an innovation diffusion perspective, spreading of any new “technology” (including norms and attitudes) is dependent on efficient information transfer (Rogers 2003). If the information channels are “blocked” for vegetable information, “innovations” like the desired increase in vegetable consumption and production won't reach out to either the consumers or to the farming

²⁸ Both are important elements of the institution “good agronomy” as described by Vedeld et al. (2003). The authors emphasize that perceived conflicts between the different elements of the institution can lead to different prioritations by different farmers.

²⁹ More specifically, they categorize farming as a “self-employed life mode” according to The Structural Life Mode Analysis (Hojrup 1983; Hojrup 2003)

community. Fear of change, as pointed out by one of the participants, can contribute to slowing down the information transfer, and thus contribute to maintaining low attention on the issues.

4.1.3. Conflicts, competition and envy

Traditionally, there has been some conflict between organic and conventional farming in Norway, and the participants in this study who use organic practices experience that this conflict still exists. There are strong narratives in the farming community and much of the Norwegian population that Norwegian farming in general is so clean and healthy that organic is not necessary (Storstad & Bjørkhaug 2003). Organic farmers have been seen as weird, and organic practices have been associated with religious superstition. The participants in this study emphasize that they don't sympathize with the more "religious" aspects of organic farming, but still they experience the conflicts. Some of the participants think conventional farmers are critical towards organic because they see it as a threat to their own way of doing farming: "I know I'm running my farm in a way that is provoking to some. (...) If they were to say that my way of doing things is better, it would be meaningless for them to do what they do. So it is like a defense mechanism."³⁰ Also, the understanding that organic is less sustainable than conventional farming, stemming from some research and journalism, has been adopted in some of the local farming communities and made conventional farmers even more critical towards organic.

This conflict between organic and conventional farming is not special for Norway. Duram (2000) studied organic farmers in Illinois, and found that they too were being talked about behind their backs in the farming community. Lähdesmäki et al (2018) studied how pioneer organic farmers in Finland dealt with social stigma, and stated that social stigma within the farming community has been used as a strong social control mechanism in many areas where farmers have adopted organic practices (see also Lockeretz 2007; McGreevy 2012; Padel 2001; Sutherland 2013).

In my study, not only the organic farmers experience conflicts, competition and envy as a hinder, and it's not just the organic practices that are their reasons. Competition is an important part of the everyday reality of a large-scale vegetable producer, as the production is so market oriented. The producers compete for market access through getting the production plans in the producer's

³⁰ Participant 4: "jeg vet at jeg driver en produksjon som er provoserende for noen. (...) Hvis de skulle si at min produksjon er den mest riktige, framtidsretta, så vil det si at da vil det bli meningsløst for dem å drive med det de driver med selv. Så det er en slags forsvarsmekanisme, hos en del.

organization (GH). They compete for access to good soil through securing land leasing contracts. The participants all recognize that a certain degree of competition is good, helping them to stay sharp and always improve. However, most of them have experiences with competition-related conflicts in their local farming community, that can sometimes be unpleasant.

In some cases, the competition for leasing contracts results in a build-up of envy and anger between some producers, which can lead to unpleasant conflicts. One participant explained: “What I have had most trouble with (...) is that many people think they should have had the land that I have. So it is pure envy. And envy generates a lot of both anger and irrational behavior.”³¹ Because of conflicts like these, some participants have experienced being frozen out by members of the local farming community, e.g. by not being greeted when they met.

The most ambitious of the participants, who are most eager at expanding and leasing new land, seem to experience more of these conflicts than the more settled ones. For these cases, one explanation can be found in Janteloven (Avant & Knutsen 1993; Bromgard et al. 2014; Gopal 2004). These ambitious producers are probably seen as proud, and thus threatening, by the community, and social control mechanisms are mobilized to control their behavior. Innovation diffusion theory also suggests that pioneers are often subject to exclusion and social stigma from the community (Padel 2001; Rogers 2003). In addition, if implementing the changes leads to breaking the norm of “how we do things around here” (e.g. Vedeld’s (2003) “good agronomy”, or “good farming” as it is conceptualized by Burton (2004; Burton et al. 2008)), this brings additional risk of social stigma. Defying these control mechanisms can be very stressful.

This hindering quality is, to a much larger extent than the other hindering qualities, of a personal nature. The participants experience opposition aimed at them personally in the conflicts and envy. An explanation why differences in views and practices can become personal in the farming community can be found in Vedeld et al.’s (2003) description of farming as a life mode, not just a job. Classical institutional economics also emphasize how institutions become an integral part of people’s identities and interests, showing that it is not always easy to separate a

³¹ Producer 5: ”det som jeg har hatt mest problematikk med (...) det er nok fordi det er mange som mener at de burde hatt den jorda som jeg har. Sant, så det er rein misunnelse, da. Og misunnelse genererer vanvittig mye både sinne og irrasjonell oppførsel.”

person from their preferences (Vatn 2007)³². Farming is personal, and when the institutions, e.g., “how we do farming around here” or “good agronomy”, are this closely linked to a person’s identity, other influences become a personal threat, not just “another way of doing things”. This again might contribute to generating sorer conflicts than mere fact-based disagreements would.

During the workshop, lack of collaboration was emphasized as a major hinder for positive development in the sector. The participants suggested that practicing collaboration and knowledge sharing, without fear of conflict, should be priority activities for the sector (see section 4.6).

4.2. SUPPORTING QUALITIES OF THE FARMING COMMUNITY

4.2.1. *Innovative farming community*

The vegetable sector differs from other agricultural sectors in Norway in that it is more market oriented. They receive less subsidies and have less security from the agricultural cooperative organizations³³. The participants in this study see this as a strength for the vegetable sector, minimizing the danger of overproduction etc. Most of them find a lot of their motivation in producing goods that the market wants: “I want to do something that is good for the farm and produce something somebody wants to purchase.”³⁴

The market orientation of the sector also helps facilitate a positive competition between the producers. One participant put it like this: “A positive competition is a competition where you will be challenged to become better (...) It is like being on a team. When you are on a team, for example a national team, you practice together and work together, but when the competition is there, you compete. It is somewhat the same with us.”³⁵

Partly due to this market orientation, the interest for knowledge development and for learning new practices is strong among many vegetable producers. Several of the participants emphasize that this also goes for the farming community in general, even though they find vegetable producers to be the most innovative. Participants in the study praise their neighbors, and farmers

³² Vatn (2007) writes in his book: “Institutions not only define the social environment within which the individual is choosing. They also constitute the individuals themselves and their interests.” (p. 61).

³³ The farming cooperatives are quite strong in Norway, and for meat, milk and grain the cooperatives guarantee purchase of produce from the farmers even if there is an overproduction.

³⁴ Participant 4: “jeg vil drive med noe som gården har forutsetninger for (...) og som noen vil kjøpe.”

³⁵ Participant 9: ”en positiv konkurranse det er en konkurranse der du blir utfordra på å bli bedre (...) Det er det samme som å være på et lag... Når du er på et lag, for eksempel et landslag, da, så trener man sammen og jobber sammen, og når konkurransen er der, så da konkurrerer man. Det er litt det samme med oss, kan man si.”

in general, for being innovative and willing to both learn and change. Most of the participants also have good experiences with colleagues coming together at their farm or other places to learn from each other.

Several of the participants say they don't think the farming community will be the limiting factor in a development towards more environmentally sustainable agriculture. However, they think some things must be present before farmers adopt new practices; either a demand in the market or requirements from the government. During the workshop, this came up again when suggesting actions for changing the attitudes in the community – the participants stressed that if there are clear demands or goals from the market or the government, the farmers will adapt and change their attitudes (see section 4.6.2 for a discussion on this).

In relation to this, one participant mentioned that farmers need a “recipe” to change: “Farmers are very good at adopting new technology and methods, but they need, they are used to following a recipe.”³⁶ This underlines the need for pioneer producers who try out new methods and provide an example to others (Rogers 2003). It also suggests that some special support for pioneers might be useful, as they are putting themselves “out there” by testing out practices without a recipe. This stresses the importance of the extension service being up front and eager to support the pioneers, as was also emphasized during the workshop.

The participants also emphasized their good relations with most of their neighbors on a general basis, relations characterized by dual respect and collaboration. All the participants have some form of cooperation with other farmers; sharing machines, land or helping out in other ways. Some also explained how their neighbors have grown a respect for organic farming through seeing the quality of their products or how well their farms are kept. However, the relations seem to be particularly good between farmers that are more or less of the same mind. One participant reflected on how cooperation between farmers doesn't necessarily work out even though it is obvious that both farmers would benefit from it – the cooperation that works is cooperation between farmers that have more or less the same values³⁷.

These descriptions of reality show that the backwardness described in chapter 4.1 is not the whole picture about the Norwegian farming community. Other values are also present, including innovation and a desire for improvement. According to the diffusion of innovations

³⁶ Participant 3: ”bønder er veldig flinke til å ta i bruk ny teknologi og nye metoder, da, de trenger liksom, de er vant til at det er en oppskrift.”

³⁷ ”Grunninnstilling”

theory (Rogers 2003), a portion of the population will always belong to the categories “early adopters” and “early majority”, and these groups could probably be perceived by the pioneers as having favorable values. Other factors like age, production type and geography might play a role in determining who possess the different values (see chapter 4.3 for a discussion on this).

In addition, Vedeld et al. (2003) pointed out that most farmers are characterized by an “adaptive rationality”, where experience, visions and experimenting constantly interact, and this could contribute to the perception that farmers in general are innovative and flexible (see also Nitsch 1990).

4.2.2. *Professional support*

All the producers need professional support in matters regarding different aspects of running a large business, all the way from employer issues and market strategies to agronomic issues. The Norwegian farming extension service (Norsk landbruksrådgivning, NLR) is important for the participants in that they give support on all these areas. However, several producers feel NLR are lacking in some aspects. They sometimes find it hard to get the help they need, either because it is hard to access the right people (e.g. the best expert on a particular issue), or because the officers are not service minded enough: “They (*NLR*) could have been better at asking me how can we help you get that production optimal and get the best possible profit”³⁸. Some also find NLR’s knowledge lacking, and seek advice from extension services outside of Norway. However, most of the participants are well satisfied with the help they get from NLR.

For professional support, other actors also play a major role. Most of the participants subscribe to agricultural magazines from Denmark, finding a lot of inspiration in the innovative attitudes regarding organic and environment-friendly agriculture that they claim can be found in Denmark. Some of the participants also get professional support on agronomic challenges from commercial actors like seed companies.

For the participants situated in the counties of Buskerud and Vestfold, attention on agriculture from the regional governments in the campaigns called “Foregangsfylke”³⁹ has also been an important support. Through these campaigns, there has been attention on sustainable development in the vegetable sector. In Buskerud, the main topic has been soil health, and in Vestfold organic farming, but participants in both counties seem to have benefited from both

³⁸ Participant 8: ”Dem (*NLR*) kan bli flinkere til å fortelle meg åssen skal vi hjelpe deg, for å få den produksjonen optimal, da, og få mest mulig utbytte.”

³⁹ Meaning ”Pioneer Region”

campaigns. In addition to professional guidance and special monetary support arrangements, the campaigns have contributed to building a professional community around sustainable practices. One participant reflected: “The fact is that where there is a community (...) it is easier to get started.”⁴⁰

Communication with other farmers across the country seems to be one of the most important factors for professional support for several of the participants. One said: “I think network is the most important,”⁴¹ alluding to the community of pioneer farmers across the country. Another expressed the same by telling how many other producers he had been calling just that day⁴². The participants with an organic production all say that there is an especially supportive atmosphere between the organic farmers in the area.

Pioneers of innovation adoption are categorized by seeking information from external sources more than later adopters do (Diederer et al. 2003; Rogers 2003). This fits well with my participants: They are innovative in their ways of acquiring support and might find new sources of information that none of their neighbors use.

4.2.3. *National structures*

In chapter 4.1, we saw that many of the participants are frustrated with the largest farmers’ association, Norges Bondelag (NB). However, they are all members, and all express a loyalty towards the organization: “It is the solidarity aspect, and the import protection is very important (...) No, we don’t consider deregistering. We are farmers, and farmers are members. You should know who is looking after you.”⁴³ Even though they are frustrated with some things, they know the importance of the organization in keeping the toll barrier and import protection, and they have a strong value in staying members and thus participating in the farming community.

During the workshop, the option of trying to change the situation in NB was discussed by the participants. Since there seems to be many vegetable producers frustrated with, but still loyal to, the organization, influencing NB to change their focus was suggested as a window of

⁴⁰ Participant 3: “Det er jo sånn at der det er miljø for det (...) er det lettere å komme i gang.”

⁴¹ Participant 9: ”Nettverk, tror jeg er det sterkeste.”

⁴² This was a Tuesday in January, before noon: He had talked to four different producers, in addition to the extension service and attending a telephone meeting in Grøntprodusentenes Samarbeidsråd (the price cooperation organization)

⁴³ Participant 7: ”Nei, det er jo dette solidariske, du kan si, tollvernet er veldig viktig, (...) Neida, så det er ikke noe tema det (*å melde seg ut*). Er man bonde så er man medlem. Du bør jo veta hvem som passer på deg.”

opportunity. This was not embraced by the participants as a priority activity, as they did not feel sure it would be worth the effort, and as they also thought that the necessary drives for the changes discussed would not come from NB but from other actors.

Most participants are happy with the cooperative organization for the vegetable sector, Gartnerhallen (GH), and also with the professional organization for horticulture, Norsk Gartnerforbund (NGF). One participant says: “Yes, NGF have done a good job. (...) They are ambitious when it comes to greens, I should say.”⁴⁴

Some national campaigns are also mentioned as a support for the participants: Økoløft, a campaign initiated by a joint farming community (many different organizations) to promote organic farming through portraying inspirational organic farmers; and the EAT-Lancet report and the debate that followed after, setting focus on the importance of increasing the vegetable proportion of our diets.

4.3. WHO SAYS WHAT

Both supporting and hindering qualities of the farming community were recognized. Do all the qualities characterize all parts of the farming community, or are there patterns as to which parts of the farming community are perceived as having the different impacts?

4.3.1. Age

The participants seemed to agree that younger farmers are more likely to adopt new ideas and practices than older farmers. The characteristics given of the most negative producers almost always included the adjective “old”, e.g. “old grumpy blokes”⁴⁵. However, one participant explained how retired producers start talking more positively about his organic practices because they are no longer threatened by it; and some other emphasize how the younger generation doesn’t *necessarily* become more open-minded than their parents, depending on where they get their influence. Still, several of the participants expressed optimism linked to a generation shift going on in their communities: “We have a generation shift going on, but now there are quite a few old farmers around who cannot hold two thoughts in their head at once”⁴⁶.

⁴⁴ Participant 6: “Ja, NGF har vært flinke de. (...) De er fremoverlent når det gjelder grønt vil jeg si.”

⁴⁵ Participant 2: ”Gamle gaggige gubber”; Participant 5: ”Gretten gubbe”

⁴⁶ Participant 5: ”Vi har et generasjonsskifte som pågår nå, og det er en del gamle produsenter rundt her, som ikke klarer å ha to tanker i hodet på en gang.”

Diedereren et al. (2003), in their study of Dutch farmers, also found that younger farmers were more likely to be pioneers of innovation adoption than older farmers. This fits with the framework offered by Rogers (2003), suggesting that adoption of innovation is more likely when people see the change as similar to them rather than dissimilar: Older farmers are more likely to be set in their way of doing things, leaving less opportunities open and giving less space for experimenting new practices. Several of the participants in my study also talked about this as common sense, “everybody knows” that the longer you have been doing something in a certain way, the less likely you are to change.

4.3.2. Production types

There is no agreement between the participants as to the difference in attitudes between different production types. Some say that grain and meat producers are more opposed to environment-friendly practices because this kind of practices constitute a greater challenge or expense in these productions. One participant said dairy producers are most opposed to him because they don't like his practice of green manure – they think it's a waste of land and would rather use that land themselves for feed production. Most of the participants say they don't think there is a difference, other than that vegetable producers are more prone to be innovative than the others because of their stronger market orientation.

4.3.3. Geography

The experiences regarding how distance from their farm influences other farmer's attitudes towards them and their ways of farming, vary greatly between the participants: Either no difference, more positive closer to the farm or more positive further away.

Some of the participants who find that the closest neighbors are the most positive, explain it with regards to the conflict between organic and conventional farming. These participants produce organically themselves, and find that farmers further off more easily believe in all the bad things that are being said about organic farming, while the close neighbors see their pretty fields, they have maybe tasted the products, and see the “evidence” that organic farming isn't too bad. Another of these participants explained it with the fact that he knows his close neighbors quite well, they help each other and have many points of interaction, but further away people only see him as a threat as he expands and wants to lease more land or wants to increase his market shares.

Some participants find that the closer neighbor another farmer is, the more negative he is. One of these participants live in an area where vegetable production is not really within what he calls “the norm of good agronomy”, especially not *organic* vegetable production, as the farmers in the area traditionally grow grain and maybe potatoes using quite a lot of chemicals. This participant experiences much positive feedback from farmers and others further off, but in his own local community many are critical to his practices and produce. He explains it like this: “Normally you won’t become a hero in your own village in your own time.”⁴⁷ His neighbors don’t necessarily criticize his methods, even though many are skeptical towards composting and vegetable production, but they won’t admit that his products are anything special.

These experiences resonate very well with the theory of Janteloven (Avant & Knutsen 1993; Bromgard et al. 2014; Gopal 2004). The fact that it’s usually not actually his farming practices that are commented on by neighboring farmers, but rather that his produce is “nothing special”, especially suggests that it is not a fact-based disagreement that leads to this conflict. Rather, it seems that the community is trying to tell this farmer to keep his head down and don’t think he is anything special⁴⁸. As Avant and Knutsen (1993) pointed out: Social conformity is a strong value in the Norwegian society, so being a change agent can be quite hard. This explanation is supported by classical institutional economics, which shows how people who break the norm of “how we do things around here” can be treated negatively by the community (Vatn 2007 p. 64).

The differences between the participants’ perceptions of their local farming communities suggest that there can be quite big differences in social values between agricultural communities within the Eastern region of Norway. In some communities, innovation and change are strong values, whereas in other communities, conformity and tradition are stronger. Vedeld et al. (2003) also found this variation, and called it the “producer environment” component to the institution they were describing:

“High yields, high levels of resource utilization and fast adoption rates of new technology and knowledge can give a high degree of prestige in one environment, whereas stability, security and being careful can be valuable status goals in a different producer environment.” (Vedeld et al. 2003 p. 8)

⁴⁷ Participant 9: ”Nei, du blir ikke helt i din egen bygd, som regel, i din egen tid.”

⁴⁸ Janteloven includes “commandments” like: “Don’t think you are anything special”, “don’t think you are better than us”, “don’t think that anyone is concerned about you”, “don’t think you can do anything” (Sandemose 1933)

Even though the participants have many similar experiences, their “producer environments” differ and this can have a significant impact on how the farming community affects them (cf. next section). The participants in this study experience more support in producer environments dominated by vegetable production than producer environments dominated by grain production or animal husbandry. This corresponds with their perception that vegetable producers are more innovation oriented than other farmers.

4.4. HOW THE FARMING COMMUNITY AFFECTS THE PIONEERS

4.4.1. *Self-sufficiency*

Most of the participants emphasized how the hindering qualities of the farming community that they described don’t really hinder them in their daily activities. Of course, it is frustrating when neighbors don’t support them and it would have been nice if things were otherwise, but they were all decided on not letting the frustrations slow them down. “Well, I would like to be recognized and liked and such, (...) but I’m not dependent on it,”⁴⁹ one participant said. Others said similar things, and said they won’t let negative attitudes and comments bother them. The same goes for the lacking attention on their concerns in NB and the press – it would have been good if it was otherwise, they are evidently frustrated about it when talking about it, but they won’t let it hinder them. “It is really nothing to spend energy on,”⁵⁰ one participant explained.

The phenomenon that the pioneers don’t care too much about the hindering forces they perceive in their society resonates with Rogers’ diffusion of innovation theory (Rogers 2003). This theory states that usually, potential adopters are influenced by the opinions of others in their community when deciding whether or not to adopt an innovation, and that they are more likely to adopt it if someone else in their community already did and are positive about it. However, the pioneers are always the first people to adopt an innovation in a community – they are the ones that adopt it before it is established as good. Thus, the pioneers have to care less about what other people think than the majority, in order to be able to take that step.

Diederer et al. (2003) also presented similar findings: The pioneers get more information from external sources than the majority of farmers, suggesting that they are less focused inwards on the opinion of their farming communities, and more focused outwards on other, probably more innovative, sources of input. This is also supported by my data, where most of the participants

⁴⁹ Participant 4: ”Altså, jeg vil jo gjerne bli anerkjent og likt og sånn da, i alt jeg jobber og behandler andre så er jo det medvirkande, men jeg er ikke avhengig av det.”

⁵⁰ Participant 6: ”Nei, det er ikke noe å bruke energi på, altså, det er ikke det.”

reported staying updated on international information channels, like following Danish farming magazines or international networks, more than sticking to the local sources of input.

4.4.2. *Frustration and loss of energy*

A few of the participants are, however, more affected by the hindering qualities of the farming community. These are two of the most ambitious participants, and also among the younger. One of them said: “Hindering forces are heavy and I can’t be bothered with that. I have gained lots of grey hairs and gotten older, and at some point of course it will stop.”⁵¹ Another said: “Sometimes it has been hard to find enough positivity to outweigh the negativity. Not because those who can give positivity are not good at it, but because those who are negative have been so incredibly negative, and in addition have been working so actively to be negative.”⁵² One of these participants suggested during the workshop that others would feel just as frustrated as him if they too were as ambitious. He thinks they will be fine as long as they don’t challenge the market, but if they try to really expand, it quickly gets a lot harder. That social stigma often leads to stress that can give emotional reactions and loss of energy is strongly supported by literature on the topic (Miller & Kaiser 2001).

The fact that all the participants are members of NB and stay loyal even though they are partly very disappointed and frustrated with the organization, deserves some consideration. Firstly, it suggests that the participants have strong bonds to the national farming community in Norway, even though they belong to a small minority within that community. Their identity seems to be just as closely linked to being *farmers* as to being *vegetable producers*. Secondly, the norm in the national farming community (the rule of “how we do things around here”) seems to be that all farmers should be members of NB⁵³. Now, it seems that the preference of the participants has been formed by this norm/institution, making them want to be members even though the organization lacks attention on their concerns. If they were pure utility maximizers, they wouldn’t have seen any reason for staying. This fits with classical institutional economics and its understanding of preferences as plural and context-dependent (Vatn 2007 p. 139-163). However, it should be noted that a few more utilitarian arguments for staying in NB were also

⁵¹ Participant 1: ”Motkrefter er tungt og jeg gidder jo ikke det, jeg har fått masse grå hår og blitt eldre og en eller annen gang så tar det jo slutt.”

⁵² Participant 5: ”i perioder har det nok på en måte vært vanskelig å finne nok positiv vekt for å vekke det igjen, liksom. Ikke fordi at de som... kan føre på med positivitet rundt det ikke er gode på det, men fordi det har vært, de som er negative er så vannvittig negative og jobber så aktivt for å være negative i tillegg.”

⁵³ This was also explicitly said by several of the participants.

mentioned: Their role in upholding the import protection; and the favorable insurance deals for members.

This close identification with the national farming community might explain why the participants find support in staying members of NB, even with its faults, and also why they are so frustrated with the lack of attention on their issues in the national farming community: They see themselves as members of the community but don't seem to find recognition from the rest of the community.

4.4.3. Welcome support

Even though many of the participants show self-sufficiency also in regards to the supporting qualities of the farming community and emphasize the importance of being happy with your own choices and your own situation above being recognized by others, they are affected by the supporting qualities to a degree. Several mention the importance of belonging to a community, having a network and getting positive support from like-minded producers locally and nationally. Several producers mention the positive trends in society going on at the moment, making this a good time both to be a vegetable producer and to be environmentally conscious.

Some degree of social security also seems to be important for the pioneers. If the farming community in general is not perceived as supportive enough, they find support in other communities: Their families, the community between organic farmers (for the organic producers), a national network of innovative producers or similar.

4.5. OTHER FACTORS

A few other factors besides the farming community came up during the interviews. Two of them seemed to be of great importance in the context of increased and more environment-friendly vegetable production in Norway: the market limitation and the time component. In this section, these two factors will be presented briefly. They will not be discussed thoroughly as that is judged to be outside of the scope of this thesis.

4.5.1. Market limitation

According to the participants, the biggest hindering force for increased and more sustainable vegetable production is the market limitation. They claim that there simply isn't enough demand for Norwegian vegetables, let alone a consumer demand for "sustainable practices" in the vegetable production. All the participants seem to agree that the farming community would have been easily able to produce more, and more sustainable, if there was a demand.

The participants think this is especially true for *organic* vegetables. Literature shows that establishing a demand for organic produce in the Norwegian market has been slow, one reason might be the perception that Norwegian farming is so clean that organic is unnecessary (Storstad & Bjørkhaug 2003). The participants proposed different solutions to this: Some think the authorities should take action, demanding an organic share of all public food purchase. Some think information and branding is what is needed. Some mentioned that they don't believe alternative food networks like farm shops, CSAs and reko-rings will be the future of organic vegetable distribution – and indeed they don't think it ought to be. One participant said that this will *inevitably* be the future, unless the authorities take action and the public sector starts buying organic. Several point to the trend in Denmark and much of Europe, where the organic market is growing rapidly, and think the same might happen in Norway given enough time.

The market limitation was also addressed during the workshop, and some of the participants feel that this factor is also linked to the farming community. They think the market and the grocery stores sees opportunities and are willing to change, but the farming community stops the development. They also believe it is closely linked with the perception that Norwegian farming is so clean, and thinks this perception hinders not only organic production, but all improvement in the sector. They wish for a paradigm change where the farming community starts working collectively on how to continuously improve, instead of just being comfortable with where they are at the moment.

4.5.2. Time

Many of the participants are optimistic about the future. They firmly believe that they are on the forefront of a development that is inevitably going to happen. “There is a revolution going on, no doubt about that. (...) I'm pretty sure that what we are learning now, regarding new ways of farm management, will be important and lead to quite large changes. (...) Green manure is becoming important, crop rotation, all these things are changes that mean a lot regarding e.g. binding more carbon and increasing soil humus content.”⁵⁴ Another says: “It takes a generation. I have become more patient, you know, I think it will all be fine in a generation.”⁵⁵

⁵⁴ Participant 9: “det er en revolusjon på gang, det er det ingen tvil om.(...) Hmm, jeg er ganske sikker på at det vi lærer oss nå, i forhold til nye måter å drive på, vil ha stor betydning og vil føre til ganske store endringer. (...) Dette med grønn gjødsling blir viktig, vekstskifte, alle disse tinga her er endringer som betyr veldig mye i forhold til både å binde mer karbon, øke det organiske humusinnholdet i jorda...”

⁵⁵ Participant 3: ” det tar en generasjon... Jeg har blitt mer tålmodig med åra, vettu, så jeg tenker at det tar en generasjon, så ordner det seg.”

4.6. PARTICIPANT SUGGESTIONS FOR FUTURE ACTION

The goal of the action suggestion session of the workshop was to let the participants point out areas of future action that they think are important and should have high priority. The four participants in the workshop did this by choosing two main challenges and proposing actions addressing them. The chosen challenges were: Lack of well-defined goals for sustainability in the agricultural sector; and changing attitudes towards sustainable practices and innovation in the farming community (Tables 5 and 6).

Table 5: Suggested actions for Goal 1.

<i>Goal 1: The development in the vegetable sector is guided by well-defined goals for sustainability</i>	
Action steps	Responsible
1. Make a definition/goal for assessment of sustainability	
a. Form a committee with members from different parts of the vegetable sector, researchers from NIBIO, market actors (and others)	Actors in the farming community. NLR or NIBIO or others could take the initiative.
b. Based on concrete, measurable qualities, the committee makes a “definition”/goal for sustainable vegetable production in Norway (these qualities could be e.g. carbon storing, recycling, CO ₂ -usage) ⁵⁶	The committee
2. Activity list/list of practices (tiltaksliste) for sustainable farming	
a. Based on the definition/goal, a list of practices considered helpful to reach the goal is suggested	The committee
b. The list is accepted by farmers’ organizations and market actors	The committee takes initiative; other actors in the farming community/action
c. The rules/keys for dividing production plans (GH and others) is adjusted to reward sustainable production in terms of adoption of the practices on the list	GH and other market regulators
3. Define goals/rules for public purchases based on sustainability	
a. Based on the definition and list of practices, public actors have to purchase a certain share of their food from sustainable sources.	Politicians; farmers’ associations can put pressure
b. In addition, there should be specific goals for organic purchase	Politicians; farmers’ associations can put pressure

⁵⁶ Example of “definition”/goal: “Norwegian vegetable production is carbon negative and recycles nutrients”

Proposed time schedule
<ul style="list-style-type: none"> - June 2019: Inputs for possible committee members are asked for in all relevant organizations/groups - October 2019: First committee meeting - June 2020: Sustainability definition is circulated for response (høring) - December 2020: The definition is accepted - June 2021: Activity list is circulated for response - December 2021: The activity list is accepted

Table 6: Suggested actions for Goal 2

<i>Goal 2: The farming community shows favorable attitudes towards sustainable practices and towards pioneer producers</i>	
Action steps	Responsible
1. Provide good arenas for knowledge sharing between producers	Collaboration between producers, NLR, farmers' associations / anyone can take the initiative
a. Identify relevant topics for knowledge sharing (e.g. different local challenges, pioneer challenges).	
b. Identify arenas that can be favorable (e.g. monthly/quarterly gatherings in a "neutral" space, farm visits, workshops)	
c. Decide on desired facilitation (e.g. by representatives from NLR or by producers)	
d. Invite producers, carry out, evaluate	
2. Build quality food knowledge in the population from early age	
a. Attention on food and sustainability in schools and kindergartens	Politicians, school and kindergarten employees
b. Collaboration between farmers' associations and schools. NB and individual farmers should establish collaborations with (local) schools to provide teaching on sustainability and food.	NB (and other farmers' associations), individual farmers, schools, politicians
c. Cooking activities in schools and kindergartens showing how to use and love a diversity of vegetables	Politicians, school and kindergarten employees
3. Find good arenas for teaching consumers	
a. Establish deals with influencers (previous examples of successful influencer collaboration: Buer lompe, berries in Sylling)	Farmers' associations, NLR
b. Provide food courses with a focus on vegetables and sustainability	Farmers' associations, anyone
Proposed time schedule	
<ul style="list-style-type: none"> - All these activities can be started immediately and carried out continuously. They only require that someone takes responsibility to do them. - Responsible people/groups are suggested in the action plan, but there are many different options as to who could take the responsibility for the actions. This can be new groups formed to carry out these actions, but it can also be already existing groups like gatherings within NLR or NB. 	

4.6.1. Discussion of the action plan for Goal 1: The development in the vegetable sector is guided by well-defined goals for sustainability

When the participants chose this goal as one of their priority areas of action, the background was that they think one of the main problems in the farming community today is the lack of clear goals and a clear common understanding of what sustainable farming entails. This leads to a slowness in the development. To get real force for a positive development, they feel that the paradigm that Norwegian farming is “perfect” the way it is⁵⁷ needs to be exchanged with common goals for improvement. In addition, they think this would be helpful in order to get the agricultural sector into the position it ought to have as an actor of sustainable development: “In the green shift, (...) the agricultural sector is the solution, just make a definition, show what the goal is, and then we can get there.”⁵⁸

“How we do farming around here”

The suggestion that creating a common understanding of the desired direction of development in the vegetable sector can contribute to mitigating the “backwardness” and changing the narrative of “perfect” Norwegian farming, finds support in classical institutional economics and the theory that the institution (norm) of “how we do farming around here” is important for controlling behavior (Vatn 2007). So if the actions proposed by the participants could succeeded in creating a common understanding of what is a desired development in the sector, this norm would probably be changed in the communities that adopted the new understanding, and new behavioral patterns could emerge.

Defining sustainability

An evident weakness with these suggested actions is the assumption that a useful definition of sustainability can easily be made. Research on sustainability commonly points out how hard it is to make clear definitions and measures of sustainability (see for instance Bell & Morse 2008). It is also sound to presume that one of the reasons why there does not exist a common definition for sustainability in the farming community already, is that it is very hard to come up with such a definition, even more with a definition that the whole farming community can agree on and that will also be accepted by other actors.

⁵⁷ See chapter 4.1.3 *Conflicts, competition and envy* for a discussion on this paradigm.

⁵⁸ Participant 3, during the workshop: “I det grønne skiftet, (...) det er landbruket som er løsninga, bare lage en definisjon, vise hva som er målet, og så kan vi komme dit.”

If these suggestions are to succeed, then, it seems important that the effort to create a common understanding of the desired direction of development should strive to be as concrete as possible, not trying to offer a holistic definition of sustainable farming, but merely a tangible goal for the development in the vegetable sector. In this way, it could be easier for many to comprehend and agree with what is being offered, and it could also give an even better basis for action than a more abstract definition.⁵⁹ Still, by using this “narrow” approach to sustainability, there is a risk of losing some issues and perspectives out of sight. Possible negative effects ought to be considered and, if possible, sought mitigated.

Relation to organic farming

Several initiatives that are trying to address the challenge of environmental sustainability in the vegetable sector already exist, and an objection to the suggested actions can be that it is unnecessary to make another set of “rules” for sustainability in addition to the ones already existing. For example, organic farming already offers a definition of sustainability and a list of practices/prohibitions that are thought useful to reach the goal of sustainable farming. There also exist many other forms of alternative farming, like climate smart farming, no tillage farming, natural farming and permaculture (see for instance Padmavathy & Poyyamoli 2011).

With regards to organic farming, the participants in this study seem to agree that a big expansion of organic production in the Norwegian vegetable sector is, at the moment, highly unlikely. The reasons for this is first and foremost that there is currently a low market demand for organic produce in Norway, but conflicts, and perceptions among farmers that organic farming isn't good, also play a significant role (see section 4.1.3).

The participants wish, instead of offering another alternative way of farming, to unify the forces within the vegetable producing community by creating a goal “everyone” can agree with. In this way they want to contribute to more environment-friendly production also in the mainstream majority, not only in the alternative minorities. They believe that most of the Norwegian vegetable production will happen on large-scale, conventional farms for a long time yet, and hope that also the conventional farming can become more environment-friendly.

⁵⁹ For example, if the committee agrees that the goal for Norwegian vegetable production should be “Norwegian vegetable production is carbon negative and recycles nutrients”, this is definitely a move towards a more environmentally sustainable sector, and at the same time it gives a clear direction for action. Based on this goal, it is possible to make a list of concrete practices that most can agree are likely to help reaching the goal.

If the actions proposed by the participants should manage to reform the whole sector instead of just becoming another form of “alternative agriculture”, it is important that it succeeds in actually changing the underlying norms instead of just introducing a set of new rules and practices (see the discussion above). This might be done by avoiding a complex set of rules and regulations, and instead aim at providing an overarching direction of development combined with some concrete suggestions for actions that can contribute to that development. It is also crucial to aim at a broad agreement between many different actors in the farming community when forming the goal.

Regulation and follow-up

Another issue is how this new goal and the list of practices will be followed up and regulated. Will there be need for a new certification regime to control that whoever claims to work towards the goal actually does what they say, as there is for organic farming today? This is a real challenge that would need to be addressed by the committee (or anyone else working to implement the actions), especially since it is embedded in the action suggestions that both public purchase and distribution of production plans should be based on the level of adoption of the practices on the list.

However, the rules and regulations for organic farming are much more detailed and complex than what the participants desire for this goal. As this action should not aim at making a detailed regulation that the farmers need to follow, the need for costly certification regimes would be limited. But there would still be a need for some specification of how the goal should be followed up. In the process of making the list of practices, it would thus be important to make it easy to assess.

Rule vs. value orientation

The theory of “conventionalization” of organic farming claims that over time, organic farming is in danger of losing its idealistic base and become another form of conventional agriculture (see for instance Buck et al. 1997; De Wit & Verhoog 2007; Guthman 2004). This theory claims that there is a risk in turning from value-orientation to rule-orientation, that can lead to less efficient or sustainable practices. According to this mindset, Goal 1 could be criticized for having the same weakness of being too rule oriented instead of value oriented.

This might be a valid critique, since the goal is very much focused on “the edges”, on setting borders or frames, instead of on “the center”, on values and attitudes. However, the participants in this study claim that the values and attitudes of farmers are to a large extent influenced by external events like policies, regulation and market demands (see the discussion on this in the next section). If this is true, an overarching goal for the development in the sector could actually contribute to changing the attitudes in the farming community and establishing more favorable values, instead of falling into the “conventionalization pit” of rule orientation.

In addition, the conventionalization theory is also contested, and not all studies find that conventionalization happens inevitably (see for instance Lockie & Halpin 2005; Sutherland 2013).

Power structures

The committee will have much power in the suggested actions for Goal 1, and securing a representative committee that has broad accept in the farming community, the market and in the public sectors will be crucial for the actions to succeed. Doing a thorough job in preparation and in forming the committee would therefore be important.

Feasibility

It is not easy to foresee whether or not the implementation of these suggested actions will be feasible. There are many clear challenges as described in this discussion, the two strongest ones probably being 1) the challenge of defining sustainability and 2) how the goal and activity list will be implemented and followed up. However, the suggested actions build heavily on one of the supporting qualities perceived by the participants in this study: that innovation is a strong value in the farming community. Also, *now* seems to be a good time for doing this kind of work as sustainability is highly valued and much thought of in the society in general, e.g. through the high attention on the UN sustainability goals in many sectors of the society.

4.6.2. Discussion of the action plan for Goal 2: The farming community shows favorable attitudes towards sustainable practices and towards pioneer producers

The background for these suggested actions was that both groups saw a need for changed attitudes towards new sustainable farming practices (like composting, green manure, cover cropping) and towards innovation (by recognizing the importance of the pioneer producers) in the farming community. These issues were combined for a common action strategy.

External events influencing farming community attitudes

The group proposed that the attitudes in the farming community are to a large extent formed by external events, like market demand and policies. Thus, they emphasized that reaching Goal 1 could contribute to reaching Goal 2 both because the attitudes in the farming community would conform to the new common goal for development, and because the new common goal would increase the attention on greens and the environment from both the government and NB. In addition, they proposed two actions aimed outside of the farming community, at consumers and the general population, because this could influence market demand and policies, which again would influence the attitudes in the farming community. “I believe that, in order to change attitudes in the farming community, it’s not enough with the producers, but everybody. Even the kids in kindergarten.”⁶⁰

This understanding is supported by studies showing that *clear policy signals from the government* and *positive market signals from market actors* are key factors for changing farmers’ practices and attitudes (Lampkin 1999; Padel et al. 1999)⁶¹. If the proposed actions succeed in creating a higher market demand for sustainable vegetables, it is thus likely that they would, as a consequence, succeed in changing the farmers’ attitudes towards sustainable practices and sustainability innovation.

⁶⁰ Producer 5, during the workshop: “jeg tror for å endre holdninger i landbruket holder det ikke at bare produsentene blir gode på det, men alle sammen. Også barna i barnehagen.”

⁶¹ Both Lampkin (1999) and Padel et al. (1999) studied conversion from conventional to organic farming. This study is not primarily about conversion to organic agriculture, but it is likely that the same mechanisms apply to “conversion” to other forms of environment-friendly production.

Information diffusion

All the suggested actions for Goal 2 deal with information transfer. According to Rogers (2003), information is a crucial part of the innovation diffusion process, and this is supported by Lampkin (1999) and Padel et al. (1999) who put access to information as the third key factor for changing farmers' practices and attitudes, in addition to the two mentioned above.

For the first action step, the goal is to share information about sustainable practices within the farming community. For the 2nd and 3rd action steps, the "innovation" in focus is increased consumption of healthy, fresh, sustainable, Norwegian vegetables. This innovation, albeit different from the more technical innovation of new farming practices, is also dependent on information transfer, but among consumers and the general population, not specifically within the farming community. In terms of the diffusion of innovations theory, we can say that the proposed activities can contribute to building more efficient *communication channels* for diffusion of the two different innovations (Rogers 2003).

The action suggestions propose mainly *interpersonal* communication channels (engaging influencers being the exception), like face-to-face meetings between producers, and school farm visits. Interpersonal communication channels are thought to be the most efficient to promote innovation adoption, because making a decision to adopt a new technology, for most people depends strongly on the experiences of near peers (Rogers 2003 p. 19).

Education of children

Action step 2, aimed at transferring information and building knowledge in the general population and consumers, is addressed to schools and kindergartens. Studies have shown that children who engage in different food related activities during school hours are more likely to eat healthier and more sustainable. These activities include school gardening, cooking, and farm visits (see for instance Jones et al. 2012; Joshi et al. 2008; Libman 2007; McAleese & Rankin 2007; Morris et al. 2001; Walters & Stacey 2009). Thus, we see that there is support in literature for the proposed action, and it is likely that this action could lead to changed attitudes and more conscious demand among the consumers (starting with the school children and their families). This could again lead to changed attitudes in the farming community, cf. the discussion above. In addition, the supportive aspect of being appreciated by the consumers was emphasized by several of the participants in the study, as a social support and a motivation for production. This can also help in mitigating the hindering quality *lack of attention*, at least from some actors.

Knowledge sharing within the farming community

The suggested action of providing arenas for knowledge sharing must be seen in relation to a desire expressed by the group to build a culture of knowledge sharing without fear of competition (see chapter 2.2.1). Even though there can be local variations, this seems to be happening already in the farming community many places: NLR organizes field days for and with farmers; and the findings from this study suggests that there are at least some producers who are eager to share and spread knowledge. However, since the participants suggest this action, it might mean that they feel there is still room for improvement.

Vatn (2007), in his institutional economics, points to the importance of building favorable social contexts to facilitate cooperative or environmentally sound behavior. Providing good arenas for knowledge sharing between producers can be a step in building these social contexts, and not only improve information diffusion, but also increase social cohesion and favorable relations within the community. In this way, it can mitigate the hindering quality *conflicts, competition and envy* identified in this study, and enhance the supporting qualities *professional support* and positive networks between producers.

Feasibility

The actions suggested for Goal 2 are quite vague and will thus need local adaptation and effort to be carried out. This might be a strength, in so far as the actors who want to carry them out are very free to decide how they want to form them. However, it might also make it harder to adopt and act on the suggested actions, as there are no clear suggestions for how to carry them out. Translating the suggestions to real life will require not only that somebody takes responsibility to be the active agent, but also some effort of adaptation.

4.6.3. Implementation

A weakness with all the action suggestions presented here is that they address many different actors without including a strategy for how to make these actors get ownership and take action. If somebody wants these suggestions to be put into action, finding a way to introduce the actors to the suggestions and make them take ownership might be an important first step. In addition, since these suggestions come from such a small group of people, validating the suggestions in a larger forum of different stakeholders in the farming community could be important, before trying to implement them.

5. CONCLUSION

In this thesis, I have argued that the farming community is perceived by the participating pioneer vegetable producers as both a hindrance and a support for increased and more environment-friendly vegetable production in Norway.

The qualities of the farming community that are perceived as hindering include a “backwardness” and a resistance to development in some individual producers and in organizations like Norges Bondelag (NB); a lack of attention on vegetables and environmental concerns in the farming community both locally and nationally; and personal opposition and conflicts stemming from envy or from conflicting perceptions of farming.

The qualities that are perceived as supporting include an innovativeness perceived as a strong value in many parts of the farming community; professional support and supportive networks between producers (especially pioneer producers); and well-functioning national structures like farmers’ associations and campaigns.

The participants are differently affected by the farming community in their lives and choices. The more ambitious are more exposed to different social control mechanisms than the less ambitious. Different *producer environments* impact how the participants are hindered or supported in their local communities, and the participants differ in regards to how much they care about input from others.

The four workshop participants suggested two areas of action to increase the supporting and decrease the hindering qualities of the farming community: Making well-defined goals for sustainability to guide the development in the vegetable sector; and building more favorable attitudes in the farming community towards sustainable practices and towards innovators. The actions build on all the identified supporting qualities. They especially seek to mitigate the hindering qualities of “backwardness” and of conflicts, but could also result in more attention on environmental issues in the vegetable producing community, and in more attention on vegetables in the farming community at large.

The results suggest that, for the Norwegian vegetable production to increase and become more environment-friendly, emphasis on building good producer environments can be a fruitful approach. However, the *market limitation* seems to be the single most important factor for increased and more environment-friendly vegetable production in Norway, and further work is needed to increase the knowledge about this factor and how it can be mitigated.

BIBLIOGRAPHY

- Ashraf, J., Pandey, R., de Jong, W. & Nagar, B. (2015). Factors Influencing Farmers' Decisions to Plant Trees on Their Farms in Uttar Pradesh, India. *Small-scale Forestry*, 14 (3): 301-313.
- Avant, G. R. & Knutsen, K. P. (1993). Understanding cultural differences: Janteloven and social conformity in Norway. *ETC: A review of general semantics*: 449-460.
- Bell, S. & Morse, S. (2008). *Sustainability indicators: measuring the immeasurable?* 2nd ed. London: Routledge.
- Bernard, H. R. (2011). *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. United States: Altamira Press.
- Boz, I. (2018). Determinants of farmers' enrollment in voluntary environmental programs: evidence from the Eregli Reed Bed area of Turkey. *Environment Development and Sustainability*, 20 (6): 2643-2661.
- Bromgard, G., Trafimow, D. & Linn, C. (2014). Janteloven and the Expression of Pride in Norway and the United States. *Journal of Social Psychology*, 154 (5): 375-378.
- Buck, D., Getz, C. & Guthman, J. (1997). From farm to table: The organic vegetable commodity chain of Northern California. *Sociologia ruralis*, 37 (1): 3-20.
- Budsjettnemnda for jordbruket (2017). Totalkalkylen for jordbruket - Jordbrukets totalregnskap 2015 og 2016, Budsjett 2017.
- Burton, R. J. (2004). Seeing through the 'good farmer's' eyes: towards developing an understanding of the social symbolic value of 'productivist' behaviour. *Sociologia ruralis*, 44 (2): 195-215.
- Burton, R. J., Kuczera, C. & Schwarz, G. (2008). Exploring farmers' cultural resistance to voluntary agri-environmental schemes. *Sociologia ruralis*, 48 (1): 16-37.
- De Wit, J. & Verhoog, H. (2007). Organic values and the conventionalization of organic agriculture. *NJAS - Wageningen Journal of Life Sciences*, 54 (4): 449-462.
- Diederer, P., Meijl, H. V., Wolters, A. & Bijak, K. (2003). Innovation adoption in agriculture : innovators, early adopters and laggards. 67: 29-50 (accessed: 2003).
- Dolisca, F., Carter, D. R., McDaniel, J. M., Shannon, D. A. & Jolly, C. A. (2006). Factors influencing farmers' participation in forestry management programs: A case study from Haiti. *Forest Ecology and Management*, 236 (2-3): 324-331.
- Duram, L. A. (2000). Agents' perceptions of structure: How Illinois organic farmers view political, economic, social, and ecological factors. *Agriculture and Human Values*, 17 (1): 35-48.
- Fairweather, J. R. (1999). Understanding how farmers choose between organic and conventional production: results from New Zealand and policy implications. *Understanding*

how farmers choose between organic and conventional production: results from New Zealand and policy implications (1): 51-63.

Gladheim, A. (2018). *Høring i Stortinget: Norsk frukt og grønt har lavt klimaavtrykk og et stort vekstpotensial*, 2019, 18th January.

Gopal, K. (2004). Janteloven, the antipathy to difference; looking at danish ideas of equality as sameness. *Cambridge Anthropology*: 64-82.

Graneheim, U. H. & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today*, 24 (2): 105-12.

Guthman, J. (2004). The trouble with 'organic lite' in California: a rejoinder to the 'conventionalisation' debate. *Sociologia ruralis*, 44 (3): 301-316.

Hojrup, T. (1983). The concept of life-mode: A form-specifying mode of analysis applied to contemporary western Europe. *Ethnologia Scandinavica Lund*: 15-50.

Hojrup, T. (2003). *State, culture and life-modes : the foundations of life-mode analysis*. Aldershot: Ashgate.

Johnson, N. L., Lilja, N. & Ashby, J. A. (2003). Measuring the impact of user participation in agricultural and natural resource management research. *Agricultural Systems*, 78 (2): 287-306.

Jones, M., Dailami, N., Weitkamp, E., Salmon, D., Kimberlee, R., Morley, A. & Orme, J. (2012). Food sustainability education as a route to healthier eating: evaluation of a multi-component school programme in English primary schools. *Health education research*, 27 (3): 448-458.

Joshi, A., Azuma, A. M. & Feenstra, G. (2008). Do farm-to-school programs make a difference? Findings and future research needs. *Journal of Hunger & Environmental Nutrition*, 3 (2-3): 229-246.

Koesling, M., Flaten, O. & Lien, G. (2008). Factors influencing the conversion to organic farming in Norway. *International Journal of Agricultural Resources, Governance and Ecology*, 7 (1-2): 78-95.

Lampkin, N. (1999). Converting Europe-the potential for organic farming as mainstream.

Libman, K. (2007). Growing youth growing food: How vegetable gardening influences young people's food consciousness and eating habits. *Applied Environmental Education and Communication*, 6 (1): 87-95.

Lockeretz, W. (2007). What explains the rise of organic farming. *Organic farming: An international history*: 1-8.

Lockie, S. & Halpin, D. (2005). The 'Conventionalisation' Thesis Reconsidered: Structural and Ideological Transformation of Australian Organic Agriculture. *Sociologia Ruralis*, 45 (4): 284-307.

- Lähdesmäki, M., Siltaoja, M., Luomala, H., Puska, P. & Kurki, S. (2018). Empowered by stigma? Pioneer organic farmers' stigma management strategies. *Journal of Rural Studies*.
- Läpple, D. & Rensburg, T. V. (2011). Adoption of organic farming: Are there differences between early and late adoption? *Ecological Economics*, 70 (7): 1406-1414.
- Mariola, M. J. (2005). Losing ground: Farmland preservation, economic utilitarianism, and the erosion of the agrarian ideal. *Agriculture and Human Values*, 22 (2): 209-223.
- McAleese, J. D. & Rankin, L. L. (2007). Garden-based nutrition education affects fruit and vegetable consumption in sixth-grade adolescents. *Journal of the American Dietetic Association*, 107 (4): 662-665.
- McGreevy, S. R. (2012). Lost in translation: incomer organic farmers, local knowledge, and the revitalization of upland Japanese hamlets. *Agriculture and Human Values*, 29 (3): 393-412.
- Mendez, V. E., Bacon, C. M. & Cohen, R. (2013). Agroecology as a Transdisciplinary, Participatory, and Action-Oriented Approach. *Agroecology and Sustainable Food Systems*, 37 (1): 3-18.
- Miller, C. T. & Kaiser, C. R. (2001). A theoretical perspective on coping with stigma. *Journal of Social Issues*, 57 (1): 73-92.
- Morris, J., Neustadter, A. & Zidenberg-Cherr, S. (2001). First-grade gardeners more likely to taste vegetables. *California Agriculture*, 55 (1): 43-46.
- Morthen, E. (2018). Legg til rette for norsk vekst. *Nationen*.
- Murray, C. E. (2009). Diffusion of Innovation Theory: A Bridge for the Research-Practice Gap in Counseling. *Journal of Counseling and Development : JCD*, 87 (1): 108-116.
- Nitsch, U. (1990). Farmers and computers. In *Artificial Intelligence, Culture and Language: On Education and Work*, pp. 115-126: Springer.
- Padel, S., Lampkin, N. & Foster, C. (1999). Influence of policy support on the development of organic farming in the European Union. *International planning studies*, 4 (3): 303-315.
- Padel, S. (2001). Conversion to organic farming: a typical example of the diffusion of an innovation? *Sociologia ruralis*, 41 (1): 40-61.
- Padgitt, S. & Petrzela, P. (1994). Making sustainable agriculture the new conventional agriculture: social change and sustainability. *Sustainable agriculture systems*: 261-285.
- Padmavathy, K. & Poyyamoli, G. (2011). Alternative farming techniques for sustainable food production. In *Genetics, Biofuels and Local Farming Systems*, pp. 367-424: Springer.
- Reason, P. & Bradbury, H. (2005). *Handbook of Action Research: Concise Paperback Edition*: SAGE Publications.
- Rigby, D., Woodhouse, P., Young, T. & Burton, M. (2001). Constructing a farm level indicator of sustainable agricultural practice. *Ecological Economics*, 39 (3): 463-478.

- Rogers, E. M. (2003). *Diffusion of innovations*. 5th ed. ed. New York: Free Press.
- Sandemose, A. (1933). *En flyktning krysser sitt spor: fortelling om en morders barndom*, vol. 28: Gyldendal.
- Scheyvens, R. (2014). *Development Field Work: A Practical Guide*. 2 ed. Los Angeles: Sage. 288 pp.
- Schoon, B. & te Grotenhuis, R. (2000). Values of Farmers, Sustainability and Agricultural Policy. *Journal of Agricultural and Environmental Ethics*, 12 (1): 17-27.
- Storstad, O. & Bjørkhaug, H. (2003). Foundations of production and consumption of organic food in Norway: common attitudes among farmers and consumers? *Agriculture and human values*, 20 (2): 151-163.
- Sutherland, L.-A. (2013). Can organic farmers be ‘good farmers’? Adding the ‘taste of necessity’ to the conventionalization debate. *Agriculture and Human Values*, 30 (3): 429-441.
- Taylor, D. C., Mohamed, Z. A., Shamsudin, M. N., Mohayidin, M. G. & Chiew, E. F. (1993). Creating a farmer sustainability index: a Malaysian case study. *American journal of alternative agriculture*, 8 (4): 175-184.
- Vatn, A. (2007). *Institutions and the Environment*: Edward Elgar Publishing, Incorporated.
- Vedeld, P., Krogh, E. & Vatn, A. (2003). *Good agronomy. Social institutions among Norwegian farmers and public sector governance*. XX ESRS Congress. Sligo, Ireland.
- Walters, L. M. & Stacey, J. E. (2009). Focus on food: development of the Cooking with Kids experiential nutrition education curriculum. *Journal of nutrition education and behavior*, 41 (5): 371-373.
- Yin, R. K. (2009). *Case study research: Design and methods (applied social research methods)*. London and Singapore: Sage.
- Zhang, J., Manske, G., Zhou, P. Q., Tischbein, B., Becker, M. & Li, Z. H. (2017). Factors influencing farmers’ decisions on nitrogen fertilizer application in the Liangzihu Lake basin, Central China. *Environment, Development and Sustainability*, 19 (3): 791-805.

APPENDICES

A: INTERVIEW GUIDE

About the farm:

- Size of the farm
 - o How much is owned and leased?
- Production (which vegetables)
- Customers/who they deliver to
- How many employees

Are environmental issues a motivation?

- Open question about what motivates them
- Direct question about environmental issues / climate issues as a motivation
- Why do you have these motivations?
- Presenting the two broad categories of motivation: Pragmatic and idealistic. Invite to reflect on where they are between those categories.
- What goals do you have for the farm in the future?

General questions:

- Either: OK, so you are trying to be environment-friendly. What is it like/how is it? Simple/hard?
- Or: OK, you are using these farm management practices because they work/it is demanded by the market/your soil needs it etc (based on the earlier conversation): What is it like to be an organic farmer/use these new practices?
- What makes it hard? Why?
- What makes it easy? Why?

The farming community locally/regionally:

- How do you perceive other farmers around here to think about the way you farm? Does someone think the same way as you? Does someone think differently? Are somebody openly positive/negative?
- How do other farmers think about environmental issues compared to how you think about them? (How are other farmers' attitudes towards environmental issues compared to yours?)
- Is there a difference between how different farmers are thinking? (Animals/grains/vegetables etc). Why do you think it is like this?

- Is there a difference in relation to geography? Do farmers close by think differently than farmers further off?
- Mention 1-3 things you find frustrating/hindering about the farming community locally or in the region.
- Mention 1-3 things you find supportive.

The farming community nationally:

- Do you read any farming-related newspapers/magazines? Which ones? Why? How do you feel about focus on vegetables and the environment there?
- How do you feel about the focus on vegetables and the environment in the national agricultural negotiations (jordbruksforhandlingene)? Why?
- Other political processes?
- Are you a member of any farmers' or producers' associations? Which ones? Why/why not? How do you feel about the focus on vegetables and the environment in those?
- Are there any other national structures that affect you/are important? Which, and why? (This question often included talking about NLR.)

How the farming community affects the participant and their choices.

- These things we have been talking about – how do you feel they affect/influence you? Motivation, thoughts about the future, self-esteem, general "happiness"
- Does it influence which choices you make?
- If things were different, would you have felt differently? Would you have chosen differently?

Evaluation:

- Does this factor – the farming community – feel relevant at all?
- Are there other factors that are more important?
- Is there anything I didn't ask about that I should have asked about / anything you want to add?
- Do you have any questions to me?

B: WORKSHOP SCHEDULE

5th March 2019, Gjennestad

9.00-9.30: Coffee and round of presentations. Ice breaker.

9.30-10.15: Presentation of findings, feedback

10.15-10.30: Break

10.30-11.20: Workshop: The future.

- 10 min: Presenting the sentences. 2 min quiet reflection. Validating the sentences – are they correct? Do they need to be changed? Should someone be removed? Should something be added?
- 20 min: Group work: Rank the sentences from most important to least important. Present.
- 20 min: The participants choose one of the most important sentences for each group to work on. Group work: Identify hinders preventing us from getting to the goal (the chosen sentence)

11.20-11.30: Break

11.30-12.20: Workshop: How to overcome the hinders

- 20 min: Group work: Identify action steps to overcome the hinders. What, who, when & supporting factors.
- 30 min: Presentation and discussion

12.20-12.30: Break

12.30-13.00: Wrap-up, final comments, evaluation

13.00: Lunch

C: SENTENCES FOR RANKING

The sentences that were ranked are presented in Table ? below, categorized in accordance with the three main hindering qualities of the farming community. The different rankings made by the two groups are presented below.

Table ?: The sentences handed out to the workshop participants for ranking. The three sentences that were added during the conversation are written with red letters.

Backwardness	Lack of focus	Conflicts, competition and envy	Other
More effort on sustainable solutions from research (e.g. cooperation with the waste industry on fertilizer products)	More focus from the government (e.g. "Foregangsfylke", goals for public purchases, goals for organic production)	Develop networks between us large, more or less like-minded producers	Increased consumption of Norwegian vegetables
Increased awareness about the importance of pioneer producers in the farming community	More focus on greens and the environment in NB	Better communication between organic and conventional knowledge	
Changed attitudes towards environment-friendly practices in the farming community (e.g. composting, green manure, cover cropping)	More focus on greens and the environment in the agricultural journalism	Increase knowledge and share existing knowledge	
	Better service in NLR (e.g. easier to access the right people)	Build a culture for cooperation	
	Well-defined goals for sustainability		

Group 1 (participants 1 and 3):

1. Well-defined goals for sustainability
2. More effort on sustainable solutions from research (e.g. cooperation with the waste industry on fertilizer products)
3. Increased awareness about the importance of pioneer producers in the farming community
4. More focus from the government (e.g. "Foregangsfylke", goals for public purchases, goals for organic production)

5. More focus on greens and the environment in NB
6. Changed attitudes towards environment-friendly practices in the farming community (e.g. composting, green manure, cover cropping)
7. Increase knowledge and share existing knowledge
8. Build a culture for cooperation
9. Develop networks between us large, more or less like-minded producers
10. More focus on greens and the environment in the agricultural journalism
11. Better communication between organic and conventional knowledge
12. Increased consumption of Norwegian vegetables
13. (Better service in NLR (e.g. easier to access the right people))

Group 2 (participants 5 and 7):

1. Well-defined goals for sustainability
2. Changed attitudes towards environment-friendly practices in the farming community (e.g. composting, green manure, cover cropping)
3. More focus from the government (e.g. "Foregangsfylke", goals for public purchases, goals for organic production)
4. Increased awareness about the importance of pioneer producers in the farming community
5. More effort on sustainable solutions from research (e.g. cooperation with the waste industry on fertilizer products)
6. Develop networks between us large, more or less like-minded producers
7. Increase knowledge and share existing knowledge
8. Build a culture for cooperation
9. Better communication between organic and conventional knowledge
10. Better service in NLR (e.g. easier to access the right people)
11. More focus on greens and the environment in the agricultural journalism
12. More focus on greens and the environment in NB
13. Increased consumption of Norwegian vegetables

D: ACTION PLANNING RESULTS

Group 1 (participants 1 and 3):

Goal: Well-defined goals for sustainability in the vegetable sector

Hinders:

- Definition, for assessment of sustainability (CO₂-storage, recycling, CO₂-usage)
- To-do-list (tiltaksliste) for sustainability in the agricultural sector (professional support, change of practice)
- Focus on sustainability in NB and jordbruksforhandlingene
- Rewarding the innovators and spearheads!
- Buying regimes from the state with sustainability as a goal → increased focus for market access
- CO₂-footprint, market organization

Hinder: CO₂-footprint

What should be done?	Who should do it?	When should it be done?	Supporting factors
Make a definition for assessment of sustainability	The agricultural sector and NIBIO	By 2020	The global sustainability goals (UN)
To-do-list for sustainable farming	The agricultural sector, FoU, NB	By 2021	The global sustainability goals (UN)

Hinder: Buying regimes from the state

What should be done?	Who should do it?	When should it be done?	Supporting factors
Define goals/rules for state purchases based on sustainability	The agricultural sector NIBIO NB	By 2020	Leading producers
Raising awareness about the importance of state purchases			

Group 2 (participants 5 and 7):

Goal: Changed attitudes in the farming community: Towards environment-friendly practices and towards the spearhead function

Hinders:

- Clear political strategies with clear goals for sustainability
- Increasing knowledge
- More focus from the government
- More focus on greens and the environment in NB

Hinder: Knowledge

What should be done?	Who should do it?	When should it be done?	Supporting factors
Provide good arenas for knowledge sharing between producers	NB, NLR, smaller groups of producers	ASAP	
Build a culture with a focus on knowledge building without fear of competition	Producer organizations, customers	ASAP	
Build quality food knowledge in the population from an early age	Education – schools, kindergartens	ASAP	
Focus on good arenas for teaching consumers	Influencers Food courses Adult teaching	ASAP	

E: REFLECTION NOTE

In the thesis instructions for the MSc Agroecology program, the students are asked to write a section for the appendices, reflecting on “the content and process of your thesis work” and on “your own learning and the quality of your thesis”. This note includes my thesis reflection.

During the course of this semester, I have gained experience with doing research, all the way from planning a research project, interaction with supervisors, literature studies, data gathering in the field, and writing an academic text presenting and discussing the findings. Throughout the process, I have kept a reflective field journal helping me to stay aware of the process, my role(s) and conduct in relation to the different actors involved, and my own learning experience and development throughout the semester. This note builds on my experiences as documented in my reflection journal.

Stepping into the role of a researcher has been an interesting learning experience. Some of the tasks I have enjoyed greatly, others less. The field work was my favorite part of the research project, especially doing the interviews but also executing the workshop. The reason why I enjoyed this part so much was that it was a challenge, so big that I really had to stretch in order to manage it, but where my skills, competencies and strengths were enough to manage in a good way. I am very happy with the quality of my field work and the data produced.

My biggest challenge has probably been to fit my research into existing academic debates. I long tried to find *one* academic debate that my research could contribute nicely to, but ended up using literature from different academic branches and debates. For me, this was a new way to work, and has allowed me to see that there are other ways of doing research than comparing one’s own findings with *one* existing framework. I have also learned a lot about doing literature search, and read many interesting articles – both relevant to my work and not.

Another challenge was finding a suitable form for treating the findings from the workshop (second part – action suggestions). With differing opinions from my supervisors, and myself new to this kind of work in academic settings, that section demanded some writing and re-writing before I was satisfied. I still think it is a challenging format and I’m not convinced I would include the same kind of work if I were to conduct another research project. However, I believe the section as it stands is fine, and that I was eventually able to do the participants’ action suggestions justice while staying true to my own academic professionalism. Thus, I am

satisfied with the result, even though it is probably less concrete and action-oriented than what some of my participants would wish.

I am very happy with the choice I made to involve actors in the field and the participants in different parts of the project. I particularly believe that having the participant validate the interview findings during the workshop has increased the quality of the thesis.

To me, the semester has been rather long and lonely. What I enjoyed the most was interacting with study participants and actors in the field, but what I spent most time doing was sitting at my desk looking for literature or writing. In hindsight, I see that a more social working form might have suited me better. For my next research project, I want to try to work more in a team, if possible working even closer with field actors and using more participatory methods.



Norges miljø- og biovitenskapelige universitet
Noregs miljø- og biovitenskapelige universitet
Norwegian University of Life Sciences

Postboks 5003
NO-1432 Ås
Norway